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WOODNEWS

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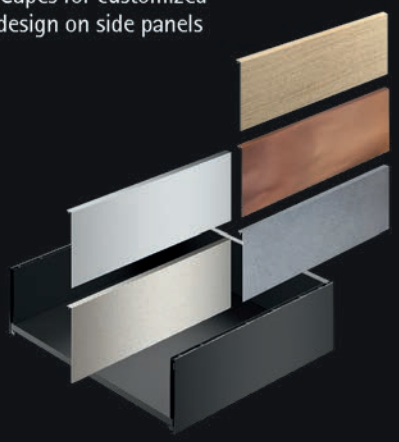
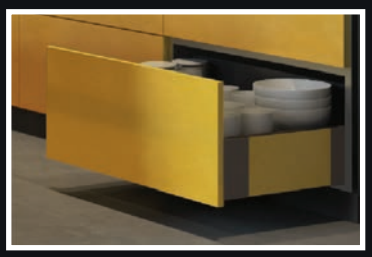


Design Profiles in multiple finishes & shades



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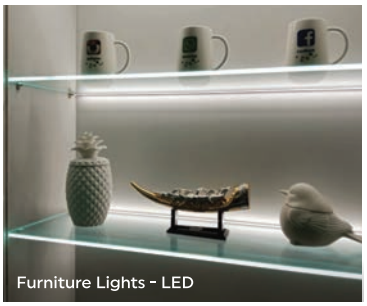
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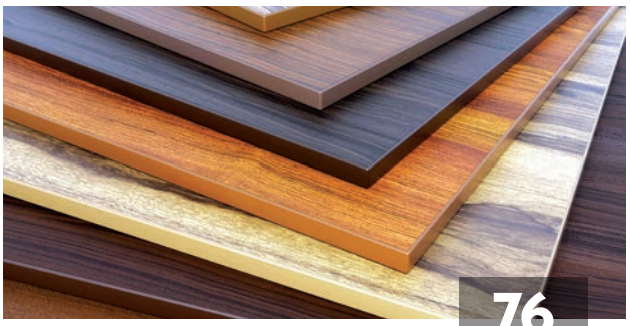

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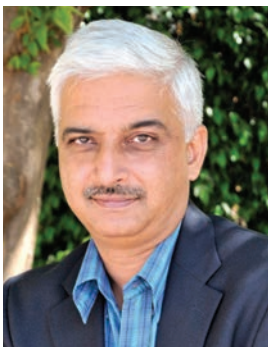

EDITOR

DHANANJAY SARDESHPANDE

Art by design and other interesting stuff

Hello Readers,

Sanding is the beginning of the finishing process in woodworking and panel production. Good sanding is the base for optimal impregnation, appropriate adhesive, paint, coating and polishing applications. Like I say, good sanding is an art, but it is a much studied, experimented upon and scientifically designed process. Read on to see what's new in this issue of the magazine.

The CEO of Mumbai-based Caple Industrial Solutions, Satyan Thukral, has put his money where his mouth is. An enthusiastic votary of 'sales through education', he has led Caple's investment in a new demo centre in Nalasopara, near Mumbai, which will also be a learning facility for the furniture manufacturing ecosystem in India. The not-for-profit project, which he rightly calls the 'Power of Collaboration', is spread across 13,000 square feet and seeks to fill the ever-widening scarcity of skilled manpower and managers to drive the industry's growth. See what he is up to in the pages inside.

Hettich, one of the largest manufacturers of furniture fittings in the world, is all set to ramp up its manufacturing capabilities in India to cater to the Indian and international markets. The family-owned legacy brand of 135 years performed the ground-breaking ceremony for its fifth manufacturing plant in India, in Indore (Madhya Pradesh). The Hettich Group is on a mission to make India its next big manufacturing hub, after Germany, with investments of 700 crore over the next 3 years. Read more about Hettich's plans inside.

Considered to be one of the oldest building materials, architects, interior designers and real estate developers are seeking out wood not just for the aesthetics it has to offer, but also for its inherent biophilic attributes that help inhabitants connect with nature. Canadian Wood is helping Indian architects incorporate elements of the natural world into their designs in homes, offices and public spaces.

Technology-enabled, business-to-business e-commerce platforms are increasingly emerging to bridge the gap between material manufacturers and suppliers on the one hand, and project consultants and operators in the construction, interiors and furniture industries on the other. *WoodNews* spoke with Mr Shekhar ChandraSati, Chief Operating Officer of the wood vertical at Infra.Market, to assess the USP of his business. Happy reading!

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We look forward to hearing from you soon!

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Caple taps into the 'Power of Collaboration'

New demo-cum-learning facility near Mumbai takes 'Skill India' initiative to a new level, gets recognised as 'Centre of Excellence' by the Furniture and Fittings Skill Council

The 13,000-square-foot new facility hosts Caple's range of products, as well as those from other material and technology suppliers.

Mumbai-based Caple Industrial Solutions needs no introduction. It has been a stellar machinery trading house in Indiasince 1974. Now Satyan Thukral, its CEO, has put his money where his mouth is.

Ever avotary of education and upskilling in furniture manufacturing, Satyan has led Caple's investment in anew demo centre in Nalasopara, near Mumbai, which will also be a learning facility for the furniture manufacturing ecosystem in India.

The not-for-profit project is spread across 13,000 square feet. It came about to fill the ever-widening gap between the demand for modern, mechanised and automated manufacturing of furniture in India and the scarcity of skilled manpower and managers to drive the industry's growth.

"The power of collaboration," Satyan says, "stems from the opportunities various other industry players – be it technology and service providers or material and components suppliers – to use this facility to display their products for their clients, train their employees and help manufacturers upscale and modernise their production."

A large number of top leaders from the industry – architects and contractors, machinery and material suppliers, and educational and training organisations – were present at the inauguration.

Already the new facility has attracted non-financial support from the Italian machinery manufacturer, SCM Group, and Forestry Innovation Consulting-India, the British Columbia (Canada) government's consultancy arm, better known as Canadian Wood.

The Centre of Excellence will soon offer short-and long-term courses for carpenters, machine operators and service staff, as well as for sales and managerial talent.

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(L-R) Pranesh Chhibber, Country Head for Canadian Wood, poses with Caple's Satyan Thukral and Rahul Mehta, CEO of the Furniture Fittings and Skill Council. (R) Canadian wood species have been skillfully utilised for crafting classroom and training spaces, elegant counters, exquisite paneling and captivating wood interiors.

The project has also won recognition from the Furniture and Fittings Skill Council of India (FFSC) as a 'Centre of Excellence'. Caple already has seven demo centres across India. It has an army of sales and service personnel in all regions of the country to cater to its clients.

Skilling strategy

Caple has been a proactive partner of the FFSC's 'India Skills' and 'World Skills' competitions. Its representative also sits on the Governing Board of the FFSC, to formulate programmes for skilling carpenters, machine operators and managers.

The Centre of Excellence will soon be offering short- and long-term courses for carpenters, machine operators and service staff, as well as for sales and managerial talent. Apart from theoretical education, students here will also be able to gain hands-on skills and experience on machinery and materials.

The topics extend from sawing and joinery, sanding and coating, to edge banding and lamination, and understanding solid wood and panel processing.

Satyan says: "India's strategy should be value-based skilling and value-based selling. India can and should integrate handicrafts with modernisation. China is not interested in this business model; and the West cannot afford this business model. India, with its value addition and mass customisation, can sell at a higher price than China."

He adds, "China has the strength of volume and is considered the factory of the world, whereas the West has the strength of research and development. India has one strength: we can be the manufacturing hub for the world markets."

Canadian Wood

The collaboration with Caple will help Canadian Wood showcase its commitment to promote sustainable practices and advance the skill development of the work force.

According to Pranesh Chhibber, Country Head for Canadian Wood, "Caple is renowned for providing top-notch training and development solutions and facilities. This facility has also made provision for a strategic platform to showcase and promote Canadian Wood's products, to enhance their brand presence and help expand our reach in the market."

FII has made a generous contribution of various Canadian wood species, to demonstrate their capabilities, in setting up of the interiors of the new Caple facility.

The wood has been skillfully utilised for crafting training classroom and training spaces, elegant counters, exquisite paneling, and captivating wood interiors. It has been instrumental in creating durable and aesthetically pleasing furniture, enhancing the entire space with a touch of natural beauty.

"It is a testament to our commitment to promote scientific production practices, as well as high-quality lumber from sustainable sources," Pranesh adds.

For more information, write to shailesh@caple.in.

India has the strength to become the manufacturing hub for the world's markets.

– Satyan Thukral, CEO, Caple Industrial Solutions

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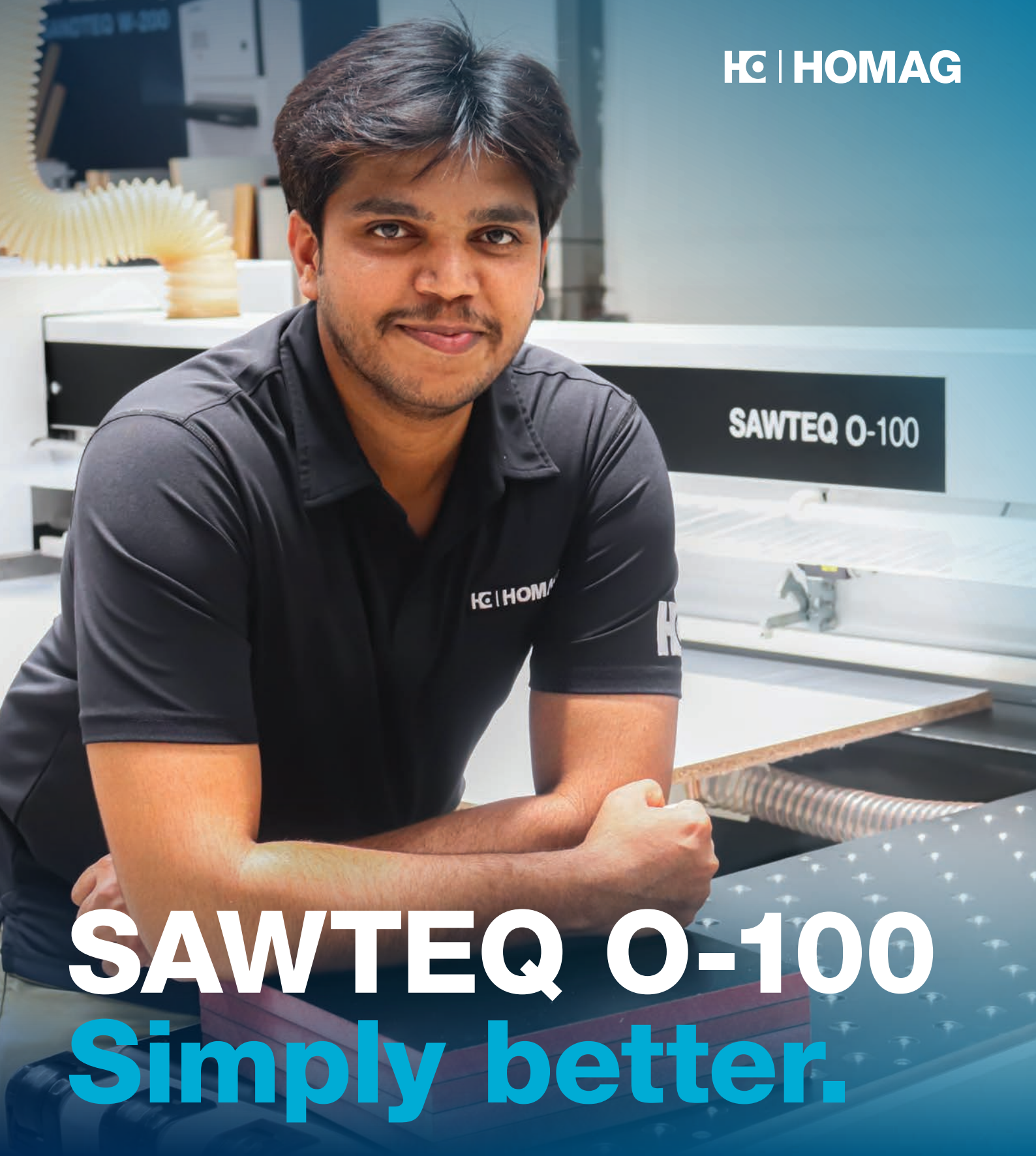

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YOUR SOLUTION

Hettich marches ahead with 'Make in India'

5th manufacturing plant in Indore, expansion of Vadodara operations continues

(L-R, with garlands) Mr. Andre Eckholt, Managing Director of Hettich India; Mr. Saroj Poddar, Chairman of Hettich India; and Dr. Andreas Hettich, Chairman of the Hettich Group Advisory Board; at the inauguration of the new company factory in Vadodara.

Hettich, one of the largest manufacturers of furniture fittings in the world, is all set to ramp up its manufacturing capabilities in India to cater to the Indian and international markets.

The family-owned legacy brand of 135 years performed the ground-breaking ceremony in Indore (Madhya Pradesh) to start the construction of its fifth manufacturing plant in India.

The new factory will be agreen field project and is expected to start commercial production by the end of 2025.

The event was commemorated by core board members, including Dr. Andreas Hettich, Chairman of the Hettich Group Advisory Board; and Mr. Andre Eckholt, Managing Director of Hettich India.

The Hettich Group is on a mission to make India its next big manufacturing hub, after Germany. The Group's mission of 'Make in India, Make for the World' is well aligned with the Government of India's clarion call for 'Atmanirbhar Bharat'.

The Hettich Group began its journey in India a decade ago with the first state-of-the-art facility in Vadodara (Gujarat) in 2013.

The brand is now investing 700 crore over the next 3 years to set up two additional manufacturing plants, Indore being one of them. This will increase the total number of plants in India to five. Additionally, the brand has a joint venture with the Adventz Group.

Hettich decides to buy FGV

Subject to approval of the anti-trust authorities, the Hettich Group from Germany is planning to acquire all the shares in the Italian hardware leader, Formenti & Giovenzana Spa (FGV).

Following the merger, Hettich and FGV intend to complement each other's strengths in order to continuously develop existing business activities and offer their customers even better added value solutions.

They will remain independent brands and companies within the overall Hettich Group, customers of both companies will retain their familiar contacts even after the planned merger, so customer service will continue as usual.

Both Hettich and FGV are European family-owned businesses with a long history in a common industry, always with an eye on innovation in furniture technology. Their experienced management teams will ensure the necessary continuity and ongoing joint development.

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Dr. Andreas Hettich (L) and Mr. Andre Eckholt perform the ritual pooja at the ground-breaking ceremony for Hettich's green field plant in Indore.

Andre Eckholt, Managing Director of Hettich (India, SAARC, Middle East and Africa) said: "As the only global brand in our industry with local manufacturing capabilities in India, expanding our manufacturing footprint in the country is essential.It ensures that we not only maintain proximity to our customers and meet their business requirements with agility, but also establish and sustain a robust supply chain."

Its product portfolio comprises a repertoire of furniture fittings and door hardware made with cutting-edge German quality, complemented by wire products, aluminum profiles, shelving systems, built-in appliances and furniture lights, thereby providing holistic fitting solutions for all residential and commercial spaces.

Vadodara expansion

Meanwhile, Hettich inaugurated its third state-of-the-art manufacturing plant in Vadodara, focusing on producing drawer channels, effectively doubling its production capacity. It is equipped to take care of the entire product life cycle right from raw material to finished goods.

Dr. Andreas said: "Vadodara is the very place where we initiated our manufacturing footprint in India. It is truly emotional for us as we inaugurate our third plant here. Additionally, we are also expanding the manufacturing capabilities of our existing plants to boost overall production."

Eckholt played a pivotal role in establishing Hettich's first-ever plant in India in Vadodara. He spearheaded the entire setup process from inception to fruition. "Vadodara holds a special place in my heart as this is where I laid the foundation for Hettich's first manufacturing plant in India.It represents a milestone of great emotional value."

On the additional factory, he said, "We are making significant investments in expanding our capacity and digitization to meet the increasing demand for innovative and multi-functional furniture in both domestic and international markets. The new plant in Vadodara has also created additional direct and indirect job opportunities."

Separately, Hettich India launched the South edition of their coffee table book, 'Thought Leaders in Architecture & Design' at an event in Bengaluru.The book encapsulates a hand-picked list of architects and designers from South Indiawho talkabout their workphilosophy and their focused approach of bringing space, design and technology together to create architectural masterpieces.

The highlights of the evening were the formal unveiling of the book by the showcased architects on stage, their felicitation by the Hettich management team and keynote addresses by the highly acclaimed and awarded architect from Sri Lanka, Mr. Russell Dandeniya.

At the formal unveiling of Hettich's coffee table book in Bengaluru recently, the company felicitated several architects from South India.

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Ahmedabad gets to know sustainable Canadian wood

Officials of FII pose with architects Hiren Patel (3rd from left) and Sonke Hoof (4th from left) after the seminar.

Forestry Innovation Consulting India Pvt. Ltd., popularly known as Canadian Wood, hosted an insightful educational seminar in Ahmedabad recently, titled 'Canadian Wood: The Sustainable Solution'.

The event garnered immense success, drawing together industry leaders, experts and enthusiasts who participated and shared their thoughts on the promising future of wood as a sustainable material in design and its potential to redefine the architectural landscape.

As the world increasingly recognises the importance of sustainability in various industries, Canadian Wood took the initiative to delve into the critical intersection of wood and sustainability. This seminar shed light on how wood, a versatile and traditional material, can be harnessed sustainably to meet modern needs while safeguarding our environment.

Distinguished speakers and panellists were carefully selected to offer valuable insights and perspectives on the important topic of how wood can be designed for various applications and adapt to the environment.

Architect Hiren Patel, founder of Hiren Patel Architects said, "When considering construction materials, it is evident that wood, particularly Canadian wood species, surpasses alternatives like glass and steel due to its significantly lower carbon footprint. As an architect, I hold a deep appreciation for Canadian wood, as it boasts forest certification, alleviating concerns that often arise when sourcing other non-certified timber."

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"In our current endeavour to craft a villa project in Ahmedabad, characterised by its lighter design sensibilities, Canadian wood emerges as the unequivocal choice. Its eco-friendly attributes and elegant tonal qualities not only contribute to reducing our environmental impact but also assure asense of ethical responsibility in our pursuit of architectural excellence," he added.

Architect Sonke Hoof, from Vastu Shilpa Sangath, said, "In my architectural endeavor, exemplified by the 'Black Perch' project in Ahmedabad, I've chosen Yellow cedar from Canadian Wood.This sustainable choice aligns with my commitment to certified materials, especially for tropical species like teak, whose sources are often undisclosed, with much now originating in Africa."

"Canadian Wood's transparency and quality make it the top choice in my projects, ensuring both structural integrity and environmental responsibility while upholding the ethical standards that guide my architectural practice," he added.

Dr Jimmy Thomas, Business Development Manager, provided an in-depth insight on wood species from British Columbia (Canada), their features and versatility to the audience.

Mr. Pranesh Chhibber, Country Director of Canadian Wood, focussed on the role and support his organisation offers to the industry in India with technical expertise in choosing the right wood for manufacturers' designs and projects.

"Canadian wood is legally harvested and certified. With a range of five wood species for specific applications, we work closely with architects, developers, and industry stakeholders," he said.

The Canadian Wood team provides guidance, from project inception to completion, offering expertise on wood types and grades. "Through one-on-one conversations with architects and industry partici pants, we are actively fostering sustainable practices and raising awareness in Ahmedabad. Our mission is to continually contribute to the city's evolving architectural landscape," he added.

FII largely promotes five wood species in India: Western hemlock, Douglas-fir, Spruce-Pine-Fir (SPF), Western red cedar and Yellow cedar. They are available in 19 cities across India through a strong network of 34 stockists. For more information, visit www.canadianwood.in.

FII largely promotes five wood species in India: Western hemlock, Douglas-fir, Spruce-Pine-Fir (SPF), Western red cedar and Yellow cedar.

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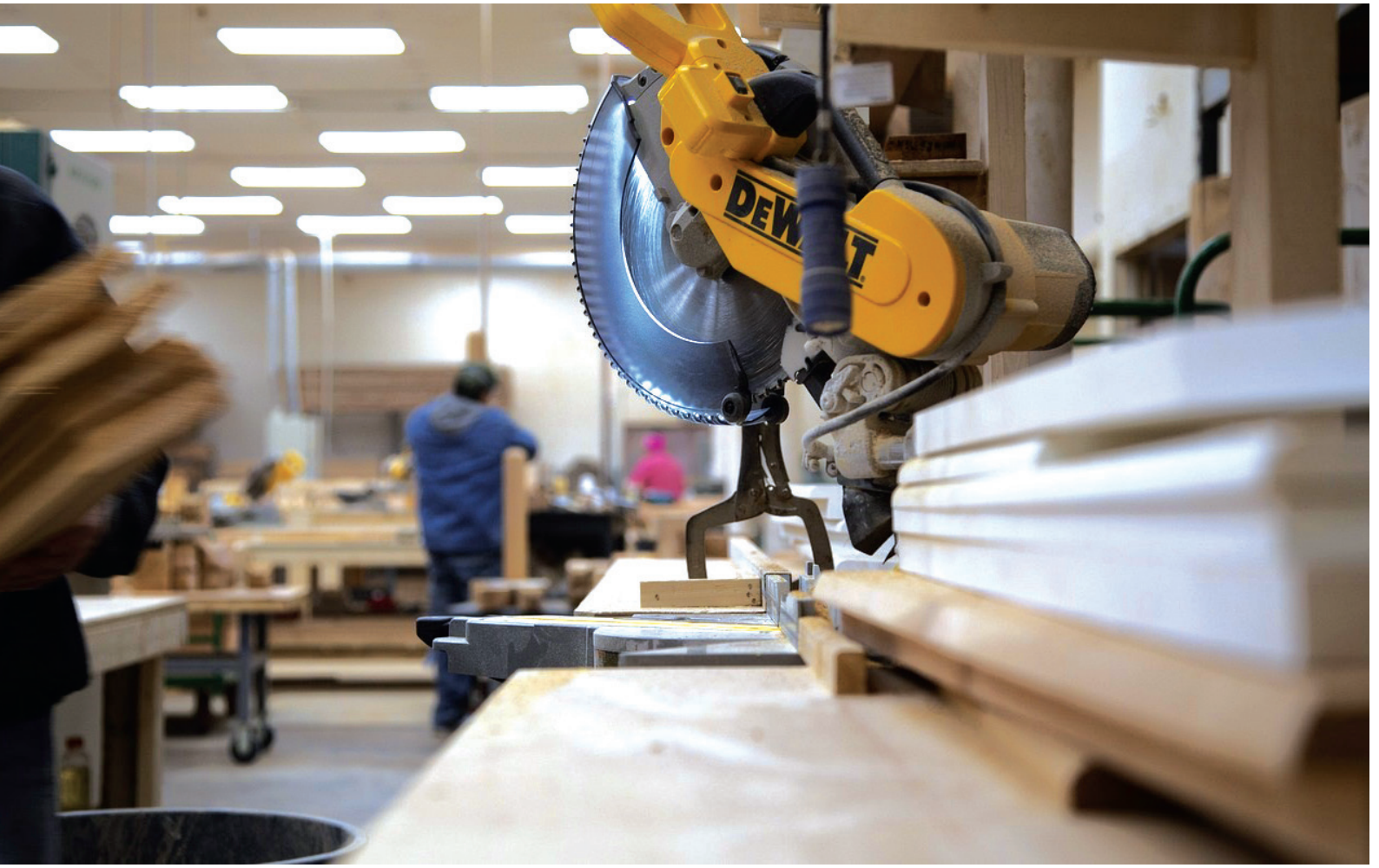
Thai exhibition in Sept. 2024



The Thailand International Woodworking & Furniture Exhibition (TIWF) will be held from 18-20 September 2024 at Impact Exhibition & Convention Centre, Bangkok.

This biennial B2B market platform will feature more than 150 international and local woodworking machinery and technology, materials and supplies, fitting and components, to network with targeted buyer audience of more than 4,000 trade visitors.

Along with the exhibition, there will be a targeted business matching programme, conference and workshop held alongside.

Thailand is the net importer of woodworking machinery, valued at US$ 60.8 million – more than seven times of its exports value. It is also the 30th largest importer of woodworking machinery in the world.

Its exports of furniture and parts were valued at US$ 1.8 billion (2022), an increase by 16% from 2021.

Increasing demands for imported processed woods due to lack of domestic supply also increase demands for automated woodworking machinery to improve efficiency.

The reason behind the exhibition being held in Thailand is due to its vibrant buildings and construction industry, driven by rapid urbanisation, megagovernment infrastructure and private sector real estate developments.

The host organisation of TIWF 2024 is the Ministry of Natural Resources and Environment of Thailand. It is strongly supported by both international and local woodworking and furniture manufacturing related associations. Details on www.thailandwoodworking.com.

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INTERMOB

30 Sept- 03 Oct, 2023

Venue: Tüyap İstanbul Fair and Congress Center

The Turkish furniture sub-industry sector, which has a long-term and stable growth trend in both production and exports, is getting ready for a show of strength at the 25th Intermob Fair this year. The leading global business platform of furniture sub-industry, accessories, forest products and wood technology will offer an effective and efficient marketing infrastructure for domestic and foreign visitors.

https://www.intermobistanbul.com

WOODTEC

10 - 13 Oct, 2023

Venue: Brno Exhibition Centre, Brno, Czech Republic

WOODTEC is an important trade fair for the woodworking and furniture industry in the Czech Republic and Slovakia. This event brings together professionals who work with wood for business, education, and social purposes. The expo will be held concurrently with the International Engineering Fair MSV, with collaboration from Czech professional associations in the field of woodworking machinery production, wood processing and furniture manufacturing.

WOOD PRO EXPO

12-13 Oct, 2023

Venue: Spooky Nook Sports Center, Lancaster County, Pennsylvania (US)

WPE Lancaster is the only woodworking exposition and conference for professional woodworkers in the Mid-Atlantic and North-East regions in the US. In addition to participation from the strong Pennsylvania woodworking base, attendees come from states including New York, New Jersey, Delaware, Virginia, and Massachusetts.

https://www.woodworkingnetwork.com/events/wood-pro-expo-lancaster

SICAM

17-20 Oct, 2023

Venue: Pordenone Fiera, Pordenone, Friuli-Venezia Giulia, Italy

Sicam is the international exhibition of components and accessories for the furniture industry for businesses of components and accessories. Built elements and systems, hardware, padding, materials, chemicals, liners, semi-finished surfaces, fabrics and leathers are some of the products featured at the fair along with a range of services and sectoral performance.

https://www.exposicam.it

WOODTECH ISTANBUL

19-23 Oct, 2023

Venue: Tüyap Fair Convention and Congress Center, Istanbul, Turkey

Being the most important trade fair of the wood industry in Turkey, WoodTech Istanbul offers an extensive range of products such as machinery and technical equipment for processing forestry products, semi-finished products, surface finishing, assembly and packaging and brings together local and international companies that operate in different branches of the industry. Wood technology, wood processing machines, cutting tools and hand tools fair will be on display.

https://woodtechistanbul.com/en

MYANFURNITURE

16-18 Nov, 2023

Venue: Myanmar Expo Hall, Yangon, Myanmar

MyanFurniture is Myanmar's No.1 international furniture fair that will showcase the complete range of home, commercial/office and outdoor furniture to meet the increasing demand for quality furniture and furnishings. It is a truly international exhibition covering interior design, decoration, living & lifestyle and will be an all-in-one destination for architects, interior designers, importers, retailers and buyers including commercial properties such as hotels, restaurants, clubs, pubs, offices, showrooms and homeowners. The Expo will be a truly international showcase with a record number of Pavilions confirmed including China, Italy, Thailand, Malaysia, Indonesia and Singapore.

