

WOODNEWS

JULY - AUG 2023
Vol. 33 • No. 2

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the Woodworking Industry **33** YEARS



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RE-IMAGINING THE JHOOLA

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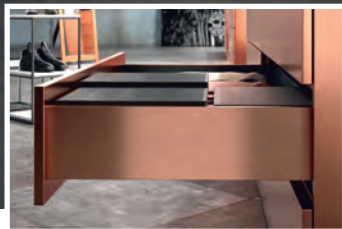
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more sustainable wood

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FEATURE

How OEE enhances your
manufacturing efficiency





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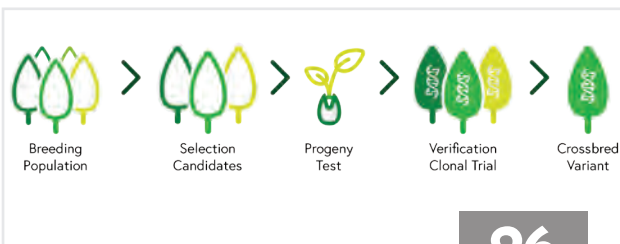
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EDITOR

DHANANJAY SARDESHPANDE

Swinging between nostalgia and contemporary design

Hello Readers,

“Solid timber needs to be worked with, rather than against. When you try to make timber do something timber doesn’t want to do, the timber usually wins!” says Adam Markowitz, Melbourne-based Australian architect and furniture designer. “Furniture manufacturers, therefore, have a range of very real-world considerations determining their decision making.” This in essence summarises the challenge and thrill of the ‘Re-imagining the jhoola’ project, organised by the American Hardwood Export Council (AHEC).

In the biggest design collaboration to date in the country by AHEC, five Indian architects and designers recently unveiled their interpretations of the ‘jhoola’ in American hardwoods: maple, Red oak and cherry. ‘Jhoolas’ are pieces of nostalgia and emblems of traditional woodcraft on the sub-continent. Equally challenging it was for woodworkers to give shape and substance to these ideas, in terms of understanding timber, employing technology and finishing each piece with aplomb. Check them out in our cover story.

Scientists in the US have used a gene-editing system to breed poplar trees with reduced levels of lignin, the major barrier to sustainable production of wood fibres. The findings hold promise to make fibre production for everything, from paper to diapers greener, cheaper and more efficient. And Dieffenbacher GmbH has commissioned an MDF manufacturing line using discarded palm fronds from date plantations in Egypt.

Experts from Schuler Consulting have written exclusively for *WoodNews*, on how overall equipment effectiveness (OEE) analysis helps to understand and prevent machine downtimes and organisational or unfounded interruptions, thereby increasing the effectiveness of production within the available resources. Read on to see how it is of relevance to you.

In another project by Forestry Innovation Consulting India, Canadian wood species, mainly Douglas-fir, seamlessly integrates into the architecture, interior and product design of a Pune-based restaurant, resulting in an enchanting dining experience for its patrons. Feel the vibes in our Design & Finishing section.

Also checkout what IKEA means by ‘Democratic Design’. It has five dimensions: function, form, quality, sustainability and low price. When there is a balance between all five, IKEA considers that the design is democratic. More on that inside. Good-bye until next!

STAYING IN TOUCH

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'Inside Biesse 2023' wraps up with success

Biesse, the global leader in advanced machinery and software solutions for the woodworking, glass and materials industries, wrapped up a 3-day 'Inside Biesse India 2023' with resounding success.

Held at the Biesse showroom in Bengaluru, the event offered industry professionals and woodworking enthusiasts an unparalleled opportunity to explore the latest innovations and technologies in the field.

More than 400 attendees, consisting of 120 leading manufacturing players, industry experts, partner associates and students from across the sub-continent participated in the event.

The event kicked off with an inaugural ceremony with lamp lighting by Sayeed Ahmed, CEO of Biesse India; Priyanka Singh, Deputy Secretary-General of the Indo-Italian Chamber of Commerce, other senior officials from Biesse India & Italy.

Among those who spoke were Stefano Botene, Sales Director at Biesse India, and Vichi Ettore, EMEA Region Director of Biesse.



(L-R) Vichi Ettore, EMEA Region Director of Biesse, Sayeed Ahmed, CEO of Biesse India, and Stefano Botene, Sales Director at Biesse India, converse with officials of the Indo-Italian Chamber of Commerce.



More than 400 attendees participated in the 3-day event.

Among the guest lectureers were Giuseppe Morando from Atelier Lampugnale Morando (Italy) provided valuable insights and shared his hands-on experience regarding the dynamic nature of products in the manufacturing industry.

Gopal Dwivedi from Livspace discussed the importance of maintaining a balance between quality and quantity in the manufacturing process. Rahul Mehta, CEO of the Furniture & Fittings Skill Council, highlighted the significance of up-skilling to overcome workforce limitations and drive business growth.

The 3 days included exclusive factory tours, where participants witnessed Biesse's state-of-the-art manufacturing setup, providing a comprehensive understanding of its operational excellence.

"This event reaffirms our commitment to provide tech-centric futuristic solutions and efficiency in the woodworking, glass and materials industries. We extend our gratitude to all participants for joining us and experiencing the future of manufacturing firsthand," said Sayeed.

The top 10 cutting-edge technologies on display showcased a wide range of solutions in wood, glass and advanced materials, including 5-axes CNC machining, nesting, edge banding, cutting and sizing and drilling.

Biesse India is a direct subsidiary of Biesse Group and also the only production site of the Biesse Group outside Italy.

Staff of Biesse India, the only production site of the Biesse Group outside Italy, celebrate the success of the Bengaluru event.



K 34 next

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Malaysian Wood Expo highlights innovation

It was yet again another masterstroke by the Malaysian Timber Council (MTC) as one of its flagship programmes, the Malaysian Wood Expo (MWE) 2023, concluded on a high note, leaving an indelible mark on the timber industry while sparking a wave of innovation and collaboration.

It was jointly organised by MTC and Pablo Publishing and Exhibitions, from 18 to 20 June 2023, at the Malaysia International Trade and Exhibition Centre (MITEC).

The expo saw over 3,000 visitors and 124 local and international exhibitors. Expressing his satisfaction with the expo's success, Tuan Haji Zainal Abidin Haji Abdullah, Chairman of MTC said: "MWE has proven to be a lucrative platform for business networking and trade opportunities. We couldn't be prouder of our achievements which have far surpassed our previous success."

He added that the success of MWE 2023 reflects how the timber industry is gaining momentum globally with stakeholders putting forward strong investment plans, which is creating demand for Malaysia-made products.

MWE 2023 was officiated by the Deputy Minister of Plantation and Commodities,



The Buying Mission recorded sales of RM 147.8 million during MWE 2023.

YB Datuk Hajah Siti Aminah Aching.

MWE 2023 showcased raw materials and wood products such as wooden flooring, mouldings, doors, door frames and windows, panel products, woodworking machinery such as cutting tools, combined machines, dust collection equipment, edge banding materials and machines, handling equipment, abrasives, adhesives, coatings, timber-related equipment, and furniture production software.

MTC also offered special incentives for the purchase of machinery, which included material handling equipment and software technologies.



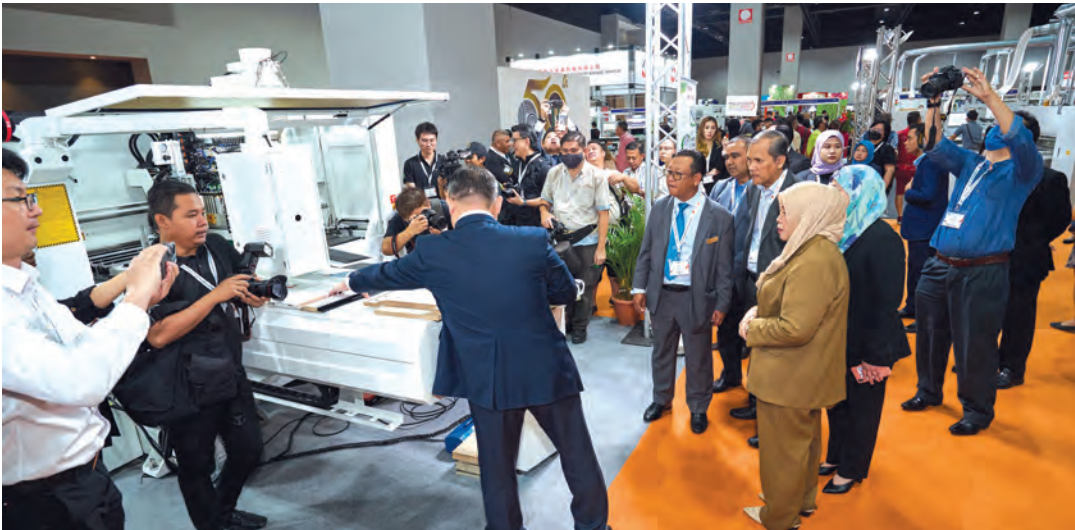
MTC Chairman Tuan Haji Zainal Abidin Haji Abdullah (L) delivering his welcoming remarks. Deputy Minister of Plantation and Commodities, Datuk Hajah Siti Aminah Aching (R), delivering the speech on behalf of the Minister for Plantations and Commodities, Dato Sri Haji Fadillah Haji Yusof.

“Much of the machinery and material handling equipment were purchased from local as well as overseas exhibitors with brands originating from China, Germany, Denmark and Taiwan,” said MTC CEO, Madam Noraihan Abdul Rahman.

She further highlighted that the software technologies acquired comprise ERP, MWE, MOM, IoT system integration and software for custom-made furniture. Apart from the IBM and IOSP programmes, MTC also held 16

pocket talk sessions with key industry experts as speakers.

A media familiarisation programme was also conducted concurrently with the expo, providing participants with a first-hand experience of the Malaysian timber industry, from its forest management practices to its manufacturing and trade aspects.



Datuk Hajah Siti Aminah Aching at one of the machinery exhibitor's booths.



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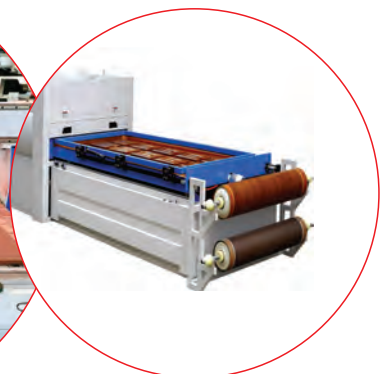
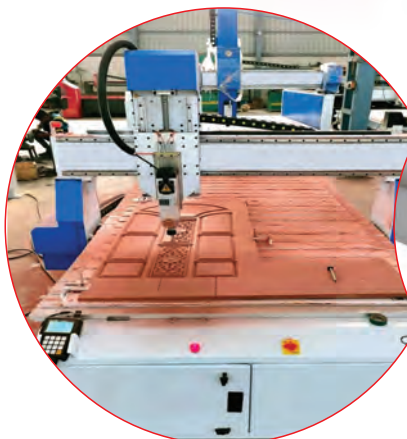


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CIFF Shanghai is about expanding business channels



Come 5-8 September and the 52nd edition of China International Furniture Fair (CIFF) in Shanghai will warmly welcome all Chinese and international players in the furniture industry, offering effective business solutions in response to the big changes and new challenges of world markets.

Since 2015, CIFF has taken place in March in Guangzhou Pazhou, and in September in Shanghai Hongqiao.

After 8 years of continuous evolution, CIFF Shanghai is focusing on the high-end domestic market while fostering international cooperation, effectively linking the presence of industry-leading brands at the fair with the most important distribution channels in the Chinese and international markets.

This September CIFF Shanghai will firmly focus on the value of innovation and original design, for which two pavilions have been reserved to feature top brands and special exhibitions.

There are activities and services dedicated to the more than a thousand product designers, interior designers, and design professionals involved in CIFF.

The fair will be the ideal business platform for successful positioning in the Chinese market. Brands in attendance will be able to find partners and develop new business channels online and offline while enjoying

the opportunity to interact directly and effectively with all major high-end Chinese distributors, including Red Star Macalline.

There are more than 1,500 exhibitors, four themed exhibition events, and an exhibition area of 3,70,000 square metres at the National Exhibition & Convention Center in Hongqiao.

All aspects of the furniture supply chain will be under one roof: home, outdoor, and leisure furniture; furnishing accessories and textiles; furniture for offices and public spaces; as well as machinery for the furniture industry, thanks to its concurrence with the Shanghai International Furniture Machinery & Woodworking Machinery Fair (WMF).

The WMF will host leading brands in furniture manufacturing machinery, environmentally sustainable solutions, safety control devices, packaging machinery, cutting machines, machine parts, manual tools, and more, presenting a top-notch selection for smart home furniture production.

The CIFF urban outdoor furniture exhibition will feature categories such as outdoor furniture and shading systems, accessories, garden decoration and camping equipment.



Wood mastery

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Campus is a platform for education, research

Research and development, as well as education and training, are indispensable on the road to a more sustainable and productive future for woodworking and wood processing.

The LignaCampus format in Hannover provided renowned technical colleges, universities of applied sciences and universities with the ideal platform for their diverse educational offerings and groundbreaking research findings.

The spectrum ranged from augmented reality-based learning and teaching tools to system development for the use of driverless transport robots. It was a visitor magnet for anyone with big plans in the woodworking and wood processing sectors.

“With LignaCampus we are creating a place where the next generation of wood industry professionals can find valuable support and encouragement, and benefit from leading-edge expertise,” said Stephanie Wagner, Head of Ligna at Deutsche Messe AG.

Hardwood applications

The University of Applied Forest Sciences in Rottenburg addressed concepts for the material use of hardwood at its booth and discussed with LignaCampus participants about sustainable ways to utilise hardwood.

The university provided various illustrative scenarios of how chemical wood modification can be used, for example in the structural sector by developing beech cross-laminated timber, in exterior applications by replacing wood preservatives, and in instrument making for guitar fingerboards by substituting tropical woods with native hardwoods.

The Fachschule Holztechnik Melle inspired visitors with two fascinating topics for further education: AR technology and Smart Factory. In a project with the German Research Center for Artificial Intelligence an augmented reality-based learning and



teaching tool for in-company training and continuing education was created.

Visitors to Ligna 2023 were able to try out this cutting-edge technology and experience how one can use the application in a variety of ways in their day-to-day work.

The second advanced training topic, the Smart Factory, was about the buzzword ‘Industry 4.0’ and about designing production so that batch size one and the fulfillment of individual customer wishes become possible.

Fleet management

The aim was to show that wood technology is not limited to the topics of wood and wood materials, and that the technology should be seen and understood across all professions. Therefore, not only is basic knowledge deepened at the FH Melle, but also the areas of activity are expanded.

These expanded areas of activity also include the development of a configurable fleet management system for driverless transport robots, which the Faculty of Wood Technology and Construction at Rosenheim University of Applied Sciences addressed at its LignaCampus booth.

The goal was a production-ready fleet management system for small and medium enterprises that combine individual configuration, simulation and optimisation in a virtualised production facility, “digital twin”, as well as the operational use of driverless transport robots in a smart factory.

Visitors were confronted with challenges that are as demanding as they are entertaining, including the flexible design of production processes, vendor-independent interfaces and self-learning order distribution by the transport system.

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HIFF poised for Sept 23 opening



The Hindustan International Finished Furniture Fair (HIFF) heralds its highly anticipated 5th edition, scheduled to take place from September 23 to 25 this year at the Codissia Convention Centre in Coimbatore.

Since its inception in 2016, HIFF has grown in scale and significance, establishing itself as a premier national-level furniture exhibition. Visitors stay ahead of the curve as they explore the latest trends that will shape the future of the furniture landscape in India.

HIFF 2023 offers more than 15,000 square metres of exhibition space in the heart of Coimbatore. With over 250 exhibitors and over 10,000 trade visitors, HIFF offers a platform for establishing new contacts, maintaining existing relationships, and exploring potential partnerships.

HIFF has a track record of successful product launches, with more than 500 new products unveiled at HIFF 2022.

From the elegance of living room furniture to the sophistication of dining room sets,

HIFF showcases a comprehensive range of product segments that will interest furniture buyers.

There is an enormous diversity of bedroom furniture and mattresses, office furniture, kitchen and bathroom furniture, children's furniture, antique reproductions, and more.

It also helps visitors discover the latest advancements in adhesives, chemicals, wood coatings, lumber, veneer and panels, leather and fabrics, furniture packaging, pneumatic tools and cutters, and auxiliary materials.

Prominent exhibitors represent furniture exporters and importers, timber traders, manufacturers of furniture and kitchen cabinets, distributors of hardware, fittings, tools and accessories, and manufacturers of plywood, veneers, and wood-based panels.

Architects, interior designers, retailers, wholesalers and manufacturers come together at this event to exchange ideas, establish partnerships, and explore potential business opportunities.

Participants can also attend informative seminars, workshops and panel discussions conducted by industry experts. For more information, visit <https://hiff.in/>.



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WOODWORKING MACHINERY FAIR

04-06 August, 2023

Venue: National Exhibition and Convention Center, Shanghai

WMF is one of the most established and professional woodworking machinery exhibitions of its kind in Asia since 1986. It is conducted alongside the Shanghai International Furniture Machinery (CIFF) in view of the rising demand in innovative technologies across the entire supply chain of furniture production and woodworking industry. It serves as a one-stop sourcing platform for the whole industrial sector and a key networking hub for technological developments and business ideas.