BHUTAN CONSTRUCTION & WOOD EXPO

16-18 Nov, 2023

Venue: Changlimithang Stadium, Thimpu

The Bhutan Construction Expo has been incorporated as an annual mega event for local and international building and construction industries. It has been consistently providing one of the most successful platforms for participating construction industries to display the latest and most efficient products and technologies in the construction industry today. Encouraged by the success of preceding Expos, this year, the 12th Bhutan Construction Expo is expected to have wider and better qualitative construction products on display.

https://10times.com/bhutan-construction-expo

BANGLADESH WOOD

23-25 Nov, 2023

Venue: ICCB, Dhaka, Bangladesh

An effective marketing platform and an interactive industry forum, Bangladesh Wood 2023 is the leading wood and woodworking technology exhibition.

The stage is set to host a confluence of exciting business opportunities, world-class technologies, and participants from across the globe will converge on a single platform. The show provides opportunity to exhibit and showcase products and services to a focused audience from the building and construction sector consisting of professionals both from trade and industry.

https://www.bangladeshwood.com

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Sanding: Art by nature, perfect by design

The ability to recognise sanding defects, and know which components on the machine to start trouble-shooting, is invaluable.

Wood is not as resistant to time, or to scratches, as metal or stone – but this is what makes it so special! Each piece of wood has a unique grain pattern, and wooden furniture or floors can be given different textures and colours over the years. The quality of sanding of solid wood and wood-based panels is what makes the difference between standout work pieces and the also-rans. Check out why...

Sanding is the process of levelling and smoothing the wood surface, by making the top layer uniform. It is, therefore, vital before polishing, painting or impregnating, because wood protection and decoration products work much better on well-sanded wood surfaces.

Unfortunately, sanding is generally low on the priority list among furniture and panel manufacturers. Sanding is viewed as an obstacle, but it is the opposite: sanding is finishing. One must treat it as a separate – and integral – first part of the finishing process. The quality of a sanding job can be the difference between a masterpiece and a large paperweight!

But why do we sand wood anyway? Hard-to-reach areas generally retain saw marks; glue joints are not flush with the components; open areas are prone to chatter marks from the planer; and hand-made work pieces leave much to be desired in smoothening out surfaces, joints and curves.

Sanding also gets rid of old paint, coating or adhesives, and scratches on wooden surfaces. It is essential to sand wood before using veneer. Even when gluing wooden elements together, sanding the areaof contact is necessary to ensure correct fit and uniform application of adhesives.

Manual Vs machine

Sanding can be accomplished manually or by machines. Manual sanding is good if the work piece to sand is very soft or soft wood. Manual sanding involves the use of sandpaper with application by hand. The sandpaper can be attached to a holder to enable sanding of larger surfaces of wood.

A wood sanding tool – usually powered by electricity or air under pressure (pneumatic) – can speed up the process of smoothing and levelling surfaces significantly. A sanding tool can also help achieve a more even wood grain structure.

While manual sanding is best done by hand in furniture with angles and curves, sanding machines are better suited for large-flat surfaces, such as a table or the sides of a wardrobe.

Sanding larger pieces of wooden furniture by hand can be both tough and time-consuming. Manual sanding is better for angles and curves, as well as all kinds of decorative elements.

Whether sanding by hand or with a sander, the appropriate sandpaper is required; and the full process of sanding will require several types of paper with different grain sizes.

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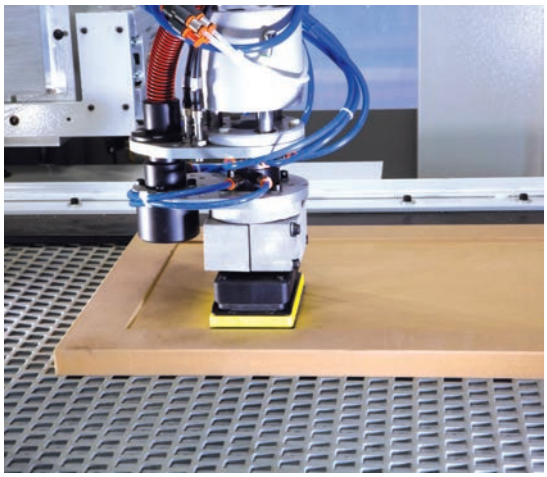


Sanding of wood can be done manually (L) or with the latest robotic sanding machine, such as this one from Biesse (R).

The grain size literally means how big the grains on the sandpaper are – the smaller the number, the bigger the grains.

The most common sandpaper grain sizes are coarse grain (40-60), average grain (80-120), fine grain (150-180), very fine grain (220-240), and super-fine grain (above 280).

Sanding wood begins by sanding harder and more aggressively, then moving on to more delicate smoothing and refining of the wood surface. In other words, one should progressively go from coarser (low number) to finer (higher number) sandpaper.

When sanding untreated wood, it is a good idea to start with a grain size of 80-100, to remove the largest cavities and bumps. Large grains are also useful when removing old paint, varnish or glue from a piece of furniture or wooden item.

The final sanding work should be done with sandpaper with a grain size of 180-220. One should use finer sandpaper for polishing, when working on wood that has already been treated.

Even after sanding, wood should have some texture and should not be perfectly smooth. Otherwise, it may be too hard to treat or paint. Varnish or paint may not stick to the surface well enough, and could start to peel off after some time.

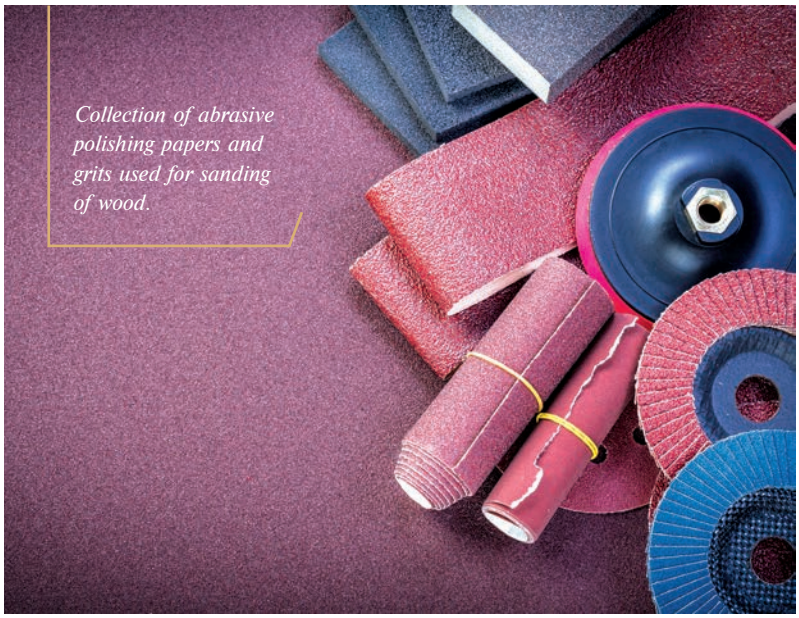
If the surface has to be darker after being treated, one needs to use thicker paper. The smaller the grain (the bigger the number), the brighter the wood will appear later on.

The choice of suitable grain size of the sandpaper also depends on how hard the wood is. The more resistant a given material is to normal wear, the more coarse-grained paper is to be used.

When sanding hard wood such as oak, one can start with a grain size of 120, then go to 150, and finish off with 180. But in the case of linden, spruce or walnut, one can use sandpaper with grain sizes of 150, 180 and 220 respectively.

Wood sanders

An angle grinder is a tool for both cutting and cleaning various kinds of material. It can also be used for sanding. To use it on wood, the operator will need a sanding disc to which is attached a sanding pad. However, improper handling of an angle grinder with a flap disc may result in damaging or even burning the wood.



Collection of abrasive polishing papers and grits used for sanding of wood.

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Drum sander from Jai Industries (L) and wide-belt sander from Powermax (R).

A sanding disc, with which one can use various grain sizes, is a better option. The grain size classification is the same as with sandpaper.Sanding discs are therefore easier to use and more practical than aflap disc.

Disc sanders are usually stationary devices, with a vertically mounted disc and an adjustable base for the workpiece that needs sanding.One can use them for jobs requiring a high level of precision. They are often recommended for quick work with smaller wooden elements.

Orbital sanders usually have a rectangular or triangular disc for wood.They are great for both larger flat surfaces and places that are more difficult to reach. They are especially recommended for sanding soft wood.

Random orbital sanders are a more sophisticated version of orbital sanders. During use, the angle of rotation of arandom orbital sander is variable.They are also often more powerful than orbital sanders, making them more suitable for processing harder wood or removing old paint.

Belt sanders are especially handy for sanding very large wooden surfaces, such as floors or panelling.Using one properly may require more practice than other sanders, but they let you work much faster on harder material.

Stationary brush sanders can effectively and consistently sand sealer on profiles, such as mouldings, raised panel doors and drawer fronts. The bristles of brush sanders can conform to profiles, effectively sanding at various thicknesses without destroying the profile.

Many types of brush heads and grits are available; and quality brush sanders offer machine adjustments to handle awide variety of materials and finishes.

Finishing wood

Machinery and abrasives are now matched more precisely to a specific process. The change in coatings alone has sparked the need for more advanced and process-specific brush sanders. However, some basics remain basic to the process and art of sanding.

Before sanding, the surface to be sanded must be cleaned, taking care that the work piece does not become too moist. A vacuum cleaner or abrush nearby can get rid of the dust from the sanded area.

Start with a coarser grain first, then a medium one, and finish with afine grain.

Keep cleaning the sanded wood as one goes along, otherwise particles could stick to the work piece and risk scratching the surface. Fine details can be finished with a special sanding sponge, making it easier to distribute the pressure evenly and sand areas more difficult to reach.

Sanding abrasives come in the form of belts, discs and bands, and in different shapes and sizes.

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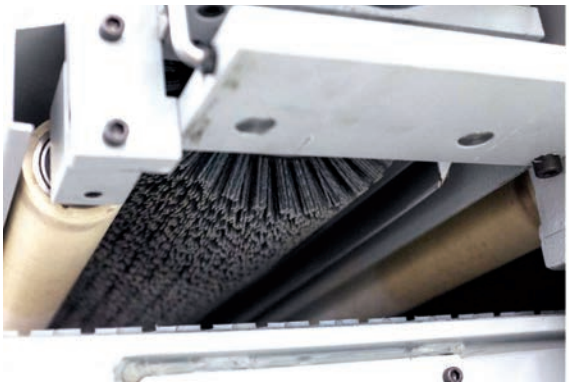


Sanding brushes and roller machines come in varying dimensions and role-specific configurations, such as these from Kungdig (L) and Homag (bottom).

Wood fibres are basically torn apart during sanding, so it is very important to sand along the grain. If wood is sanded against the grain, the fibres get damaged, leaving the surface rough, scratched and uneven. Even oil or paint applied later on will not solve the problem!

The last stage of sanding is protecting the surface, or imparting a specific colour. Impregnation protects the wood against UV radiation or moisture. It can be enriched with pigments that will give the wood a deeper colour, while leaving the grains and rings clearly visible.

Applying varnish – translucent or transparent – after impregnation creates a protective layer against scratches and mechanical damage. More traditional methods, such as waxing or oiling, can also be employed.

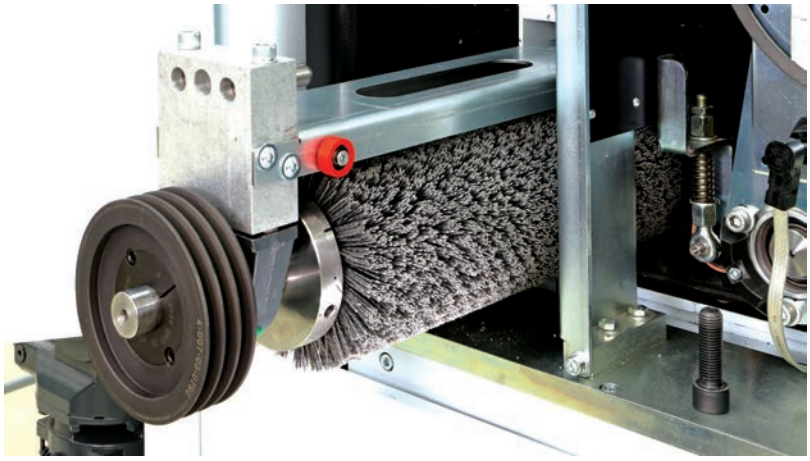
Common mistakes

The sanding stage is usually the worst place that a work piece can be damaged. Machine components and abrasive belts and pads wear unevenly and create problems and unnecessary expense.

Finish, accuracy and the machine all suffer if this is not part of a regular maintenance schedule. A machine that is calibrated and maintained correctly helps production in the short and long terms.

Most productivity issues from sanders, regardless of type, can be summed up in two words: service and training. The vast majority of sander problems stem from a lack of one, or both.

This is where operator training comes in. The ability to recognise sanding defects,



and know which components on the machine to start trouble-shooting, is invaluable.

The basic task for any woodworker is to check accuracy and calibration of the sanding machine. One way to do it is to sand three consistent work pieces – two at the edges of the conveyor belt and one in the centre.

After sanding at a low feed speed, so the belt has time to cut, measure the sanded parts, compare dimensions and adjust the machine settings accordingly.

The purpose of pre-finish sanding is to give the work piece an even, clean look that is free of visible scratches. In a majority of cases, wooden pieces only need medium-grit sandpaper to create that optimal look.

Over-sanding is a frequent mistake made by woodworkers. It must be remembered that any small imperfections can be smoothed out when sanding between coats of finish.

Remember that employing the wrong belt or pads, or the wrong abrasives on them, can damage your machines, belts/ pads – and one's expectations from the sanding process!

What separates a good craftsman from a great one is their ability to repair these inevitable mistakes. And, ultimately, it is impossible to produce a smooth and professional finish on wood without the help of high-quality sanding paper and sanding machinery.

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MORE FROM WOOD.

Houfek wide-belt sanders now in India

Houfek, a Czech company, has tied up with Arnavi Machines in Indiato bring their high-performance robust machines suitable for Indian production lines which are designed for heavy duty work. On the European market, the company has achieved arecognized position in particular due to machines of great technical parameters, reliability, simple operation, and great workshop processing.

It produces various models of wide belt sanders like Buldog9, Buldog7, Buldog5, Buldog3, Pony and Cindy, which are simple modular and robust construction, enabling maximum productivity in different fields like plywood, solid wood, veneer and other woodworking industries.

The width of the wide belt sanders ranges from 300 mm (which is the smallest in the European region) to 1,650 mm, which can be fitted with various aggregates like planar, roller, segmented sanding pad, superfinish sanding pad, cross-sanding pad, combination roller-pad and brush and disc groups, along with auxiliary units.

Specifications

- Designed for heavy duty production lines
- Most suitable for ply, veneer, lacquer and paint board
- Can be customized using aggregates
- Work piece thickness range from 3mm to 300 mm
- Wide variety of technological solutions and options
- All new user interface with 15-inch touch screen
- Glass door panels

Machines made by Houfek have found clients in the EU countries, the US and many other countries. For more information, write to info@arnavimachines.com.

Kumar Engg. Offers calibrated solutions

Kumar Engineering Co., steeped in the determination of manufacturing woodworking machines to make India self-reliant in this domain since 2012, has expanded its spend on R&D to introduced a variety of machines in the wide-belt sanding vertical.

Kumar Engineering manufactures sanding machines that can absorb athickness variation of 1.00 mm with aspecific feature of no sand off. The machines are manufactured in various configurations to meet the industry needs.

Among its offering to the woodworking industry in Indiain the sanding vertical are:

- Calibrating and sanding machines;
- Top and bottom sanding machines;
- Sanding machines with cross belt for furniture;
- Heavy-duty laminate sanding machines;
- Solid wood sanding and calibration machines.

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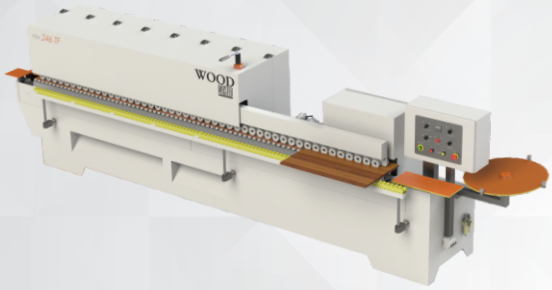

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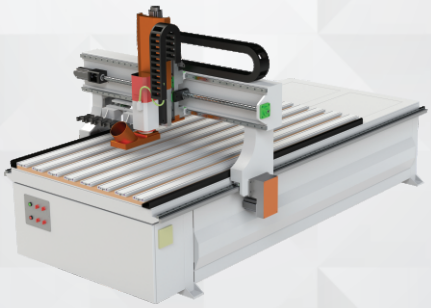

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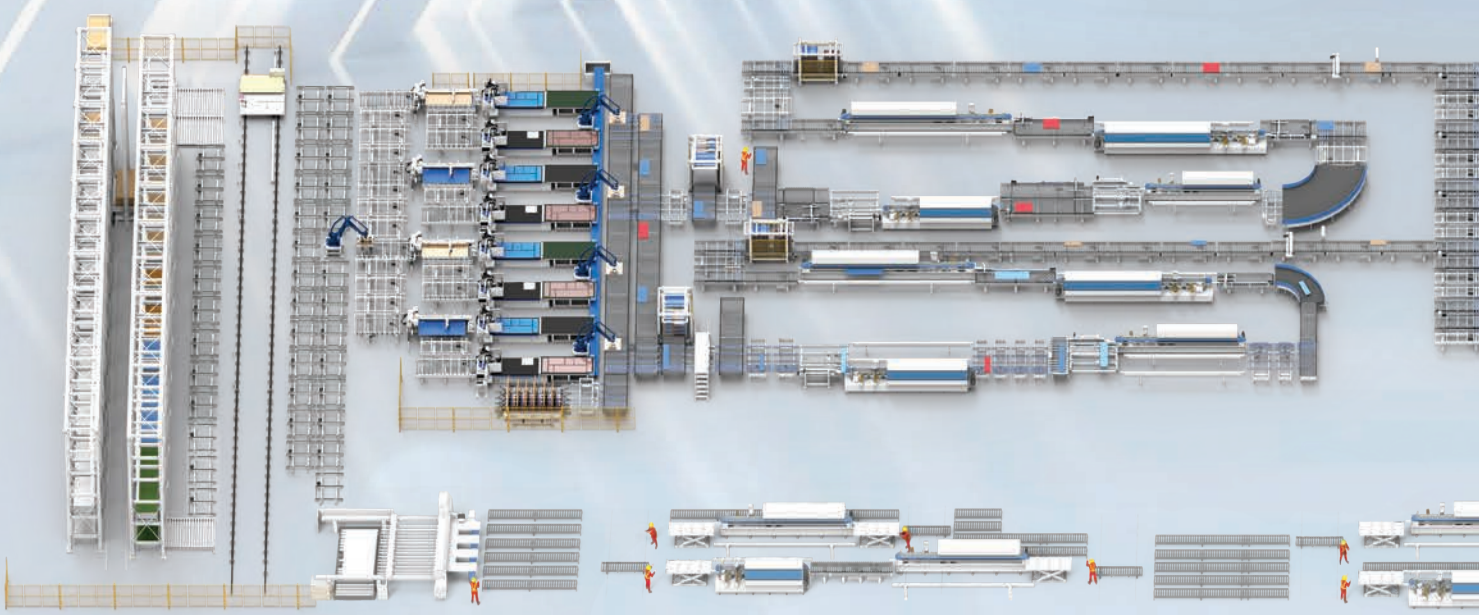

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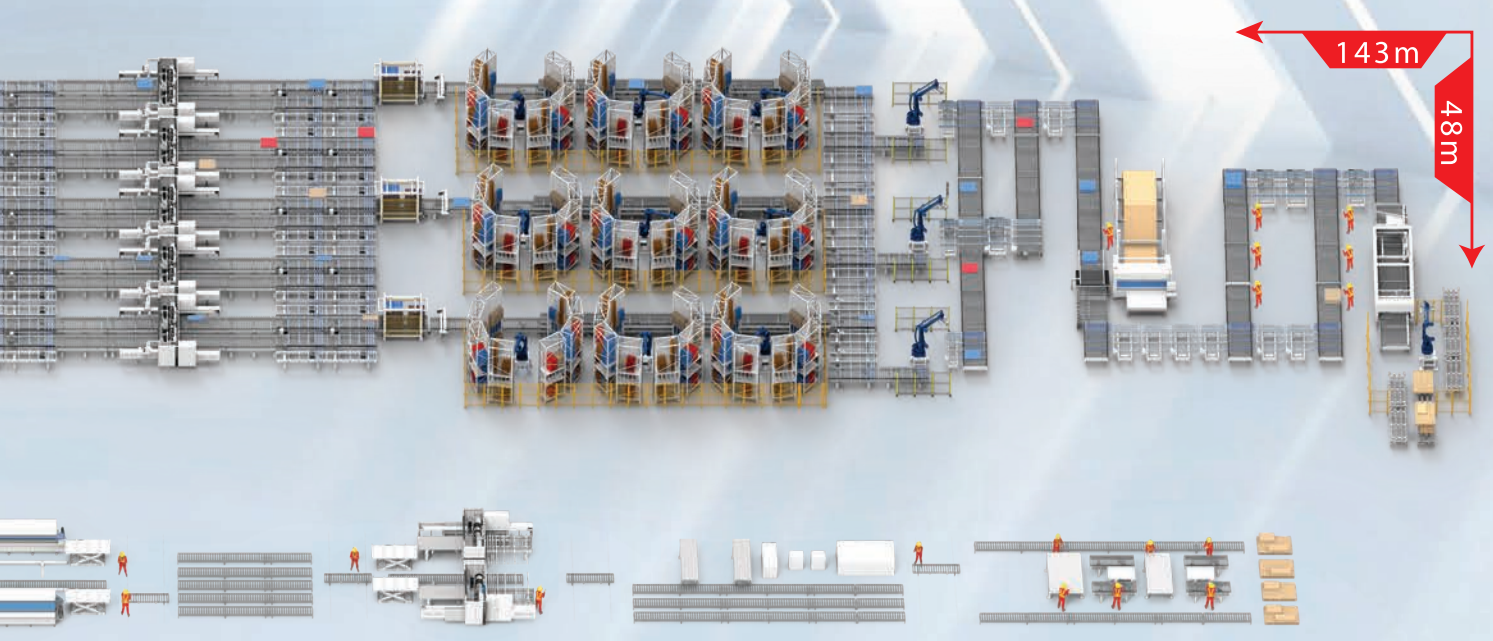

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EvoL: new advancements in sanding wood panels

IMEAS Spa is an Italian company that has been producing machines for stainless steel working finishing since 1966. In 2017, it launched the EvoL model, which represents the ninth generation of IMEAS sanding machines.

EvoL is the evolution of more than 50 years of experience and know-how in calibrating and sanding wood panels. Only a year after its launch, EvoL gathered high appreciation in the market, with more than 70 sanding and calibration heads purchased by IMEAS customers all over the world.

The synthesis of this technological evolution is known as full control system which, together with the full control belt, allows the line operator to configure, check and if necessary, correct the sanding process with the ease of a click.

Through an easy-to-use graphical interface, it is now possible to control every aspect of the sanding process such as starting a motor, oscillating an abrasive belt, checking the state of health of a bearing or adjusting each calibration/sanding head. This can be set using a touchscreen panel with a precision up to 0.01mm.

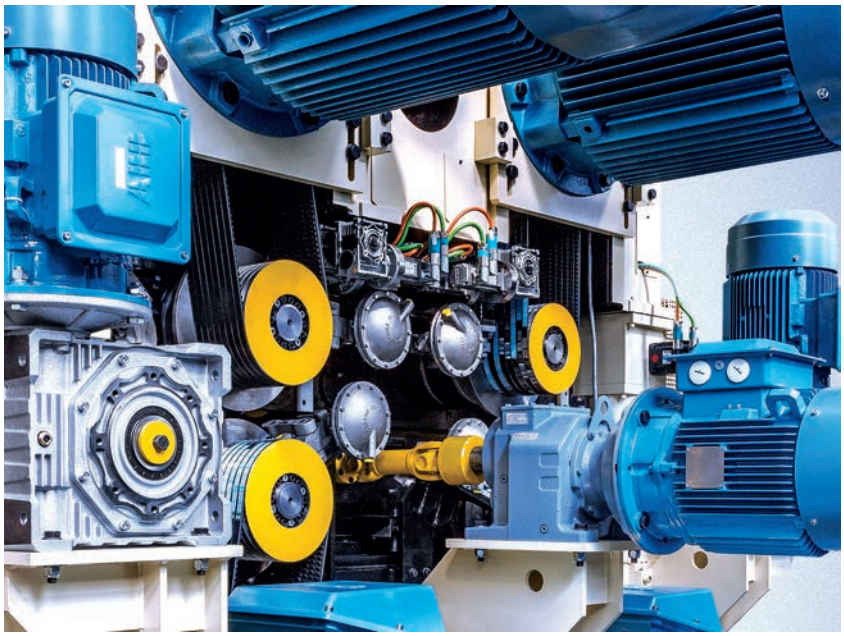
Sanding recipes can be stored and used by the operator in accordance with the current job — the sanding units will reset their working position in less than 10 seconds!

The full control belt is a new system to ensure better abrasive belt control. The system is composed by a proportional valve controlled by the PLC to move the belt slightly to restore the original belt position.

In addition, a new construction design was developed to reduce the number of internal components to gain easy accessibility into important areas of the machine — reducing and simplifying the maintenance activities as compared to the previous generations of machines.

All the machines are made in Italy and can be developed in various sizes depending to the format of the panels to be processed. The current range is from 1,600mm up to 3,600mm of useful width.

For more information, write to marketing@nitshaw.com.



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State-of-the-art sanding with SCM

Gone are the days when awide-belt sanding machine only worked on asingle flat surface. The market requires finishes that can surprise visually and by texture, and offer a unique personal touch to adesign product.

Sophisticated aesthetic results like the saw cut, carving, 3D surfaces, as well the most varied brushing and texturing effects are the need of the hour.SCM leads the way with a continuous R&D path aimed at increasing production flexibility, efficiency and quality standards.

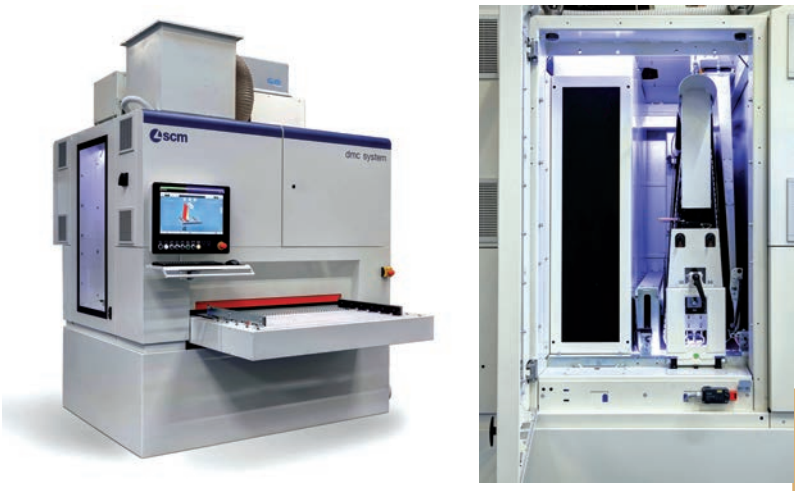
The new DMC System automatic sanding-calibrating machine is the ideal solution, thanks to the new exclusive CO2 laser unit that is particularly made to create three-dimensional marking on wood flooring, wood elements, MDF panels to be ennobled, fibre cement panels and solid surfaces.

This unit represents a completely new sanding technology due to the exclusive continuous passing application. The main advantages of this solution are increased productivity and the possibility to machine parts of any length: all with atruly compact solution because the laser unit, being integrated into the machine, does not increase the amount of space used.

Another important advantage comes from the self-refilling technology, a distinctive advantage of SCM's laser engraving unit and created by EI.En, one of the main businesses in the sector.

With this refilling innovative technology, you can have a laser source which always works at maximum power.The laser beam's quality constantly remains at its highest level, and the lifespan of the laser source is practically infinite.

Another significant advantage comes from the 'eye-M' PC panel, with which it is possible to manage, program and set the laser work parameters, that was made possible with a simple and user-friendly graphic interface.