<https://www.woodworkfair.com/WMF23>



KOFURN

24-27 August, 2023

Venue: Kintex, Seoul, South Korea

The Korea International Furniture and Interior Fair shows the latest in furniture, interior and woodworking industry. The purpose of the fair is activation of furniture, interior, industry woodworking and development of the small and medium business market.

<http://kofurnglobal.or.kr>

FIMMA

28-31 August, 2023

Venue: the Parque de Eventos de Bento Gonçalves, Brazil

FIMMA Brasil shows the companies news of Brazil and internationals related to sectors like accessories, wood working industries, robots, equipment and tools, wood finish, production technologies, furniture accessories, equipment and technologies, carpentry, complements, industrial fairs, etc.

<https://www.neventum.com/tradeshows/fimma-brasil-2>

CIFF/WMF

05-08 September, 2023

Venue: National Exhibition and Conference Centre, Shanghai.

CIFF/WMF is one of the most important exhibitions in Asia for the woodworking machinery industry. The show has been co-hosted by China International Furniture Fair and Shanghai International Furniture Machinery & Woodworking Machinery Fair since 2018.

SRI LANKA WOOD EXPO

09-11 September, 2023

Venue: ranaike Memorial International Conference Hall, Colombo

The Wood Expo in Sri Lanka showcases various wood products like laminates, plywood, WPC, and sawn timber, alongside furniture and upholstery industry machinery. It is a key exhibition for the industry, will provide an opportunity to invest, create joint ventures, and transfer technology and innovation through a single platform of companies from around the world.

www.srilankawood.com

INDEX SAUDI ARABIA

10-12 September, 2023

Venue: Riyadh Front Exhibition & Conference Center

Index Saudi Arabia is the Kingdom's premier interior design, furniture and fit-out trade event where interior brands meet interior designers, retailers, distributors and fit-out contractors.

<https://www.index-saudi.com>

FURNITURE CHINA

11-15 September, 2023

Venue: SShanghai New International Expo Centre (SNIEC)

Furniture China has been successfully held on 27 occasions, making common growth and progress with the furniture industry in the country. It has transformed from a pure B2B offline trade platform to a comprehensive platform integrating export, domestic sales, B2B2P2C online and offline, original design showcase and a trading and design feast with 'exhibition-store linkage'.

<https://www.furniture-china>

DREMA

12-15 September, 2023

Venue: Poznan Congress Center, Poland

The Drema trade fair is one of the world's largest events for the sector of woodworking machines and tools as well as components for the furniture industry. It is a comprehensive exhibition featuring machines in operation, a demonstration of the state-of-the-art technological and technical solutions, and abundance of events. It provides a comprehensive approach to the current challenges of the industry, simultaneously promoting the achievements of the Polish wood and furniture sectors.

<https://www.mtp.pl/pl>

SIB WOOD EXPO

13-15 September, 2023

Venue: Sibexpocentre, Irkutsk, Russian Federation

The specialised exhibition with international participation represents the latest technologies, equipment, materials and products of logging and woodworking industries, as well as building materials and technologies for wooden house construction.

<http://sibexpo.ru>

MATTECIA

22-24 September, 2023

Venue: Pragati Maidan, New Delhi

Matecia is a business exhibition in India that connects exhibitors and sponsors with architects, interior retailers, designers, distributors, agents, builders, government agencies, project consultants, channel partners and dealers in the building material and interior products industry.

<https://matecia.com>

FERIA HÁBITAT VALÈNCIA

19-22 September, 2023

Venue: Feria de Valencia, Spain

Feria H  bitat Valencia is the main international showcase for the Spanish habitat industry with a wide range of furniture, lighting, decoration, upholstery and rest. Every year it brings together more than 600 national and international firms and in its last edition it welcomed more than 48,000 professional visitors from 70 countries.

<https://www.feriahabitatvalencia.com>

IFMAC & WOODMAC INDONESIA

20-23 September, 2023

Venue: JIEXPO Kemayoran, Jakarta, Indonesia

IFMAC and WoodMac exhibitions are the leading trade fairs in Indonesia for the furniture manufacturing components and woodworking machinery technology. It showcases a comprehensive exhibit range of

woodworking machinery, raw materials, tools, accessories, components, fitting, adhesive, and abrasive, both from local and international suppliers. The exhibition will serve as the central combined platform to launch the complete spectrum of technological needs for the furniture production industry.

<https://www.ifmac.net>

VIETNAMWOOD

20-23 September, 2023

Venue: Saigon Exhibition & Convention Center, Ho Chi Minh City

The 15th Vietnam international woodworking industry fair is a leading trade fair in Asia for woodworking and wood processing plants, supplies to the furniture industry, machinery, tools, and wood. Manufacturers of machines and technologies for woodworking and furniture processing, as well as the entire furniture supplier industry, have very good sales opportunities in Vietnam.

<https://www.chanchao.com.tw/VietnamWood>

LISDEREVMASH

26-28 September, 2023

Venue: IEC International Exhibition Centre, Kiev, Ukraine

The trade fair in Ukraine is for those working in forestry, woodworking and furniture production with machinery as its core thematic. The event features special vehicles, equipment, tools and materials made by Ukrainian and world known brands. For local manufacturers the fair is about seeing the main world novelties at the woodworking trade fair in Kyiv.

<https://lisderevmash.ua>

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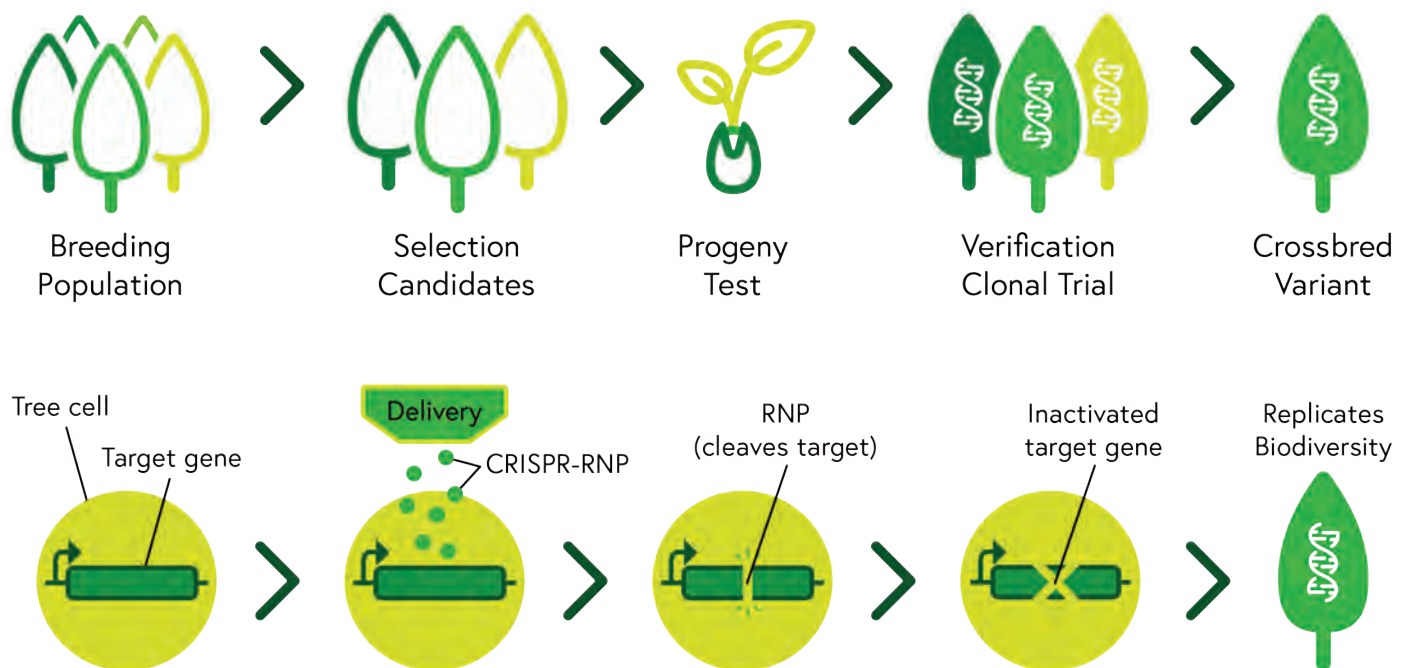
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Gene editing to make more sustainable wood?



Researchers at North Carolina State University (NCSU) have used a CRISPR gene-editing system to breed poplar trees with reduced levels of lignin, the major barrier to the sustainable production of wood fibres, while improving their wood properties.

The findings — published in the journal, *Science* — hold promise to make fibre production for everything from paper to diapers greener, cheaper and more efficient.

Clustered regularly interspaced short palindromic repeats (CRISPR) are the hallmark of a bacterial defence system that forms the basis of genome editing technology.

Led by Rodolphe Barrangou and tree geneticist Jack Wang, a team of researchers used predictive modelling to set goals of lowering lignin levels, increasing the carbohydrate to lignin (C:L) ratio, and increasing the ratio of two important lignin building blocks — syringyl to guaiacyl (S:G) — in poplar trees.

These combined chemical characteristics represent a fibre production sweet spot, Barrangou and Wang say.

Machine learning

The machine-learning model predicted and then sorted through almost 70,000 different gene-editing strategies targeting 21 important genes associated with lignin production — some changing multiple genes at a time — to arrive at 347 strategies. More than 99% of those strategies targeted at least three genes.

From there, the researchers selected the seven best strategies that modelling suggested would lead to trees that would attain the chemical sweet spot — 35% less lignin than wild, or unmodified, trees; C:L ratios that were more than 200% higher than wild trees; S:G ratios that were also more than 200% higher than wild trees; and tree growth rates that were similar to wild trees.

From these seven strategies, the researchers used CRISPR gene editing to produce 174 lines of poplar trees. After six months in an NCSU greenhouse, an examination of those trees showed reduced lignin content of up to 50% in some varieties, as well as a 228% increase in the C:L ratio in others.

The study also included sophisticated pulp production mill models that suggest reduced lignin content in trees could increase pulp yield and reduce so-called black liquor, the major by-product of pulping, which could help mills produce up to 40% more sustainable fibres.

The next steps include continued greenhouse tests to see how the gene-edited trees perform compared to wild trees. Later, the team hopes to use field trials to gauge whether the gene-edited trees can handle the stresses provided by life outdoors, outside the controlled green-house environment.

TreeCo

Building on the long-standing legacy of innovations in the fields of plant sciences and forestry at NCSU, Barrangou and Wang created a start-up called TreeCo in 2019 to advance the use of CRISPR technologies in forest trees.

From the machine learning experience, TreeCo designs the method of delivery. Knowing exactly what will work most efficiently is probably the most challenging aspect of the journey, but TreeCo has demonstrated efficiencies in some species as high as 94%.

TreeCo works with elite germplasm to ensure the very best trees are enhanced genetically at aspeed and scale impossible

using conventional techniques. Starting with elite commercial germplasm enables genetic improvement of the most desirable genotypes.

Once edits occur in some cells, the team ensures the regeneration of healthy edited clones that are nurtured towards a path to the green-house. Their proprietary know-how in tissue culture applies to a range of commercial species of interest.

Edited trees are grown in the green-house to test the impact of the altered genotypes on the corresponding phenotypes and validate machine-learning informed predictions. For more information, visit <https://tree-co.com/technology/>

Located in the heart of North Carolina State University's Centennial Campus, TreeCo has access to the forest technology group lab and greenhouses, and a compelling network of local experts in tree genetics, machine learning, plant delivery, and pulp and paper economics.



Dieffenbacher using palm fronds for MDF



German companies Weser Industrie und Anlagentechnik GmbH, an engineering, procurement and construction specialist; and Dieffenbacher, a manufacturer of press systems and complete production plants for the wood-based panels industry, are collaborating with the Egyptian EPC contractor MT Mixers to supply a unique, innovative and eco-friendly plant for the manufacture of high- and medium-density fiberboard (HDF/MDF) from date palm fronds.

The facility is being built in the Toshka region and is scheduled to produce its first board in the fall of 2025 for Egypt's National Service Projects Organization (NSPO).

Weser is acting as a general contractor for the turnkey project, which will cover an area of 4,00,000 square metres. The Dieffenbacher scope of supply for the complete plant project starts with a Maier chipping line consisting of a drum chipper with an extra-large infeed cross-section specially designed for high-volume material, a feeding belt conveyor, a vibration dosing table and an integrated Maier re-chipper.

The waste from date harvest, palm fronds are first shredded (L), then separated into fibres before going into the press.

A 40,000-acre date farm will supply palm fronds to produce around 1,25,000 cubic metres of MDF/HDF per year.



It also includes chip cleaning, the refiner, dryer and air grader, glue preparation and dosing, the forming line and forming station, aCPS+ continuous press with press emission control system, the raw board handling and the sanding line, strapping line and pneumatic systems.

Additionally, Dieffenbacher will take care of the plant's automation and electrics. The contract also includes a 29-MW energy system consisting of a solid fuel-fired steam boiler and a thermal oil heater.

Palm fronds fuel

"This is the first time since the acquisition of the former Bertsch Energy in January 2023 that we have integrated a Dieffenbacher energy solution into a project of our wood business unit," explains Stefan Zipf, head of the wood business unit at Dieffenbacher.

"Our Austrian and German energy experts from Bludenz and Eppingen have worked closely together to provide NSPO with a customised solution perfectly suited to the special requirements of using palm waste," he adds.

Adjacent to a 40,000-acre date farm, the new plant will use date palm fronds to produce around 1,25,000 cubic metres of MDF/HDF per year.

"This will make the factory a one-of-kind in the world," says Weser's Managing Director, Ahmed Amrou. The production facility is a valuable contribution to more sustainable farming in the area," he adds.

Usually, palm fronds are considered farm waste. In this case, however, instead of wood – which is hard to get in this region anyway – they will be used to produce high-quality MDF/HDF boards that can be utilised for flooring or by the furniture industry.

In addition, the plant will create around 500 new jobs and is expected to boost the local economy in the Toshka region. Following the signing of the contract between NSPO, Weser and Dieffenbacher, work on the construction site in Egypt began in April 2023.



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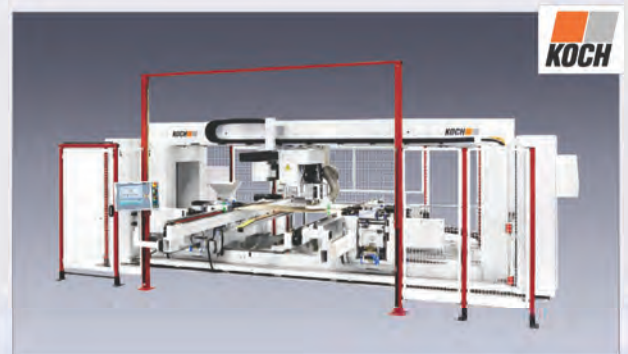
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Fraunhofer WKI develops a new bio-based resin

Using a wood-based panel for interior construction, researchers from the Fraunhofer WKI (institute for wood research) demonstrated the application possibilities for a newly developed, formaldehyde-free bio-adhesive at Ligna 2023.

The researchers, based in Braunschweig (Germany), presented a 100% bio-based condensation resin for the wood-based materials industry that can be manufactured and processed using conventional process and equipment technology.

Compared to the phenol-formaldehyde resins often used until now, the new lignin-HMF resin is harmless to health and free from petrochemical raw materials.

With the highlight ‘Multi-material model Wall I Ceiling I Roof’, Fraunhofer WKI presented eight innovations for the construction industry. The ceiling-system module is the floor of the model.

Fraunhofer WKI collaborated with the Argentinian Instituto de Materiales de Misiones (IMAM) on the development of the adhesive. As regionally available production residues are recycled in the manufacturing process, the research team created a sustainable and economically attractive solution for the production of wood-based materials.

Research process

Wood-based materials such as particle board, OSB, plywood or fibre-based materials (MDF, HDF) are used in large quantities as sustainable building materials in the construction industry and furniture production. They are also utilised in vehicle construction and could play a significantly greater role in the future.

Amongst other substances, phenol-formaldehyde resins have been used as binders (adhesives) in their manufacture to date. These resins are, firstly, critical to health and, secondly, are produced from fossil raw materials.

“We wanted to develop an alternative to conventional phenol-formaldehyde resins that is not harmful to health and, furthermore, is made from renewable, regionally available production residues,” explained Dr. Steven Eschig, Project Manager at the Fraunhofer WKI.

“To ensure that the new adhesive could be produced and processed using standard process and equipment technologies, we made it our goal to develop a comparable alternative. In other words, a bio-condensation resin.”

The researchers sought a way to replace the health-critical components phenol and formaldehyde. As a replacement for phenol, the research team successfully tested lignin, the most abundant biopolymer in plant biomass after cellulose.

Lignin is produced in large quantities, for example during paper production, and has so far been used primarily for energy through incineration. On account of its phenolic substructures, lignin is a promising raw material for the substitution of petrochemical phenol.

As a substitute for formaldehyde, the researchers tested



hydroxyl methyl furfural (HMF), asugar derivative. Currently, HMF is produced on an industrial scale from fructose.

In addition, the Argentine partners investigated the production of HMF from natural sugar polymers such as starch or cellulose. For this purpose, starch and cellulose are enzymatically broken down into their individual sugar components – glucose.

The glucose is then isomerised to fructose, which is subsequently converted to HMF in athermal process in which water is eliminated. At the Fraunhofer WKI, researchers converted lignin and HMF to aqueous condensation resins.

“An important aspect of the resin development was the precise adjustment of the ratio of lignin and HMF. Among other things, the composition and origin of the lignin is hereby crucial. In our tests to date, kraft lignin provided the best results in terms of curing behaviour and tensile strengths,” said Dr. Eschig.

“In pressing and tensile tests on the automated bonding evaluation system, shear tensile strengths of more than 5 mega-Pascals were achieved. The pressing times in our investigations to date lie within the range of 30 to 90 seconds. The press temperatures are preferentially in the range of 130°C to 150°C,” he said, summarising the results to date.

More advantages

With the newly developed lignin-HMF resin, the advantages of sustainable wood-based materials are expanded even further. Thanks to the completely bio-based alternative to petrochemical condensation resins, the wood-based materials industry will become less dependent on fossil raw materials.

Furthermore, the avoidance of formaldehyde in resin production means that wood-based materials now contain only extremely low levels of formaldehyde, which occurs naturally in wood.


For the transition of adhesives and wood-based materials production to the new bio-condensation resins, high investment costs are not incurred. The wood-based materials industry is therefore provided with an economically attractive possibility for fulfilling legal requirements and increasingly stringent customer demands in terms of sustainability and health protection.

Courtesy: Fraunhofer Institute for Wood Research, Wilhelm-Klauditz-Institut WKI in Riedenkamp, Braunschweig, Germany.



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Swedes make first wood transistor

Invented almost 100 years ago, transistors are considered by some to be an invention just as important to humanity as the telephone, the light bulb or the bicycle.

Today, they are crucial components in modern electronic devices, and are manufactured at nano scale. A transistor regulates the current that passes through it and can also function as a power switch.

Researchers at Linköping University (Linköping, Sweden), together with colleagues from the KTH Royal Institute of Technology (Stockholm, Sweden), have now developed the world's first electrical transistor made of wood.

“We’ve come up with an unprecedented principle. Yes, the wood transistor is slow and bulky, but it does work, and has huge development potential,” says Isak Engquist, senior associate professor at the Laboratory for Organic Electronics at Linköping University.

Balsa wood

In previous trials, transistors made of wood have been able to regulate ion transport only. And when the ions run out, the transistor stops functioning. The transistor developed by the Linköping researchers,

however, can function continuously and regulate electricity flow without deteriorating.

The researchers used balsa wood to create their transistor, as the technology involved requires a wood without grain that is evenly structured throughout. They removed the lignin, leaving only long cellulose fibres with channels where the lignin had been.

These channels were then filled with a conductive plastic, or polymer, called PEDOT:PSS, resulting in an electrically conductive wood material.

The researchers used this to build the wood transistor and could show that it is able to regulate electric current and provide continuous function at a selected output level. It could also switch the power on and off, although with a certain delay – switching it off took about a second; switching on, about 5 seconds.

Electronic plants

Possible applications could include regulating electronic plants, which is another strong research area at Linköping University. One advantage of the transistor channel being so large is that it could potentially tolerate a higher current than regular organic transistors, which could be important for certain future applications.

“We didn’t create the wood transistor with any specific application in mind. We did it because we could. This is basic research, showing that it’s possible, and we hope it will inspire further research that can lead to applications in the future,” says Isak.

(Courtesy: Wallenberg Wood Science Centre)



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Reimagining the 'jhoola'

Five Indian architects and designers recently unveiled their interpretations of the 'jhoola', pieces of nostalgia and emblems of traditional woodcraft on the sub-continent. Woodworkers took up the challenge and gave shape and substance to them in American hardwoods: maple, red oak and cherry. 'Reimagine' is the biggest design collaboration to date in India by the American Hardwood Export Council...



American cherry is used in the form of warp and weft of textile weaving by Annkur Khosla. Mysuru-based Bram Woodcrafting Studio pushed the limits of the material.

Five Indian architects and designers unveiled their interpretations of the traditional jhoola (swing seat) at the Jio World Convention Centre late in May this year. The architects were asked to select from three American hardwood species (a single species, or a combination): American cherry, maple and red oak.

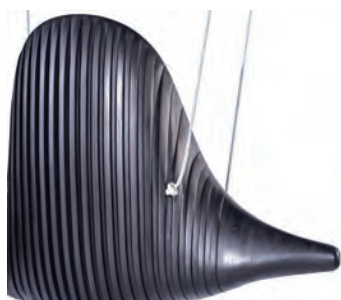
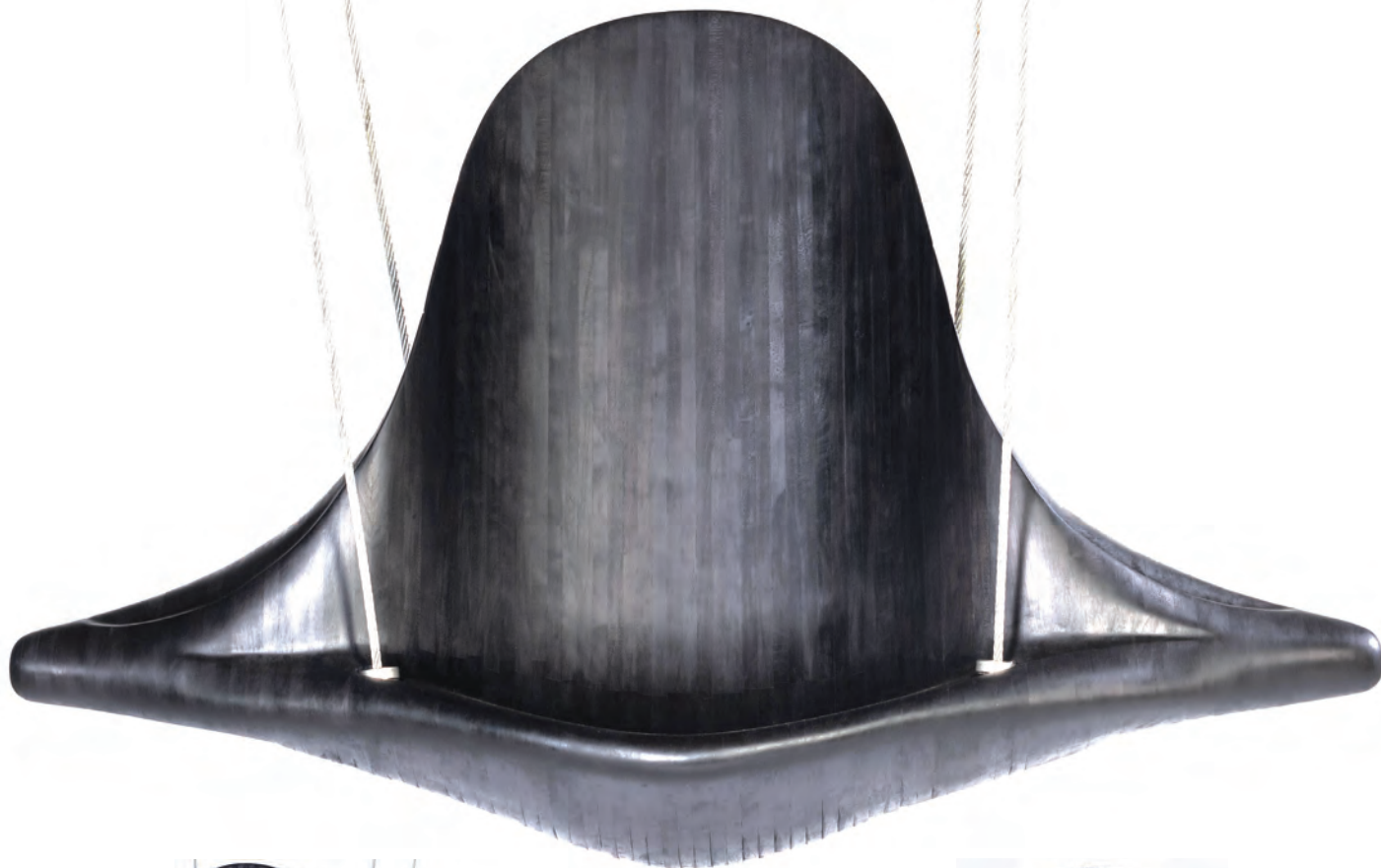
A design collaboration launched by the American Hardwood Export Council (AHEC) and 'Think! Design', the project challenged Annkur Khosla, Naresh Narasimhan, Prem Nath, Sanjay Puri, and Sonali and Mani Rastogi to recreate that quintessential Indian piece of furniture.

This is AHEC's biggest design collaboration to date in India. The swings were manufactured by Bram Woodcrafting Studio, based in Mysuru; and Melbourne-based Adam Markowitz served as a mentor for the project.

Abenaki Timber Corporation and Costaa Woods provided the American hardwood lumber needed for the project.

Inspired by memories

Speaking at the launch, Roderick Wiles, Regional Director of AHEC, said, "Jhoolas, which were a common sight in many Indian households, seem to have fallen out of favour in recent times. Nonetheless, they continue to have an allure ▶



The swing designed by Sanjay Puri looks monolithic and fluid with the seat, armrests and back merging into each other. Made from American cherry, it can stand alone as a piece of art.



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on account of the memories they carry.”

For the ‘Reimagine’ project, the architects were asked to draw on their childhood memories of playfulness, teenage years of angst, and to temper these with ‘grown-up’ elegance in a furniture piece for a contemporary context; a limited edition legacy piece made out of American hardwoods.

While designing for this project, the architects were asked to factor in both, environmental impact as well as human health and well-being. AHEC encouraged the designers to consider the environmental impact of metal for framing and fixtures, glues, and resins



This contemporary take on the Indian swing by Prem Nath comes from the traditional playful outdoor activity, a combination of strings and planks hung from the branches of a tree.



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and coatings when designing their jhoolas.

American hardwoods have an extremely low environmental impact, and they act as a carbon store. The more wood used in each design, the more carbon is kept out of the atmosphere and the lower the overall environmental impact of the finished piece.

Legacy pieces

According to Annkur Khosla (Annkur Khosla Design Studio in Mumbai), the inspiration for her design was the aspect of weaving, and the entire process involving the warp and weft of threads. Woodworking at its inherent level of joinery doesn't follow this as a process; but the aim was to explore the limitations of woodworking while pushing the limits of the material. ▶



The design thought behind Mani and Sonali Rastogi's piece is the physical distancing measures in place during the Covid-19 pandemic. Made from American cherry and maple, the swing allows individuals to engage in conversation while maintaining distance.

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The swing designed by Mumbai-based Sanjay Puri intended to look monolithic and fluid simultaneously: the seat, armrests and back merging into each other, creating a sculptural look. While it can be used as a swing, it can also be presented as an art form.

The design thought and inspiration behind Manit and Sonali Rastogi's piece was primarily focused on addressing the shift in communication caused by the Covid-19

pandemic. With physical distancing measures in place, the design aimed to create an opportunity for people to reconnect with their friends and close mates in a safe and socially distanced manner.

This particular swing design was specifically chosen, as it provides a comfortable seating arrangement that allows individuals to relax and engage themselves in the conversation while maintaining necessary distance.

The design of the swing incorporates aesthetic elements, turning it into a visually appealing piece of art when not in use. The Rastogi couple runs a Morphogenesis architecture ►

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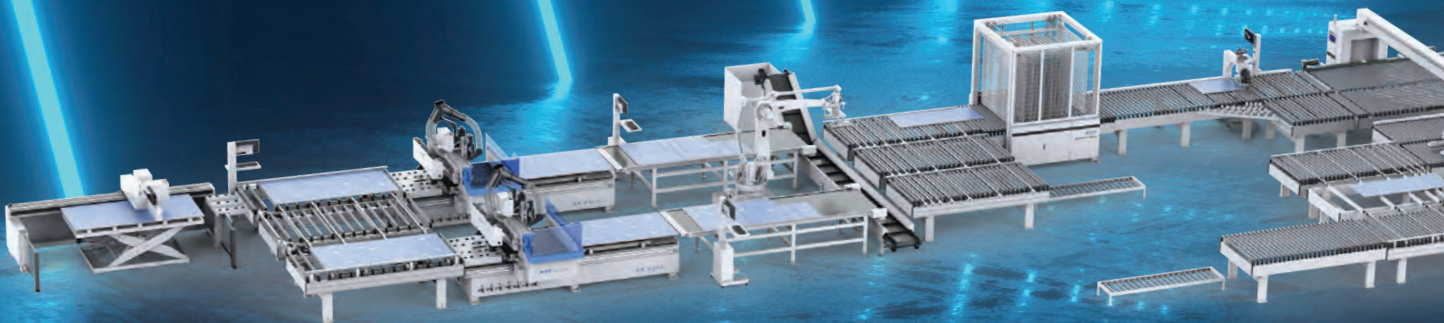
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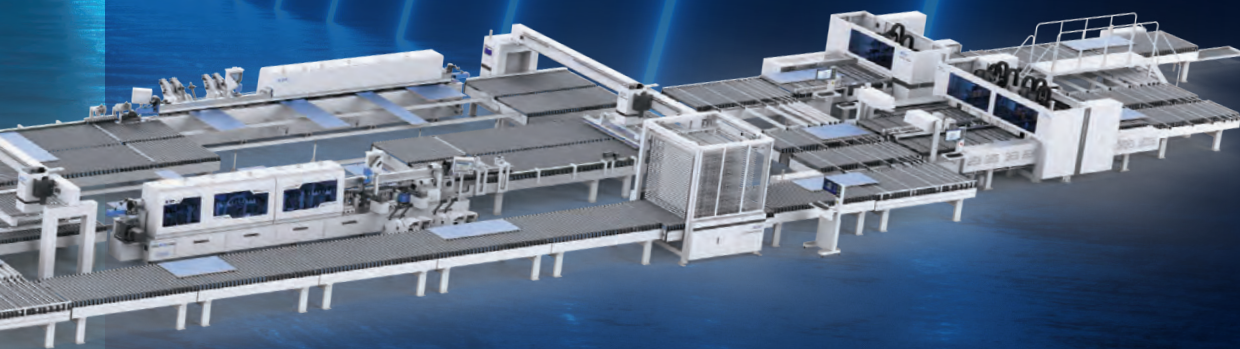
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Pictures: Govind Vishwanath

firm in New Delhi.

The form of Naresh Narasimhan's swing seat is derived from the veena, a popular element in Hindola Ragapaintings. In Indian culture, the swing was traditionally considered aluxury, mostly owned by royalty and placed in outdoor gardens and verandas.

Ragamala paintings, a form of Indian miniature paintings, are a set of illustrative paintings of the Ragamala or 'Garland of Ragas', depicting variations of the Indian musical modes called ragas.

His swing borrows ideas of movement, rhythm and asymmetry from the paintings. The intent of the form is to be able to choose the seating experience on the swing: fun, relaxed and playful.

For architect Prem Nath, the Indian swing is a feature of playful outdoor combination of strings and plank hung from the branches of a tree or an ornate piece of indoor furniture, which gives thrills and gentle joys of swinging motion.

It's a traditional add-on feature of furniture in Indian homes of prosperity, comfort and romance. His piece was fashioned out of red oak.

Since new generation homes now have contemporary designs, away from the typical traditional designs, his design has been conceived with neo-classical features



Naresh Narasimhan's swing is inspired by the musical instrument veena and Ragamala miniature paintings. Fashioned in American red oak and maple, the intent is to make the seating experience fun, relaxed and playful.

with soft minimal Indian ornamentation.

Design language

Commenting on his involvement, Adam Markowitz said, "As an architect, furniture designer and craftsman, my role was similar to that of a language translator, acting between the architects and the manufacturer. As with any good translation, there is a bit of artistry required of the translator to communicate the nuance from one language into another and back again."

"Solid timber needs to be worked with, rather than against. When you try to make timber do something timber doesn't want to do, the timber usually wins! Manufacturers therefore have a range of very real-world considerations determining their decision making," he added.

"I've admired the many design initiatives AHEC has undertaken across the world for ages, and always wanted to see India on this elite chart," stated Sylvia Khan, Founder and Creative, 'Think! Design'. "It's finally happened, at the highest level of concept and design with 'Reimagine'. It's been the most exhilarating, joyous yet a rollercoaster ride to high design."

For more information, visit: www.americanhardwood.org, or follow @ahec_india.

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OEE: enhancing your manufacturing efficiency

PHILIPP BRÄUER & SIMON LILLER



Overall equipment effectiveness analysis employs the Lean Six Sigma method and the 'DMAIC' cycle to measure availability, performance and quality.

It is a well-known problem: resources such as time, skilled workers, machines, material and energy must be used in the best possible way to cope with high production pressure.

Overall equipment effectiveness (OEE) analysis helps to understand and prevent machine downtimes and organisational or unfounded interruptions, thereby increasing the effectiveness of production with the available resources.

OEE is a measure of availability, performance and quality. This key figure contains the essential elements that influence productivity and thus on the economic efficiency of processes and plants.