The new DMC System and its exclusive CO2 laser unit (R) create 3D marking on wood flooring, wood elements, MDF panels to be ennobled, fibre cement panels and solid surfaces.

With just three working parameters which can be changed, it is possible to define the useful marking level to guide the operator in an easily and intuitively way.All this is achieved with machining and monitoring in real time viawebcam.

Wood flooring machining allows you to achieve geometrical and abstract pattern with an advancement speed of up to 3 m/min.and to also score carved surfaces.

The SCM laser engraving unit is particularly well suited to customising and veneering kitchen cabinet doors.On MDF panels, relief marking before painting or plating with PVC can be achieved with the Sergiani 3D Form 3D laminating press.

The SCM laser engraving unit is particularly well suited to customising and veneering kitchen cabinet doors (L). Wood flooring machining allows geometrical and abstract pattern printing (R) at high speeds.

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Weber re-invents the KSF series

Germany-based Hans Weber Maschinenfabrik, which has 10 decades of expertise in grinding and sanding machines, recently re-launched its KSF series, which can be fitted out with up to eight sanding stations.

This machine series is ideal for fast and efficient wood, veneer and lacquer sanding. All sanding and brushing stations can be installed in any random order.

Examples are the cross-belt station and the wide-belt stations, such as the contact drum, combination station and wide belt with sanding pads, and of course also the Weber CBF sanding technology, X-Schliff and the patented Weber brush technology.

The Weber KSF sanding lines work with direct work piece transfer integrated into lines or as a stand-alone installation. The design and construction of the new KSF series meets the CE standards for the safety of machinery.

This series also features self-learning tracking. After each change of the sanding belt, it automatically returns to the centre oscillation position.

A "standing sanding belt" is optionally available as well.The cross belt unit has been optimised to ensure to ensure even better sanding of the edges and more homogeneous belt tension.

Weber's new Creativ Schliff (creative sanding) unique add-on package enables companies to create their own, individual sanding patterns.The blade is developed and patented especially by Weber, the necessary software programming, and the relevant training.

The pressure pieces can be applied to the blade individually and in any random order in order to achieve unique and individual surface patterns.

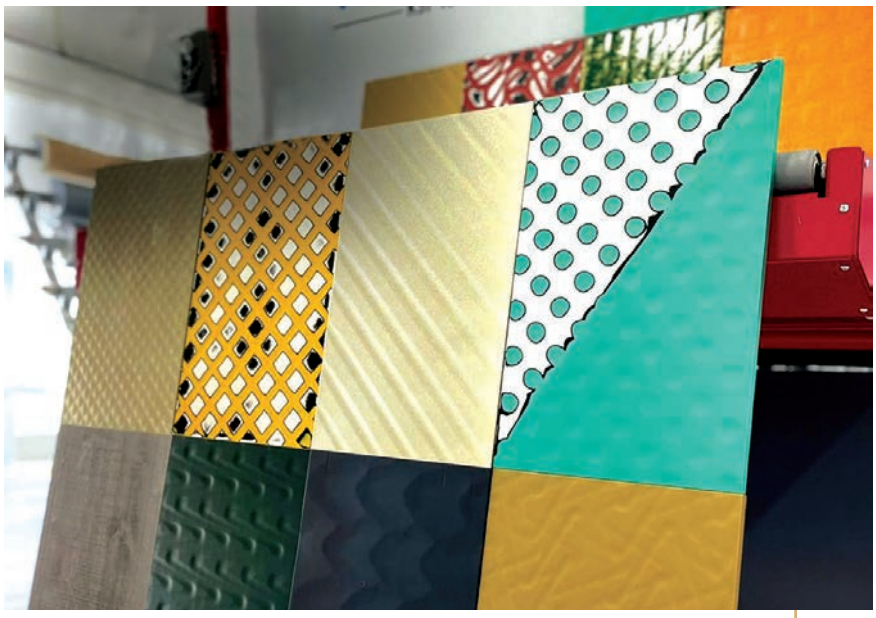
The package can also be easily retrofitted to existing Weber sander machines from the KSL, KSF, KSN and KSN compact.

The re-launched Weber KSF can be fitted with up to eight sanding stations; and the CBF Motion Control (R) can be retrofitted.

Another innovation Weber has presented is the 'CBF Motion Control' wherein, by using specific software, the unit can switch from fine sanding to effect sanding mode at the touch of abutton.

In just one pass, wave, zigzag, segment and line patterns in the grit range of 40-150 can be sanded into all woods and wood-based materials.

A retrofit is carried out as acomplete package and includes unit conversion, software update and training the operating personnel by an application engineer.For more information, write to pandu.rathod@hansweber.de.



With Weber's unique 'CBF Motion Control', in just one pass, wave, zigzag, segment and line patterns can be sanded into all woods and wood-based materials.

PRODUCTS AT A GLANCE

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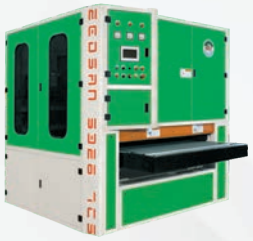
MODEL : ZEDSAN 4126 DS
DOUBLE HEAD WIDE BELT SANDING MACHINE - TOP

MODEL : ZEDLAM 350 HD
HEAVY DUTY LAMINATE SANDING MACHINE



MODEL : ZEDSAN 5326 TCS
TRIPLE HEAD CALIBRATING AND SANDING MACHINE

MODEL : ZEDSAN 3426 TBS
HEAVY DUTY BOTH SIDE SANDING MACHINE

MODEL : ZED-HDC-350
HEAVY DUTY BOTH SIDE CALIBRATING MACHINE

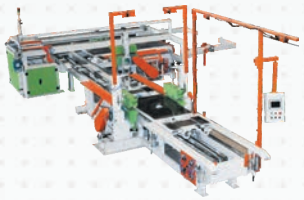
MODEL : ZEDWOOD 1050 CS
SOLID WOOD CALIBRATING & SANDING MACHINE

MODEL : ZEDSAN CAL 290
SINGLE HEAD CALIBRATING MACHINE

MODEL : ZEDSWEEP BM
DOUBLE / TRIPLE HEAD BOTH SIDE BRUSHING MACHINE

MODEL : ZED-PNGS-8FT
PNEUMATIC GLUE SPREADER

MODEL : ZEDSAN CCM
CORE COMPOSING MACHINE



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In the world of woodworking, every project begins with a vision, and that vision becomes a reality with the right tools and expertise. Felder Group India recently had the privilege of hosting the "Felder Monsoon Show," in Mumbai and Bangalore, an exhibition that celebrated the craft of woodworking and the incredible community that surrounds it. Today, as we reflect on the success of these events, we extend our heartfelt gratitude to all the visitors who made it a memorable triumph.

Expressing our Gratitude!

As we reflect on the Felder Monsoon Show, we want to extend our heartfelt gratitude to every visitor who graced us with their presence. Your enthusiasm, curiosity, and support made this event truly remarkable. Your presence affirmed our belief that woodworking is not just a skill; it's a passion that brings people together.

The Felder Group India family is profoundly thankful for your trust in us and your commitment to the craft. Your feedback, questions, and interactions during the show will continue to inspire us as we strive to deliver the best in woodworking machinery and education. We look forward to your visit, to our upcoming shows in Noida, Bangalore and Mumbai.

OUR UPCOMING SHOWS

Noida
21 - 22 October
07 - 09 December

Bengaluru
23 - 25 November

Mumbai
07 - 09 December

First-ever wooden robotic gripper developed

A research team from the National University of Singapore (NUS) has developed a wooden gripper that is driven by changes in moisture, temperature, and lighting in the environment.

Most robotic grippers are made using either soft plastics – to pick up objects without damaging them – but they melt at high temperatures, or use metals that are stiff and costly.

The researchers from NUS, together with their collaborators from the Northeast Forest University, have created a wooden robotic gripper that could be used in a very hot environment and yet maintain a tender touch.

This innovative wooden robotic gripper also has another advantage – it is driven by changes in moisture, temperature and lighting in the environment, hence lowering energy consumption.

"Wood has excellent mechanical properties, natural deformation, available in large reserves, and is relatively cheap. In our latest work, we have shown that wood-based robotic gripper can overcome the limitations of traditional actuators and manipulators," said Assistant Professor Tan Swee Chan, who leads a research team from the Department of Materials Science and Engineering under the NUS College of Design and Engineering.

His team members include laboratory technologist Qu Hao and NUS doctoral student Bai Lulu.

"Our wooden robotic gripper can spontaneously stretch and bend itself in response to moisture, thermal and light stimulation. It also has good mechanical properties, able to perform complex deformation, wide working temperature range, low manufacturing cost, and is bio-compatible. These unique features set it apart from conventional alternatives," Tan Swee added.

The wooden robotic gripper developed by NUS researchers can spontaneously stretch and bend itself in response to moisture, thermal and light stimulation. It also has good mechanical properties, able to perform complex deformation, wide working temperature range, low manufacturing cost, and is bio-compatible.

The wooden gripper opens up when exposed to high humidity (above 95% RH), and closes tightly when the temperature of the surroundings increases beyond 70 degrees Centigrade, or when they are exposed to solar radiation.

The research team published their invention in the online version of the scientific journal Advanced Materials in February this year.

The researchers created the wooden robotic gripper using pieces of Canadian maple that are 0.5 mm thin. The pieces of wood were first treated with sodium chloride to remove the lignin – a component found in the cell walls of plants.

The large pores in the wood are filled with a polymer called poly-pyrrole to enable the material to absorb heat and light more easily.

The team also formulated a new nickel-based hygroscopic gel for moisture absorption. One side of the modified wood pieces was coated with the moisture-absorbing gel.

A hydrophobic film was attached to the other side. This wet-dry difference allows the wood to quickly absorb water vapour on one side, and this accelerates changes in the shape of the wooden gripper when exposed to high humidity.

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The wood pieces were then shaped into a gripper at 70 degrees C using special moulds. When placed in an environment with 95% RH (moisture stimulation), the hygroscopic gel tookin moisture and the wooden gripper stretched and gradually opened outwards.

"When exposed to high ambient temperature of beyond 70 degrees C (heat stimulation), the wooden gripper started to bend inwards and achieved maximum bending at 200 degrees C," explained Bai Lulu.

The team also tested the wooden gripper under different light intensities, with the hydrophobic film layer facing the light source.When the light illumination increased the gripper's surface temperature to about 42 degrees C, the moisture-absorbing gel started to lose water and the gripper began to bend inwards before achieving significant bending at about 57 degrees C.

The wooden gripper remained intact after 100 actuating cycles, demonstrating its stability and robustness for long-term use.

"We also verified the performance of the wooden gripper by pick up objects at high temperatures. In our experiments, the wooden gripper successfully lifted a weight of 200 gm (equivalent to a can of soda) at around 170 degrees C.This is impossible for most actuators made using soft polymer," noted Professor Chen Wenshuai from Northeast Forest University and the co-corresponding author of the research paper.

Depending on the design, the wooden gripper could carry loads as high as 10,000 times the weight of the gripper.

Tan Swee and his team are now looking at improving the performance of the wooden gripper, such as shortening the bending time from about 2 minutes currently, increasing the weight load it can carry, as well as gripper objects with different shapes and sizes.

They are also finding ways to reduce cost and to scale up the fabrication of the wooden gripper.

With further structural design and performance improvement, the team hopes to develop improved version of the wooden gripper to help fire fighters carry out rescue operations.

With further structural design and performance improvement, the team hopes to develop improved version of the wooden gripper to help fire fighters carry out rescue operations.

Assistant Professor Tan Swee Ching (centre) with team members Qu Hao (L) and Bai Lulu at the National University of Singapore.

Images: National University of Singapore

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Fingerprinting wood to fight illegal timber trade

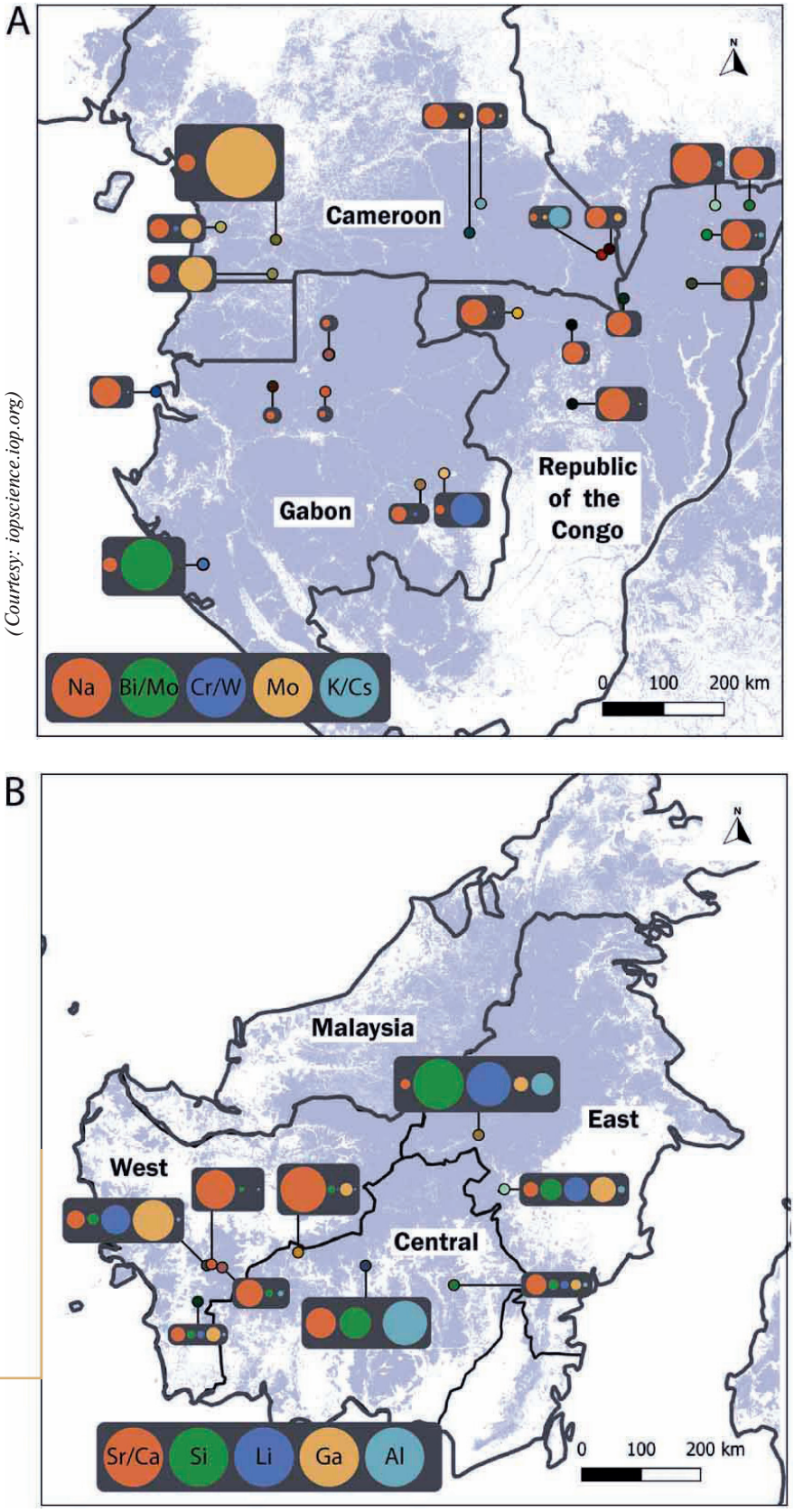
Researchers from the Utrecht University and Wageningen University and Research in the Netherlands have developed amethod to "fingerprint" where wood was taken to verify the claims of the origin of wood.

According to Laura Boeschoten, Assistant Professor at Utrecht University and lead author of the research paper, to effectively reduce illegal timber trade, law enforcers need forensic methods to independently verify claims of wood origin.

"The most important motivation to undertake the research was to improve small-scale tracing," said Boeschoten, data scientist. "But in the end, mostly to reduce illegal timber trade."

Current methods of timber tracing do not consistently narrow asample's origin to areas smaller than 100 km, the distance that would be needed to accurately identify wood illegally logged.

Multi-element analysis of traded plant material has the potential to be used to trace the origin of commodities. Whereas for timber, it has not been tested at relevant large scales, states the research.



(Courtesy: iopscience.iop.org)

Site mean relative wood elemental concentrations of the five most important variables in the random forest models A4 (A, Central Africa) and A3 (B, Borneo) respectively. Site mean concentrations are scaled within each element, therefore the size of the circles indicates relative abundance per element at each site.

New method

A new method for the timber tracing toolbox has been introduced which includes applying multi-element analysis to determine wood origin. "Here, we put this method to the test, by evaluating its tracing accuracy for three economically important tropical timbers: Azobй and Tali in Central Africa (22 sites) and Red Meranti on Borneo (nine sites)." adds Boeschoten.

Wood samples from 991 trees were measured using inductively coupled plasma mass spectrometry and element concentrations were analysed to chemically group similar sites and assess the accuracy of tracing samples to their origin (random forest models).

They noted down the GPS coordinates of the trees, which were located within forest concessions – government-designated forest areas, where logging is administered by aprivate entity.

At each site, 20–30 heartwood trees per timber species were sampled. These trees were located between 100 metres and 5 km apart, and were either standing or recently felled.The trees were of at least 30 cm diameter at breast height.

All samples were taken 10–20 cm into the tree.This resulted in a geo-located database of 179 Red meranti, 420 Azobй and 394 Tali samples.For every tree, soil variables at their growth locations were obtained from www.soilgrids.org.

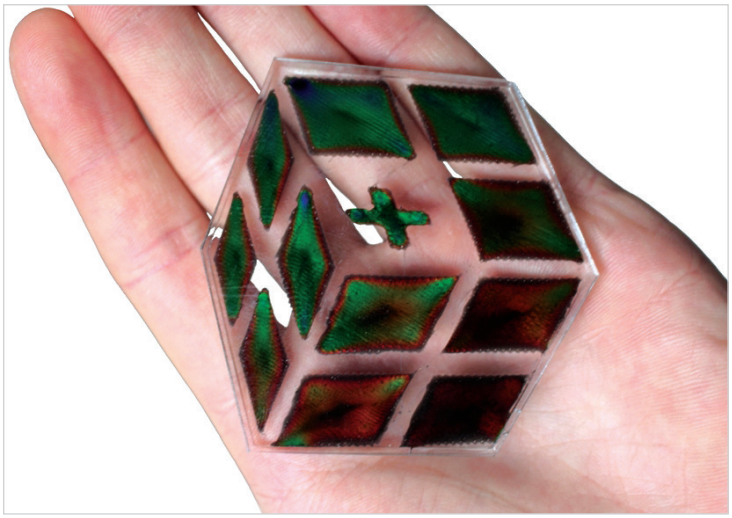
The researchers found distinct spatial differences in chemical composition for all three timbers. In Central Africa, tracing accuracy for regional clusters was 86%-98%, with accuracy depending on the tracing question.

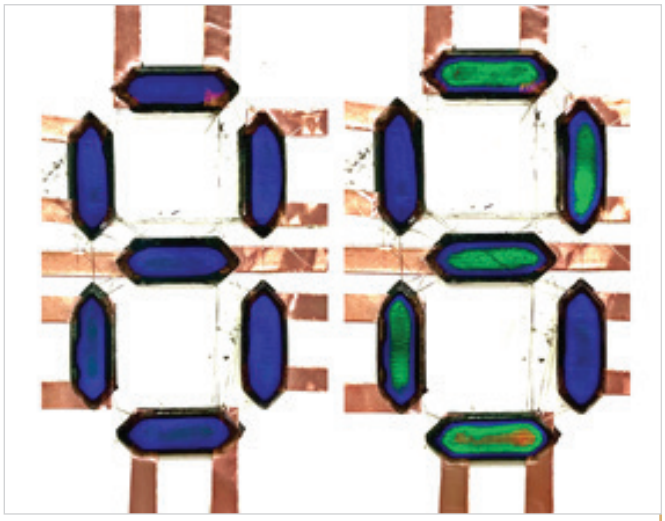
These clusters were 50–800 km apart and tracing accuracy was highest when combining the two timbers.

The results illustrated a high potential for multi-element analysis to be developed into a timber tracing tool that can identify the origin of multiple species and can do so at awithin-country scale.

To reach this potential, reference databases need to cover wider geographic areas and represent more timbers.

Bio-degradable 3D sensors, displays





Pix: Empa.

The Empa logo 3D-printed (L) from the new HPC mixture changes colour when it gets warmer. The display consists of seven electrically conductive segments (R) that change colour when a voltage is applied.

Researchers in cellulose and wood materials have developed a cellulose-based material that prints bio-degradable 3D sensors and displays. This comes from Empa, the Swiss Federal Laboratories for Material Sciences and Technology.

The mixture of hydroxyl propyl cellulose with water, carbon nano-tubes and cellulose nano-fibrils changes colour when heated or stretched. This is done without the addition of any pigments.

The researchers started with hydroxyl propyl cellulose (HPC), which is commonly used as an excipient in pharmaceuticals, cosmetics and foodstuffs, among other things.

Water mixed with HPC forms liquid crystals. These crystals have a remarkable property; depending on their structure – which itself depends on the concentration of HPC, among other things – they shimmer in different colours, although they themselves have no colour or pigment.

This phenomenon is called 'structural colouring' and is known to occur in nature. It is found in peacock feathers, butterfly wings and chameleon skin.

They get all or part of their brilliant coloration not from the microscopic structures that "split" the (white) daylight into spectral colours and reflect only the wavelengths for specific colours.

The structural colouring of HPC changes not only with concentration but also with temperature. To better exploit this property, the researchers, led by Gustav Nystrцm, added 0.1 weight percent carbon nano-tubes to the mixture of HPC and water.

This renders the liquid to electrically conduct and allow the temperature, and thus the control the colour of the liquid crystals, by applying avoltage. By doing this, the carbon acts as abroadband absorber that makes the colours deeper.

By incorporating a small amount of cellulose nano-fibers into the mixture, Nystrцm's team was also able to make 3D printable without affecting structural colouring and electrical conductivity.

The researchers used the novel cellulose mixture to 3D print various potential applications of the new technology. These included astrain sensor that changes colour in response to mechanical deformation and asimple seven-segment display.

"Our lab has already developed different disposable electronic components based on cellulose, such as batteries and sensors," says Xavier Aeby, co-author of the study. "This is the first time we were able to develop acellulose-based display."

In future, cellulose-based ink would have applications such as temperature and strain sensors in food quality control or biomedical diagnostics. "Sustainable materials that can be 3D printed are of great interest, especially for applications in bio-degradable electronics and the Internet of Things," says Nystrцm.

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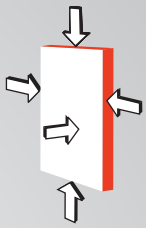

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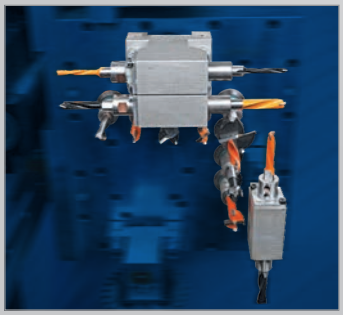

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‘Saudisation’: achieving efficiency in manufacturing

PETER HARTMANN

Saudi furniture manufacturer Al Joaib’s assignment to Schuler Consulting was to develop a solid and future-proof production concept for manufacturing and to increase productivity per worker.

The government of Saudi Arabia wants to develop the Kingdom’s manufacturing sector from manual labour to a highly automated industry through “Saudisation”.

The core of it is to increase the cost of work permits for foreign production workers and hire more local skilled workers, invest in more efficient and automated manufacturing.

In 2023, the 5-year transition period for increasing the cost of foreign work permits will end.As aresult, the competitiveness and profitability of many companies will be at stake.

The Saudi furniture manufacturer, Al Joaib, made the decision to take action and counts on Schuler Consulting’s assistance.Al Joaib is a kitchen, home furniture and bathroom manufacturer, specialising in the production, supply and installation of furniture.

The project business is specifically geared towards larger housing projects in the range of three- to four-digit residential units. Al Joaib not only produces the furniture, but also carries out the assembly service on site.

In addition, the manufacturer uses 5% of the production capacity for the retail business and special orders in the high-end segment. It also cooperates with well-known European furniture manufacturers that include Bauformat Küchen & Noteborn.

With a total of 82 employees (33 in production, 49 salaried), it produces around 20,000 cabinets per year in asingle-shift operation.The main products are Euro-style kitchens, vanity units and built-in cupboards.

Until afew years ago, the manufacturer was very well known for its kitchens with solid wood fronts. This trend has changed and today flat, melamine-coated fronts are in demand.

Increase productivity

Al Joaib’s assignment to Schuler Consulting was to develop a solid and future-proof production concept for manufacturing. The first step was not to increase capacity, but to increase productivity per worker. The goal was to reduce the work force by 30%. The planned value in the optimised production concept is now 37% less staff.

The second step was to set up the production concept in a scalable way, to enable future development steps. For example, Al Joaib can double the capacity in single-shift operation by investing step by step in known bottlenecks.

Through these investments, Al Joaib can eliminate the bottlenecks in production and is able to achieve double the output with aminimal increase in the work force.

Major optimisations were made in the areas of cutting, edging, assembly and logistics. In the cutting department, parts handling was made more efficient.

In addition, asoftware-supported cutting optimisation with an import function from the work preparation has simplified and optimised the processes at the saw.

In the current day-to-day business, Al Joaib uses a lot of resources to remove the adhesive residues. A new edge bander eliminated this rework and also minimised set-up

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WEINIG HOLZHER

Al Joaib specialises in closets, modular kitchens and bathrooms. It relied on Schuler Consulting's assistance to upgrade, automate and digitise its production, supply and installation of furniture.

time.In addition, are-circulation system was implemented, which increased the efficiency in parts handling.

Structural change

The biggest structural change took place in assembly, where a new assembly concept, a flow production using carcase press, is being implemented. Currently, the employees assemble the cabinets manually at different assembly stations in production.

In the new concept, individual assembly steps have been arranged in optimised work areas alongside an assembly line. This includes separate pre-assembly for drawers and front fittings, as well as an optimised pre-insertion area, front and drawer assembly and attached packaging.

Kitchen and bathroom cabinets are currently screwed together by hand during assembly. The cabinets can now be pressed together using a carcase press with a pure dowel connection.There will also be acommissioning areafor the carcase parts and fronts upstream of the assembly.

Eventually, Al Joaib will consistently use a transport and buffer system in the form of roller conveyors for logistics in pre-fabrication.Transport has been made easier viaroller conveyors, without auxiliary means.

Newly arranged fixed buffer locations allow

The King Abdulaziz Center for World Culture aims to build 'Ithra' (enrichment) in the Kingdom. Its motto is 'Accelerating Potential, Inspiring Minds'.

(Courtesy: sashapritchard, stock.adobe.com)

simpler intermediate storage of components between processes, and limit the production quantities in upstream processes, thus preventing over-production.

The new logistics concept simplifies the material flow, enabling better control of the production process and creating more transparency about production performance.

Flexible drilling

To improve flexibility, accuracy and quality in drilling, the company has invested in new drilling machines.Although Al Joaib operates in the projects business, the production volumes do not justify the acquisition of ahigh-performance drilling machine.

For this reason, and to maintain scalability, amore flexible drilling concept is used.This can efficiently handle the entire spectrum of parts, where flexible machining allows the batch sizes to stay minimised.This creates more flexibility in production planning and subsequent delivery.

Al Joaib has used the state-driven modernisation offensive to set the course for the future.It remains to be seen whether other companies will be able to do the same.

A wave of modernisation, digitalisation and automation is rolling towards Saudi Arabia that will produce winners. The message is clear: 'Those who do not follow suit and modernise in order to be competitive will have to discontinue their business in the long term'.

The investments in the areas of digitalisation are paying off in Saudi Arabia. The state subsidises projects that fall under the heading of 'Industry 4.0' with up to 75% from various funding sources.

– The writer is a Senior Consultant at Schuler Consulting and is active in Europe and South-East Asia. He supports companies in the furniture and timber construction industries in setting up and implementing efficient, modern factories.

Where Altendorf precision matches creativity

The Altendorf machine helped improve accuracy, reduce waste and increase production capacity.

A Bengaluru-based woodworking shop, Loyora, specialises in crafting hand-made wooden toys for children. Seeking to improve efficiency and precision in their manufacturing process, it decided to invest in an Altendorf WA8T panel saw.

Loyora aimed to enhance its toy-making process by using the Altendorf machine to improve accuracy, reduce waste and increase production capacity.

Loyora's design team creates digital designs for various wooden toys using CAD software. The designs are then translated into cutting patterns that optimise material usage.

Quality wood sections, or sheets of plywood, or MDF boards are selected for toy production. These sections/ sheets are loaded onto the Altendorf machine's cutting table.

The Altendorf machine's precision cutting capabilities allow for accurate cuts according to the predetermined patterns. The operator uses the machine's calibrated fences to set the desired dimensions and angles for each cut.

Some wooden toys have intricate/ complex shapes and angles. The Altendorf machine's tilting saw blade and adjustable fence allow for precise bevel cuts and angled edges, enabling the creation of complex toy parts.

The WA8T panel saw's precision and optimisation features minimise material wastage. Loyora experiences reduced scrap and more efficient use of wood sheets, leading to cost savings over time.

Speed+ accuracy

The speed and accuracy of the Altendorf machine lead to increased production capacity. Loyora can now produce more toys within a shorter time frame, meeting customer demands more effectively.

After cutting, the wooden toy parts are sanded, finished and assembled manually by the skilled craftsmen at Loyora. The parts fit together seamlessly due to the precise cuts from the Altendorf machine.

Loyora experienced several positive outcomes after integrating the Altendorf panel saw into their toy-making process. The accuracy of the cuts improved, resulting in better-fitting toy parts.

Loyora successfully leveraged the Altendorf WA8T panel saw to enhance its toy-making process. The precision, efficiency and flexibility offered by the machine contributed to improved product quality and reduced waste, and increased customer satisfaction.

The intricate and complex shapes and angles of the wooden toys were machined to perfection with the WA8T's tilting saw blade and adjustable fence.

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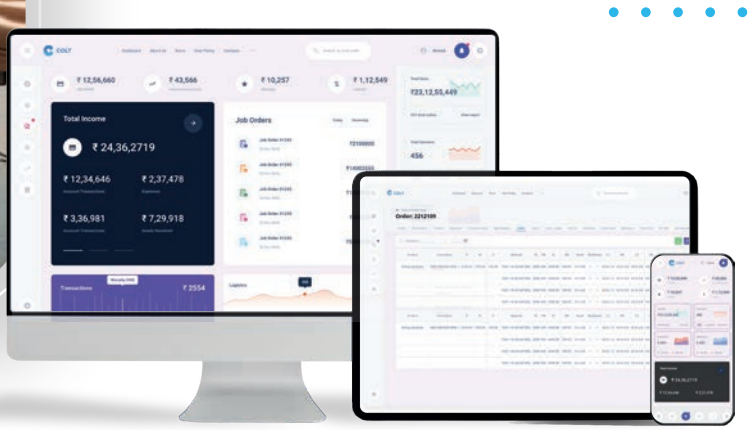

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'Infra.Market much more than e-commerce platform'

Technology-enabled, business-to-business, e-commerce platforms are increasingly emerging to bridge the gap between material manufacturers and suppliers on the one hand, and project consultants and operators in the construction, interiors and furniture industries on the other. *WoodNews* spoke with **Mr Shekhar Chandra Sati**, Chief Operating Officer of the wood vertical at Infra.Market, to assess the USP of his business. Excerpts:

You talk of Infra.Market as a one-stop shop for all construction material requirements. Could you elaborate on the range of your products?

We already have a strong presence in the B2B market by owning India's two strong concrete brands, Infra.Market and RDC concrete.Apart from AAC blocks, we made astrategic acquisition of Shalimar Paints in 2022.

We recently acquire some steel plants. We are venturing into electrical appliances with our own manufacturing set-ups. We have plumbing, tiles, faucets and sanitary ware products.

We have now entered the MDF, plywood, laminates and modular kitchen sector. In many ways we are truly defining the 'one-stop solutions shop' concept. You will see Infra.Market and our lifestyle brand, IVAS, acquiring more display spaces in dealers/ retailers shop in the coming days.

Why the need for e-commerce platforms in the construction and interiors businesses? What particular advantage(s) does Infra.Market provide to the supply and demand sides?

Infra.Market is not just an e-commerce platform. Multiple building materials and products from Infra.Market and IVAS will be available for consumers through the already existing retail and wholesale network across the country, as well as at our company- and franchise-owned showrooms. Having self-owned and self-controlled manufacturing set-ups in multiple product categories, we can provide ease to dealers and distributors to buy from one stop and save their time and money, along with the assurance of quality.

Can you walk us through Infra.Market's infrastructure across states?

We have our plywood and MDF factories in Yamunanagar and Rudrapur, in which we invested 700 crore. Another MDF plant is coming up in Andhra Pradesh, with a capex of 400 crore.

For concrete we have our own manufacturing units in Maharashtra, Karnataka, Andhra Pradesh, Uttar Pradesh, Rajasthan and Haryana.Our steel plants are coming up in Vidarbharegion in Maharashtra.

The tiles, faucet and sanitary ware factories are coming up in Morbi region in Gujarat.Our electrical appliances factory is coming up in Telangana.

We already have anetworkof dealers, retailers and distributors across India.Of these, 27 self-owned stores are operational now, in Mumbai, Pune, Bengaluru, Ludhiana, Pinjore and Hyderabad.We plan to open many more such stores in the coming days.

MDF is one of the fastest moving products in the Indian market, sales of which are growing at 30% year-on-year.

– Shekhar Chandra Sati, COO (wood), Infra.Market.

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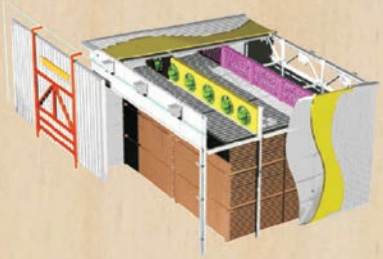


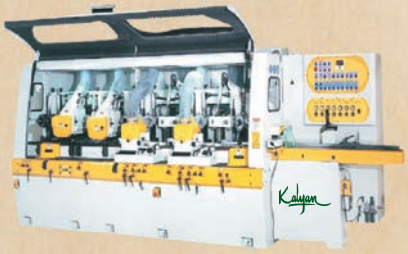
Straight Line Rip Saw

Multiple Rip Saw

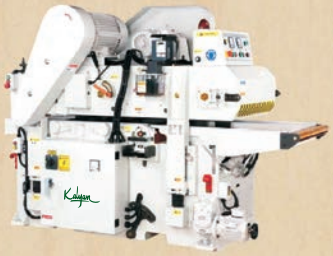
Gang Rip Saw

Vertical Band Re-saw

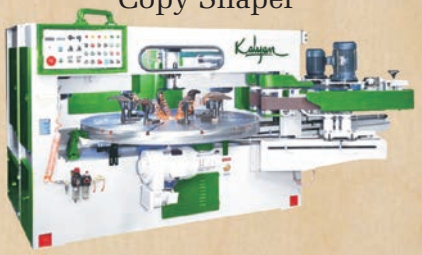
Four Side Moulder



Double Side Planner



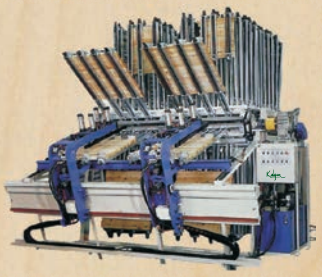
Heavy Duty Automatic Copy Shaper



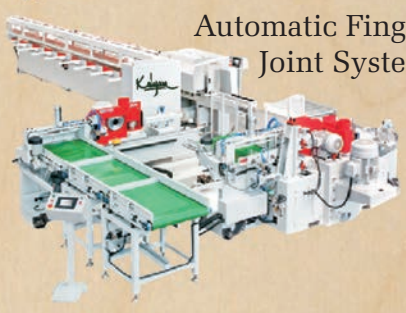
Oscillation Mortiser

Rectangular Tennoner

Clamp Carrier



Automatic Finger Joint System



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In HDEMR, Infra.Market is the only company offering a warranty of 7 years.

In a plywood-dominated market, you seem to be very upbeat about MDF. Why?

MDF is one of the fastest moving products in the Indian market, sales of which are growing at 30% year-on-year for the 5 years. MDF's share of the current panel market is a decent 25%. So, there is decent scope for the entire MDF category to grow.

However, we are equally focused on plywood and are investing in another two plants in a big way. Our focus is to be on the top in every product category we offer.

How big is the domestic demand for plywood and MDF in recent years?

The combined domestic market for MDF and plywood/ particle board is around 70,000 crore, out of which MDF is around 8,500 crore, which will grow further. The growth of MDF was rapid in the last 5 years, from approximately 1,500 crore to 8,500 crore now. Plywood will also continue to grow, but its growth will be less as compared to MDF.

In plywood, what are the brands, grades, sizes, certification and warranties that you offer?

We offer all products in plywood, right from MR grade 303 Timba series, BWR grade 710, PU, MUF, and BWP grade marine series, to fire retardant plywood, etc. Each product comes at a reasonable price, in Okume and Gurjan face. We have all offering, sizes and thicknesses that the market needs and demands.

What brand(s) of MDF do you manufacture and where? What are the grades, sizes, certification and warranties that come with it?

In MDF we have all grades: for interior and exterior applications, HDEMR and pre-laminated MDF in all three grades. These are produced by us in Yamunanagar and Rudrapur. In HDEMR, we are only company offering a warranty of 7 years!

We have completed all certifications applicable for our products. Apart from this, we also import good quantities – even here, our supervisors are diligent about quality control.

Infra.Market manufactures a range of plywood products: MR grade 303, BWR grade 710, PU, MUF, BWP grade marine series and fire-retardant plywood.

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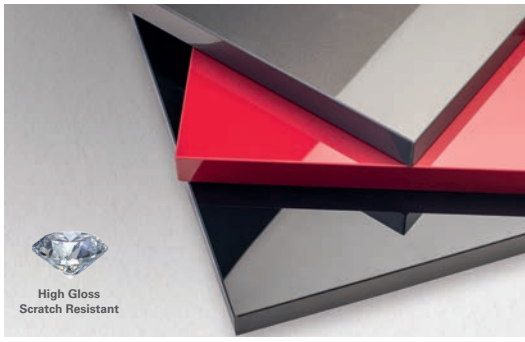

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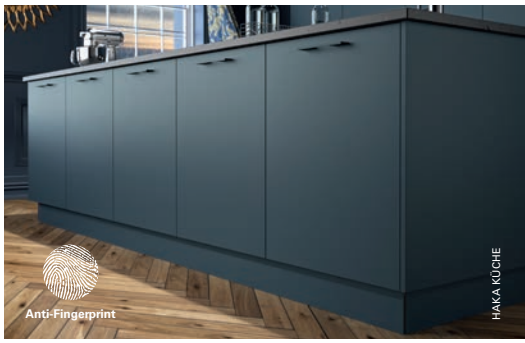

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What can you say about their design and applications in interiors and for furniture?

MDF and plywood are used for furniture making, wardrobes, doors, kitchen cabinets, school and commercial furniture. Both plywood and MDF are being used extensively in interiors (wall panelling) and in decorative products.

If you are able to offer economies of scale on material pricing, how do the customers benefit?

We have opted for a unique pricing model where our focus is to offer value for money to traders as well as end users. We have kept our pricing very competitive and at par with the market, despite our low margins. We are focusing on building the categories by offering genuine products at genuine pricing.

What is your road to market like in terms of manufacturing and quality assurance; inventory and warehousing; distribution and sales?

Our strategy is to have manufacturing facilities close to our targeted markets for MDF and plywood; then build a dealer/ distributor network across India. However, for laminates, we will initially do production from one location and will appoint zone wise distributors to penetrate all markets.

Who are your prominent customers in the woodworking sector?

In the months since our wood vertical launch, we have catered to government and institutional projects, and worked with private builders, contractors, architects and interior designers.

You have more than 26 years' experience, including as President (Sales & Marketing) with Greenpanel Industries. Can you tell us what you bring to the table for Infra.Market?

Being in this industry for almost 26 years and working with different product categories of building material, I have a decent understanding of what a dealer/ retailer/ architect/ interior designer and end user expects from a brand. I also understand the pain points of end users and what solutions to offer them.

With Infra.Market, which is a young company with innovative ideas, I believe I will be able to develop and create a good consumer, dealer, retailer and market-friendly brand soon.

Can you tell us a bit about the founders, Mr Aaditya Sharda and Mr Souvik Sengupta?

Both of our founders are dynamic young minds in their early 40s, very sharp and having a clear vision about whatever they plan. They believe in running their businesses through knowledgeable and experienced leaders in the respective product categories. Their focus is to understand the buying behaviour of customers, give them the best and bring positive disruption in the building materials market.

Both plywood and MDF are being used extensively in interiors (wall panelling) and in decorative products.

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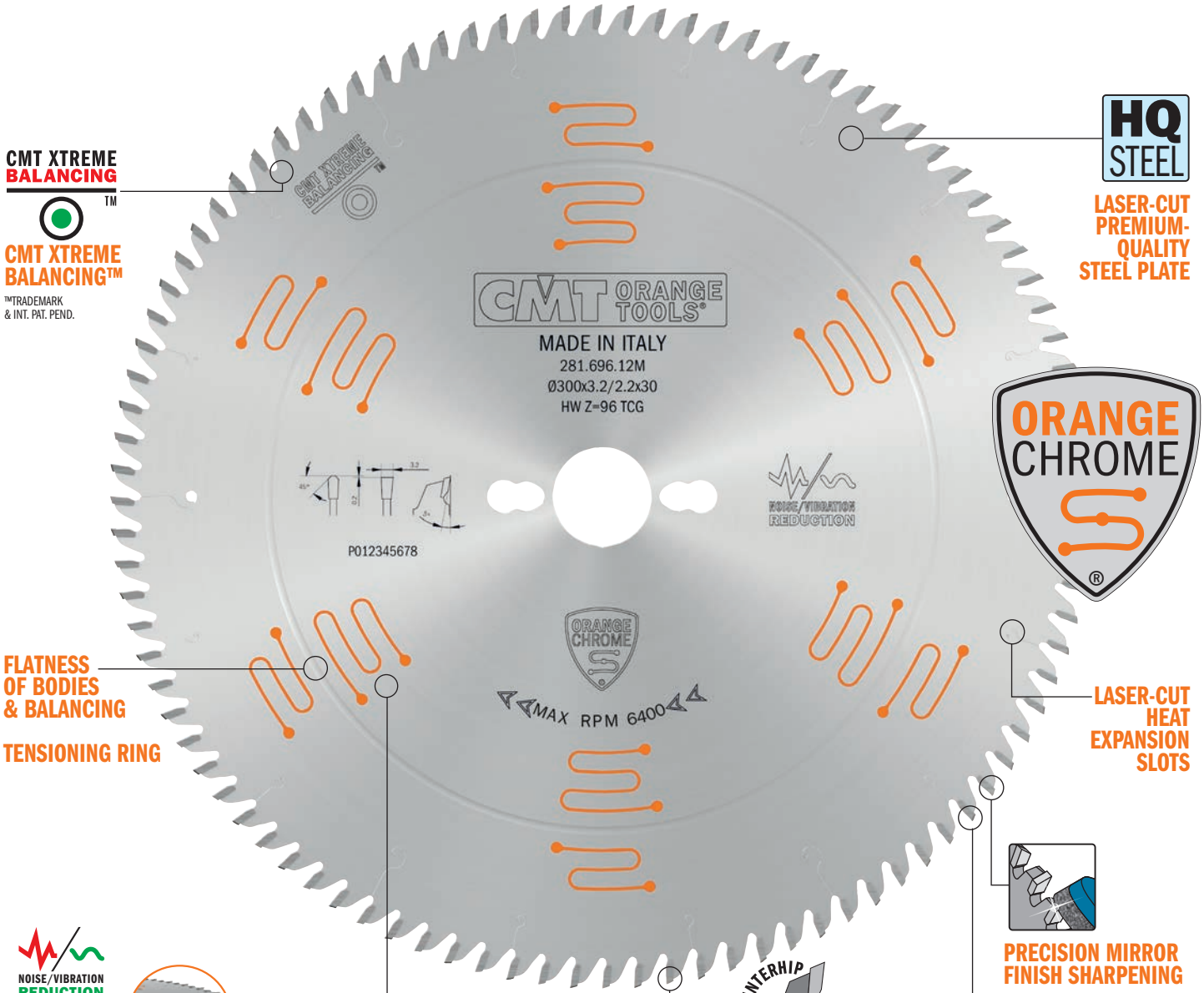

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Printing papers for decorative laminates

T.K. UNNIKRISHNAN

Impregnation is a process where the filler materials like paper, fabric, glass, asbestos, etc., are populated with required levels of resins and is also called treating.The process allows the filler material to come in contact with the resin. This resin-dipped paper or fabric may be wet and is dried by passing through ahot chamber.The material is then either rolled into reels or cut to the size of the laminate.

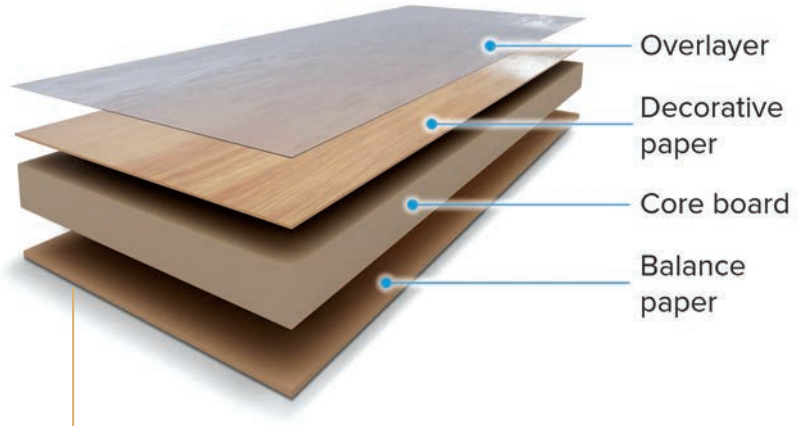
There are two types of impregnation techniques: Using avertical drying chamber for drying the wet materials; and using a horizontal drying chamber for drying the impregnated, wet materials. To increase drying efficiency and production output, more drying chamber sections can be added.

The horizontal type of impregnation and drying is done in air float-type dryers.Air is pumped from the top and bottom jets and the quantity is adjusted so that the wet materials passing are kept afloat, without touching the metal parts of the hot air jets.

If the wet paper comes in contact with sharp metallic parts it will snap, resulting in paper breakage. While designing the machine, engineers ensured that the air pressure from top and bottom are balanced to keep heavy wet material afloat.

The machine, with a working width of 54 inches and three drying sections of 5 metres each, can produce 4-foot-wide laminated sheets. Multiple-section drying chambers are in vogue for medium-sized industrial units. An impregnating machine will have the following sections and areas:

- Dual unwinding station with automatic roll splicing (jointing) arrangement at the starting (dry end)
- Automatic device to control the tension of the paper while it is being run
- Four guide rolls and a dancing roll for paper to travel before entering the resin tray.The dancing is provided to auto-adjust the tension if some variation occurs due to voltage fluctuations, frequency variations, etc.
- A dip roll is provided at the entrance to allow the paper to remain dipped and in position
- Three dip roll positions are provided to allow for paper with along, medium or short dip
- A pair of sky rolls on top for delayed movement of paper after the dip in resin and to re-enter the tray
- Scraper roll-blade assembly to remove excess resin that the paper or fabric carries before it enters the next stage
- A pair of doctor rolls or squeezing rolls to remove excess resin absorbed



Layers of papers in melamine-faced boards.

- Smoothing roll assembly of three rolls fitted with avariable speed drive and aforward-backwards drive for smoothness to the top surface of the impregnated material without resin lines, marks, spots, etc.
- Guide roll to guide paper into the hot air dryer
- Chain-cum-cross bar (horse) arrangement to convey the clip-attached material to the end of the dryer, known as the threading arrangement. This system is disengaged as soon as the paper reaches the dry end

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Kraft paper impregnation line.

- Air cooling section fitted with an exhaust fan, hood and duct line to throw the hot and fumy air out
- Cooling rolls assembly of three or four rolls provided with water cooling to cool the impregnated and hot paper before cutting or rolling into areel, thus avoiding pre-mature curing of impregnated resin during storage
- Pneumatically-operated sheer to cut the paper to size. Rotary cutters are found to be less efficient
- Collection table with a scissor lift arrangement to collect the cut sheets of impregnated materials, preferably on a wooden pallet
- Each section has a blower and exhaust fan to pump hot air into the dryer and remove fumes of formaldehyde and unwanted matter through the exhaust outlets
- The machine is fitted with valves to control the entry of heating medium-steam or thermic fluid into pipelines and radiators for proper distribution of temperature inside the dryer
- The machine is fitted with speed-control devices, speedometers, temperature indicators, counters for the number of sheets produced and pressure gauges for air, water, steam, etc.
- The drying chamber is insulated with glass wool in the outer walls to ensure proper thermal insulation.

Kraft papers

Multiple drying chambers are used to impregnate natural Kraft papers, while two or three chamber units are deployed to impregnate design papers and overlay tissue papers.

All guide rolls are made from stainless steel rolls. Where the rolls do not come in contact with the resin, rubber or ebonite rolls are also used.

The doctor roll or the squeezing rolls are of chilled, cast-steel construction. These rolls are further ground to very fine accuracy (3 to 5 microns) and hard chrome plated to a coating thickness of 5-6 thou.

Natural Kraft paper is mounted on the machine and treated with phenol- formaldehyde resin to produce impregnated Kraft called decorative core, which forms the base for the laminate. The decorative core numbers are increased or decreased depending on the thickness of the laminate to be pressed.

During impregnation of the decorative core, three important parameters for producing good-quality laminates are tracked:

- Percentage of resin picked up by the paper or fabric
- Percentage of volatile matter that is retained by the paper after impregnation
- Flow property of the impregnated material, calculated either in percentage terms (European standard) or terms of measurement (British\American standard).

Equipment for testing these properties are substance indicator; punching press or templates to cut samples for testing; flow press to test the flow; and laboratory oven 0-300 degree C range.

Natural Kraft comes in different substance weights measured as grams per square metre (GSM). Papers having a GSM ranging from 100 to 200 are used in the manufacture of decorative laminates depending on the thickness and desired properties. These papers are specially known as absorbent Kraft papers.

The absorbency and penetration properties are tested along with a few more parameters and paper is manufactured to these specifications by the paper mills.

These tests are conducted in the main quality control laboratory, while other data like resin percentage, volatile content and flow property are tested in the process control laboratory near the machines, to make corrections if necessary.

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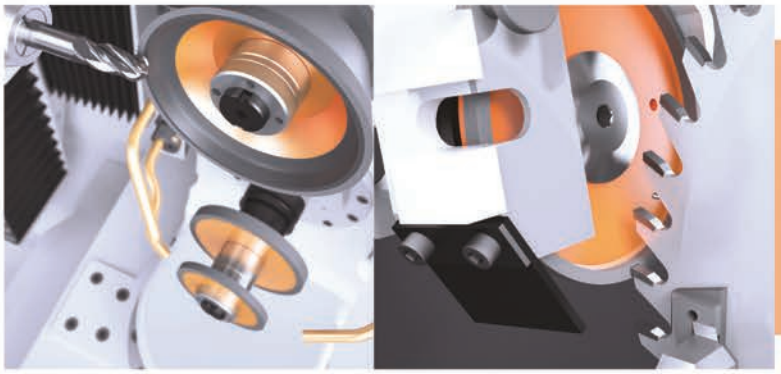

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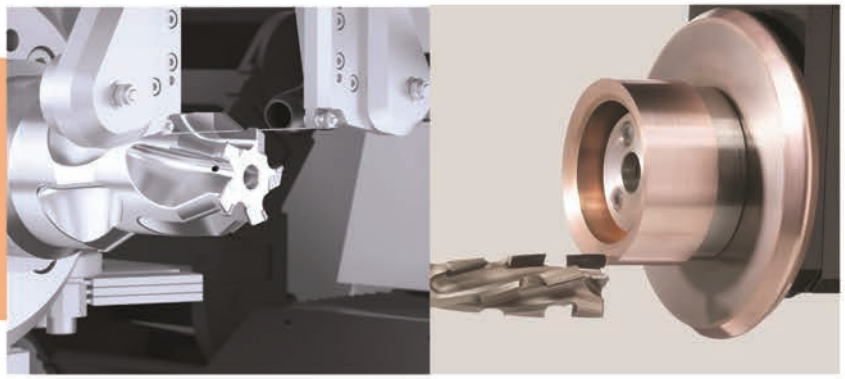

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Decorative core is the phenol-formaldehyde resin treated or impregnated natural absorbent Kraft paper, used as the body for producing decorative laminates. This is manufactured from absorbent Kraft papers of varying substance weights starting from about 80 GSM to 200 GSM.

Low resin content core

Low resin Kraft papers have low volatile content and low flow content. An increase or decrease of resin content is done by manipulating the squeezing rolls, either by opening and increasing the gap between the roll or decreasing the gap, whereby excess resin absorbed is squeezed out.

While a certain amount of resin content gives acertain volatile and flow content, it is not a thumb rule as other factors like gel time, cure time, solid content, the water content of resins etc., are important.

Medium resin content decorative core material will have slightly higher resin content, volatile matter and flow content compared to low-resin content core materials, but lesser than that of high-resin content cores.

These grades are generally known as OK core and form the middle portion of the body of the laminated sheet. The resin flows from a higher level to a lower level and enables the laminated sheet to remain flat without creating any dimensional instability or distortion.

High resin content core has higher volatile and flow properties, within specified and standard limits and is also called the base core. This level of high resin, along with high levels of volatile matter and flow contents, compensates for the pull of the laminate towards the surface due to comparatively high shrinkage property of melamine formaldehyde to that of phenol-formaldehyde resins, the lower layers being heavy.

This upward pull forces the laminate to bend upwards leading to front warping of the pressed sheet. The heavy, high-resin content core material takes care of this problem and keeps the laminate flat on its back.

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Colour & designs

Solid colours and printed design papers form the decorative part of the laminate and are different from absorbent Kraft papers. While natural absorbent Kraft papers are brown in colour and unbleached, absorbent base papers are made from bleached pulp.

The coloured and pigmentation are as per requirements. These papers vary from 40 GSM to 80 GSM, while plain or solid colours vary from 80 GSM to 200 GSM in substance weights.

Melamine paper impregnation line.