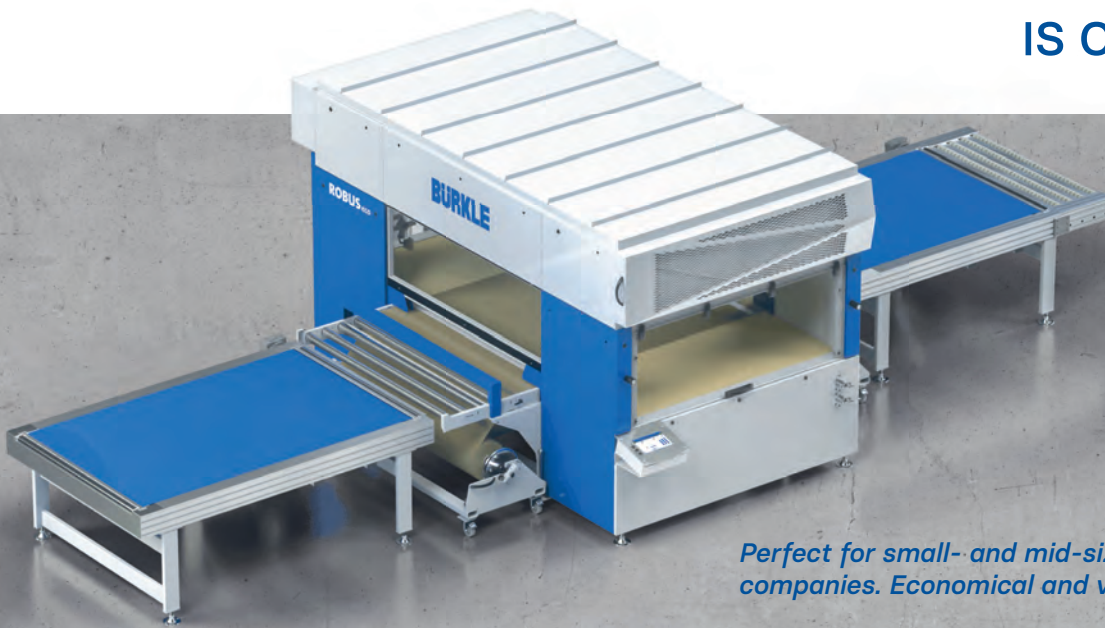
One of the most important results of an OEE potential analysis is transparency. Why do machine downtimes occur? Where are the causes of faults? Where does waste occur? To find out, we use different data and process analysis tools according to the globally successful Lean Six Sigma methodology.

We analyse the factors influencing OEE (availability, performance, quality) in joint workshops with manufacturing companies to identify waste and disruption factors and derive optimisation measures.



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Factors influencing OEE are analysed in workshops with manufacturing companies to identify waste and disruption factors.

Depending on the scope of the project, the solutions developed are implemented together with the customer and sustainability is ensured. Schuler Consulting and Homag pursue a partnership approach in the area of OEE to achieve the best possible result through the interaction of optimisation know-how and mechanical engineering expertise.

DMAIC cycle

The methodological basis of an OEE project is the 'DMAIC' cycle. Based on the Lean Six Sigma method, we develop optimisation proposals to sustainably increase overall plant effectiveness. We proceed in five steps, which give the method its name: Define, Measure, Analyse, Improve and Control.

Starting with the 'define' phase, we record the initial situation and make it measurable. In a workshop, we define the project goals together with the customer and record the relevant production processes. This means that processes are visualised and discussed.

For this purpose, we conduct customer interviews with machine operators,

maintenance staff or employees in work planning. In the end, everything culminates in a clearly defined project profile.

In the 'measure' phase we collect all relevant data for determining the OEE for a certain period and record the processes. Both historical data and newly collected data can be used.

Finally, we calculate the current process performance. In addition to the direct measurement of process performance – i.e. the concrete overall plant effectiveness – we also measure indirect process performance such as spare parts movements, maintenance deployments, or concrete machine condition, or malfunction data.

In the 'analyse' phase, we carry out extensive data and process analyses with the help of Lean Six Sigma tools. Here, for example, we analyse the recorded machine condition data or fault messages.

We identify how the previous process performance comes about and identify causes for too frequent, recurring malfunctions, too long unjustified waiting times, or too high a rework rate.

The subsequent 'improve' phase puts the insights gained into practice. Now we jointly develop solution concepts for production. These solutions cover the entire manufacturing process, from concrete modernisation or software updates ►



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to process-related changes in the material flow, and new ways of working in work preparation.

‘Control’ phase

All solutions are adjusted to their effect on the value stream during the improvement phase. Typical questions here include compatibility with other production routes or typical hurdles within change processes.

It is also central to check the optimisation approaches developed for economic efficiency and, if possible, to test or simulate them.

In the last ‘control’ phase, the implementation of the measures begins. It is important to monitor the process closely and document all anomalies. If the process performance decreases, a reaction plan with pre-defined measures intervenes.

In previous projects, an increase in overall plant effectiveness of between 3-15% was measurable. Of course, this always depends on the initial situation, so it is difficult to make sweeping statements. Our experience shows that the OEE potential for long-standing plants is over 10%.

Based on the customer’s requirements, an OEE project can take anywhere from a few days to several weeks. The duration is individual. Regardless of this, the production as a whole is considered in every project.

Case study

The Arbonia Group is a building supplier with headquarters in Canton Thurgau (Switzerland) and several production sites in Europe. The group comprises two divisions: The ‘Indoor Climate’ division (heating, ventilation and air conditioning technology) and the doors division (wood and glass).

In the summer of 2021, an OEE project was carried out in the interior doors division of the group. It includes the Garant and Pym brands, among others.

There are clear growth targets defined for the doors division in the coming years: through the further capacity expansion of production facilities, as well as the

development of additional market shares, turnover is to be increased by up to 30%.

According to the division’s own forecasts, an output of 3.4 million doors and frames per year is possible as early as 2023, with the same number of employees.

The adjusting screws that are to make the growth of the group of companies possible lie in production. The reason for the project was to identify the process weaknesses and significant factors influencing the OEE of two production lines for doors.

Game-changer for SMEs?



The woodworking industry in India is undergoing a remarkable transformation, with a focus on enhancing efficiency and transparency. Small and medium enterprises (SMEs) seek solutions that can elevate their productivity without massive investments in large-scale machinery or industrial software.

OEE enables businesses to unleash their full potential with existing infrastructure. By reducing errors, optimising equipment utilisation and minimizing downtime, it empowers SMEs to achieve remarkable efficiency gains.

With a keen focus on availability, performance, and quality, OEE becomes the cornerstone for maximising productivity and driving economic viability. OEE can yield significant improvements, with potential increases of 10% or more for long-standing plants.

I highly recommend embracing OEE to unlock the hidden potential within your woodworking operations and embark on a transformative journey toward unprecedented efficiency.

– Vikash Sharma, Consultant & Team Leader, Schuler Consulting-India. (Email: vikash.sharma@schuler-consulting.com)

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For this purpose, the team checked the performance of the lines and uncovered potential for improvement. Horst Lichter, overall Technical Manager at Pfm and Garant, reports: “Every user of a machine or plant should be able to assess exactly what the status quo (performance, availability, plant effectiveness, etc.) of their plant is. The OEE workshop is more than useful after a certain start-up phase.”

The recording must be done very transparently and, if possible, from a neutral point of view. Only then are the results representative and can be used for improvements.

To achieve ambitious growth targets while maintaining the same level of resources, a high level of employee commitment is required. “Success depends on man and machine,” emphasises Lichter.

A neutral view from the outside was, therefore, very important in this project. “If results are determined and presented by a neutral person, they are accepted much faster than if the results come from within the company,” he notes.

For Lichter, an OEE analysis has become an established means of uncovering optimisation potential. “An OEE workshop should be used as a standard tool. There is no rule as to when the right time should be. I think a workshop is necessary when you feel you are stuck.”

Biggest risks

On the one hand, an OEE workshop serves to take stock: where does my company stand today? What is the status quo? What is the potential for optimisation?

In the second step, after the analysis of the current situation, the implementation of the measures identified is the next step. This is where the real work begins for the companies themselves. This is also where the greatest risk lurks – change takes time, and requires readiness and implementation.

In the two-week project, the OEE team proceeded according to the five steps of the DMAIC cycle and was able to develop a list of optimisation potentials. Horst Lichter is

satisfied with the findings from the workshop.

There is a whole series of “low-hanging fruits” and a plan of action that is now being successively put into practice. “All the employees involved from a wide range of departments got involved. Homag competently took over the coaching as well as the subsequent evaluations,” summarises Lichter.

An OEE analysis can be used both as an ad hoc measure and to mark the start of a continuous optimisation process. In both cases, production is analysed individually and as a whole.

Production tracker

In our experience, companies that are committed to the continuous optimisation of their production and work daily to improve their production are those that are more successful in the long term.

Our clear recommendation is, therefore, to look at the topic of OEE not just once, but in the long term, and to bring in experts to implement the optimisation measures.

For those who want to go one step further and are looking for a solution to optimise the entire value stream, Schuler Consulting offers ‘Digital Value Stream Optimisation’, a tracker for production.

In DVSO, a scalable consulting service from Schuler Consulting, the team of consultants uses a technical set-up to record machine data, material and value streams in production continuously, manufacturer-independently and digitally.

These “digital traces” are used in particular to analyse and optimise those processes for which there has been an insufficient data basis in the companies up to now. Through regular optimisation workshops, in which the methods from OEE workshops are also used, companies can increase the overall output of their production in the long term.



– Philipp Bräuer, a trained wood engineer, works in the ‘Industry 4.0’ team at Schuler Consulting. His core tasks include factory planning, production optimisation and optimisation in OEE workshops.



– Simon Liller is Product Manager (Service Solutions) in Homag’s Life Cycle Services division. He is a trained Lean Six Sigma Green and Black Belt.



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Building links between design and manufacturing

Prolance is a platform that makes it easy for international design studios to discover and work with Indian counterparts, place orders with Indian manufacturers and simplify interaction with small and medium enterprises.

The platform makes the design process simple, accurate and effortless, and simplifies the process of executing interior projects through automation and aggregation, thus eliminating errors, cost escalations and ensuring predictability for everyone in the interior business.

Furniture designers routinely create designs in a 2D and 3D format using the latest software and then contact a manufacturer to provide an estimate and go into production. For an estimate to be made, the design first needs to be broken down into a bill of materials (BOM) and a cut list. It does not happen automatically; the manufacturer must convert the design data into something the machine understands to make a quote and then put the design into production.

As the conversion from design to production data is done manually, it is a tedious and iterative process, which often requires hours of conferencing with the designer. Most furniture manufacturers are not equipped to accept an order, simply because they cannot convert a design into production data.

This is the reason several small factories are unable to scale beyond 10-15 projects per month as the designer and manufacturer are not speaking the same language. This is also the reason entrepreneurial designers are unable to easily fructify the vision they had created.

Routinely, there are hours of wasted creativity, days of lost production, perpetuation of underutilised capacity, and a resultant increase in the final cost of the project. Ultimately the customer is the loser because inefficiencies creep into the entire design to production to installation process.



Now, for bringing scale to the modular industry the translation of design to manufacturing has to be automated. Worldwide, scale in manufacturing has been achieved where the modules are fixed in terms of size, colour and hardware. But customisation is important when it comes to the modular industry, as houses come in all sizes and shapes and each customer is different.

Bespoke projects were typically manufactured in smaller manufacturing units since they are geared for customisations. However, they might not be the most efficient. Prolance translates even non-standard sizes into machine-ready files with no restriction on colour, hardware and accessories. This ensures that the manufacturers' ability to accept orders is no longer constrained, and they can achieve scale and benefit all the stakeholders in the ecosystem.

E-commerce

Start-ups have indeed disrupted the process by bringing the functions of design, production, and installation onto a common platform. These platforms enable customers to select designs from massive digital libraries, visualise their interiors, generate quotes and place orders.

But these are captive platforms. Prolance has gone a step further and designed it to completely democratise the design-to-manufacture journey, by offering a B2B SaaS platform where designers, manufacturers and material providers can discover each other. Anyone in the ecosystem, whether big or small, can take benefit from the automation platform. ▶

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Transforming manufacturing

Several features that are together changing the face of furniture production in India and Prolance's Sketch Up and AutoCAD make it easy. When a designer creates anything using this platform, they can seamlessly convert the drawings into tenders, quotes, bill of material, cut lists and 2D files automatically.

This most basic feature will give small unorganised manufacturers the ability to accept an order, read the design files and convert them into production files that allow them to quote and manufacture without converting files.

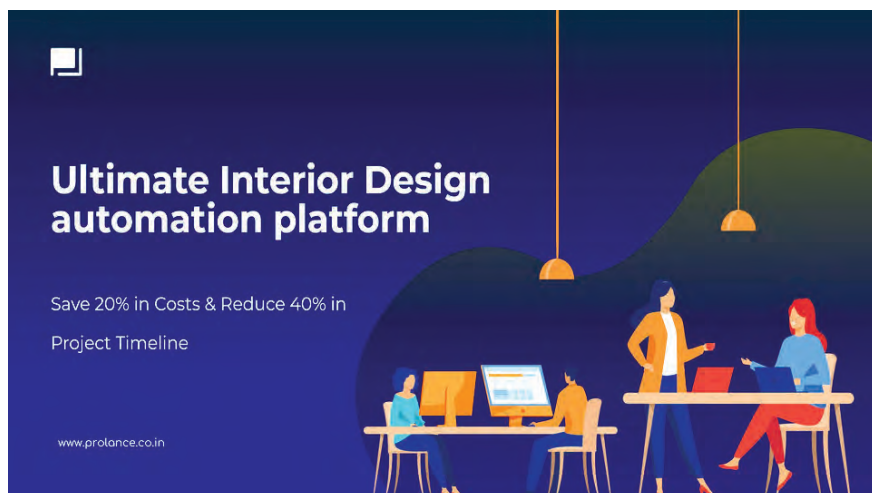
Large operators have the technology to integrate the design directly into their manufacturing processes without manual intervention but for the majority of the production units, there is no systematic way to take an order. The software that exist are either too expensive, or enough people are not trained to operate them. Prolance is the operating layer, between the designer and manufacturer. In addition, a cadre of designers trained in Prolance is built up for the markets.

For the post-production stage, Prolance offers a QR code solution that helps in packing, logistics and even installation to address the challenge of segregation of panels at the site. This is a practical problem, as many panels look similar and usually get force-fitted by the workers. Not only does this damage the panel, but also mars the perfection of the entire furniture.

Cloud manufacturing

The other big transformation is cloud manufacturing. Several manufacturers have integrated with Prolance to offer their capacities, which are often underutilised. Designers who use the software can focus on design, customer engagement and growing their business. They can leverage the factories associated with the platform for manufacturing, without spending hours explaining their drawings and converting files.

This flexibility makes it so much easier for both parties to collaborate and achieve cost



efficiencies, making it easier for international design studios to work with Indian manufacturers.

Prolance is also developing as a marketplace for materials and components, and leading brands are hosting their libraries here. This is another aspect that is helping designers and manufacturers select the best options and create their quotes.

Industry response

The platform, which is a B2B SaaS based marketplace for the interior industry, was launched in the middle of 2021 and early adoption came from organised manufacturers and large enterprises. Enterprise customers include leading furniture sellers who have 50-100 designers, such as Pepperfry, Spacewood, NoBroker and Square Yard, working for them in-house. More than 1,000 designers, studios and manufacturers from across the country are using our platform and recently two international clients were on boarded.

Customers are primarily small and medium enterprises who go for either the 'pay-as-you-go' model or annual license fee subscription. For them Prolance is more than a design and manufacturing platform, it is also their extended procurement office.

Going forward Prolance will have a decision support system for the users. It will go beyond showing options and provide suggestions based on various parameters like trends, user preferences, etc.

Based on feedback, the company will begin serving other categories such as soft furnishings, false ceilings, lighting, loose furniture, and paint. It would be possible for users to design a space, calculate costs and material consumption, determine delivery schedules, and place orders with vendors and manufacturers.

For more information, write to hello@prolance.co.in.



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Indian Timber Certificate replaces CITES permit

Many developed countries have laid down regulations for the import of products made out of wood to ensure the legality of wood being used in such products. These regulations require 'due diligence' or 'due care' in the procurement of timber.

To comply with these regulations, EPCH has developed Vriksh – Indian timber Legality, Assessment and Verification Scheme in 2013 which was specially designed for facilitating exports of wooden handicrafts.

Compliance with Vriksh standards allows companies to demonstrate that the best practices are being followed in India in line with the European Union Timber Regulation (EUTR), The U.S. Lacey Act (Amendment 2008), The Australian Illegal Logging Prohibition Act, 2012 and other Global Timber Legality Verification Programmes.

The Directorate General of Foreign Trade (DGFT) notified EPCH as a nodal agency to provide certification of 'Due Diligence' in procuring wood through legal sources, in case of a request made by a foreign buyer or any other agency.

Thereafter, the export of wooden handicrafts was done smoothly and confidence has developed among international buyers towards the Indian wooden handicrafts, which safeguard the livelihood of millions of artisans engaged in this sector.

The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) wherein 183 countries are signatory members, has placed the entire genus *Dalbergia spp.* in Appendix II of the CITES. EPCH represented the issues of placing two species of *Dalbergia* namely *Dalbergia latifolia* and *Dalbergia sissoo* in Appendix II of the CITES, which is available in abundance in India and are a means of livelihood for thousands of artisans.

Indian CITES Management Authority

MoEFCC filed for reservation against the amendment and the CITES accepted India's reservation and sought a comparable document to be issued for all shipments of *Dalbergia latifolia* and *Dalbergia sissoo* instead of the permit. Vriksh Shipment Certificate was developed by EPCH to meet this requirement.