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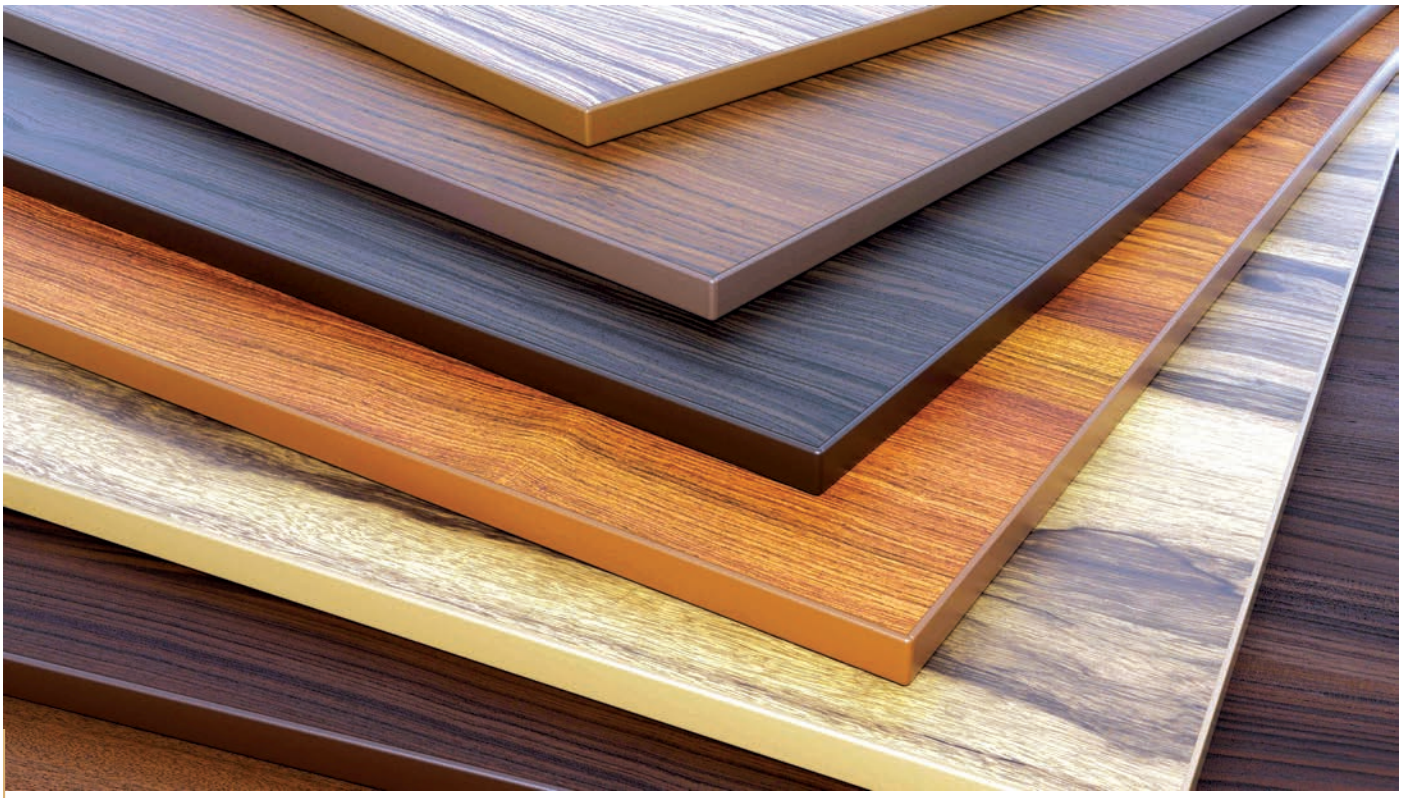

The many avatars of phenolic resins construction laminate papers.

The papers are impregnated with melamine formaldehyde resins as they are clear in colour and will not interfere with the plain or printed colours. These designs and plain colours are treated using sky rolls for better resin absorption and penetration into the paper due to the long distance and time available to induce this.

Wetting agents can be added to improve the penetration properties of the paper. Moreover, these papers form the top layer as melamine resins can impart better surface properties like temperature, weather and stain resistance, etc.

These designs are directly pressed over the press moulds or with an overlay tissue paper over the design paper, depending upon the grade of laminate. Never use overlay tissue paper or plain or solid colours as there are no printed design to protect from abrasion.

Plain colours are accordingly impregnated to a higher degree of resin content to incorporate better surface resistance through higher melamine content.

Overlay tissue papers are manufactured from very fine and refined alfa cellulose pulp and used in a substance weight range of 14 GSM to 40 GSM. Thinner the paper and lower the substance weight is a better option in terms of clarity of printed designs and in terms of cost inputs.

Barrier paper is a white base paper that has more or less the same properties, including titanium dioxide loading, but to a lesser level. This layer of paper, impregnated in melamine formaldehyde, melamine urea formaldehyde or urea formaldehyde resin, is used as a substratum below light plain or solid colours to avoid phenol formaldehyde resin seepage from the decorative core below the plain colour.

Barriers under the design papers give a natural look, avoiding any shades of the phenolic Kraft cores. Barriers are sometimes used below certain light wood grains, marbles and flowers etc., to retain their original shades.

(Concluded)

—The writer, who passed away recently, was an expert in chemistry in the high-pressure laminates industry, with 55 years' experience. This is the final part of a series of articles that first appeared in the Sept-Oct, Nov-Dec, 2022, and Jan-Feb 2023 editions of WoodNews. It is an abridged extract from his new book, 'Chemistry & Technology of High Pressure Laminates'. To buy the book, write to ukjay41@yahoo.co.in.

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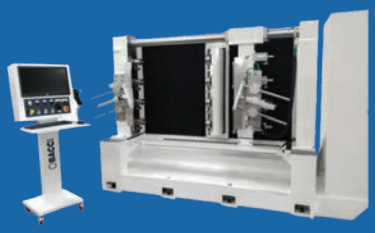

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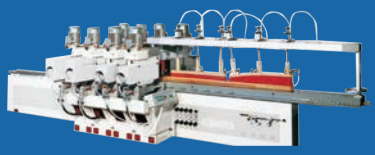

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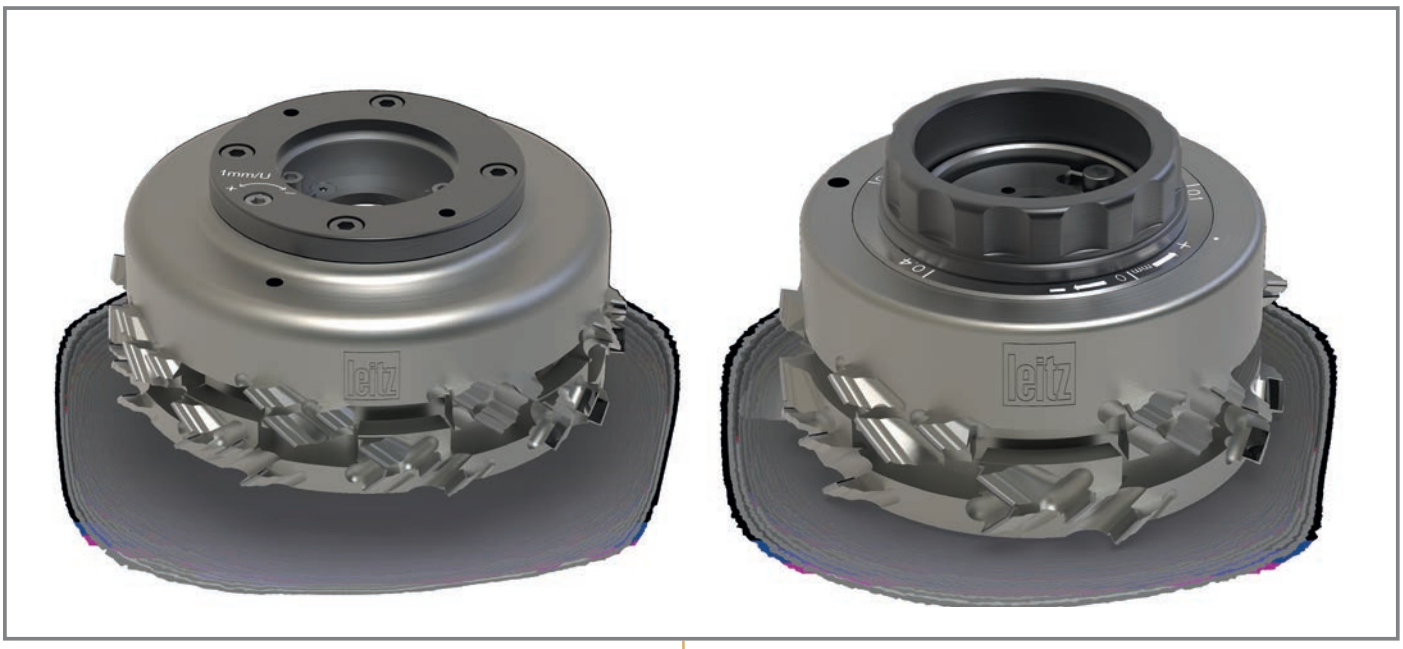
Tool life addition in jointing, sizing operations

ANDREAS KISSELBACH & DR JUERGEN GRAEF



An example of how these still sharp cutting edge areas can be used for tool life addition is the specially developed, width-adjustable jointing cutter from Leitz.

Furniture and kitchens, as a form of expression for individuality and lifestyle, could not be more diverse in their type and construction. Since consumers are increasingly switching from utility and functional objects to lifestyle objects, the demand for quality in terms of materials, manufacturing quality, utility value and design is increasing.

For manufacturing companies, the resulting growing variety of materials with sophisticated surfaces, coatings and structures is essentially decisive for the high demands on the production technologies used in throughfeed technology.

Particularly in view of the processing costs, producers are forced to create their production processes more and more flexibly and efficiently – partly due to the special market and competitive situation in furniture production, which increasingly focuses on the topic of cost optimisation.

Sizing panels

Furniture and kitchen manufacturers increasingly have to deal with issues such as productivity, efficiency, flexibility and quality in order to be successful with their products on the market.

Against this background, the sizing of furniture panels, as a finishing operation before edging, takes on akey function in the entire production process.The line between the required processing quality and the maximum economic efficiency of the overall process is particularly narrow here, and in many cases holds unimagined potential for optimisation.

Particularly in the case of high-quality fronts (with a so-called zero-joint look), in combination with high-gloss and matt coatings, valuable real wood veneers or finish foils, perfect machining of the decorative edges and narrow sides is absolutely essential before edge banding.

The aim is always to achieve an almost invisible glue joint and atightly closing edge.From an economic point of view, these challenges can only be solved with suitable, perfectly coordinated machining and tooling concepts.

Frequent tool changes and the associated machine

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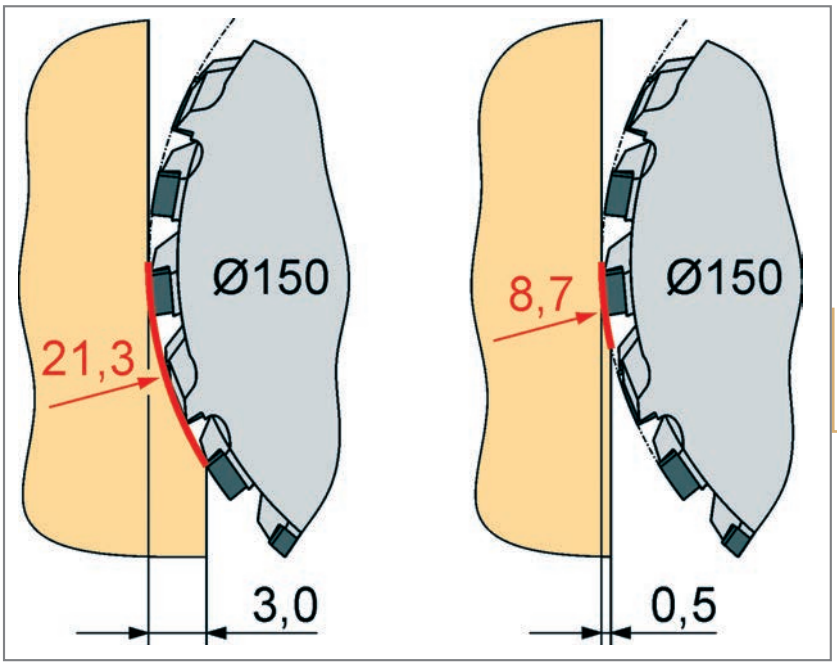

Leitz recommends the use of double hoggers for pre-cutting if the material removal exceeds 0.5 mm, in order to protect the quality-relevant jointing cutters.

downtimes reduce productivity and drive up production costs. An additional cost factor is the resulting stockpiling of replacement tools, because these tools also have to be purchased and constantly available to ensure a smooth production flow.

Tool life

The decisive factor for significantly reducing production costs is, therefore, the use of tools with particularly long tool life. This is actually, a simple task. For many users, however, the question arises as to how this should be possible at all, given the general state of development of current tool technologies.

After all, common tool systems hardly differ from each other at first glance. The magic phrase here is: “tool life addition“.

Perfect edge quality can only be achieved with the described surface materials on chipboard or MDF by circumferential cutting with diamond tools, the so-called jointing.In the course of the cutting process, the used diamond cutting edges wear out, especially in the areaof the top layers.

Cutting edge areas that lie outside the tool contact, however, remain unused.With the concept of tool life addition, these unused cutting edge areas can be brought into the quality-relevant machining zone.

In practice, this is done by the axial adjustment of the jointing tool.The result: tools can remain in use over several tool lives.

An excellent example of how these still sharp cutting edge areas can be used for tool life addition is the specially developed, width-adjustable jointing cutter from Leitz.

By adjusting the width of this two-part tool system, unused cutting edge areas can be brought into use in the quality-forming cutting areaof the surface layers when the machining quality decreases.

The adjustment is carried out in millimetre steps in just afew operations.This way, the life of such atool can be significantly multiplied in comparison to one-piece jointing cutters.

For example, by adjusting the tool sixtimes, the tool life is achieved seven times before the tool needs to be re-sharpened.The operator does not have to correct the spindle position, as the width adjustment of the tool is synchronised with the top and bottom of the panel.

Maintaining accuracy

This is an immense advantage, considering that fewer tool changes and no time-consuming adjustment work are necessary for positioning the tools, thus significantly increasing the productive times.

Practical applications have proven that machine downtimes can be reduced by up to 80% compared to conventional tool changes.

The challenge for the tool manufacturer with such adjustable tools is to achieve the same accuracy as with one-piece tools and the functional reliability under the influence of dust and chips.

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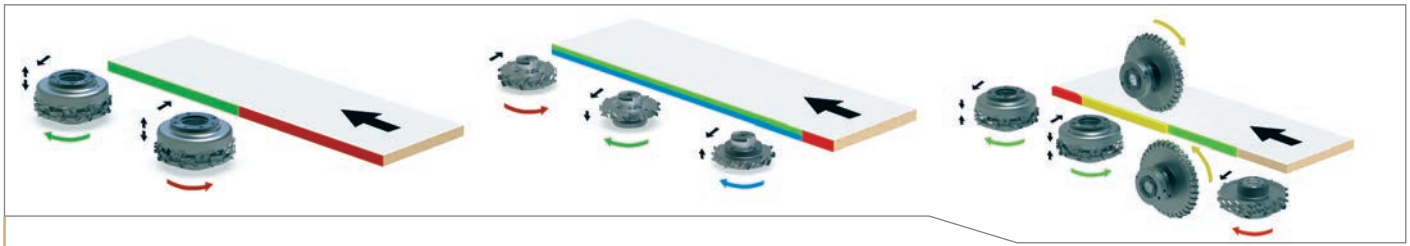


The range of concepts extends for machining solutions from two to five spindles.

A specially developed hydraulic clamping system with user-friendly operation of all functions from above and integrated dust protection guarantees the highest precision and reliability of the tool system.

Since the wear and tool life of jointing cutters is very strongly influenced by the infeed (chip removal), it is recommended to use double hoggers for pre-cutting if the material removal exceeds 0.5 mm in order to protect the quality-relevant jointing cutters.

Depending on the machine configuration, the parts spectrum and the production volume, Leitz has developed different jointing concepts for "tool life addition" for use in almost all common throughfeed systems. These are concepts ranging from mere jointing with manual width adjustment to fully automatic width adjustment with pre-cutting.

Five-spindle concept

The range of concepts extends for machining solutions from two to five spindles. For individual application, it is important to select the most reasonable machining concept for the customer, so that he can optimally design his overall process and ultimately produce with the greatest possible economic success.

The fully automatically operated five-spindle solution concept is already being used by numerous users. Despite its complexity, with the aid of several tool systems, very impressive savings in the overall process have been demonstrably achieved with this concept.

At the beginning of the machining process, a protective cutter cuts the front edge of the workpiece to the finished size in the counter-rotation and then stops again after only a few centimetres (red).

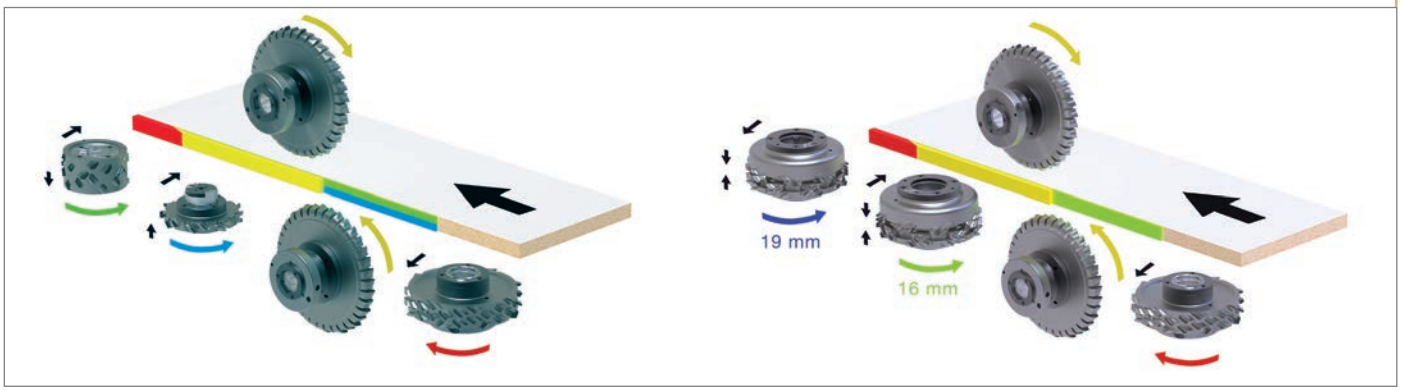
The double hoggers (orange) working with feed then take over the pre-chipping of the remaining panel length down to a small tolerance of ideally about 0.5mm to the finished contour.

Also working with feed, two staggered jointing cutters produce the finished edge – the first as a rebate cutter, responsible for the bottom edge of the panel (blue), the second for the top edge of the panel (green).

If the edge quality decreases, both jointing cutters, one from below and the other from above, are automatically adjusted by 1 mm by axially adjusting the spindles.

As a result, the previously unused cutting edge areas now take over the processing of the decorative coating. By moving the jointing cutters several times, the desired tool life addition and thus a multiplication of the total tool life is achieved.

A protective cutter (L) cuts the front edge of the workpiece to the finished size in the counter-rotation and then stops (red). The double hoggers (orange) working with feed then take over the pre-chipping of the remaining panel length. The wear on the cutting edges is always concentrated on defined areas and the width adjustment results in the tool life addition (R).



This five-spindle concept can of course be adapted to any range of parts to be produced.If, for example, two different panel thicknesses of 16mm and19 mm are to be machined, then the width-adjustable jointing cutters described above can be used on the two finishing spindles, which then machine one of the two panel thicknesses of 16mm (green) and 19mm (blue).

Re-conditioning needs

The concept of tool life addition as the innovative solution in the area of jointing and sizing brings advantages that almost every manufacturing company in the area of furniture and kitchen production would like to have.

Furniture manufacturers who are looking for solutions to achieve consistently high machining quality, longer tool life, shorter set-up and downtimes, lower production costs and satisfied employees will have to deal with this topic sooner than later.

The topic of jointing concepts and tool life addition is flanked by the re-conditioning of worn or damaged tools. Here, additional sharpening cycles on the tool and thus further savings can be achieved through appropriate professional sharpening.

Finally, it is not unimportant that the sharpening of diamond-tipped cutting tools is carried out by qualified staff and that only as much material is removed from the cutting material as is necessary during the sharpening process.

The professional service that Leitz offers in its more than 120 sharpening services around the globe is designed to conserve resources in this way. Here, the tools delivered are cleaned, sharpened and re-measured so that they can be used again by the customer after ashort time, including ameasurement report (plug and play).

All Leitz tools are serialised (RFID chip) so that they can be managed individually and that, with future machine generations, even an automatic data transfer between tool and machine would be possible.

With its innovative, efficient and sustainable machining concepts and tool solutions, Leitz proves that economy, flexibility and quality can be combined.

– Mr Andreas Kisselbach is Head of Research & Development at Leitz. Dr Juergen Graef heads the Leitz Technology Centre in Oberkochen, Germany.

SCM shares seven decades of customer satisfaction

The new SCM headquarters in Rimini (L), and the Woodworking Division head, Mr Luigi De Vito (R).

SCM Group's first woodworking machine dates back to the year 1952, led by Aureli and Gemmani families.The Italian company offers an extensive range of materials and industrial components in the woodworking sector, at an international level.

Over time, it has developed technologies and has taken over leading brands not only to complete all the processes involved in secondary woodworking but also in advanced materials, plastic, glass, metal and marble.

The group's history dates back to 1935, when Nicola Gemmani and Lanfranco Aureli, experts in mechanics and foundry work, started working together.In 1952, the first woodworking machine, L'Invincibile was created. It was designed by Giuseppe Gemmani, Nicola's son.

This machine was meant to be special, much simpler and more practical than those already on the market. It was also intended to meet the needs of a market that would be capable of every kind of furniture.

SCM quickly created a complete range of woodworking machines that paved the way to conquering all the global markets. In the 1960s, Adriano and Alfredo Aureli, Lanfranco's children, joined the founders.

Together with Giuseppe Gemmani, they led and expanded the company even further with the opening of directly controlled branches across the globe.

Strategic acquisitions

In 1976, SCM developed the first machining centres and systems for solid wood windows and doors.In the mid-80s, they started acquiring well-known brands in different wood-working environments.

It further consolidated the company's global leadership: Mahros for automation systems (1984), Minimax for woodworking (1985) and at the end of the '80s, Gabbiani, DMC and Morbidelli, leaders respectively in sizing, sanding and CNC panel machining centres.

In the following years, development of other leading technologies and other acquisitions (Superfici in 2004, CPC and Sergiani in 2006, Celaschi in 2007) took place. And the group further expanded its range to cover all the production requirements in the industry.

SCM is now celebrating 70 years of accompanying the customer through each of the processes linked to the world of panels, solid wood, timber construction and woodworking.

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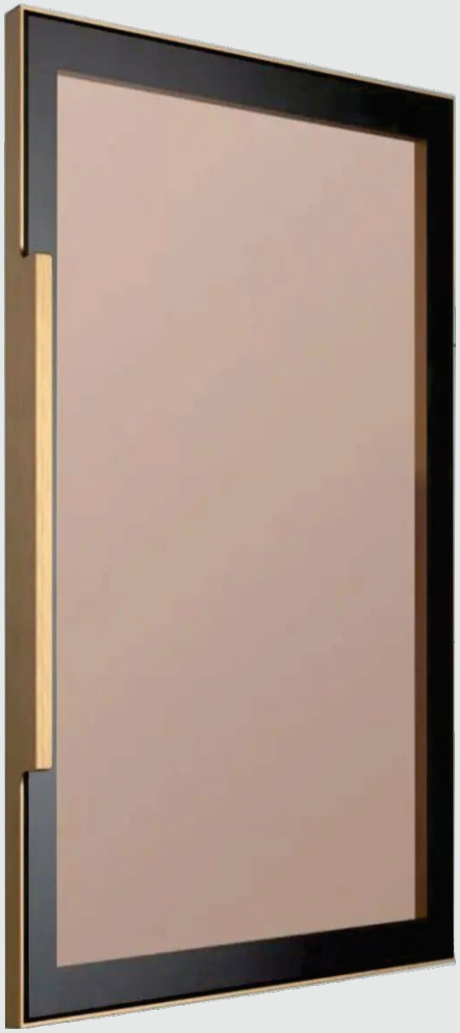

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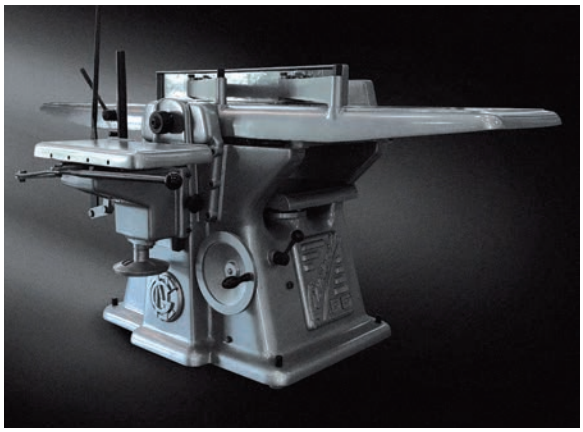


The founders, Giuseppe Gemmani and Lanfranco Aureli (L) and their first woodworking machine, L'Invincibile (R), in 1952.

Luigi De Vito, SCM Division Director and Group General Manager says, "We aim to be even closer to our customers with highly personalised solutions, tailored to suit their specific requirements."

"To us, this means offering continuous and more valid support to our customers; fully understanding and anticipating what they really need; as well as providing even more pro-active recommendations," he added.

In order to achieve this, SCM is investing in the skills of its global team, on the technical, sales and after sales side, and the group's training campus is playing akey role in this.

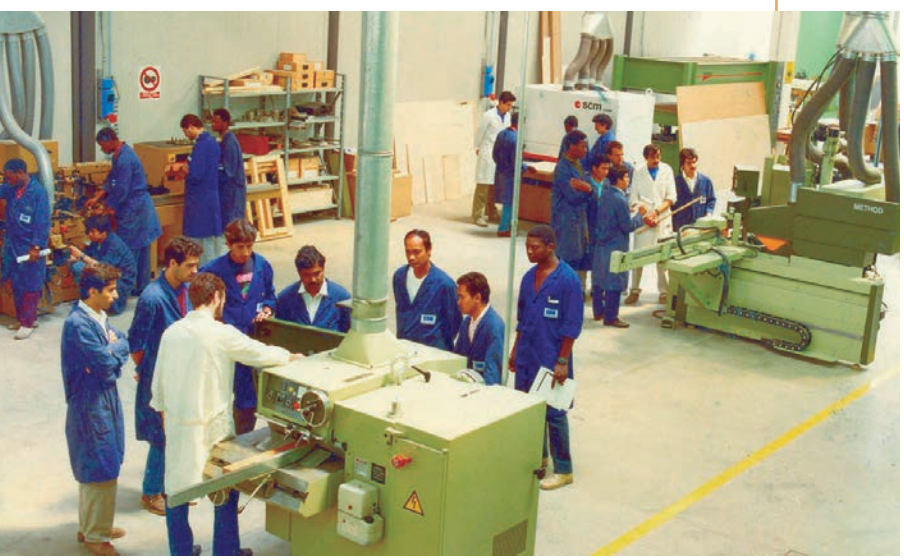
Smart manufacturing

Simultaneously, the group is upping its digital transformation process on two levels.Internally, it is renewing organisational and international models with the customer throughout the customer's journey.

At the level of offering the product and services, it seeks to be even closer to the clients' business needs and jointly study the best strategy for smart manufacturing.

For SCM, all this translates into digital and connected technologies designed for more efficient, sustainable factories. IoT (Internet of Things) systems allow the customer to preserve and enhance their technologies throughout the entire life cycle.

Training engineers from all countries (L) has been at the heart of SCM's modernisation, like the production facility in Rimini (R).



Tools, such as the new My SCM portal, enable a vast range of services to view, gather and analyse all the information on production performance in real time. It is a service team that can deal more simply and effectively with cases, providing faster solutions to guide customers in a knowledge sharing logic.

The research and development investments are another pillar of strength. Not only does the Group set aside 7% of its annual turnover for R&D, there is an innovation team with multi-disciplinary skills that allow SCM "to have an open, forward-thinking approach that goes beyond the specific applications of our sectors, once again to the full advantage of the customer," Luigi says with emphasis.

The investment plan places sustainability in first place, both for internal processes as well as products and services, in order to offer customer solutions.

In 70 years, SCM has managed to establish an increasingly more direct and capillary presence internationally.

Future plans

"The centrality of the customer and a human as well as smart approach, are the values that guide us in our daily work in the industrial plants in Italy and the branches abroad," Luigi says.

Despite current uncertainties linked to the rising costs of raw materials and energy, SCM continues to invest even in its plants in Italy. The company is increasing the production capacity of the industrial sites that currently record an average production of 20,000 machines per year.

Another important driver is the digitalisation of production lines, which sees the spread of lean processes and factory control systems in various plants, in line with 'Industry 4.0' requirements.

The aim is to improve industrial organisation by enhancing integration of the factory with the IT systems. Last, but not least, investments in foreign sales are seen as guaranteeing a more direct and capillary presence in strategic markets.