So far over 700 handicrafts exporters have been certified under Vriksh and around 26000 Vriksh Shipment Certificates have also been issued to the member exporters to facilitate wooden handicrafts and furniture exports.

The Council is also identifying alternative timber species and regularly following up with ICFRE to suggest some cost-effective species for the handicrafts industry. Currently, the Council is working on *Melia dubia* commonly known as Malabar Neem, and once the R&D has been completed, it will be shared with all members dealing in wooden handicrafts.



At present the requirement of timber in the handicraft sector is largely available from trees outside the forest. More than 95% of timber species originated from outside forest areas.

The Council has also established a wood-testing laboratory at Jaipur for testing of quality of wooden products, which will help increase the credibility of Indian wooden handicrafts among buyers.

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Navigate the pitfalls of wood staining

There's no substitute for the richness of stained wood, but as both amateur and professional woodworkers know - the process can be particularly intricate due to the varied properties of different types of timber.

The substrate of wood simply refers to the layers of its surface. Your timber will have a range of different properties and when it comes to staining, these will affect the way it absorbs the stain, how it will look when complete and the type of treatment that will be necessary prior to staining and afterwards.

When it comes to choosing the right colour, how the overall finish turns out will be influenced by a range of factors. However, when looking for advice on colour choice, a good start is to investigate the type of timber that will be used.

Properties of wood

There are several types of softwood that can often absorb stains too quickly or unevenly, most notably pine, fir and poplar. In cases like this, you'll want to apply a light coat of wood sealer and allow this to dry before proceeding. To ensure the colour choice is correct, be sure to test your stain out on a hidden area before going ahead with the entire piece.

When it comes to dark woods like teak, sapele or types like oak, whose grain figure tends to stand out, you should opt for lighter stains. These tend to emphasise the natural colour of the wood, rather than radically transforming it.

Expect lighter woods like birch to experience a significant colour change when stained. While this can work wonders in accentuating the vibrancy of a design project, beginners can be over-adventurous when it comes to their colours.

One key tip is to consider matching the surface of the timber with the natural shades of darker woods or use more vigorous colours.



Whether or not you choose to stain is a personal choice, but some woods typically look better when left with their natural colouring. When it comes to the likes of cherry, maple, mahogany, rosewood and even aged pine – serious consideration is recommend before going ahead. As a rule, if you are unsure whether staining would improve the look of your timber – simply steer clear.

In some cases, applying finish to the wood will darken its colour, bringing out the natural highlight of the grain. As such, it's well worth applying finish to an inconspicuous zone to check if you like the way it looks without staining.

Choosing a stain

There's a wealth of stains on offer and some are even combined with sealers to hasten the staining process, however, some are better than others and it is well worth expending some effort in the planning stages to prevent disasters.

The first step is to consider the finish that'll be used. While most finishes and stains will play nice together, if you are using polyurethane varnish – you may encounter problems with certain stains. When it comes to staining, your choices are many and varied, but some of the most popular options include:

Pigmented oil stains are typically non-penetrating (which means they won't work their way deep down into the substrate's inner layers) and are made up of a mix of pigments and solvents. While they offer great value on the cost, they can often mask the grain pattern of woods that aren't especially open or prominent.

Penetrating oil stains are probably the most popular option among beginners. They are a mix of solvents with dyes and are very easy to apply. However, in many cases, it can be difficult to ensure even penetration of the substrate and are best reserved for softwoods like pine or cases where you only want to slightly darken a close-grained hardwood.

Varnish stains are a mix of dyes with varnish and are great for the non-visible parts of your project. They are cheap and once applied, you won't need to finish your wood any further.

Organic stains are crafted from organic bases, such as tobacco, roots, berries and even tea – and can be used to treat pine and other types of timber. Only the most experienced woodworkers are advised to use these stains.



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Making great design available to everyone

SARAH FAGER

What is Democratic Design? It is a tool IKEA uses when it develops and evaluates the products put into the Swedish manufacturer's range. It has five dimensions: function, form, quality, sustainability and low price. When there is a balance between all five, we consider that the design is democratic.

The form is for beauty, it is what attracts the eye, and the object has to be functional, otherwise it won't be used. When objects and materials last over a long period of time, that's what we call quality.

Being mindful of resources is something that has been with IKEA since the start. We don't like complicated solutions and wastefulness — it is bad for everyone!

Part of sustainability is about using exactly the right materials for the function, and using them sparingly, but sustainably. It also means taking responsibility all the way through a product's life. It starts with how we source materials, to the people who produce the product, all the way through to our clients.

It is basically our culture and values boiled down to five dimensions, together with simply using common sense in everything we do.

Price points

But is it possible to create a really low price for a product that lives up to all the other demands? This is our aim, and when we don't succeed, we don't live up to the IKEA vision.

If the price is too high, we need to work with the other dimensions to lower the price, by looking at the materials, changing the design, or going through the production process again.

You may well ask: Do all IKEA products live up to the five dimensions of Democratic



The five dimensions of Democratic Design.

Design? The five dimensions are always represented in the products, but the balance between them is not always equal.

We constantly review our range and take out or improve the products that don't live up to our customers' expectations.

I'll give you one example of a product we designed that really captures the dimensions of Democratic Design: the Flisat desk for kids. The price is fair, it can be height-adjusted so it grows with the child, and it has smart functions such as tilted table-top and paper holder.

Ensuring balance

We hope these functions encourage children to be creative. It is very high quality and has a classic form so that it can be loved and passed on to future generations. The material is sustainable and renewable — wood. It's quite simply Democratic Design!

So far as the five dimensions go, they are all equally important — it's a question of balance. We usually notice if

(Text & pix courtesy: IKEA)



Flisat is made from wood, a sustainable and renewable material.

something is missing during the design and development phase itself. Then we act on that and make it right.

Democratic Design flows through our veins. It is basically our culture and values boiled down to five dimensions, together with simply using common sense in everything we do.

IKEA has more or less always worked like this, only it has become an actual working tool more recently. To me, that's both fair and clever. Without Democratic Design, we would not live up to our vision to create a better everyday life for many people.



— The writer is Senior Designer at IKEA of Sweden AB.



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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.



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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.



Educational & Trade Trips

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



WhatsApp Business Group

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Official Magazine

WOODNEWS

FURNITURE AND MANUFACTURING MATERIALS AND TECHNOLOGIES



Douglas-fir stuns in Pune restaurant



Nativ Restaurant stands as an extraordinary showcase of the innovative design possibilities offered by wood products.

Located in the lively suburb of Baner (Pune), Restaurant Nativ underwent a stunning transformation recently, led by architects Shamnaand Wojciech Stranc.

This remarkable project seamlessly integrates architecture, interior design, product design, and landscape design, resulting in an enchanting dining experience.

The architects gave great importance to selecting the right materials to bring their vision to life, thus the sustainably-harvested Canadian wood emerged as the natural choice due to its responsible sourcing, durability, and high aesthetic value.

Douglas-fir was chosen for interior fit-outs, dining tables, chairs and a striking staircase (L). The furniture's design (R) and quality received high praise.



Having prior experience with Canadian wood, Shamnaand Wojciech were well aware of its favourable qualities. To ensure the best outcome, the design team closely collaborated with FII India (better known as Canadian Wood), benefiting from their expertise and guidance on different wood species and their suitable applications.

The rich and inviting ambience created by these solid wood elements added a touch of sophistication to the space, significantly elevating the dining experience for patrons.

The wooden dñcor of the restaurant was largely dominated by Douglas-fir as it was chosen for various applications, including interior fit-outs, dining tables, chairs, and a striking staircase.

It not only showcased its durability but also emphasised its contribution to sustainable design practices. The results of the project surpassed expectations, with the furniture's design and manufacturing quality receiving high praise.

The wood materials used in the project were sourced from D.S.Global Trade, a local stockist located in Pune.

The project now serves as a testament to the advantages of biophilic design, incorporating natural materials and plant features to create an environment that feels healthy, relaxing and inspiring.

Nativ Restaurant stands as an extraordinary showcase of the innovative design possibilities offered by wood products that have been sourced from the sustainably-managed forests of British Columbia. It beautifully exemplifies the timeless beauty and enduring appeal of wood in architectural and interior design.

Furthermore, it sets the stage for future collaborations and design innovations, inspiring others to recognise the remarkable impact that wood can have on transforming a space.





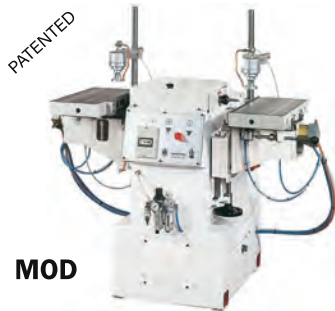
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CLT bench fit for a king!



The King of Sweden, Carl XVI Gustaf, unveils the Bench at Ekobacken, in Vxj, where it will remain, for everyone to sit down and enjoy the view.

As Carl XVI Gustaf, the King of Sweden, completes 50 years on the throne, he unveiled a 250-kg wooden bench that was made from waste wood created by Linnaeus University's timber research centre.

It was during the King's jubilee visit to Vxj that he inaugurated the commemorative monument.

The bench was made from leftover material from the university's tests of cross-laminated timber (CLT) where, among other things, load-bearing capacity and wind impact are being studied. These wood scraps would now be getting anew life in the King's Bench.

This wooden bench is a fine symbol of Linnaeus University's forestry and wood research. And the fact that it is made from waste wood is connected to how we can reuse wood in various ways. Detailed features of the bench are as follows:

- Material: cross-laminated spruce
- Designer: Anders Alrutz
- Weight: 250 kg
- Wood: 248 kg
- Glue: 2 kg
- Stored carbon: 454 kg

As the entire royal visit had a theme revolving around forest and timber, wood was used as a part of the commemoration. It stems partly from the King's own interest in the forest and partly from his previous visits to the region.

The bench was designed and manufactured by Anders Alrutz, a research engineer in building technology.

Also present at Ekobacken were Vice-Chancellor Peter Aronsson and students, who talked about Linnaeus University's commitment to forestry and wood technology.

CLT is a composite wood panel, which is composed of several layers of thin wood veneers (lamellae) arranged with cross-wise fibre direction, glued and pressed together.

The King, together with students from Linnaeus University, listens to details of how the bench was made.



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Traditional craft weds digital tech



The Burr Puzzle tower in Yilan, Taiwan, is based on the structure of a three-axes burr puzzle which has thousands of years of history. By using digital modelling software (Rhino with Grasshopper), architect Cheng Tsung of Feng Design Studio created a tower that is gradually transformed from solid to void.



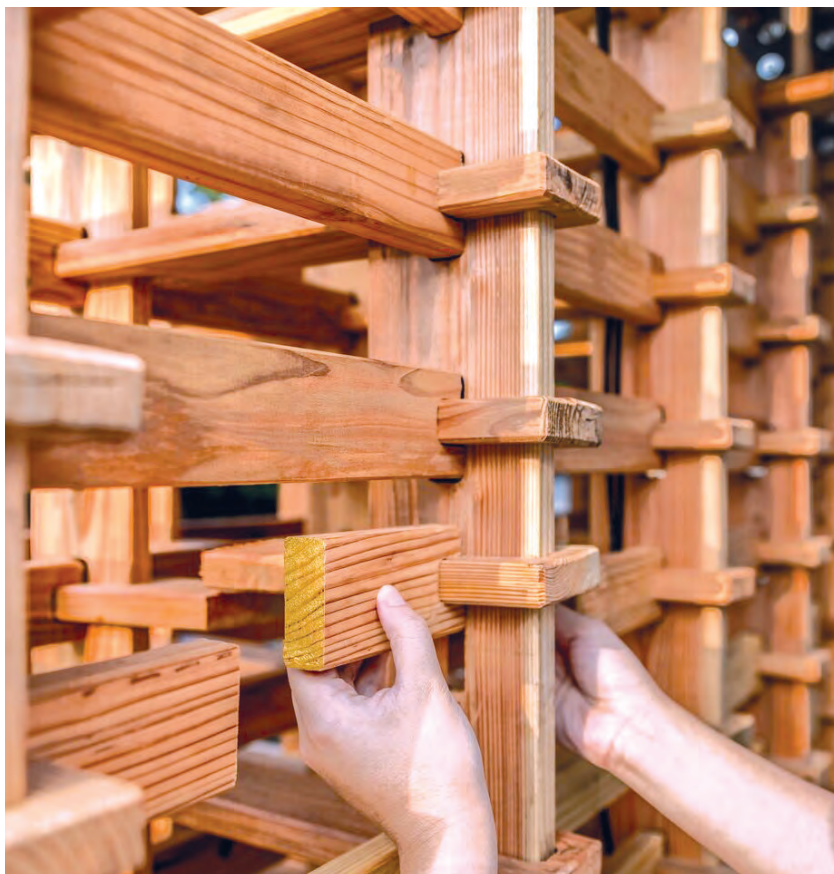
People are welcome to walk into the tower of interlocking wooden planks, where there are 12 golden marks in the tunnel to show the operable burr puzzles. You can push them gently to see the ingenious structure of the burr puzzle.

This artwork, a 9-metre-high pavilion, sparked a combination between traditional craft and modern digital technology.

Located in Yilan's Park of the National Center for Traditional Arts, the installation consists of planks and notched sticks that are joined to build a three-dimensional symmetrical system.

Apart from Japanese cedar wood planks and steel support, the Burr Puzzle Tower includes LED light strips that





illuminate it at night. The Yilan installation spans 320 cm (length), 260 cm (width) and 900 cm (height).

Burr puzzles are traditionally made of wood, but versions made of plastic or metal can also be found. Quality burr puzzles are usually precision-made for easy sliding and accurate fitting of the pieces.

In recent years the definition of 'burr' is expanding, as designers use this name for puzzles not necessarily for stick-based pieces. The term is attributed to the finished shape of many of these puzzles, resembling a seed burr.

These burrs can be taken apart directly by removing a piece or some pieces in one move. To assemble all these puzzles, one would need a set of 485 pieces, as some of the puzzles include identical pieces.

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A French classic, now carved in wood



The body of the Citroen was hand-crafted with walnut, pear and apple tree wood. A single block of cherry wood was used for the bonnet.



A Citroen 2CV made of wood, thought to be the only one of its kind, has sold for US\$ 225,000 at an auction in France recently, setting a new price record for the iconic vehicle.

The car, in full working order and registered in France, beat all the expectations when it went under the hammer in the central town of Tours, AFP reported. It was snapped up by a Paris-based collector, Jean-Paul Favand, who owns a museum of vintage fairground attractions.

The body of the 2CV was hand-crafted out of wood with the same famous curves as the post-war French classic.

Carpenter Michel Robillard crafted the wooden 2CV's wings out of walnut and its chassis from pear and apple tree wood. He used a single block of cherry wood for the bonnet, shaped with just chisels and sandpaper.

Robillard told AFP that he spent 5 years and approximately 5,000 hours creating the car, beginning in 2011. "It's like my daughter," he said as he polished the vehicle before the auction. "I had three boys and this was my little daughter."

The 2CV — which stands for *deux chevaux* (2 HP) — was launched in 1948 as Citroen's answer to the Volkswagen Beetle.

Robillard's model is equipped with an original engine from Citroen's later 3CV model, giving it the extrapower needed to propel the naturally heavier wooden structure.

He said he had another "crazy project" in mind for the next few years.

He intends to make a wooden version of another French classic — the Citroen DS, which in 2025 will celebrate 70 years of existence.

A woodworker since the age of 14, Robillard began making miniature wooden replicas of the world's famous automobiles in the 1990s. He has won several prizes for his intricate work, including for a Harley Davidson motorcycle and its sidecar, which took more than 500 hours to complete.



(Text & pix courtesy: AFP)

Carpenter Michel Robillard shows off the 2-HP original engine from Citroen.

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Homag's new SawTeq O-100 for ambitious workshops

Small-scale woodworking companies use sliding table panel saws for cutting. When their business starts growing, they start adding more sliding table saws to improve production. It's no surprise that around 2,500 sliding table saws are sold in India every year.

Sliding table saw (or panel saw) comes with multiple limitations. It needs three skilled operators, depending on their skill level and material to be worked on. Moreover, only around 40 to 50 boards can be cut per shift.

Adding more panel saw machines requires more space, more rental for factory space, bigger bank loans, and more electricity charge (plus for compressed air and dust extraction).

It also means you need to hire more skilled machine operators, rising manual errors, increased off-cut materials, inconsistent quality, and safety issues & steep increase in indirect overheads.

Buying a fully automatic beam saw, which costs around five times that of a panel saw, does not make economic sense for small-scale woodworking shops because most of their customers are from the middle-class segment looking for quality furniture at a reasonable price. The scarcity of skilled CNC machine operators makes the problem worse.

Homag India has introduced SawTeq O-100 to address this growing industry-level challenge, which is highly suitable for

ambitious woodworking shops. The panel dividing saw is equipped with everything needed for cutting single panels and small batches.

It costs hardly more than a well-equipped sliding table saw while providing a much more precise and efficient cutting process with semi-skilled operators.

A clear material flow around the saw and material handling working at the saw further increases the capacity. In addition, digital assistants help the operator optimise the entire cutting process in terms of quality, quantity and sustainability.