Apart from woodworking, the SCM Group is a reliable partner to leading industries in the automotive to aerospace, and yachting to plastic machining.

SCM Group coordinates, supports and develops a system of industrial excellence in three large, highly specialised, production centres in Italy, with a turnover in excess of 750 million, and a direct presence in all five continents.

Biophilic benefits of wood in indoor spaces

Interiors of a premium Ayurvedic beach resort in Kerala.

Incorporating wood elements into interior spaces is not merely an aesthetic choice; it's a decision that can significantly impact human health and overall well-being.

Considered to be one of the oldest building materials, architects, interior designers and real estate developers are seeking out wood not just for the aesthetics it has to offer, but also for its inherent biophilic attributes that help inhabitants connect with nature.

Biophilic design seeks to incorporate elements of the natural world into their designs in homes, offices and public spaces. Incorporating wood into architectural designs can add warmth, character, and sustainability to aproject.

In fact, they prefer sustainably managed and responsibly sourced wood like Canadian wood, sourced from the province of British Columbia (B.C.), as it offers a plethora of indoor applications and advantages that contribute to a healthier and more harmonious indoor environment.

Stress reduction

One of the foremost benefits of incorporating wood into architectural designs, such as wooden beams, furniture, interior wall panelling, wooden staircases and wooden ceilings in indoor spaces reduces the stress levels among occupants.

The natural warmth and earthy tones of wood create a calming atmosphere that can help alleviate anxiety and promote relaxation.

Stimulating creativity

Responsibly sourced wood has biophilic properties that play apivotal role in improving cognitive function. Research has shown that exposure to wood elements in indoor environments enhances concentration, creativity, and problem-solving skills.

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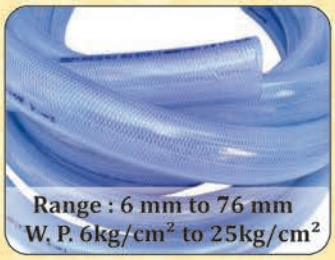

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Post-and-beam house construction in Douglas fir, in Himachal Pradesh (L). In another project (R), a kitchen platform made of Western hemlock and stairs from Western red cedar.

It can stimulate the mind, boost productivity, and foster asense of well-being.

Conserving energy

A natural insulator, buildings constructed primarily from wood require less energy for heating and cooling. This inherent energy efficiency contributes to reduced energy consumption and lower green-house gas emissions over abuilding's lifespan.

It also improves indoor air quality by regulating humidity levels by absorbing and releasing moisture, creating ahealthier and more comfortable atmosphere.

Carbon footprint

Wood is perhaps the only natural and renewable building material, and when sourced responsibly, its use has a minimal impact on ecosystems. Sustainable forestry practices, such as replanting and reduced carbon emissions during manufacturing, ensure wood's eco-friendliness.

Wooden buildings typically have a smaller carbon footprint, making them akey player in reducing the construction industry's environmental impact. Thus, embracing wood-centric design and construction is, in fact, an investment in the enduring health and comfort of your living environment.

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Nativ Restaurant in Pune showcases design possibilities offered by Canadian wood products.

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Microscope enhances CNC grinding performance

(L-R) Jurg Federer, Application Manager of the Numroto Technology Centre; Michael Knorr, Numroto Application Engineer; and Schneider of Keyence Switzerland pose with the Keyence high-resolution digital microscope to aid analysis of tool surface quality.

NUM is the manufacturer of high-end CNC Systems in Teufen, Switzerland. It has equipped its Numroto Technology Centre with Keyence, a high-resolution digital microscope that enables comprehensive analysis of the surface quality of ground precision tools.

Jurg Federer, Manager at NUM headquarters says, "Numroto is our flagship product. Ever since the software's initial release in 1987, development has centred on the core principle of achieving acomprehensive tool grinding solution."

"It is important to analyse and optimise the entire process chain. The new digital microscope extends our surface analysis capabilities down to sub-micron levels, providing valuable feedback on process technology and tool production quality," he said.

NUM operates extensive research and development facilities covering the hardware and software components of CNC systems and drives, as well as the design of a wide range of motor types.

The Numroto Technology Centre forms an extension to these facilities, providing both in-house product development expertise and customer-accessible applications support services.

The high performance CNC platforms, such as NUM's Flexium+ system, many of today's machine tools are capable of producing superb results. Numroto software can calculate paths so accurately that theoretically micrometre-precise tools should always result.

However, a number of factors can prevent this precision being reflected in the ground tool. The primary causes of grinding machine errors are usually correctable and consist of mechanical limits and wear. The effects of dynamic limits generally manifest themselves at transitions between geometry elements.

This critical area is often traversed in less than 100 milliseconds – during which time the swivel axis stops and the rotary axis accelerates rapidly – and means that sub-optimal drive settings can cause grinding-in.

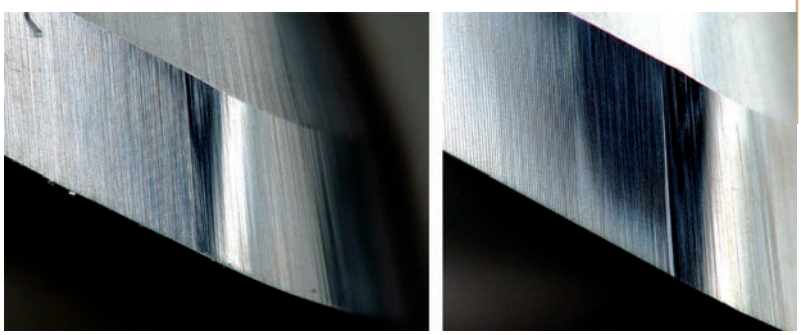
By analysing any visible marks on the tool's surface using digital microscopy, it is possible to determine the necessary corrections to the drive settings.

Another common source of tool grinding error is when the grinding wheel does not run completely true or is not cleanly dressed. This can create regular grooves on the tool's relief angle, especially at the transition between the relief angles.

Invisible to the naked eye, even with amagnifying glass, the grooves are caused by the grinding wheel glancing against the workpiece during every revolution. This resolving power of the digital microscope facilitates avery quick check on the condition and dynamic performance of grinding wheels.

The expertise and resources of the Numroto Technology Centre are available to customers as well as to NUM's research and development teams. The centre undertakes feasibility studies on special tools, and provides Numroto customer training.

Photo-micrograph at 200X magnification showing tool with clean surface quality (R) and grinding-in caused by sub-optimal drive settings (L).



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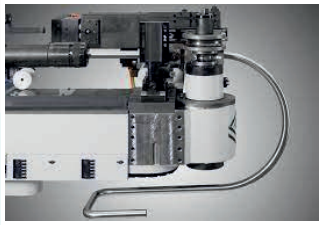


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Sculpture to furniture? Or vice-versa?

The furniture in Wharton Esherick's Pennsylvania mountainside home is a testament to his unfailing creative imagination. Also seen is a sculpture depicting entwined lovers, carved from the trunk of a walnut tree.

"If it's not fun, it's not worth doing!" Wharton Esherick (1887 – 1970), an internationally significant figure in the landscape of art history and American modern design, once famously said.

As a sculptor, Esherick worked primarily in wood and extended his unique forms to furniture, furnishings, interiors, buildings, and more. He created furniture that would pass as sculpture, and sculpture that functioned as furniture, bridging the gap between art and craft.

He welcomed commissions for one-of-a-kind furniture and interiors, not just for the income, but for the joy of creating new, exciting forms for everyday use. In the 1930s, he was producing sculptures and furniture influenced by German Expressionism and Cubism.

The angular and prismatic forms of these art movements gave way to the free-form curvilinear shapes for which he is best known. From furniture and furnishings he progressed to interiors, the most famous being the Curtis Bok House (1935–37).

Although the house was demolished, Esherick's work was saved. The fireplace and adjacent music room doors can be seen in the Philadelphia Museum of Art, and the foyer stairs in the Wolfsonian Museum in Miami, Florida.

His largest commission, begun in 1935, when he was 52, as "some interesting bookshelves for two tonnes of books," which grew to include four fireplaces, two desks, four sofas, upholstered chairs, wall and ceiling panelling, two portals and a spiral stair that are now in museums.

Esherick's most astonishing creation was his small mountainside home in Pennsylvania. Begun in 1926 as a sculpting studio, it evolved and expanded over that artist's lifetime into a multi-purpose, multi-level stone and wood structure.

In 1972 the studio was converted into the Wharton Esherick Museum. Set on 12 wooded acres, the museum campus comprises of multiple buildings with the studio as the centrepiece. The house's furniture is a testament to Esherick's unfailing creative imagination.

A case in point: his 1939 flat top desk – expanses of burnished American walnut combined with decorative elements in exotic wood –takes its inspiration from the humble sawhorse, turning that everyday object into a powerfully dynamic yet highly functional form.

Wharton Esherick's flat top desk and its matching chair are made from American walnut with exotic wood decorative elements.

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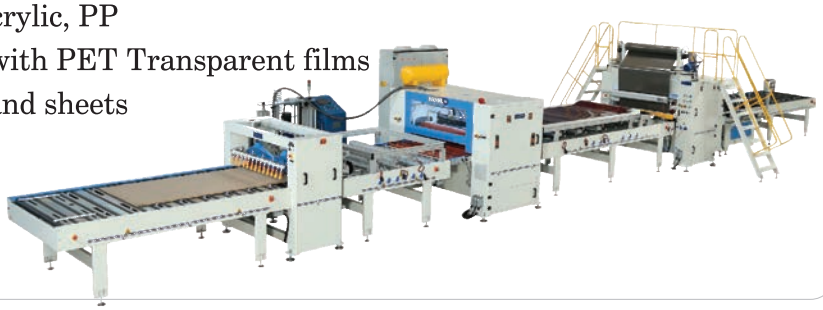

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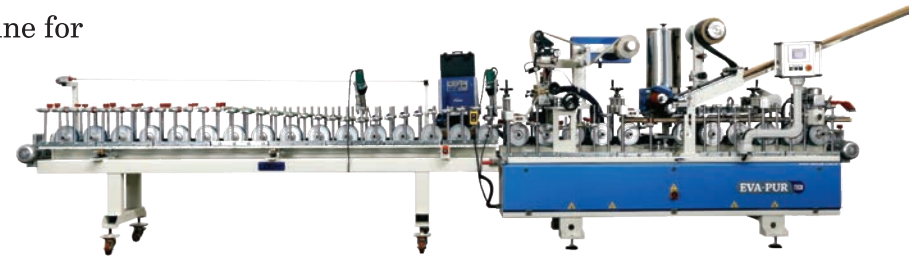

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Wharton entertains guests at home in this archival image. The most famous feature in his house (now a museum) is this spiral staircase, constructed from massive slabs of hand-hewn Red oak.

Pix: Wharton Esherick Museum & American Hardwood Information Centre.

Esherick saw the floors in the house as an opportunity to showcase the expressive and practical possibilities of locally sourced wood. One striking example is also in the kitchen, where he took scrap walnut and apple wood from alocal woodcutter, laid the pieces down jigsaw style, and produced the most wonderfully sinuous underfoot pattern.

In 1930, Esherick installed what is undoubtedly the house's most famous feature: a spiral staircase constructed from massive slabs of hand-hewn Red oak.

Esherick's work was featured in exhibitions hundreds of times during his life. His work is in the permanent collections of the PhiladelphiaMuseum of Art, the Pennsylvania Academy of the Fine Arts, the Metropolitan Museum of Art, the Whitney Museum, the Museum of Fine Arts of Boston, and many other museums and galleries. Most of his work remains in private hands. (www.whartoneshericksmuseum.org).

Wharton created furniture that would pass as sculpture, and sculpture that functioned as furniture. Here are two chairs and a double music stand.

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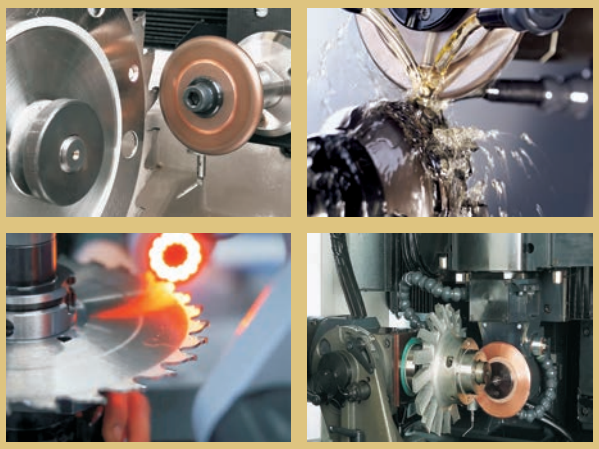

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When Enric Miralles's took on furniture and interior design

The 'Lelukaappi' shelf was inspired by the work of architect Alvar Aalto.

Enric Miralles Moyawas aSpanish architect from Barcelona, Catalonia, but little is known of him as a furniture designer. Although Enric took care of every detail of the interior design of many of his private and public projects, the architect never designed furniture with the thought of reproducing it commercially.

Miralles Perpetuum Mobile, an exhibition supported by the American Hardwood Export Council (AHEC) at the Disseny Hub in Barcelona, Spain, opened up his many facets as acreator to the public.It was organised by the Fundaciy Enric Miralles with support of the Barcelona City Council and the Generalitat de Catalunya.

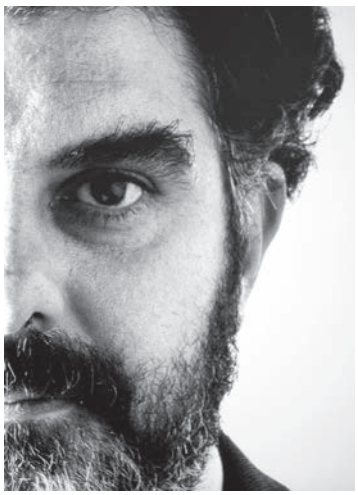
Models of furniture and objects that were developed mainly for the architect's home were exhibited and were reproduced and displayed – all made in American hardwoods such as Red oak, maple, cherry and tulipwood.

The last home of the architect in Barcelona was an old warehouse whose walls were knocked down, leaving an open and versatile space, perfect for Enric, who imagined ahouse in motion, where furniture did not have an established place or shape, but could be moved or modified according to the needs of each moment.

To make this contemporary vision of the interior space come true, he personally designed his furniture, sharing his sketches with craftsmen and carpenters, with whom he debated and experimented on these pieces.

The intense search for documentation among the architect's most private archives resulted in the original design of each piece of furniture remaining the same with just a few

Several of Miralles' (L) designs, such as the 'Dolmen' (R), were used in projects, such as the Scottish Parliament or the headquarters of the Cмrculo de Lectores in Madrid.



technical updates, such as new hinges and connections for some of the pieces.

He created 'Inestable', 'Dolmen', 'Troncs' and 'Tropical' tables; the 'Lelukaappi' shelf inspired by the work of the architect Alvar Aalto; and several chairs that were used in projects, such as the Scottish Parliament or the headquarters of the Cмrculo de Lectores in Madrid.

As in 'Inestable' here, the original design of each piece of furniture has remained the same, with just a few technical updates, such as new hinges and connections for some of the pieces, while the materials used have been updated.

CO2 removal: is it really possible?

ALEXANDER REZNICHENKO

Carbon dioxide removal (CDR) and Carbon Capture Utilisation & Storage (CCUS) technologies are now necessary to reach the Paris Agreement targets for climate change mitigation.

Once these technologies and practices are developed and deployed, it will physically remove CO2 from the atmosphere and store it permanently in geological formations and other long-term storage pools.

Growing levels of atmospheric green-house gases (GHGs) have been linked with rising average temperatures globally. To date, we have been increasingly relying on emission-intensive technologies and solutions in the energy, transport, materials and agriculture sectors.

We can achieve substantial GHG emission reductions by incorporating carbon-neutral or low-carbon technologies. For instance, the emergence of renewable and low-carbon energy, electrification of transportation and use of bio-fuels instead of fossil-based fuels are ongoing and are anticipated to reduce emissions in energy and transport.

However, not all the industries quickly adopt carbon-neutral technologies; some residual emissions will remain in the future.

What's carbon-negative?

CO2 is captured directly or indirectly from the atmosphere; via direct air capture (DAC) or viabiomass growth.It is stored as such or in the form of another highly stable product in order to prevent its release into the atmosphere.

The amount of permanently stored CO2 is higher than life-cycle emissions from capture and storage processes.The source of carbon largely defines whether CO2 removal can be achieved by aparticular technology.

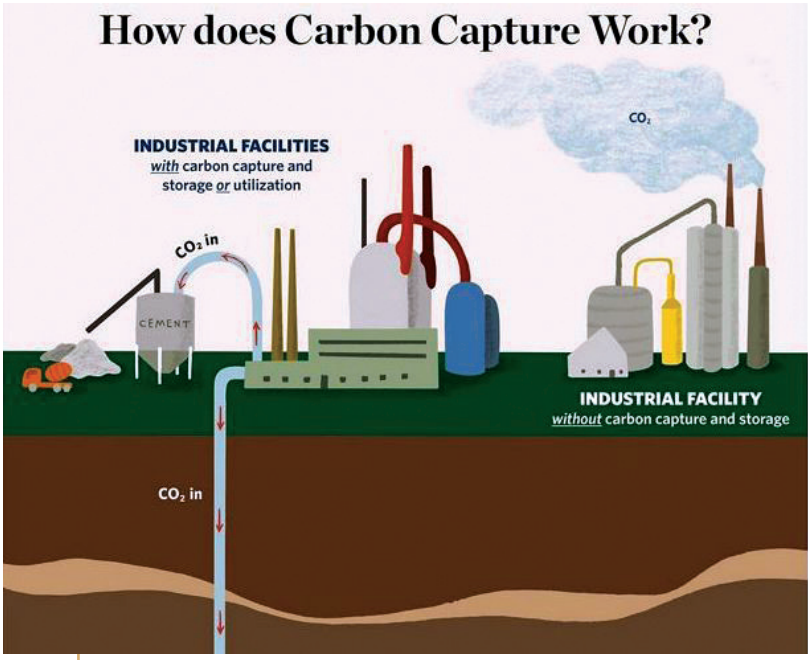
If the emitted CO2 from the coal-fired power plants are captured and stored to prevent their release into the atmosphere, emission reductions or carbon neutrality can be achieved.

DAC technologies are also developed, so that it enables the extraction of CO2 from the atmosphere, using special adsorbents.DAC facilities can be flexibly located as they are not bound to any existing point source of CO2 emissions.

However, point sources can be more attractive to capture carbon, due to higher concentrations of CO2. Carbon dioxide makes up about only 400 parts per million, which makes it considerably more challenging to separate.However, industrial flue gases contain 10% and higher concentrations of CO2.

The permanence of CO2 storage is also crucial to reach net removal.If biogenic CO2 is used to produce biofuels, no net negativity can be achieved.The following options are among those currently considered as providing permanent or long-term removal:

- Permanent storage of captured CO2 in geological formations



Some industries can capture CO2 by storing or using it for their manufacturing process. Facilities that can't capture, store or use that CO2 are emitting climate-changing gas.

- Production of highly stable biochars viapyrolysis of biomass
- Storage of CO2 in concrete and artificial aggregates (construction applications)
- Conversion of CO2 into synthetic polymers for long lifecycle applications, such as cables and pipes
- Viable models to support investments in the area would need to be created, and additional regulatory measures are likely going to be necessary
- Substantial R&D work is still needed to advance technical readiness and improve process economics for most CDR technologies.

CDR potential

Finland is well positioned to be at the forefront of developing and implementing CO2 removal technologies. Unique know-how in sustainable forest management and a strong bio-based product industry provides access to multiple feedstock pools for subsequent carbon capture and storage.

Biogenic CO2 emissions from the forest industry alone are about 20 million tonnes annually, with the majority of those coming from point sources located at large bio-product mills.

Such CO2 streams can then be used in carbon storage projects or converted into other long-lived organic products. The availability of biomass side streams, together with strong expertise in biochar, creates an opportunity for substantial growth in biochar production.

Finnish companies and research institutions are actively developing know-how in technical areas of CO2 capture, purification and its conversion to long-lifetime products. This all creates a strong starting position to lead the development and implementation of removal technologies in the Nordics in the near future.

– The writer is Research Team Leader at VTT, one Finland's leading research institutions that advances the utilisation and commercialisation of research and technology in commerce and society. He can be contacted at alexander.reznichenko@vtt.fi.

Climate change: old-growth versus young trees

The stump of a 500-year-old juniper tree on the Tibetan Plateau, China. Deforestation has made forests younger and has also negatively impacted associated ecosystem functions and bio-diversity.

A new analysis of more than 20,000 trees on five continents shows that old-growth trees are more drought tolerant than younger trees in the forest canopy, and that they may be better able to withstand future climate extremes.

The findings highlight the importance of preserving the world's remaining old-growth forests, which are biodiversity strongholds, storing vast amounts of planet-warming carbon, according to forest ecologist Tsun Fung (Tom) Au, a post-doctoral fellow at the Institute for Global Change Biology, University of Michigan.

"The number of old-growth forests on the planet is declining, while drought is predicted to be more frequent and more intense in the future," said Au, lead author of the study published in the journal, *Nature Climate Change*.

"Given their high resistance to drought and their exceptional carbon storage capacity, conservation of older trees in the upper canopy should be the top priority from aclimate mitigation perspective," he said.

The researchers also found that younger trees in the upper canopy – if they manage to survive drought – showed greater resilience, defined as the ability to return to pre-drought growth rates.

Changing demographics

While deforestation, selective logging and other threats have led to the global decline of old-growth forests, subsequent reforestation – either through natural succession or through tree planting – has led to forests dominated by increasingly younger trees.

For example, the areacovered by younger trees (<140 years old) in the upper canopy layer of temperate forests worldwide already far exceeds the area covered by older trees.

As forest demographics continue to shift, younger trees are expected to play an increasingly important role in carbon sequestration and ecosystem functioning.

"Our findings – that older trees in the upper canopy are more drought tolerant, while younger trees in the upper canopy are more drought resilient – have important implications for future carbon storage in forests," Au said.

"These results imply that in the short term, drought's impact on forests may be severe due to the prevalence of younger trees and their greater sensitivity to drought. But in the long run, those younger trees have a greater ability to recover from drought, which could be beneficial to the carbon stock," Au observed.

Those implications will require further study, according to Au and his colleagues, given that reforestation has been identified by the Inter-governmental Panel on Climate Change as a potential nature-based solution to help mitigate climate change.

Maintaining cover

The Sharm el-Sheikh Implementation Plan, published during the 2022 United Nations Climate Change Conference in Egypt (COP27), also reaffirmed the importance of maintaining intact forest cover and associated carbon storage as a social and environmental safeguard.

"These findings have implications for how we manage our forests. Historically, we have managed forests to promote tree species that have the best wood quality," said Indiana University's Justin Maxwell, a senior author of the study.

"Our findings suggest that managing forests for their ability to store carbon and to be resilient to drought could be an important tool in responding to climate change, and thinking about the age of the forest is an important aspect of how the forest will respond to drought," he added.

The researchers used long-term tree-ring data from the International Tree-Ring Data Bank to analyse the growth response of 21,964 trees from 119 drought-sensitive species, during and after droughts of the past century.

They focused on trees in the uppermost canopy. The forest canopy is a multi-layered, structurally complex and ecologically important zone formed by mature, overlapping tree crowns.

All pix: Tsun Fung Au

Global tree planting programmes and reforestation efforts lead to younger forest age. Tulip poplars (Liriodendron tulipifera) planted in North Carolina (L) and Myrobalan (Phyllanthus emblica) planted in Hong Kong (R).

The upper canopy trees were separated into three age groups – young, intermediate and old – and the researchers examined how age influenced drought response for different species of hardwoods and conifers.

Diverse biomes

They found that young hardwoods in the upper canopy experienced a 28% growth reduction during drought, compared to a 21% growth reduction for old hardwoods. The 7% difference between young and old hardwoods grew to 17% during extreme drought.

While those age-related differences may appear fairly minor, when applied at the global scale they could have "huge impacts" on regional carbon storage and the global carbon budget, according to the study authors.

That's especially true in temperate forests that are among the largest carbon sinks worldwide.

In the study, age-related drought-response differences in conifers were smaller than in hardwoods, likely because needle-bearing trees tend to inhabit more arid environments, the researchers say.

The new study is a synthesis that represents the net effects of thousands of trees in diverse forests across five continents, rather than focusing on single forest types.

In addition, the new study is unique in its focus on trees in the upper forest canopy, which reduces the confounding effects of tree height and size, according to the authors. *(Courtesy: https://news.umich.edu)*

AXCENT AIR FLOW TECHNOLOGIES

MANUFACTURERS OF AIR POLLUTION CONTROL AND AIR HANDLING EQUIPMENT

PORTABLE DUST COLLECTORS


MODULAR DUST COLLECTORS



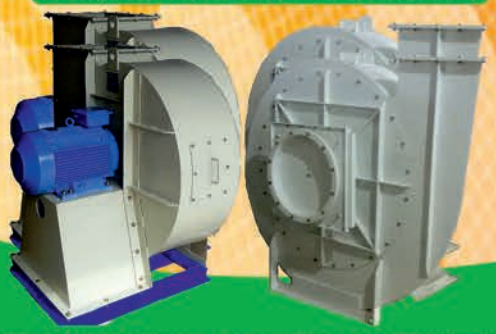
CENTRALIZED DUST COLLECTOR



PAINT BOOTH



CENTRIFUGAL FANS & BLOWERS



AXIAL FLOW FAN

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Tel.: 080-29775878 Mob.: 9900456878 E-mail: axcentaft@gmail.com / axcentairflow@gmail.com / axcentairhmk@gmail.com / krishnahm_68@yahoo.com
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New uses for low-quality US hardwoods

Pic: WVU Davis College of Agriculture, Natural Resources and Design

A wood panel is produced at West Virginia University, part of research that focuses on ways to utilise Yellow poplar as a source of engineered wood building material.

What may be considered lower grade West Virginia hardwood lumber can serve as an affordable, sustainable alternative to traditional building materials like softwood, steel and concrete.

Researchers at West Virginia University's (WVU) Appalachian Hardwood Centre (US) have been testing the effectiveness of Yellow poplar, an abundant species in the state, as a source of engineered wood building material. Yellow poplar grows straight, has small limbs and processes easily, making it well suited for construction.

Half of the hardwood harvested for sawn timber in West Virginia is considered low-quality lumber because it has too many knots and other defects, according to the researchers at the Davis College of Agriculture, Natural Resources and Design. It is used for pallets, boxes, railroad ties and flooring.

While traditional lumber comes as a single piece, it's possible to create a sturdy, durable product by gluing and pressing multiple pieces together in layers. These large, thick panels are known as cross-laminated timbers (CLT).

CLTs come from lower grade material. They are used for long spans in walls, floors and roofs, and do well as load-bearing elements. The panels are typically manufactured using softwoods — spruce, fir and pine — but not with hardwoods.

Structural applications

The researchers suggest that certain Appalachian hardwoods, like Yellow poplar, work well in structural applications. They liked Yellow poplar because it has been tested extensively in the past for structural applications.

In the lab, the team has created panels of three, five and

seven layers using apress that can apply 120 kg of pressure per square inch. The researchers tested the panels' bending and breaking strength and subjected samples to harsh conditions like water saturation and dehydration.

Tests were performed multiple times also to see if the glue bonds held. Results indicated the panels will perform well in construction.

The next step will be to get Yellow poplar accepted as a permited raw material by the American Panel Association. At that point, CLT manufacturing companies will be able to use Yellow poplar CLTs in commercial construction.

This will be useful not only for the construction industry, but also for the forest product companies throughout Appalachia, where much of the hardwood ends up being used in low-value items.

The potential success of CLT use hinges on aregion's ability to produce them. The panels are difficult to transport – each 3x10-foot panel weighs up to 320 kg – so hardwood manufacturing facilities need to be close to the market to reduce the cost, he said.

Red oak

Researchers are also looking at uses for Red oak, another Appalachian hardwood, in the construction of timber mats, which are wooden structures used to support heavy duty equipment working on sensitive sites.