Salient features

- Ergonomic design saves time, space & enables safe operation.
- Processing of a stack of two boards at once enables high productivity with precision, cutting quality & angular accuracy.
- Low maintenance costs as the design has very few wear & tears parts.
- Automatic cutting feed: only 2 operators are required.
- Strong & efficient suction in the saw carriage for good dust extraction.
- Cutting production set for optimised digital assistance (optional)
- Smooth movement by air table & perfect measurement by DRO.

The saw can easily handle book cuts (multiple sheets up to 60 mm). With the 'Cutting Production Set' the digitalisation also for smaller businesses can be realised. The topics of cash-flow issues — such as in too many off-cuts and waste — can be reduced by the optimisation algorithm in the set.

The air tables create a smooth gliding of the sheets in the front, the DRO (digital read out) at the angular fences make the measuring perfectly accurate, the communication between operator and helper is easy and both routinely split the workload. Stacking the final parts on pallets or in collecting trollies defines the next process step.

All Homag sales and service members are qualified to train the customer and workers on how to use the machine, organize the material flow in the factory (incl. factory layout design) and the machine handling flow. For more information, log on to Indiashop.homag.com.



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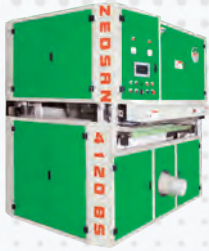


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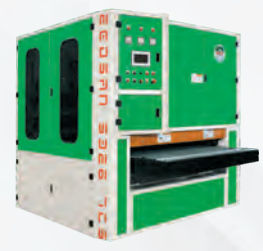
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SANDING MACHINE - BOTTOM



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



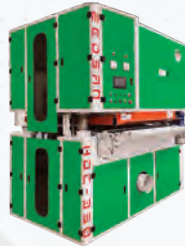
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HEAVY DUTY LAMINATE
SANDING MACHINE



MODEL : ZEDSAN 5326 TCS
TRIPLE HEAD CALIBRATING AND
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MODEL : ZEDSAN 3426 TBS
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Touted as the pinnacle in edge banding, the K34 sets new standards in multitasking and ease of operation. The feature-packed edge bander has several unique features including a transparent, easy-to-use 15-inch screen control and several more user-friendly features for greater output and performance.

In addition, it is an individually configurable, durable and low-maintenance machine.

Technical features

- Feed speed: 15 m/min
- Edge thickness: 0.4mm to 3mm/ up to 8mm optional on the K series
- Integrated glue-changing device
- Easy changeover of glue colour or glue type with the same glue pot

Benefits

- Interchangeable glue pot can be heated in 6 minutes
- Corner rounding with 0.8-mm edge bands
- Optional zero-joint technology
- Edge band with PVC, ABS, acrylic, veneer, etc.
- 15-inch LED touchscreen that is user friendly

- Easy-to-read display with integrated 3D feature
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This takes just 3 minutes to heat up and only requires changing the edge channel. By selecting the programme on the display, you can easily store and retrieve different parameters and settings for various suppliers.

The automatic glue pot refilling system consists of a large storage tank for up to 5kg of granules ensures maximum efficiency. The glue pots are filled automatically so that even high cycle times can be easily handled without the need for manual filling.




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Blum technology for top-quality soft closure

The soft-close, clip-top Blumotion hinge from Blum combines innovative technology, award-winning design, and top-quality motion within the smallest space.

An effective, integrated soft closure is essential for producing gentle and effortless cabinet door closing. Blumotion adapts to the dynamics of every door and as a result, regardless of the size, weight, or force with which you close the door, it will close smoothly.

This feature can be deactivated to ensure that even smaller or lighter doors boast top-quality motion. These soft-close hinges are designed to open and close 2,00,000 times, ensuring a captivating quality of motion throughout the furniture's lifetime.

Depending on the application, the 110° hinge allows for thicker doors of up to 24 mm. When the door is open, the new pivoting point prevents it from colliding with the cabinet front edge.

Design elegance is a perfect balance of function and form and, dark furniture fitted with and Blumotion, exudes sleek elegance both inside and out. It is also available in onyx black, which blends in with furniture while making a statement.

This range of hinges caters to a wide variety of furniture applications ranging from wooden shutters to glass and mirror cabinets and offers installation possibilities that make furniture assembly easier.

The hinges and the various colour-coordinated accessories provide a harmonious look to the interior of the furniture and contribute to the overall aesthetic of your application.

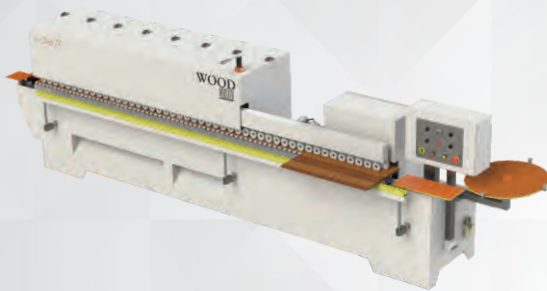
Clip-top Blumotion hinges are suitable for a wide range of furniture applications in your house, from wooden shutters to glass and mirror cabinets, and provide installation options that simplify furniture assembly.

Blum products are available at all premium hardware stores across India.



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Leather-finish laminate for wardrobe interiors



At first glance, the leather finish mesmerises with its striking resemblance to genuine leather. Its sumptuous textures and intricate patterns capture the essence of luxury without the ethical and environmental concerns associated with traditional leather production.

Derived from renewable resources and utilising advanced manufacturing techniques, this faux leather finish on CARB-2 and E0-certified plywood mitigates the adverse impact on animal welfare, making it an commendable choice for ethical interior design.

According to Mumbai-based Aryamman Interior Solutions, its durability and resistance to wear and tear ensure that wardrobe interiors maintain their lustre over extended periods. Its synthetic finish is less susceptible to staining and fading.

The versatile material accommodates two beautiful colours and multiple thicknesses with 100% matching edges. Whether one seeks a contemporary urban chic or a classic sophisticated look, the leather finish plywood adapts with ease, complementing diverse interior aesthetics.

Additionally, its flexibility allows for creative customizations, empowering homeowners to express their unique style and personality through personalized wardrobe designs.

The production of traditional leather, with its significant environmental footprint, has prompted conscientious consumers to seek greener alternatives. Ensuring transparent supply chains and responsibly sourced materials guarantees the authenticity of the sustainability claims associated with the leather finish plywood boards.

This alluring and sustainable alternative to traditional leather marries elegance with responsibility, transcending mere aesthetics to embody the values of conscientious consumerism.

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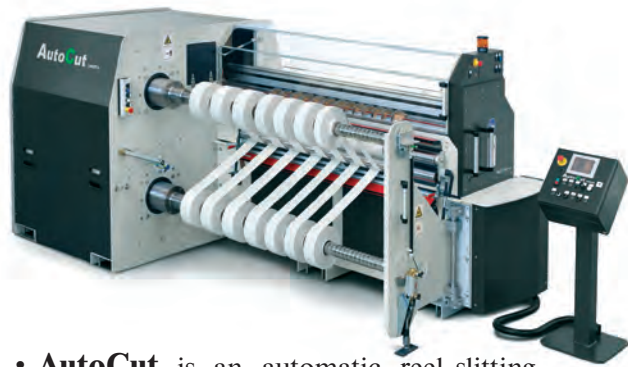
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- **AutoCut** is an automatic reel-slitting equipment designed to process paper, plastic films, sandwich films, lightweight laminates, some textiles and metal foils. Speeds up to 150 metres/min.

It combines superior disc knife cutting performance with rapid set-up procedures and a hazard-free concept. Extensive machine automation avoids the need for qualified operators and ensures quality is consistent and reproducible.

Narrow friction winding shafts guarantee constant web tension for different widths. It also prints a QR code including data which can be read by the downstream profile wrapping machine (MultiWrap Wood) to establish the suitability of the reel for profile.

Lamination equipment is easily integrated into complete panel lamination and wrapping lines, they process reels up to 1,400 mm in width and ensure high-quality gluing and work for a broad spectrum of substrate types and profile types.

Suitable for standard, high-gloss and ultrathin lamination materials, it can be used for furniture panels, caravan or boat interior surfaces. It processes U-shaped and L-shaped profiles, as well as J-pull handles, combining lamination and wrapping operations.

A high-quality hot glue application system doses glue carefully and ensures energy efficiency. The reel (both upper and lower) changeover mechanism is simple to use and operators also benefit from an auxiliary system to facilitate reel feed.



- **MultiWrap Wood** processes profiles made of wood as well as MDF, HDF; door frames, picture frames, skirting boards, plinth panels and furniture parts. It provides ease-of-use, efficiency and minimal downtime.

Each single machine can be specifically configured according to individual customer requirements thanks to the modular concept. High-speed profile changeover, double unwinders, and improved tooling replacement for easier operator intervention.

A user-friendly control panel displays images for intuitive, language-free interaction with the machine. It reads the QR code printed on reel from the upstream slitting machine (AutoCut) to check suitability for each process.



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O/S. Panchkuva Gate, Ahmedabad - 380002

SOUTH

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FLEXAFLEX HOSES INDUSTRIES
No. 51, Dr. Nanjappa Road, Coimbatore - 641 018

- **Smartcoater PRO** is the latest-generation roller coating machine featuring exclusive innovations for flat or slightly raised panels. It is equipped with a soft rubber application roller and a special pneumatic floating system to process poorly calibrated flat panels or panels with an up to 10mm groove.

The machine is able to apply a base coat to raised panels which allows you to install hybrid finishing lines made up of two roller coating stations and a spray coating machine for the top coat.

These features result in fewer handling operations, no intermediate sanding between base coats, and fewer abrasives, all leading to lower costs, less manual labour and reduced factory floor space.

Its transfer efficiency on roller coaters significantly reduces lacquer consumption and consequent solvent consumption. In addition, fewer rejects happen thanks to a built-in system using screw jacks and a pneumatic device to compensate poorly calibrated panels and maximise productivity.



- **Smartedge** is a highly flexible integrated solution for painting and sanding straight and shaped panel edges. Used together with Smartvacuum, it enables companies to match the edge and surface finish perfectly.

It is an all-in-one edge processing solution for an uninterrupted flow of sanding and coating operations on one single machine incorporated into a vacuum coating line.

This facilitates faster time to market with fewer processing stages and fewer handling operations, all with a smaller overall footprint.

Because of the same application technique and the same lacquer used for surface and edge, it results in the same top-quality matching finish.

- **Smartvacuum** is a cost-efficient, sustainable solution for edge finishing using vacuum technologies for 100% UV Acrylic paints. Used together with Smartedge, it enables companies to match the edge and surface finish perfectly.

It deposits 100/140g per sqm of 100% UV lacquer in a single step, thereby reducing coating stages, processing times and handling operations. The absence of solvents leads to a more sustainable process and eliminates related costs.

Combined with Smartedge, using the same vacuum technology, the result is a perfect match achieved in a streamlined process.



- **UV-I** is an inert curing oven developed to complete a roller coating line using 100% UV lacquers that minimises the need for photoinitiators and reduces the unwelcome yellowing effect that photoinitiators provoke.

The reduction of photo-initiators can vary between 40% and 70% with a relative reduction of lacquer costs. This greatly improves the sustainability of the process by minimising the presence of photo-initiators which are harmful to the environment.

With the same amount of photo-initiators in the lacquer, one benefit is the acceleration of the curing process, thereby lowering operating costs and leading to better productivity. It ensures simple, seamless integration into an existing roller coating line using 100% UV lacquers.

- Wide Range of Models
- Varied Technical Parameters
- Easy Selection for a Specific Machine Model



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Digital production planning solution from Dürr



To make a smart factory a reality, machines and systems from all sub-areas must communicate with each other and end-to-end digitalization must be achieved.

The Dürr Group uses its manufacturing and digitalisation knowledge to combine hardware and software. Together, Dürr's software specialists and the Group subsidiary, iTAC, have developed a modular solution for manufacturing planning, execution, control, monitoring, optimization, and predictive analysis.

Instead of monolithic individual solutions, the new manufacturing operations management (MOM) system relies on micro-services that provide functionality as required. The solution enables a high level of flexibility and consistency and offers many interfaces in terms of interoperability.

There are three central superordinate control components in every digital factory: MES (manufacturing execution system) controls

and monitors production, SCADA (supervisory control and data acquisition) collects and analyses data, and HMI (human-machine interface) visualises production and process flow.

Until now, these components, for example, the MES sub-segment, were mostly designed as stand-alone solutions. Multiple micro-services act and communicate with each other while performing their tasks independently.

Unlike monolithic solutions, micro-services have self-sufficient data storage and open interfaces for communication with other services for flexible deployment. Only necessary modules are installed, making operation more sustainable.

The MOM architecture's modular structure is also less error-prone than monolithic architectures, increasing plant availability. Another advantage of micro-services is they can be flexibly installed on IIoT platforms in the cloud, on-site (on-premises), or in hybrid factory deployments.

Manufacturing companies, whether manufacturers or suppliers, thus receive a future-proof industrial digitalisation solution with interoperable modules that cover all smart factory functionalities.

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Opening

155°

0°

20mm
Slim
profile

Available finishes



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- Angle Hinge with '0' protrusion

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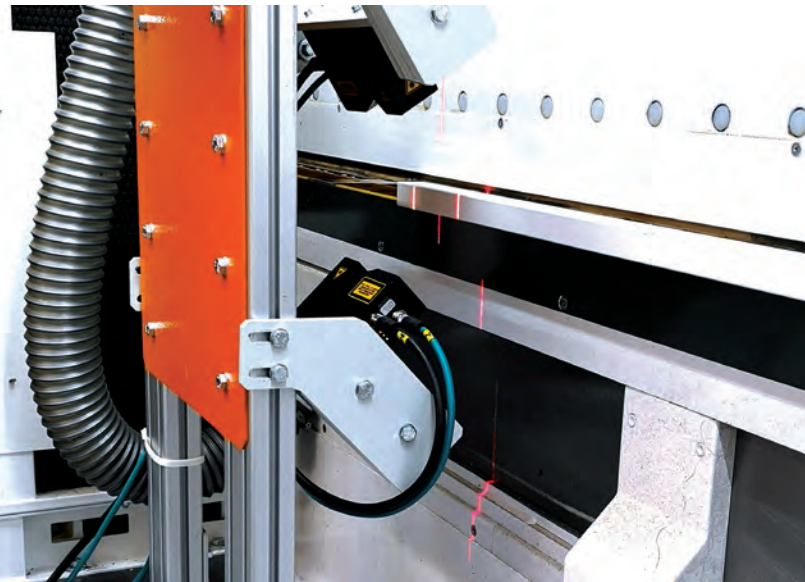
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Fagus-GreCon showcases innovations



With its extensive investments in product development and services, fire protection and measuring technology specialist, Fagus-GreCon, presented many innovations at Ligna.

Digital transformation, increasing demands on efficiency, and the resource-conserving use of wood as a raw material is the driving force behind green materials processing.

With the aim of further development of inline thickness measurement, GreCon ThicknessControl focuses on the constantly increasing demands on measurement technology systems. The robust system enables measurements of almost the entire panel, even at high production speeds.

With GreCon GasAnalyser MC, the company presents its innovative product development for determining the formaldehyde emission of wood-based materials. Outstanding features are the considerably shortened testing times, improved operability and noticeably extended calibration intervals.

The full-surface measuring mat scanner, GreCon MatControl HF, is used for

Fagus GreCon's EdgeInspect (L) detects defects such as broken edges, missing, or too short decorative strips, or breaks in edges. The GasAnalyser (R) determines formaldehyde emission of wood-based materials.

measuring the weight per unit area and detecting foreign bodies in the field of chipboard and fibreboard. In terms of efficiency and resource management, the focus was on optimising operating costs.

With the edge inspection system GreCon EdgeInspect, the company draws on its years of expertise in the field of scanner technology. EdgeInspect is a quality control system for furniture edges and door frames. It detects defects such as broken edges, missing, or too short decorative strips or breaks in edges.

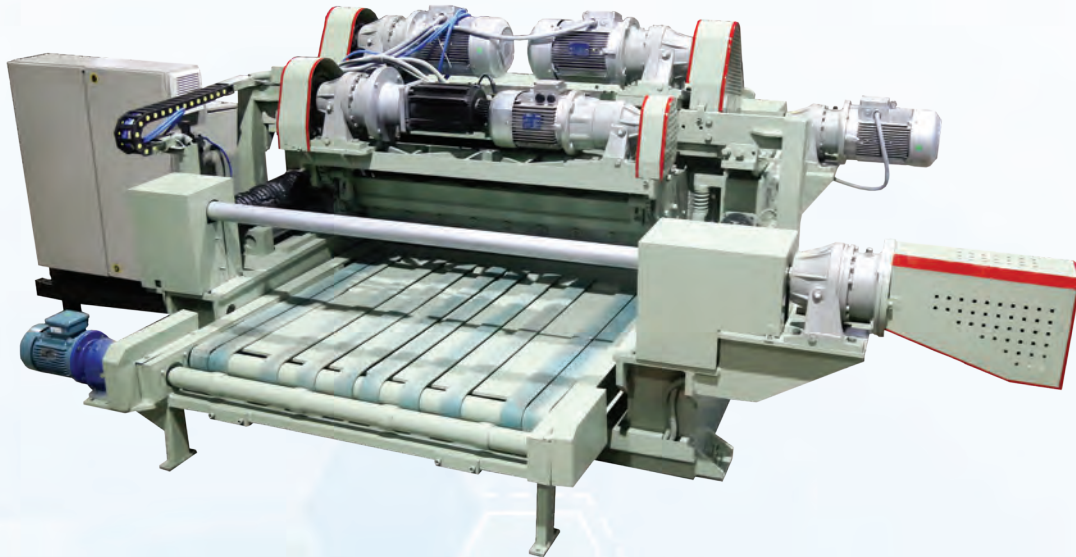
In fire prevention, Fagus-GreCon has continued the digitalisation of its product portfolio. Following the intelligent detection technology IDT, it presented a maintenance-optimised extinguishing system with intelligent extinguishment technology IET.