They are used where soils degrade quickly with traffic, wetland sites and in applications like gas exploration, logging and electrical powerline maintenance.

Timber mats are used in fields to hold up large pieces of equipment.The mats are made predominantly out of Red oak, which outlasts all the other components and can endure harsh climatic conditions.

There are no restrictions or regulations for these mats. They are going to be destroyed after heavy equipment repeatedly runs over them. If these panels are tested and they work effectively, alot of Appalachian hardwood lumber mills could get into this business by making timber mats using CLT technology.

In addition to economic benefits, CLTs may be useful in crises and humanitarian efforts.They could be put together in apinch by in any emergency situation where people need housing.

Fingerprinting of smuggled wood

Credit: Laurel Oldach/C&EN

A mass spectrometer with a direct-analysis-in-real-time ionisation device at the Surface and Trace Chemical Analysis lab at the National Institute of Standards and Technology.

Chemists at the U.S. Fish and Wildlife Service (USFWS) have been developing a method to identify trafficked wood on the spot using chemical fingerprinting.

According to Chemical and Engineering News, the estimated annual value of illegal wood trade as of 2017 was $50 billion to $150 billion, and the USFWS has been instrumental in developing a technique for wood identification and sharing it with law enforcement labs around the world.

The technique is called direct analysis in real-time mass spectrometry, or DART-MS for short. Today, the suite of molecules it measures can be used to rapidly identify the species, and sometimes even the region, a piece of wood came from.

Mass spectrometry gets information about the molecules in a sample by ionising them and then measuring their mass-to-charge ratio when they hit a detector. While typical mass spectrometers do this within a vacuum, DART-MS ionises samples in the open air in a process known as ambient ionisation.

A blue barrel, capped at one end with a steel nozzle, heats helium to about 400°C and blows it across the sample held in an open-air gap and into the mass spectrometer. The helium stream ionises molecules blown off the sample and directs them into the mass spectrometer for analysis.

Wood is more complex than most materials, and that makes it even harder to analyse than typical mixtures of drugs and adulterants. To simplify DART-MS data analysis, chemist Edward Sisco of the National Institute of Standards and Technology (NIST), and NIST colleague Arun Moorthy recently created a software program.

According to the report, while DART-MS-based analysis is a technique used internationally for tree identification, other techniques are available. Several U.S. ports of entry have installed sophisticated imaging systems that capture magnified multispectral photos that wood anatomists can later investigate. Other labs conduct genetic analysis.

Wood trafficking by numbers

$50 billion – $150 billion: estimated annual value of illegal wood trade as of 2017

4th: Rank of the illegal wildlife trade among transnational criminal enterprises in value, according to a 2017 estimate

3.9 billion: cubic meters of logs and firewood harvested worldwide in 2020

293 million: cubic meters of logs and lumber traded internationally in 2020. More wood changes hands in the form of pulp, paper, plywood, and other processed goods.

Sources: World Bank Group, Food and Agriculture Organization of the United Nations.

Woodworking machinery market size in growth mode

Corporate analysis and data biggie, Fortune Business Insights, announced that the global woodworking machinery market size is on the rise. The market is projected to reach US$ 4.86 billion this year.

The market drive can be credited to two reasons: increased adoption of automated woodworking machinery and precise engineering. Manufacturers have been using CNC machines for precise quality and customisation in wood products.

However, health hazards are expected to hinder the market growth. The Covid-19 pandemic had asignificant impact on the industry, manufacturing and retail areas of woodworking.

The industry in North America suffered a manufacturing shutdown due to disruptions. Timber importers in the UK encountered supply chain disruptions and were forced to stop orders.

For the basis of type, the lathe segment is projected to have the highest market share due to the increasing number of working centres. The planer segment had the highest compound annual growth rate (CAGR) due to the increasing use of high-efficiency and light-weight planer machines.

For the basis of application, the furniture segment is expected to hold the largest share due to rising government investments. The construction segment is predicted to show exponential growth due to increasing disposable income in countries.

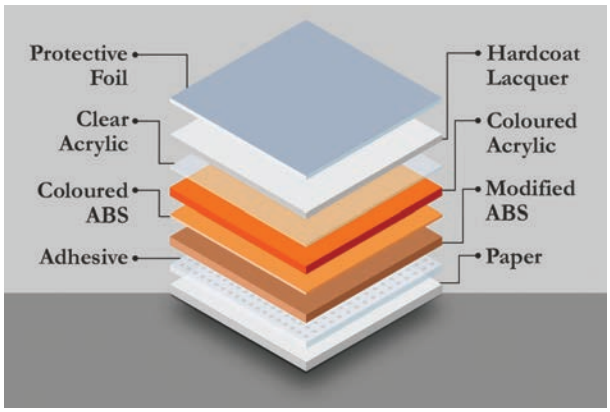
The market report is segmented into North America, Europe, Asia Pacific, the Middle East, Africa and South America. Since Europe is home to various wood-working machine manufacturers, it is predicted to lead the woodworking machinery market share.

North Americais expected to see significant growth due to the utilisation of timber, including the adoption of cross-laminated timber for manufacturing houses and commercial buildings within the region.

For more information, visit: fortune business insights.com.

Acrymica: a new laminate for furniture

Praveedh Décor has been abeacon of quality and ingenuity since 2012. Its latest creation, Acrymica, is not merely a product, but a revolutionary material that promises to reshape the point of view with regard to furniture design and construction.



Acrymica's unrivalled quality is eight layers deep: each layer is atestament to precision engineering and craftsmanship. The journey begins with the top protective foil layer, by preserving the laminates immaculate appearance while guarding against external forces so that the surface of the laminate remains pristine.

The subsequent layer, a hard coat lacquer, adds a resilient shield, enhancing the durability and resistance to wear and tear of Acrymica. Clear acrylic follows, creating a transparent canvas that allows the natural beauty of the material to shine through.

Coloured ABS and modified ABS continue the journey, reinforcing structural integrity and durability. The adhesive layer acts as the cohesive bond, seamlessly bridging the polymer side and paper of the product.

Finally, the craft paper layer provides stability and ease of application, ensuring that Acrymica's exceptional qualities shine through effortlessly.

Together, these eight layers form the foundation of Acrymica's exceptional performance, stunning aesthetics and enduring quality. It is amaterial that surpasses expectations and redefining what is possible in interior design.

In the realm of innovative design, Acrymica emerges as a pioneer, weaving acaptivating tale of brilliance and opulence. As the world's first fusion of polymer and paper laminate for furniture, it beckons us into uncharted territories of creativity.

With a mirror finish that dances with light, it transforms spaces into luminous realms that captivate the senses. And for those who seek the touch of luxury, Acrymica's high gloss level is amasterpiece, enhancing the beauty of interiors. Acrymica also offers a super-matt satin finish, an invitation to tactile elegance that is perfect for creating cosy and inviting spaces.

Acrymica super-matt finishes has anti-bacterial properties, keeping living spaces not only beautiful but also safe. Acrymica's range of metallic finishes adds a touch of opulence to interiors.

Its manufacturing warranty provides peace of mind and assurance, ensuring that investment in the product is not just in luxury, but in lasting value. Acrymica provides matching backers, ensuring aconsistent and polished look.

Its resistance to chipping ensures that furniture remains pristine. Installation becomes effortless with Acrymica's easy bonding properties, simplifying the process for both professionals and DIY enthusiasts.

Acrymica's paper backer ensures aflawless finish, allowing for the use of ordinary glue without concerns about bubbles, air pockets or surface contamination. Its indestructible durability shines through with remarkable scratch resistance, making it suitable for horizontal surfaces.

High gloss collections withstand a 1-kg load and 20 rounds of steel wool scrubbing, while super-matt collections handle 2-kg loads and 20 rotations without a scratch.

At aslim 1.5mm thickness, Acrymicaoffers smooth and easy handling, reducing transportation and transit costs. For more details, write to Mumbai-based sales@praveedh.com.

Dieffenbacher's EVOsteam boosts PB production

Dieffenbacher's EVOsteam at Masisa's particleboard plant in Cabrero, Chile.

In June 2023, Masisa S.A. commissioned an EVOsteam steam pre-heating system from Dieffenbacher at its particleboard plant in Cabrero, Chile. For Masisa, EVOsteam is a low-investment solution for great improvements, including boosting the capacity of its particleboard production.

Installed directly at the press in-feed, the EVOsteam pre-heats the mat by injecting steam. This reduces the time needed to heat the mat inside the press, accelerating production and increasing capacity by up to 20%.

The upper unit of the steam pre-heating system can be used either in lifted operation, as a steam shower, or in lowered operation to directly inject steam into the mat.

In light of the sharp rise in gas prices that have caused an enormous increase in resin prices, EVOsteam has an important benefit. It saves resources, especially resin. If the higher mat temperature is not used to increase production speed, the resin has more time to cure in the continuous press.

Installed directly at the press in-feed, the EVOsteam pre-heats the mat by injecting steam.

By individually adjusting the amount of steam in each mat zone, EVOsteam enables excellent density profiles. The result is better convective heat penetration in the press and a faster increase in the raw density profile at the outer edge layer of the board.

This enables lower sanding allowances and lower production costs. In addition, the EVOsteam prevents condensates on the belts by using thermal oil from the secondary heating of the press to pre-heat the steam platen.

It is easy to operate, since it requires little maintenance, and the low waste water volume keeps the total cost of ownership low. The integrated belt cleaning and drying system ensures high production reliability.

For new EVOsteam installations, Dieffenbacher ensures complete service from engineering up to technically optimised three-shift operation. Other companies, including Pfleiderer and Sumitomo Group subsidiary Vina Eco Board, are also successfully using Dieffenbacher's EVOsteam.

The EVOsteam can be used in particleboard, MDF and OSB production and is available for both new plants and retrofits.

Hafele's luminaries light up your living

With Hafele's new architectural lighting range, one will find all the lighting needs. Whether it is lighting up a small area, highlighting a wall texture, emphasizing on a work of art, illuminating the floor space at night or simply ensuring even distribution of light across the entire space – these lights have got it covered.

The range consists of several series and covers various applications, installation techniques and design themes. Each series comes with a comprehensive offering of the different types of interior lights that include downlights, spotlight and wall washers.

These lights implement a consistent design theme (in terms of the lighting fixtures) across the space available, even with differentiated illumination techniques.

The Edinburgh series from Hafele's architectural lights range offers light fixtures with a similar design that can be used for true ceiling as well as false ceiling installations.

The drivers built into the luminaires increase the ease of installation. Whereas multiple design options like recess mounted lights with multiple application possibilities that go into false ceiling, surface mounted lights with swivel motion and suspended lights that go on true ceiling give you the freedom of installation.

Offering a low UGR, the light output of this series offers a comfortable visual experience.

These luminaires are available in natural white, warm white and cool white light colours, along with baffle colour options of black, white and bronze. These are the perfect solution for creating the ultimate harmony in your interiors.

Engineered on the same philosophy of 'easiness' and 'flexibility' as the Loox furniture lighting system, Hafele is a holistic, lighting solutions provider, delivering premium ambient, task and accent lighting for your living spaces.

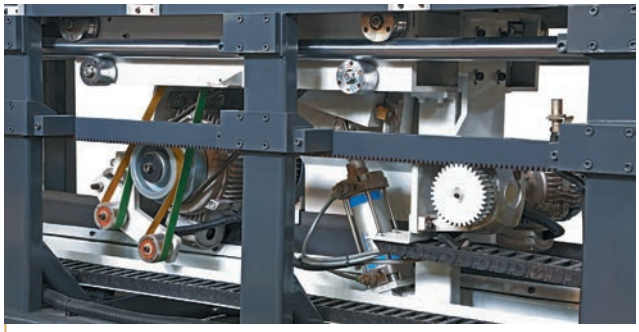
World class beam saws and panel saws from Jai

Three front air floating tables with blowers for easy & smooth feeding movement of work piece.

Jai Industries offer an unparalleled array of products that include woodworking and panel processing machinery and electric motors. It is well known for its engineering quality, technology and innovation.

Its range of machines are products of R&D backed, high-end precision engineering and have the best possible features and are made of the topmost quality material and components. All the products are backed by dedicated service and guidance. Its machines are specifically produced to suit Indian working conditions that ensure performance and operating comfort.

The Optimus series comprise arange of solid wood machinery in the premium segment and have high-end features that are specially developed for units engaged in solid wood-craft business while the Modula series comprise a range of panel processing machines.



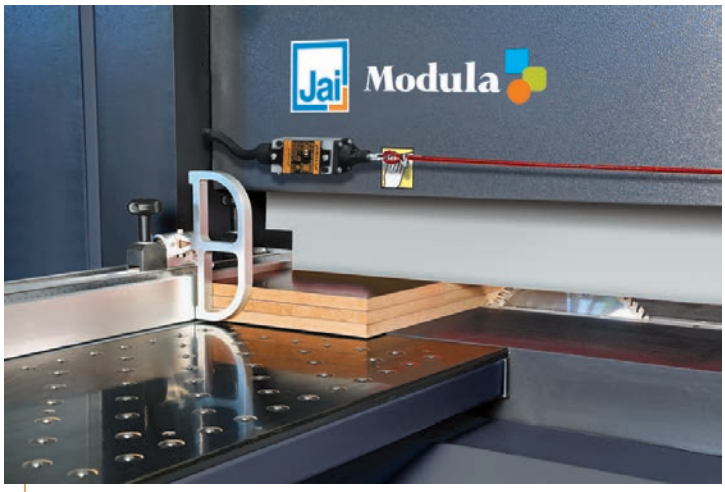
Advanced saw carriage with high feed rate driven by rack / pinion and guided on hard guide rods that ensures high cutting accuracy. Saw carriage Drive motor has variable feed speed for different applications.

J-280F.in (Semi Auto)

This is asemi-automated beam saw with In-feed Air Floating Table

Salient Features

- Maximum cutting thickness up to 60 mm
- A uniform holding pneumatic clamping beam ensuring synchronized cylinder actuation at both ends
- Saw Carriage Drive Motor has variable feed speed for different applications



Powerful, precise and efficient high speed panel cutting

Easy & fast changing of main saw and scoring saw blades

OptiSaw 3.2

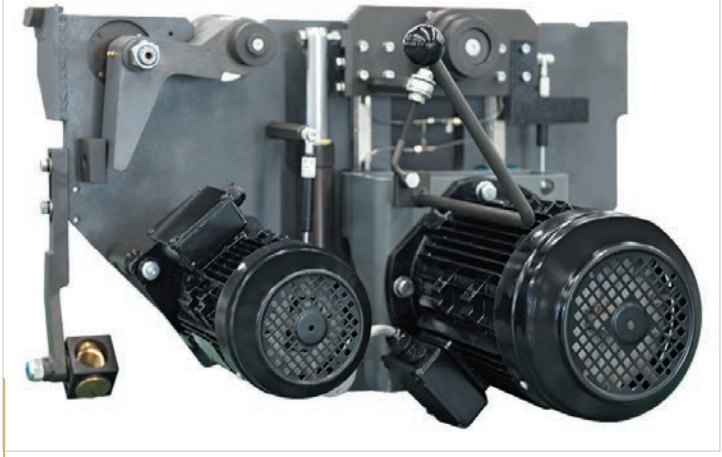
This is aPanel Saw, which is asturdily-built, heavy-duty machine that gives precise cut with burr free cutting.

Salient Features

- Heavy-duty, top-quality precision sliding table with long lasting accuracy.
- Easy accessible, user friendly control panel with electronic digital readout of saw unit tilting.
- Motorized up-down movement of saw unit from control panel and tilting movement of saw unit by means of hand wheel.
- Vertical movement of the saw unit is linear with maintenance - free guide bearings that allows the whole unit to move easily.
- Easier & quick scoring unit up-down movement and lateral adjustment.
- Rip fence cutting width up to 1250 mm with fine adjustment.
- Central lubrication system circulates lubrication to the required parts of the machine, ensuring efficient operation and increase life of parts.
- All electronic & pneumatic parts are from well-known international brands.
- Low maintenance m/c, easy available cost effective spares, best after sales service support.

The Heavy duty, precision sliding table runs on large rollers sandwiched between hard chromed guide bars, guaranteeing absolute precision. Hollow multi-chamber aluminum extrusion guarantees optimal torsion resistance & rigidity.

Rip fence with fine adjustment. Manual fine adjustment enables the rip fence to be adjusted precisely. The fence can be set with pinpoint precision by means of the adjusting screw. Extra support for wider work piece

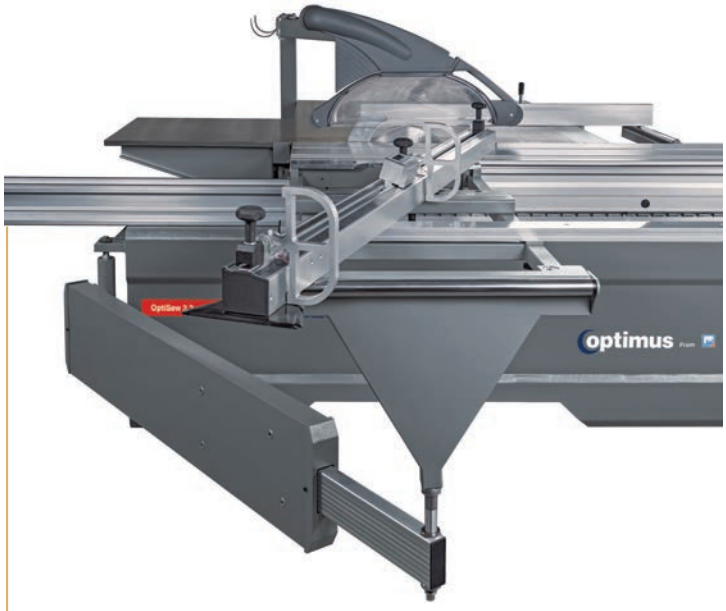


The smooth-running and powerful saw unit is a powerhouse produced with the latest manufacturing technology. The high-precision vertical movement of the unit is linear with maintenance -free guide bearings & allows the whole units to tilt easily & precisely to exactly the correct angle.

Optional Digital Read Out (DRO-F)

DRO that displays the job length digitally. This enables a setting precision accuracy of +/- 0.1 mm.

Optional Digital Read Out (DRO-R)



The sturdy frame provides a rigid support for all cutting with telescopic cross-cut fence with aluminium guides for precise and easy positioned. Also panels to be squared and cuts at an angle up-to 45ε on both sides of the table.

Equipped to cut a lot of material with ease and speed. Cross cutting of very thick plastic is also possible. Typical application such as sizing, straight line and rip cutting. Mitre cuts of solid wood can be carried out efficiently and precisely.

Easy & fast, saw-scoring blades changing. Easy scoring adjustment from front side. Entire saw unit on heavy duty cast iron trunnion.

LeitzXPert: invaluable knowledge tool

Leitz, the leading manufacturer of tools for the professional processing of solid wood and wood derived materials, has a unique accumulation of knowledge over generations about its tools and the respective types of machining.

This valuable information is now available to everyone in the LeitzXPert app, an innovative digital product based on the company‘s extensive knowledge. Their users are provided with all the important information about the Leitz tool they are currently using.

Launched in 2019 as aprototype and part of astudy, 4 years later the LeitzXpert app has matured into a full-fledged and easy-to-use information platform. It contains valuable processing and tool expertise, user information, operating instructions or product descri ptions for almost every product from the world market leader’s standard range.

For users of Leitz products, this means they can access it from anywhere in the world, free of charge!

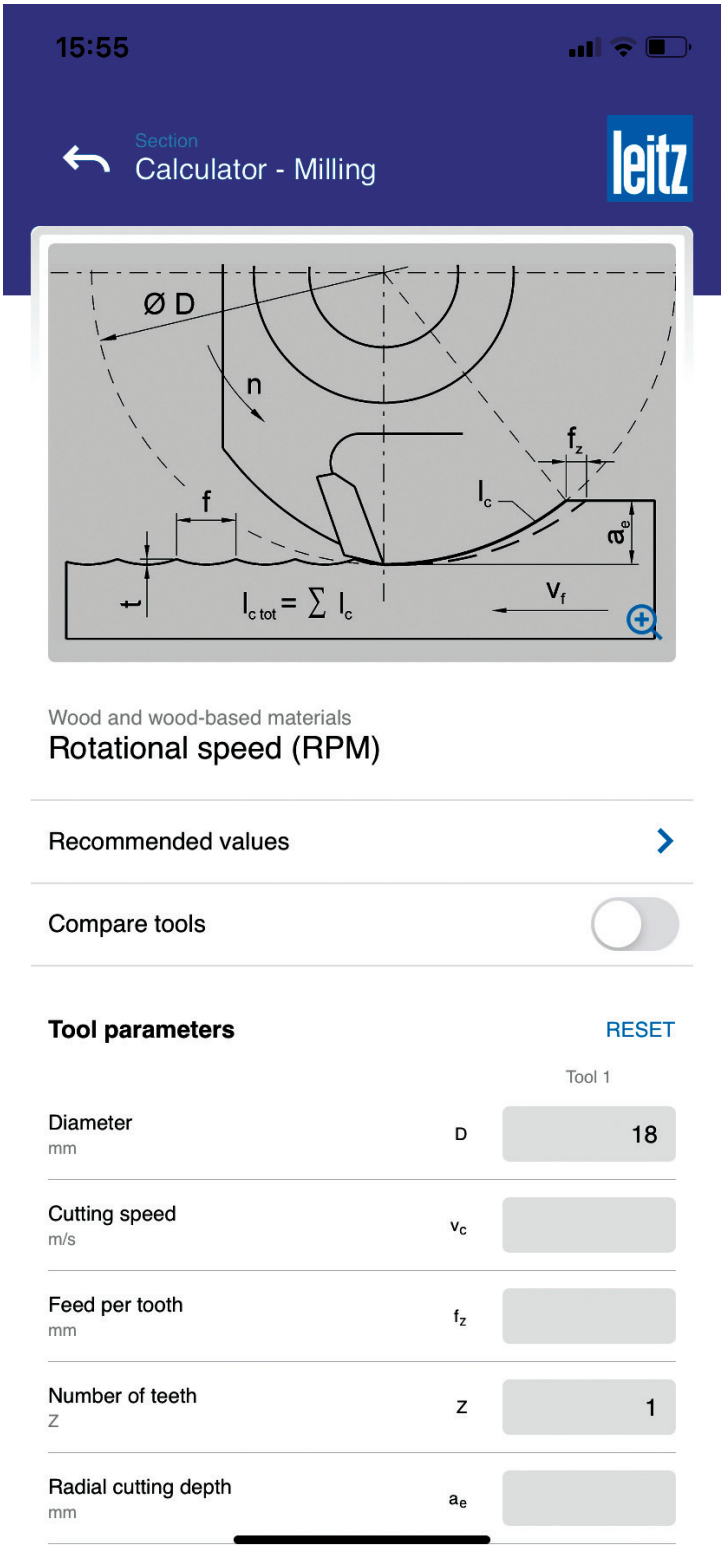
The tool identification itself takes place either with the manual entry of the product ID, with the help of an RFID reader, or by means of aQR or barcode. With the input confirmation, all available information is immediately available to the user.

Dimensions, material suitability, machine suitability, spare parts - simply everything the user’s heart desires. And for all those who use the app frequently, information on tools that have already been searched for can be found in the tool history in no time at all.

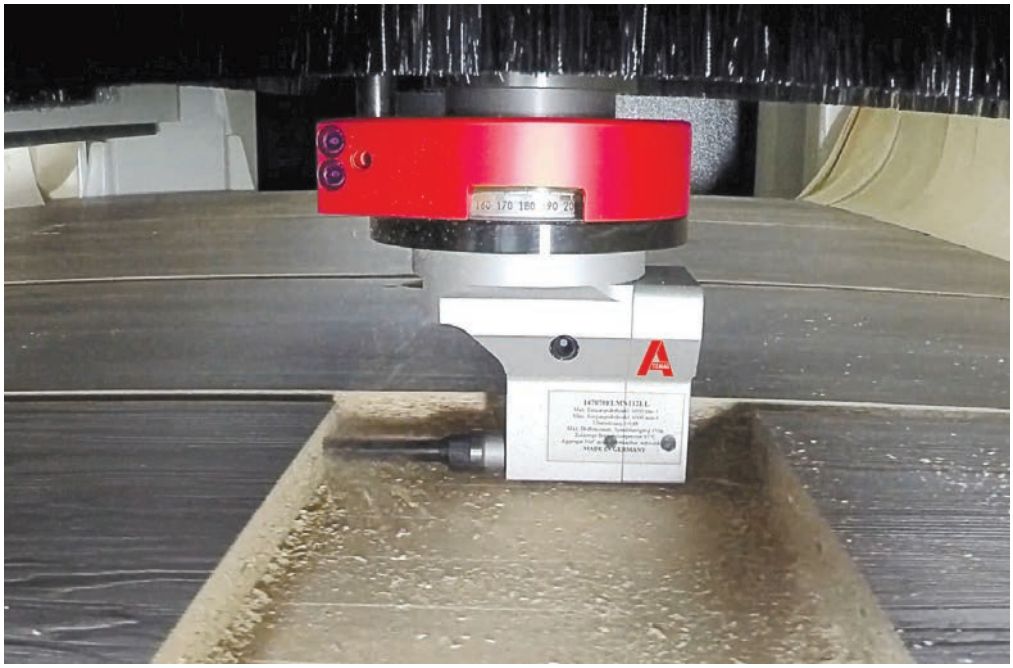
Another advantage of the LeitzXpert app is the included calculation programs for woodworking. With this feature, important tool datasuch as cutting speed, tooth feed, rotational speed or feed rate can be calculated precisely in the shortest possible time. It is also possible to compare several results with different parameters.

The app offers another useful feature: with the help of the integrated LeitzXpress function, users can quickly and easily contact the service driver or technical advisor responsible for them or request acallback.

The application is now available both as an app for mobile devices in the major app stores and as abrowser application viathe Leitz homepage.



Compact drilling on nesting machines



Panel materials made of wood, particleboard and MDF can be optimally formatted in nesting machines. In the so-called nesting process, panel sizes are separated in a space-saving manner, minimising material consumption and reducing production time.

After formatting the work pieces, additional processing methods are possible. Nesting machines can perform complex machining operations such as drilling, milling, recessing and other cutting operations using various tools.

In flat-bed machine tables, horizontal machining is a challenge. The use of an angle aggregate expands the functionality and versatility of CNC machining.

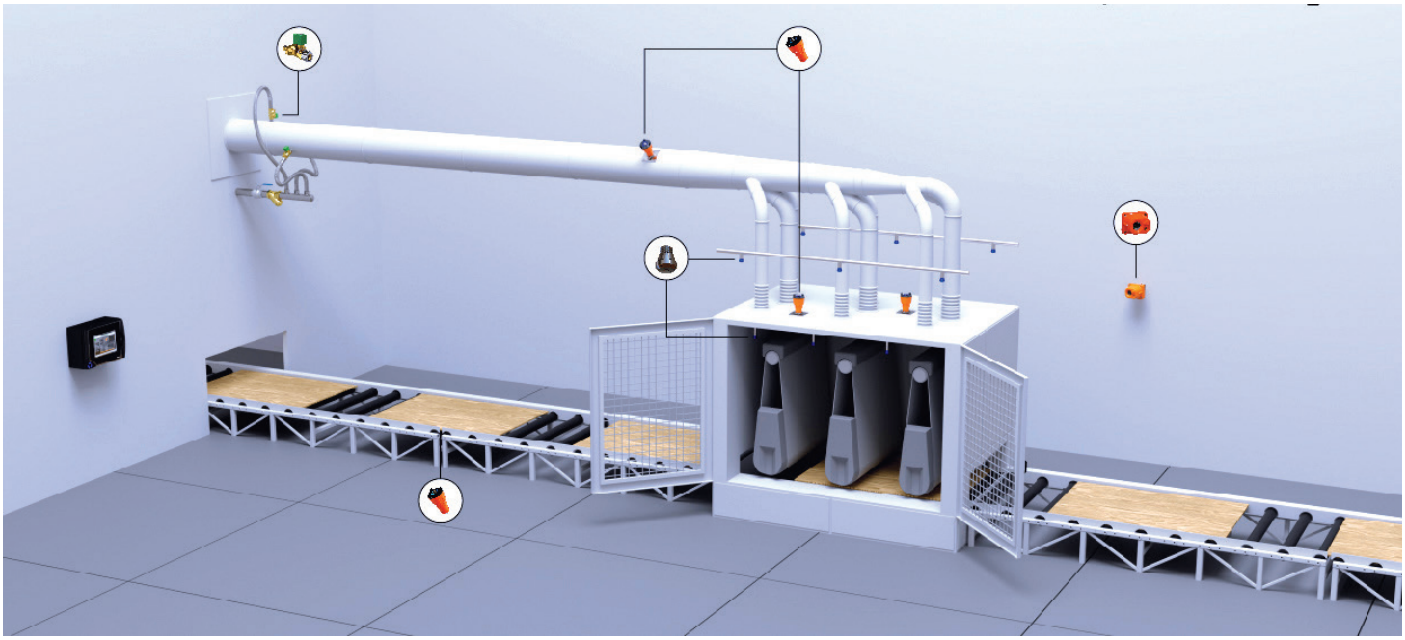
An angle drilling aggregate specially developed for nesting machines is the mono low-level function line from the German producer, Atemag (Aggregate Technologie und Manufaktur AG).