An important aspect of its digitisation plans are the diagnostic properties of the systems that enable it to detect wear effects and prevent downtime and contribute to increased productivity.



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- Circular saw with 45° tilting.
- Scoring unit adjustment by memory pins.



gabbiani p 80

Beam Saw

- Selectable air blowing table: an essential tool.
- Saw carriage with independent raise of the blades.
- Increasing of productivity up to 30%.



minimax me 20

Edge bander

- Simple and intuitive.
- Ideal edge application.
- Quality finishing and versatility.



minimax me 40 t

Edge bander

- Premilling.
- Partial corner rounding.
- Scraping.



olimpic k 360 r

Edge bander

- 11 m/min panel feed speed.
- "AUTOSET" pneumatic positions of units.
- Pre-milling, corner rounding, scraping units.



stefani kd

Edge bander

- 10-20 m/min panel feed speed.
- Solid wood up to 12 mm thickness.
- "SGP" glue pot for EVA or PU glue.



stefani xd

Edge bander

- High productivity with corner rounding up to 30 m/min.
- The use of EVA and Polyurethane glue is made possible.
- Zero glue line possible with "AirFusion" technology.



morbidei m100

CNC machining centre

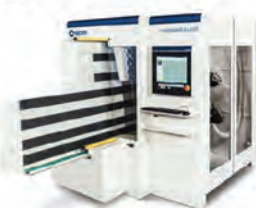
- PRO-SPACE safety systems, it requires less floor space.
- JQX : 5-axis direct-driven spindle head.
- 60% time saving in drilling cycles.



morbidei cx 200 r

CNC drilling centre

- +60% of Productivity: Two Drilling Heads.
- Zero play during machining with new RO.AX technology.
- Machining cycles of up to 600 pieces/shift.



minimax fs 41 es

Planer-thicknesser

- An optimal planing with minimal effort.
- Professional, massive and compact.
- Cast iron thicknessing table lifts on 4 spindles.



minimax cu 300 c

Universal combination machine

- 5 Function Combination Machine.
- Incredible cutting of very thick solid wood and panels.
- Professional and very sturdy.



minimax tw 45 c

Spindle moulder

- 4-speed shaper with sliding table.
- Cutting height of 100 mm.
- The maximum tool diameter 210 mm.



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Throughfeed multi spindle moulder

- More productivity and improved finishing.
- Inverter for the stepless speed adj. from 5 to 25 m/min.
- "T-SET" rapid tool locking device.



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New lighting, lift systems from Hafele



Hafele sets new standards with the launch of ConnectMesh, developed in-house for the individual control of light within interior spaces. The heart of the system is the specially developed ConnectMesh chip, which uses Bluetooth low energy technology to allow all system components to communicate wirelessly with each other by forwarding control information to other nodes via radio technology.

This module is also integrated into all Loox lighting control components. Thanks to extensive encryption, the system enables secure communication between many devices simultaneously.

The ConnectMesh app for mobile devices is used for simple and intuitive configuration and control of networks and lights. It uses Bluetooth technology to wirelessly control the lights in the room from dimming and colour changing to pre-programmed scenarios from the same app, remote or switch.

The ConnectMesh system is future-proof with the ability to integrate smart devices and other Bluetooth functionality in a smart home environment in the future. Thanks to the plug-and-play design of Loox, the system can be added to existing installations easily at a later date.

The fittings of the Free family lift systems give flaps new freedom in movement. This opens up more opportunities in the visual

and technical design of furniture, and has tangible benefits compared to hinged doors, including ease of installation and convenient operation.

They are slimmer (design), lighter (to operate) and simpler (to install). Free lift systems combine hinge and lid stay into one unit – this reduces the amount of space that the hardware requires in the cabinet.

The main focus while developing the range was on providing maximum ease to the user. All the lift systems are characterised by feather-light movement. They can be precisely coordinated to the individual flap weight so that the front panel is held in any position and the handle is always reachable.

An advantage is its globally unique simple and quick installation. From one-handed installation and screw fixing of the fittings to clip-on mounting of the flaps, all working steps are optimised in such a way that the installer saves a noticeable amount of time.

The lift systems include FreeFold, FreeUp, FreeSwing, FreeFlap and FreeSpace, which covers all of the most popular types of opening for flaps on wall units.

The FreeUp parallel lift-up front fitting moves one-piece panels upwards and is ideally suited for cabinets with front panels above them. The FreeFlap hinge-less stay flap fittings have already made their mark in an impressive fashion.

FreeSpace is characterised by an extremely compact size that goes hand-in-hand with fine, understated yet distinctive designs. It eliminates the need for large cover caps and opens up new freedom for modern furniture design such as convenient flaps for shallow cabinet depths.

All Free lift systems come with an integrated soft close in both the opening and the closing direction. They can also be optionally equipped with an electric drive.



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A Complete Solution For Woodbase Industry



Wide Belt Sander



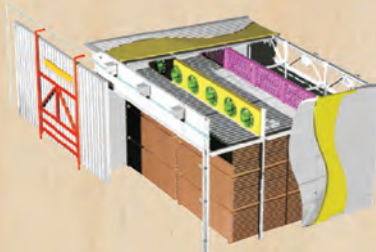
Wide Belt Sander



Sliding Table Panel Saw

Seasoning Kiln

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

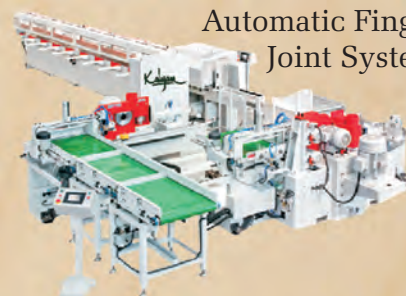
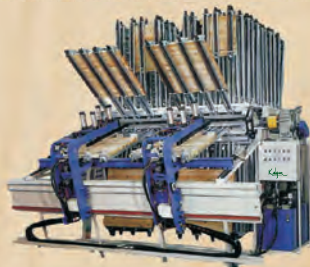


Oscillation Mortiser

Rectangular Tennonner

Clamp Carrier

Automatic Finger Joint System



More room in the room with Hettich



Grant SD is the ultimate room partition sliding system with soft opening and closing that brings rooms together gently and aesthetically.

Innovative solutions are constantly sought after to enhance functionality and aesthetics, such as Hettich's sliding system. It redefines furniture fittings by combining functionality, space optimisation and design excellence.

Whether it's a wardrobe, kitchen cabinet, or media unit, the sliding system allows for easy access to the contents without obstructing the surrounding space. This not only makes small rooms appear more spacious but also enables seamless integration of furniture in open-plan living areas, where fluidity and flexibility are essential.



WingLine L is a sliding-folding system that allows users to enjoy a panoramic view of the entire wardrobe and a premium handle-less look.

One of the key features that set Hettich's sliding system apart is its smooth and silent operation. Home owners can now bid farewell to the annoyance of creaking and rattling furniture sounds, creating a serene environment that promotes relaxation and tranquility.

The secret behind the silent movement lies in the intelligent cushioning and damping mechanisms integrated into the system. These components absorb the impact, preventing any loud noises when closing doors or drawers.

Hettich's extensive sliding system catalogue ensures there's something for everyone. To cherry-pick a few would be: Wingline L, TopLine L, TopLine XL, Grant Neo 400 and Grant HD.



Grant Neo 400 is a floor-to-ceiling sliding door system that offers a wide range of customisation options.

WingLine L is a sliding-folding system that allows users to enjoy a panoramic view of the entire wardrobe and a premium handle-less look. TopLine L glides inaudibly with the slightest nudge while the minimal door offset ensures maximum space utilisation.

Topline XL K2 is designed specifically for huge doors, allows users to add up to four doors with Synchro and is quite easy to install. Grant Neo 400 is a floor-to-ceiling sliding door system that offers a wide range of customisation options in handles, finishes, partitioning and substrates matching one's tastes and preferences.

Grant SD is the ultimate room partition sliding system with soft opening and closing that brings rooms together gently and aesthetically. Hettich exemplifies dedication to innovation, craftsmanship and sustainability.



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WD316
32 - 192 mm



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20 - 78.9 mm



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Show stoppers from Jai

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 a range 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.



Salient Features

Nesting technology with heavy-duty gantry structure ensures efficient cutting, routing, grooving & boring in one operation with panel optimization.

- High-performance machine with high feeding speed gives more production.
- Heavy-duty, 2 separate air-cooled 6 KW spindle & precision 9 spindle vertical boring head.
- Equipped with high quality and accurate Weihong control system with servo motor & Shimpo reducer.
- Stronger and large helical rack/pinion and high precision linear rails.
- Save tooling and labour cost as customer requires manpower & tools only for 1 machine.
- All electronic & pneumatic parts are from well-known international brands ensuring longer machine life, safe operation, reduced unscheduled downtime and more economical operation costs.
- Low maintenance m/c, easy available cost effective spares, best service support.



OptiRout 6.9 V

This is a Nesting CNC Router designed for cutting, routing, grooving & boring activity. It is specially design for manufacturing of office furniture, kitchen shutters, wardrobe, etc.

The LnU (automatic loading/unloading system) is a loading & unloading system which is an optional feature that enables significant increases in productivity.



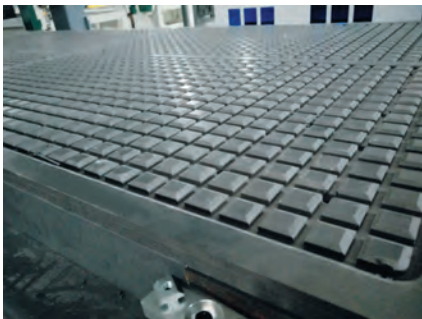
Precision 9V Spindle Vertical Boring Head for drilling



Heavy-duty 2 separate spindles 6 KW with boring head



Heavy-duty linear rail & rack & pinion for high cutting speed and accuracy.



Double layer Nesting table for an efficient and secure hold of work piece



Reference stops for proper alignment of panel



Heavy duty servo motors with Shimpo reducer



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J-3200.in

Automatic J 3200 classic panel saw machine is a superior panel saw with the best sliding table in the economical range used for cutting wooden boards.

Salient Features

- Able to mount maximum 300 mm (12") saw blade
- Two speed for saw blade
- Independent motor for main blade and scoring unit
- Analog readout of saw unit tilt
- 90° quick positioning design on cross cut fence
- Heavy-duty bracket to give reliable accuracy
- Enlarged sliding carriage for stronger support cutting



Precision Sliding table made from large-section extruded aluminium profile with a closed structure to offer the maximum tensile strength. The system for carriage is on hardened ground, prism guides, which allows precise, straight cutting

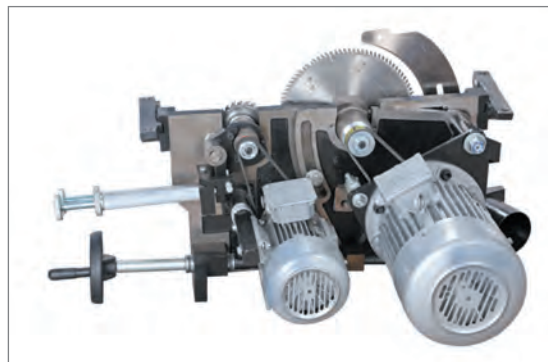
Scoring saw precision lever mechanism.



Easy & fast changing of main saw & scoring saw blades. Also entire saw unit on heavy-duty cast iron trunnion.



Saw unit vertical movement on precise round guides ensures smooth operation. Its closed structure guarantees high rigidity & a vibration free unit.



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 45° on both sides of the table.



WOODNEWS

WoodNews thanks the various companies that have submitted information. For any editorial submissions, please contact Mr. Dhananjay Sardeshpande, Chief Editor, at ghananjay@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.



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PAINT BOOTH



CENTRIFUGAL FANS & BLOWERS



AXIAL FLOW FAN



Jowat promotes green adhesives



The adhesive manufacturer Jowat has developed a comprehensive range of sustainable adhesives for real-life applications. The all-round, no-hassle package of Jowat's 'Green Adhesives' provides solutions for central topics that are very relevant in today's world – sustainability, climate protection and conservation of resources.

These adhesives facilitate sustainable bonding processes that are economically viable and are developed with a focus on real-life applications and industrial-scale availability.

Jowat's portfolio of sustainable products is optimised for processors and bonding applications in the production of furniture and building elements. There is a heightened interest in the new bio-based PUR hot melt adhesive Jowatherm-Reaktant Grow 657.40 for edge banding and the bio-based PVAc dispersion adhesive Jowacoll Grow 105.85 for solid wood bonding and laminating.

Both adhesives contain a high amount of

bio-based raw materials of more than 20% and impress with their performance.

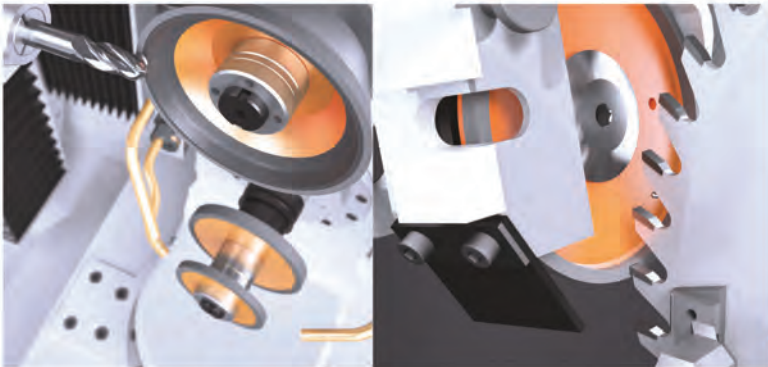
Jowat's Jowatherm Grow 853.22 is used for the sustainable packaging of furniture components, interior doors and engineered wood or laminate flooring: The bio-based hot-melt adhesive couples a high content of renewable raw materials of more than 50% with high cold resistance and a very wide range of adhesion.

To address the issue of occupational safety, the Jowatherm-Reaktant MR product line supplies a broad spectrum of powerful adhesives with hazard-free labeling, which enables processors to efficiently avoid the additional training requirement mandated by law within the European Union as of August 2023.

Sustainability, in all its different forms and the holistic approaches to increase efficiency and sustainability from the start to the end of the production line, is another area of focus. Here, Jowat convinces with its performance and process-optimised low-temperature adhesives.

Jowat-Toptherm 851.99 is a hot melt adhesive optimised for packaging which, in turn, facilitates substantial energy savings due to its low processing temperature starting from 99°C. (www.jowat.com).

THE TECHNOLOGY FULLLINER

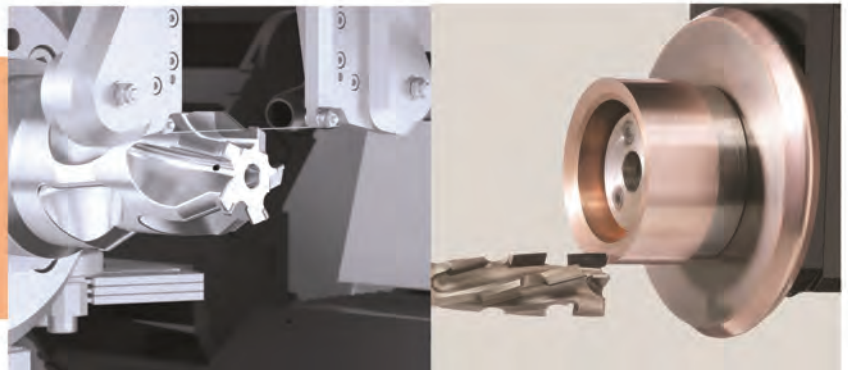


GRINDING Machines for

- > Solid Carbide Rotary Tools
- > Circular Saw Blades
- > Band Saw Blades

ERODING Machines for

- > PCD Rotary Shank Tools
- > PCD Circular Saw Blades



LASERING Machines for

- > Tools with Ultrahard Materials (PCD/CVD-D/MCD)

Leitz shank tools for Indian market



Making grooves on panels is essential for fixing back panels within cabinets and wardrobes. These grooves require to be produced with chip-free edges on laminated panels.

To do this operation, TCT brazed straight-edge router bits are used traditionally on classic machinery. To get more life on abrasive materials solid carbide grooving router bits are recommended. Along with a clean tear-free edge, these router bits work with increased stability and reduced vibrations even at increased cutting depths.

With increase in demand for furniture for both office and domestic use, the production has to be increased to meet the requirements at the shortest possible time. This encourages the producers to invest in tooling which can run at higher feed rates.

Tools such as solid carbide spiral routers, which come with single, double or triple flutes, provide benefits such as:

- One-piece design allows for a high-precision concentric and axial run-out
- They can be used for higher feed speeds up to 20 metres per minute

- Gives clean cuts on edge surface during sizing and grooving
- Longer life than other solid carbide tools because of surface coating.

Coating also improves the hardness and thermal resistance of the tool, thereby making it usable for a longer period of time without resin getting deposited onto the tool body.