The compact angle head enables precise drilling of dowel holes in edges, even for work pieces with low heights. The aggregate can precisely drill holes with 6-mm and 8-mm diameters for panel thicknesses from 16mm and reduces the need for manual labour. This, in turn, significantly optimises production processes. For more information, write to jayant@shreepal.in.

WOODNEWS

WoodNews thanks the various companies that have submitted information. For any editorial submissions, please contact Mr. Dhananjay Sardeshpande, Chief Editor, at dhananjay@pdatrademedia.com. The information published in *Notes and News and Products & Processes* is as per the details furnished by the respective manufacturer/distributor. It does not reflect the views of *WoodNews* or of the management of PDA Trade Media.

Intelligent fire protection from Sweden



The wood panel industry has long grappled with apersistent challenge: the threat of fires. In many manufacturing plants, fire incidents occur with alarming regularity, forcing production stoppages, and incurring significant downtime costs.

One of the industry's critical challenges lies in identifying vulnerable areas prone to fires. Board presses, in particular, stand out as a high-risk zone. These presses play a pivotal role in the manufacturing process, combining wood material with adhesive under intense conditions.

The wood undergoes substantial pressure, ranging from 15 to 25 bar, and is exposed to temperatures between 200-240°C. While this high temperature expedites the drying of the board, it also creates an environment where any oil leaks from the press can ignite rapidly.

Other high-risk areas in wood panel manufacturing include chip dryers, where high heat poses a constant threat, and machinery with potential friction issues due to stones, metal objects, or faulty bearings in the material flow.

Firefly, a pioneering provider of fire protection solutions, is stepping up to the plate with asuite of cutting-edge technologies that not only mitigate fire risks but also optimise plant productivity.

The Firefly PressGuard is a game-changing, quick-suppression system that encompasses both detection and water mist suppression technologies.It is finely tuned to suit various areas of a press, swiftly and accurately identifying ignition sources.

When an issue is detected, the water mist suppression system springs into action, using aminimal amount of water to quell the flames. This not only effectively suppresses fires but also minimizes any potential secondary damage.

Fine dust generated by sanding machines presents another formidable fire hazard. This dust, if ignited, can trigger a rapid and dangerous spread of fire. Firefly's SanderGuard system is designed to address this critical issue.

It employs quick flame detection mechanisms within the sanding machine, followed by precise water mist suppression. By doing so, it provides robust protection for this crucial link in the wood panel production chain, mitigating fire risks and enhancing overall safety.

With headquarters in Stockholm, Firefly operates in over 80 countries, with a portfolio of patented products and ground-breaking solutions that set new safety standards across industries. For more information, write to suraj.machaiah@firefly.se.

Chair customisation through Bacci machines

Bacci's Master is a large, 6-axes, heavy-duty gantry-based CNC machine.

Paolino Bacci, one of the oldest manufacturers of woodworking machines based out of Italy, has developed a line of CNC machining centers. These centers have several fields of applications that include chairs, tables and furniture elements, musical instruments, sporting goods and articles, doors and windows, components in plastic, aluminum and composite materials.

One of the most representative machines in the Bacci range is the Master, a large 6-axes, heavy-duty, gantry-based CNC machine suitable for precise and high-productivity machining. Master, with its unparalleled versatility, is able to offer extensive customisation options, including locking systems.

Its operating heads are suitable for any type of processing, because of the multiple spindles and the presence of automatic tool change. It offers maximum processing precision constantly over time, due to the extreme rigidity of the gantry structure which guarantees a total absence of vibrations.

The T4MO is a real 3D shaping machine capable of machining even flat surfaces and edges.

Along with this, its Z stroke is among the widest on the market, being able to reach up to a maximum of 1500mm.

The award-winning T4MO CNC is not simply a lathe capable of working without "copying", but it is a real 3D shaping machine capable of machining even flat surfaces and edges, with levels of finish and productivity unattainable by conventional lathes.

It unleashes the creativity of designers by allowing them to reproduce easily the wooden elements, starting from their 3D drawings. In fact, T4MO CNC does not require the use of counter templates and uses software for the automatic generation of trajectories. It also allows the prototyping of new pieces in a very short time.

Equipped with a dust-proof and sound-proof cabin and a floor space of just 3x2 metres, this machine minimises production space.

The T4MO CNC is used for the production of solid wood chairs or furniture elements, as well as for the manufacture of handles, coat hangers, rifles, sporting goods, oars, anatomical clogs and musical instruments.

The new rapid edge 668JGB's stunning features

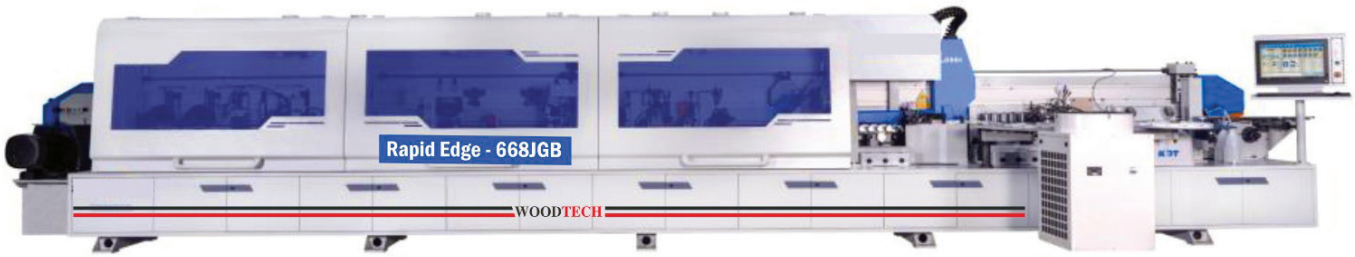
The RapidEdge 668JGB edge banding machine is packed with powerful features. It has dual glue pots, one for poly-urethane (PUR) and another for EVA hot-melt.

The machine is also equipped with a belt dry system to provide a better grip on panels and can run at a maximum speed of 23 metres per minute.

It comes with two trimming units, one for rough trimming and one for fine trimming. Along with this, it also has four corner-rounding units so that it can attain very precise corner rounding at a higher speed.

It has two scraping units and a flat scraper to scrape excess glue from the surface, along with a double buffing unit to provide clean edges.

Distributed in India by Woodtech, this machine can perform high edge banding similar to RapidEdge 496G, and is economical.



IPCO's new belt repair tool to maximize board quality

Belt damage is an unavoidable challenge in wood-based panel (WBP) manufacturing, often leading to costly down time and potential quality issues in board production.

To address this issue, IPCO, one of the world's leading press belt manufacturers, has announced the development of the QuickDisc Plus 500. This belt repair tool is designed to minimize down time and enhance board quality in the WBP manufacturing industry.

The QuickDisc Plus 500 is a cutting, welding and grinding system that enables the repair of damaged areas up to 480 mm in diameter. Designed to be user-friendly, it gives technicians the ability to complete repairs with efficiency and precision.

The repair process begins with an automatic carbide cutting tool that removes the damaged belt section, and enables the production of a replacement disc from the spare belt material supplied by IPCO with each press belt order.

It is equipped with a track-welding unit that facilitates accurate, semi-automatic

replacement of the disc. Once welded into place, the weld is seamlessly ground down using the QuickSander tool attachment.

This semi-automated approach is carried out with a high degree of precision, eliminating the need for additional treatments like edge grinding.

A consistent belt thickness across the weld ensures the continuation of high-quality board production even after damage. This advanced belt repair tool will be particularly beneficial for producers of thin boards, where the impact of belt repairs can be more noticeable.

AWM has options for lamination, surface finishes

Adding value, providing best solution, increasing profitability, cutting cost with latest technology and solutions at affordable cost: that is what Aadhunik Woodworking Machinery (AWM) is known in the field of MDF, particle boards, furniture and door manufacturing.

For MDF, particle boards and plywood manufacturers, offering melamine-faced board is a common trend. AWM has affordable solutions which allow MDF, particle board and plywood manufacturer to stand out with different lamination options and surface finishes.

These include PVC foils, acrylic, PP foils, high gloss, anti-finger finish, soft touch, high pressure laminates, finish paper foil and so on.At the same time, manufacturers can offer all such option to their customer using only one production line, without any minimum production quantity issues.

Your buyer can get various options at single source. In this area, AWM can play an important role in your manufacturing process to increase your profitability, and stand out in the market with premium products.

AWM has proven solutions for resin saving for MDF manufacturers; high productivity panel processing machines with automation to reduce labour cost; UV coating lines with Excimer technology; specialised and proven machinery for door manufacturing to increase productivity and reduce rejection level.

Do you wish to add premium products in your product basket? Are you ready for the latest technology from Europe? Write to info@aadhunikpune.com for more information.

Cutting optimization, label printing for any saw!

How does one create consistent processing data for each work piece, even on a manual cutting saw? How does one reduce the waste during panel sizing and thus material consumption? How does one keep an overview of already sawn parts and processed cutting plans?

These are questions every woodworking company owner has in their mind. Thanks to Cutting Production Set from Homag, now there is the ideal cutting assistant for any saw.

Homag's cutting assistant supports you in optimising your cutting patterns, in labeling the parts and in the cutting process on your manual saw.Simply optimise your cutting patterns with a click and transfer them to the app on your tablet in the workshop!

There, you work through the cutting pattern with the help of a clear display in the app – and print an individual label for each part. This way, each work piece has all the info for subsequent processing.

The cutting assistant was developed for use on all sliding table saws, vertical saws or horizontal panel saws, regardless of type, age or manufacturer.

The Cutting Production Set enables pptimised cutting patterns to be transferred from the intelliDivide cutting optimisation software to the app productionAssist cutting with a simple click.This significantly reduces material consumption.

Integrated processing data means label printing to identify the sawn parts directly on the saw (also for circular saws, vertical saws and older machines). Thus, from the very beginning, every work piece has all relevant information. This includes the job name, information on the component and edge banding, or up to two QR codes for the CNC programs.

You always know which parts have already been sawn and receive a proposal for the next part to be sawn (guided manual cutting). Offcuts can be labeled simply with a click and registered for reuse in the next optimisation. This not only saves time, but also reduces material costs.

You can start with the intelliDivide cutting optimisation software in the work preparation in the office. Then you send the resulting cutting patterns with a click to the productionAssist cutting app on the tablet at your saw.

There, you select the cutting pattern that you need at that precise time and start the sawing process.

When you are cutting the parts, the productionAssist cutting app provides a continuous, precise overview of the status of the cutting pattern (even for manual saws). Then you simply click to print the labels for each part on the label printer provided in the set.

The result is reduced material consumption, time savings and complete production data from the first process step.

Greenply launches new boil-proof MDF boards

The latest milestones for Greenply Industries, one of India's largest interior infrastructure companies, were announced recently, when it unveiled the MDF Boil Pro 500, a boil-proof 500 HDF that brings the promise of boil-proof and fire-retardancy in MDF.

Greenply also obtained certification by the California Air Resources Board (CARB) & Environmental Protection Agency (EPA) for its recently launched CARB P2 MDF. Greenply is first in the industry to be certified with CARB and EPA for its zero-emission plywood product range.

Greenply MDF Boil Pro 500 is manufactured using Hydrofire Block technology at its Vadodara factory. Apart from its water-proof and fire-proof performance, it can bear heavy loads, and is resistant to termites, borers and fungus.

Additionally, Greenply MDF Boil Pro 500 is environment-friendly and possesses anti-bacterial, anti-fungal and anti-viral properties, offering a safe and hygienic solution.

With high dimensional stability and production powered by renewable energy sources, Greenply MDF Boil Pro 500 is the responsible choice for today's construction and interior design needs.

This new product finds its applications across a wide range of areas, including restroom toilet cubicles, thermal insulation, load-bearing areas like decking and warehouse shelves, container and truck floors, bus and bathroom partitions, fire-retardant applications, flooring, wall paneling, furniture, fixtures, modular kitchens, wardrobes, and moisture-prone areas.

Homag Academy opens training courses

Homag India has set up an academy that aims to train and qualify woodworking professionals throughout the year to meet the growing needs of the industry.The academy will be amodern learning platform with over 10 training courses to help companies keep their teams up-to-date and assist in increasing the output and efficiency of machines with well-trained employees.

The tailor-made training courses will be based on the experience every year and are held by subject matter experts, who are knowledgeable and highly qualified and have many years of experience with Homag's products.

The flexible options include classroom training at Homag India Academy Centre based out of Bengaluru. It will include live online training where participants meet their trainer in avirtual training room while learning and networking with other participants.

It also involves hands-on learning that includes live demonstrations and practical classes under expert supervision. The training duration is 5 working days (Classroom 10 am to 3 pm; and Hands-on training 3 pm to 5 pm).

Batch size of up to 6 paxfor machines training, and up to 10 pax for digital solutions training is possible.Certifications will be provided based on the training completed by the candidates. For queries and registration, write to info-india@homag.com.

India biggest market for US lumber

India has emerged as the biggest growth market for US hardwood lumber in the first half of 2023, with the total shipped to the market rising by 76% in volume to 6,610 cubic metres and by 47% in value to US$ 3.98 million, according to the American Hardwood Export Council (AHEC).

The statistics, which have been compiled from the latest data released by the United States Department of Agriculture (USDA), reveal that shipments to India during the first half of this year were dominated by White oak, ash, Red oak and maple, with the latter rising from avery small base in the previous year.

The biggest increases in value and volume were seen in ash (931% and 1,092%), maple (809% and 1,155%), walnut (248% and 268%) and White oak (160% and 121%).

A report by Mordor Intelligence states that the India furniture market size in 2023 is estimated at US$ 15.79 billion and is expected to reach US$ 26.85 billion by 2028.The Mordor report points out that the Indian furniture market has changed, expanding beyond chairs and tables to include interiors.

Biesse Mnftg. is now Biesse India

Bengaluru-based Biesse Manufacturing Company Pvt. Ltd. recently received approval from the Ministry of Corporate Affairs to change its name to 'Biesse India Private Limited'.According to its press note, this name change reflects the company's evolving vision and strategic direction.

"It is important for us to highlight that despite the name change, all other aspects of our business operations, including ownership, management, and contact information, remain unchanged.Our commitment to delivering high quality products and services remains unwavering," the note added.

The name change "will not affect any existing agreements, contracts or obligations All terms and conditions, as well as payment details, will remain the same," said Mr K.V.Prashanth, Chief Financial Officer of Biesse India Pvt. Ltd.

Altendorf honoured with AWSF Visionary Award

Altendorf's innovative hand guard safety assistance system was conferred the Visionary Award at this year's AWFS (Association of Woodworking and Furnishings Suppliers) exhibition in Las Vegas, US.

The ground-breaking AI- and camera-based safety-assistance system for sliding table saws was given in recognition of the company's unwavering commitment to pushing the boundaries of innovation while prioritising the safety and well-being of craftsmen and the industry at large.

Dieffenbacher bags new Kiwi order

New Zealand's Fletcher Building Ltd. has ordered a complete Cebro plant for the production of fine OSB (oriented strand board) from German machine and plant manufacturer, Dieffenbacher. The plant will be built at Fletcher Building's Laminex site in Taupo, in the centre of the country's North Island, and will include the new, highly-sustainable belt dryer.

Fletcher Building's new Cebro plant will have the flexibility to produce fine OSB and conventional OSB. Fine OSB is a special type of board consisting of an OSB core layer covered top and bottom by layers of particleboard.It combines OSB's excellent mechanical properties with the surface quality of particleboard.

Egger buys out chipboard plant from Rauch

The Egger Group continues its growth course and has taken over the Rauch chipboard plant in Markt Bibart, Germany. After the sale, the Rauch Group will focus fully on the further development of its furniture plants in order to further expand its strong market position.

The Rauch Group, a family company, has been manufacturing and selling high-quality wardrobe and bedroom ranges for over 125 years. In 1958, Rauch took over the chipboard plant and from then on was able to produce its own chipboard for furniture manufacturing.

The chipboard plant now supplies not only Rauch furniture plants but also other national and international furniture and door customers.

The chipboard plant in Markt Bibart will be the 22nd production plant of the globally active Egger Group. It has facilities for the production of raw chipboard with a capacity of up to 6,50,000 cubic metres annually.

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Ebco campaign captures product impact

The latest furniture fittings campaign from India's premier furniture hardware manufacturer, Ebco, showcases how great furniture can profoundly impact the lives of people and highlights the perfect blend of functionality and aesthetics with its fittings.

One film recounts the heartening journey of a man from Jalandhar, previously unfamiliar with cooking, who discovers his passion for cooking through Ebco kitchen fittings. The other showcases the transformation of a teenage girl from "boring to interesting", courtesy of Ebco compact room fittings, enabling her to maximise her daily activities.

The films' allure is accentuated by delightful limericks, setting them apart from the ordinary and ensuring an immensely enjoyable viewing experience. Check out these TV commercials on Ebco's YouTube site.

New European curbs on formaldehyde

The European Commission has established a new limit for the concentration of formaldehyde in the air of "living environments". The regulation cuts the previous values by setting the limit to 0,062 mg/m3 for the emission of this substance considering, in particular, wood-based products and furniture as possible "sources" of formaldehyde.

The provision prescribes a new limit, which is exactly half the value indicated by the World Health Organisation (0.124 mg/m3), on which the well-known and consolidated E-1 classification is based. The E-1 is, up to now, not only the recognised standard of the sector, but it is also the reference class legally adopted by many European countries.

For the first time, the whole European wood and furniture sector must adopt a precise "rule" from the European authorities which, unlike the E-1 classification, must necessarily be applied by all European countries, involving also all products imported into the EU.

Novel coating for bamboo

Although several protective coatings have been used on bamboo, basic properties such as transparency and durability have too often been neglected so far. As an abundant natural resource, bamboo with enhanced flame retardancy and mildew resistance after surface treatment has a wider range of applications.

Researchers have now prepared a new organic-inorganic coating by thermal curing between vanillin-derived epoxy (VEP) and hyper-branched siloxane (HPSi). When the mass ratio of VEP and HPSi was 20:28, the obtained Schiff base hybrid coating exhibited visible light transmittance of over 90% and the highest pencil hardness of 9H.

The fabricated coating also showed remarkable solvent wipe resistance (Xylene and ethanol: 1,000 cycles) and continuous abrasion (cheesecloth test: 5,000 cycles). In addition, the hydrophobic and dense coating endowed the coated bamboo with excellent mildew resistance even in high humidity (97%).

Due to the high thermal stability, the coated bamboo presented a significantly enhanced flame resistance with a limiting oxygen index value of 29.1%. From a broader perspective, the Schiff base hybrid coating with excellent comprehensive performance and facile preparation process displays great potential for practical application for bamboo or other substrates.

Hindware to up-skill 5,000 plumbers

The sanitaryware brand, Hindware, recently announced the launch of a strategic partnership with the Water Management and Plumbing Skill Council (WMPSC), to bridge the skill gap and provide up-skilling opportunities to approximately 5,000 plumbers across India over the next 2 years.

The initiative is geared towards improving job prospects and livelihoods, and fostering entrepreneurial possibilities for plumbers nationwide.The collaboration is focused on addressing these challenges and empowering the plumbers' community through up-skilling, improving livelihoods and increasing livelihood for marginalised workers in the industry.

The comprehensive training curriculum will cover awide range of topics, including modern plumbing techniques, sanitation practices, customer service and safety protocols.The participants will also gain valuable insights into the latest advancements in plumbing technology and sustainable plumbing practices, further solidifying their expertise in the field.

Each batch of the programme will accommodate up to 60 plumbers, creating an interactive and conducive learning environment. This initiative is in line with the Indian government's Skill IndiaMission, focusing on skill development and employment generation.

Greenply continues plastic-free drive

On India's 77th Independence Day, Greenply Industries unveiled the second leg of its #PlasticFreeTiranga campaign as a follow-up to its 2022 initiative.The company is calling upon citizens to join the movement against plastic pollution, which has emerged as an urgent ecological crisis.

India generates 25,000 tonnes of single-use plastic waste daily.The cornerstone of the initiative is the thought-provoking digital film that underscores the urgency of adopting sustainable alternatives and discouraging the use of single-use plastic.

Through compelling visuals and storytelling, the digital film showcases the detrimental effects of plastic on the environment and highlights the importance of adopting sustainable alternatives. Check it out on Greenply's YouTube channel.

Egger closes a successful financial year

Despite an extremely volatile financial year characterised by sharply rising interest rates, high inflation, declining new construction figures, highly volatile raw materials and energy markets, as well as geo-political uncertainties, the Egger group reported another successful financial year and a return of its key figures to astable and sustainable level in the long term.

For the 2022-23 financial year, the company reported an increase in revenue, but a decline in earnings: a group-wide turnover of 4,449.7 million Euro (+5.1% compared to the previous year) was generated. EBITDA amounted to 602.5 million Euro (-31.3% compared to the previous year) and the margin was 13.5% (previous year 20.7%).

Formica resumes India operations

Formica, the global manufacturer of high-pressure laminates (HPL) recently inaugurated its premier showroom in South Extension, New Delhi. The company is looking at disrupting the Indian surface solutions market with its flagship products, especially carved around the Indian Market: Fenix and DecoMetal.

The inauguration was graced by Mr Ajay Khurana, Managing Director, Formica India, along with Mr Hemant Sood, President of the Indian Institute of Interior Design.

Fenix, manufactured by ArpaIndustriale and exclusively distributed by Formica in India, and DecoMetal, a range of decorative metal laminates manufactured by Homapal in Germany, are the products highlighted at the Formica showroom.

In 2019, Broadview Holding BV acquired the Formica business from Fletcher Building Ltd. and decided to revive the iconic laminates brand, including in India. Formica manufactures its HPLs in its factory in Kalol, near Ahmedabad.

Greenply ropes in NTR Jr. to push E-0 message

Greenply Industries Ltd., one of India's largest interior infrastructure companies, has embarked on an exciting new journey with the launch of its new brand campaign for the innovative zero-emission (E-0) product range.

The Television Commercial (TVC) reflects the captivating charisma of one of India's most successful commercial stars, N.T.Rama Rao Jr. He is showcased as the hero who champions the cause of healthy interiors through the story of two carpenters discovering the benefits of Greenply after a dramatic encounter with the Telegu superstar.

Greenply introduced India's first zero-emission plywood range in the year 2021, setting new standards for product innovations in the wood panel industry. The brand's new TV commercial is set to make waves. Check it out on Greenply Plywood's YouTube channel.

Greenply is strategically undertaking an extensive digital campaign amplification effort designed with a multifaceted approach. This comprehensive strategy will reach the target audience, leveraging key influencers, and harnessing the full potential of the digital landscape.

Homag to skip Holz-Handwerk

The Homag Group has decided to suspend its participation in the Holz-Handwerk trade fair in Nuremberg (Germany) next year. Instead, it will present its numerous innovations to customers at several local, decentralised events.

The company CEO, Dr. Daniel Schmitt, cited the adjusted trade fair strategy for more difficult economic times as one of the reasons for the decision. "We have decided to focus primarily on the leading international trade fairs such as Ligna in Hanover (Germany), International Woodworking Fair in Atlanta (US) or Interzum in Guangzhou (China).

"This does not mean, however, that we have cancelled our participation in the Nuremberg trade fair for all time. We will reassess the situation again in 2 years," he added.

The current weaker economy and the associated decline in order intake require stricter cost management, Schmitt said. But in its numerous showrooms, the Homag Group intends to present a broader range of solutions comprising machines, services and software to the relevant target groups.

New modular switches from Panasonic

Panasonic Life Solutions India announced the launch of its new modular switches - *Akina and Regent*. The switch range is a blend of craftsmanship and modern technology and focuses on the mid modular segment.

Akina embodies design and functionality and is made of high-quality materials. It comes with the Modul Rotation feature that enables flexible installation in restricted places, with horizontal and vertical rotations supported.

The Regent range focuses on affordability and is made of fire-resistant, designed polycarbonate material, and ensures endurance for electrical applications by using fire-resistant materials, arc shield protection, and captive terminals with IP20 protection. This design not only protects against risks, but also provides thermal protection and ease of maintenance.

India signs MoU for furniture clusters

The Trade Promotion Council of India (TPCI) and the World Furniture Confederation (WFC) recently inked a memorandum of understanding to establish furniture industrial clusters within the country.

It was signed during the annual general meeting of the WFC in China, attended by over 500 business and industry representatives from around the globe. Mohit Singla, Chairman of the TPCI, joined hands with Xu Xiangnan, Chairman of WFC.

This collaboration is expected to ignite a transformative journey for the organised furniture manufacturing sector in India, facilitating the sharing of best practices and expertise, creating a seamless end-to-end ecosystem that fosters the growth of furniture manufacturing in the country.

It is expected to attract foreign direct investment to enhance India's furniture exports, and reduce the country's dependence on furniture imports. Singla quoted a recent study that revealed great demand for plug-and-play clusters as the only possible means of achieving competitiveness.

The furniture industry worldwide accounts for US$ 250 billion in trade, with both the EU and China exporting around US$ 100 billion each. This presents India with a remarkable opportunity to amplify its furniture exports and emerge as a key player in the global market.

Association of Furniture Manufacturers & Traders (INDIA)

a · f · m · t

BENEFITS OF BEING A MEMBER

Directory

AFMT Directory will be an effective tool to project profiles of our members before related industries, other business houses, developers, design community, embassies and trade commissions. It will also help members to locate other manufacturers, traders and importers for sound business growth.

Furniture & Furnishings Fairs

As exhibitions are a one point B2B platform, this should be affordable for every member. The association liaisons with various event organizers to get preferential rates for members of the Association at fairs and exhibitions.

Educational & Trade Trips

The association on behalf of all its members organises professional and educational trade trips to different parts of the world.

International Recognition

AFMT is a single body to interact with foreign companies and other International trade organisations who wish to know about our industry. Effective technology and information transfer through collaborations & joint ventures.

Fair Taxation Policies

AFMT as an entity would approach the Government to demand a non biased taxation policy. To collectively voice concerns of the Furniture Industry to the Government bodies.

WhatsApp Business Group

AFMT offers a platform where members can exchange information about their products and do business.

Trainings, Seminars & Webinars

AFMT as an entity would approach the Government to demand a non biased taxation policy. To collectively voice concerns of the Furniture Industry to the Government bodies.

Newsletter

The most effective way of reaching out to people from our industry. It will be designed to keep the Furniture Industry informed of the latest developments in the business. It will carry information on the activities of the association, its partners and members.

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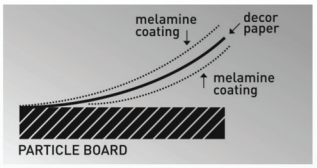

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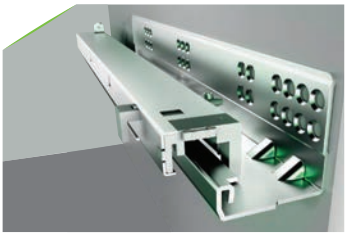

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