The stability of these tools during machining high-density and abrasive materials makes it suitable for working even on difficult to machine materials such as transformer insulation boards, compact laminates, G-FRP and fibre cement boards.

To increase productivity, it is sometimes required to complete a set of operations in a single pass. Instead of solid carbide tooling, one can use poly-crystalline, diamond-tipped, straight-edge or spiral router bits. The benefits are:

- Clean cuts which can be painted upon
- Spiral bits come with staggered tip arrangement in up-shear and down-shear design
- This gives tear-free edges on both sides of the material
- Positive shear angle helps in efficient dust extraction.

The life of these tools increases manifold due to poly-crystalline diamond cutting material. High feed rates of up to 30 metres per minute are possible due to precision concentricity and axial run out.

Together these router bits can be used on a wide variety of material such as solid wood, pre-laminated particle boards and fibre materials (MDF, HDF, etc.), uncoated, plastic-coated, veneered plywood, plastics, solid surface material (Corian, Varicor, etc.) and decorative laminates.

(L-R) Leitz straight-edge solid-carbide bit; Diamaster Plus Z2-V2 router cutter; and hinge-boring bit.





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Mehta Cad-Cam refines printing



The flatbed with Kyocera print head.

Mehta Cad-Cam, one of the leading manufacturers of CNC, laser and digital printing solutions, has a range of cutting-edge products that redefine the possibilities in the signage industry.

UV flatbed hybrid printer is equipped with a Kyocera print head that doubles the speed of printing when compared with any standard UV flatbed printers. With their superior performance and versatility, these printers promise to deliver exceptional results and cater to the diverse needs of signage professionals.

In addition, the company offers the Enzo 3.2 UV roll-to-roll printers with six Kyocera print heads; Crown India's fastest solvent printer with Seiko print head having a speed of 3,600 square feet/hour; Uno UV roll-to-roll printer with Epson i3200 UI print heads; EricaCo2 laser engraving and cutting machine; and EVA-II Co2 laser engraving and cutting machine, known for its high speed and impeccable precision.

A CNC router machine with knife cutting application provides versatility and accuracy for a wide range of cutting and engraving requirements. HT Pro is an all-in-one channel letter bending machine for SS and aluminum channel profiles while HT1 is for aluminum channel profiles.



The Enzo 3.2 UV roll-to-roll printer has six print heads.

Elegant shelving from Salice

Luxer from Italian manufacturer Salice is a modular system that provides an innovative way to create wardrobe, storage and display space without the need for cabinetry. The system enables wall space to accommodate a personalised and flexible array of shelves and drawers to make the most of the space.

With Luxer the arrangement of the elements can be changed at any time, to elegantly transform the lived environment and to perfectly suit every need. The system is available in two versions: Luxer Room, where the upright profile is hidden behind panels, giving a more refined aesthetic.

In the second version, Luxer Wall, the system is visible, for a more modern, minimalistic design. The fixing of shelves and drawers through the hole-drilling method, invisible from the outside, and a sophisticated electricity supply, that enables



the lighting of the shelves in any position.

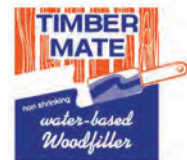
The Luxer modular system is beautifully complemented by Excessories, the accessories collection for furniture, enabling designers and end-users to create elegant and functional walk-in wardrobes, stunning bookshelves and much more.

Salfix is a patented shelf support system that, with a special anti-release device, locks the wooden shelf in position. With an extremely easy and immediate assembly, it provides a perfect horizontal alignment of the panels.

The system has been developed to be virtually invisible, giving the shelves and the entire cabinet cleaner and more refined lines. Salfix is available in two sizes, for 30-mm and 35-mm-thick shelves.

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SCM adds 2 machines to its drilling range

Italian technology provider SCM has launched the Morbidelli CX110 and Morbidelli PWX500, expanding its drilling solutions to offer innovative and highly specialised responses to the needs of both craft businesses and the large-scale furniture industry.

The two new solutions are to be found at either end of the vast range of Morbidelli drilling machines: the CX110 model is mainly dedicated to companies that, regardless of their size and productivity volumes, desire a compact solution that is versatile, efficient and capable of solving all the critical issues of flexible machining.

The Morbidelli PWX500, on the other hand, is for large furniture manufacturers and contractors looking for high-speed, connected and integrated drilling solutions without sacrificing the quality of the finishing and precision.

The **Morbidelli CX110** offers maximum flexibility in performing any kind of vertical and horizontal drilling in less than 8 square metres. The shaped clamp makes machining much easier because it drastically reduces



the cases in which it is necessary to reposition the clamp, reducing the cycle times.

Another advantage is represented by RO.AX spindles fitted on the drilling heads, with a rotation speed that can reach 8,000 rpm, maintaining a very high finishing quality.

The operator can efficiently and easily manage Batch-1 drilling operations while having all the necessary tools always on board and benefiting from the advantages of an automatic six-position tool changer.

The accessibility and ease of loading and handling the pieces is another distinctive plus. The machine is also ideal for those who need to machine lacquered and delicate panels because the new worktable has been designed to avoid any



kind of friction.

The new **Morbidelli PWX500** is the ideal drilling solution for connected and integrated production and to achieve highly competitive production standards per shift on medium and large batches.

Production ability has increased by 10% compared to market standards. In fact, the drilling machine is able to work intensively over several shifts and is designed to significantly reduce tooling changes and other operations that cause unproductive time.

High productivity is guaranteed even by the automatic repositioning system which is completed in less than 45 seconds, including dowelling.

Reliability is another significant advantage: the system has been designed to have fewer moving components compared to standard ones, so fewer risks of damage over time.

This new drilling machine is also synonymous of high efficiency: indeed, it is the only one on the market to offer up to five rows of spindles on the right and left in order to reach the extremities of the panel to make structural holes according to different production needs.

Efficiency and high productivity combine with a considerable machining simplicity thanks to the optimiser software that controls the entire machine's set up, the drilling steps and the integration of production lines consisting of several machines.

The new Morbidelli PWX500 is also extremely adaptable: the panel drilling occurs with a Flex transport and positioning system that automatically adapts to the work piece's specifications, with the possibility of positioning the panel in one or more positions along Y axis.

The model can be highly customised: over 450 drilling tools can be fitted, 6+6 separate dowel insertion units, two workstations and different servo system levels.

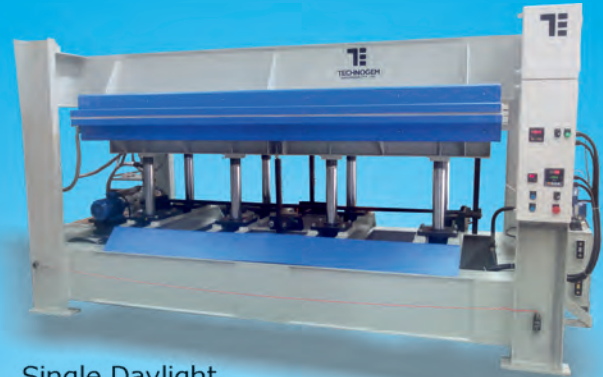
As well as two new machines, SCM has integrated a new drilling software, Maestro 3Drill, to also apply the main advantages of Morbidelli numerically controlled programming software to drilling machines.

Some of its advantages include the possibility of directly importing three-dimensional solids with automatic recognition of the holes to be performed. This speeds up and simplifies the user's programming experience.



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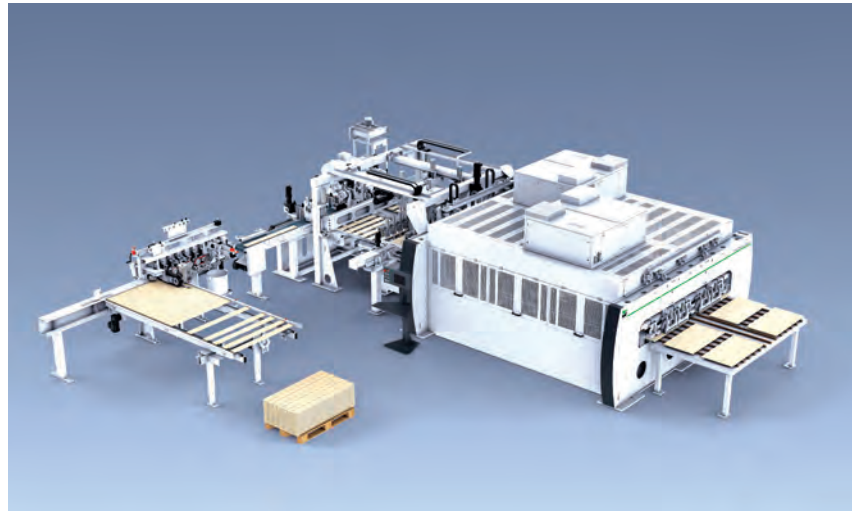
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Resource efficiency, value creation by Weinig



The leading technology provider for solid wood and panel processing, Weinig and Holz-Her, presented their innovations at Ligna Hanover, under the motto ‘Weinig offers more’.

Weinig responded to the shortage of skilled labour, the rising cost of resources and the need for digitisation with modular, highly efficient solutions that are suitable for any size of business — from small shops to industrial enterprises.

“The solid wood division of the Weinig Group now forms a strong team together with the systems specialist HIT. Our customers find competent advice for the entire value chain, from the sawmill to products for constructive woodworking,” emphasised Gregor Baumbusch, CEO of the Weinig Group.

The stall at Ligna provided detailed demonstrations of how companies are using digital solutions to build secure networked production because networked machines are more than the sum of their individual components.

Specific apps can be used to measure and improve overall equipment efficiency, and further relieve the burden on skilled

Weinig’s PowerSplit 1250 and ProfiPress C-2500-HF.

personnel through efficient production control or push notifications.

The Weinig Control Suite is Weinig’s central system control technology for intelligent production. For the first time at Ligna, Weinig presented how virtual part tracking with the Control Suite can be checked against reality without the need for additional part identification such as abarcodes.

The wood in the system is identified at the infeed via OptiTrack, a newly developed software with integrated AI technology. The open, modular software architecture of the Weinig Control Suite enables automated and smart control of small systems up to complete CLT factories.

The cross-cut finger jointing line consisted of a robot with a vacuum unit that stacked boards onto the line. These are then assessed using the CombiScan Sense scanner with AI technology, and the identified defects are cut out by an OptiCut 450 Quantum, the world’s fastest high-speed cross-cut saw.

The gluing press consisted of the ProfiPress C 2500 HF, a world first in solid wood processing. The wood lamellae are glued to create panels in a continuous process. A fast, high-frequency heating system heats the wood, operating continuously and producing cost-efficiently with maximum throughput.

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Zeller+Gmelin present wood release agents



Multiboard FP 1500 is a concentrate for the production of a release agent for the wood-based panel industry. It can be diluted with the addition of water.

The German lubricant specialist and solution provider, Zeller+Gmelin, presented its broad product portfolio of wood release agents at Ligna. Release agents play an important role in the manufacturing process of oriented strand boards (OSB), medium-density and other fibre boards.

With more than 700 different industrial lubricants, Zeller+Gmelin has proven its competence and innovative strength in the wood-based panel industry.

“Under the brand name Multiboard, we have a wide selection of high-quality release agents for the woodworking industry,” says Markus Mähleisen, Product Manager (Wood Release Agents) at Zeller+Gmelin.

Each product in the Multiboard range is developed to fit a customer’s specific manufacturing process. This ultimately leads to having a broad portfolio of release agents.

This is why about 20% of the employees at the headquarters in Eislöwen work in research and development. For the production of OSB, MDF and fibre board, a wide range of release agents are available, independent of the gluing system, which are used in both spray and rotor applications.

Multiboard FP 1500 has been developed to meet the specific requirements of the wood-based panel industry. The product has excellent wetting properties and excellent storage stability.

In addition, it is free of substances that interfere with lacquer wetting. The release agent is applied by spraying or by means of rotor application.

“With this product, our customers benefit from first-class separation performance, where even the smallest application quantities are sufficient,” explains Markus.

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Bio-based glue cuts IKEA climate footprint

IKEA uses wood more than any other material, and most of the wood used is composite that is kept together by glue, which like all materials have an impact on climate change. The glue used globally is synthetic, produced from fossil raw materials – and almost all boards are produced with that glue.

The most significant impact on its climate footprint comes from materials used in production. Among these, wood-based materials have the most impact compared to other materials.

One key impact area is the use of fossil-based glue in manufacturing boards produced by bonding wood particles that contributes to 5% of its total green-house gas emissions. The company is now introducing a new, bio-based glue that can help reduce the climate footprint.

The research that went into finding a sustainable, eco-friendly alternative was driven by Ms Venla Hemmild, Material & Technology Engineer for Adhesives, and Mr Andreas Rangel Ahrens, Head of Climate at IKEA.

Today, almost 90% of the glue used by the company goes into making particle boards and fibre boards, which are then used to create iconic products like Pax, Metod, Billy, Kallax and Hemnes.

About 5% of its total climate footprint comes from fossil-based glue, making glue a significant impact material. To limit the impact, the company is exploring scalable bio-based alternatives with a lower climate footprint.

Many challenges

However, the journey towards finding a more sustainable glue solution was not without its challenges. Venla and the team faced several hurdles, not the least of which was the need to adhere to the five dimensions of democratic design: function, form,



quality, sustainability and low price.

“It’s not unheard of to produce boards with bio-based glues, but they are expensive. The challenge was finding alternatives at a reasonable price and with the required quality. Then we needed to prove that they actually work and convince an industry that’s been using traditional glue that this is something we can produce with,” says Venla.

It was a journey that lasted for about 10 years. The team spent countless hours searching the available products, following up the experiments with different plant-based materials, and testing the quality of each alternative on the boards until they finally selected a glue that was found to be a perfect alternative for conventional adhesives.

Better sustainability

The new bio-based glue increases the sustainability profile





The research was driven by Venla Hemmild (L), Material & Technology Engineer for Adhesives, and Andreas Rangel Ahrens (R), Head of Climate at IKEA.

of board products. Most particleboards and fibreboards consist of 90% wood, with the remaining 10% being the glue that holds the particles together.

IKEA aims to reduce the climate footprint of glues by 30% by 2030 by converting to better alternatives.

The first bio-based glue used in large-scale production is starch-based and made from non-food-grade corn. This corn is not suitable for human food and is high in starch content.

By combining the starch-based component with a synthetic cross-linker, IKEA can use significantly less resin, which is then replaced with natural wood particles, thereby increasing the amount of renewable material in the boards.

“We started with the first factory in Kazlu Ruda (Lithuania) last year. At the same time, we are doing a factory-scale trial on other factories with other bio-based glue systems as well,” says Venla.

“At IKEA, we are committed to doing our part to limit global temperature rise to 1.5°C. Thus, we need to drastically reduce greenhouse gas emissions, which means we need to half it by 2030 and reduce it as close to zero as possible by the latest 2050,” Andreas adds.

In the journey to end the dependence on virgin fossil materials and fuels, they knew that bio-based glue was just one small step, but it was a step in the right direction.

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Interzum in India with 2 'green' projects



In keeping with its role as the leading international trade fair in its field, Interzum is taking responsibility. With its new global lead theme 'neo-ecology', the trade fair is promoting the dialogue aimed at increasing sustainability and is itself also actively engaged in measures to fight climate change.

In the run-up to this year's event, Interzum launched an initiative to make the world's biggest industry event for furniture production and interior design more sustainable in the future.

The first step on this journey involves working with Climate Partner to scrutinise the trade fair's own carbon dioxide (CO₂) emissions – ranging from event technology and energy to logistics and waste disposal along the way through to food service.

These emissions will then be reduced wherever possible. Any emissions that can't be reduced (yet) will be offset by financing two certified, internationally recognised climate protection projects.

The first Interzum-funded project in Bhatel (Gujarat) harnesses wind energy to supply renewable electricity. This low-emission form of power generation saves around 1,67,000 tonnes of CO₂ each year. At the same time, the local population benefits from a more stable electricity grid and long-term employment contracts.

Also in India, degraded agricultural land in

Karnataka is being reforested as part of the second project. The project is helping a total of 1,296 farming families from 155 villages to plant trees and manage the land.

Both projects are certified in accordance with the Gold Standard VER (GS VER), which has particularly strict requirements regarding sustainable development and the involvement of the local population.

"Through these measures, Interzum is assuming responsibility and taking an important step towards becoming a more sustainable trade fair," explains Interzum Director Maik Fischer. "To achieve our long-term goal of comprehensive climate protection, it is crucial that we prevent and reduce emissions."

Building on the experience gained this year, fair organiser Koelnmesse (Cologne, Germany) will continue to develop Interzum's sustainability strategy for future events.

Interzum's multifaceted engagement with the central theme of neo-ecology is evident in the topics and presentations at this year's trade fair. Aspects such as resource efficiency, smart materials, renewable energies or recycling and upcycling were key to many of the exhibitors' innovations.

The Trend Forums and platforms for dialogue at Interzum showcased pioneers of the circular economy, low-emission bio-based materials and solutions for climate-positive construction.

Interzum's initiative is part of a company-wide strategy at Koelnmesse. This sees the company work to consolidate its sustainability activities in the three core action areas of nature, events and community – aspects that it aims to address comprehensively in the future.

All measures and ideas are aimed at being a marketplace that allows trade fair operations to be as resource-efficient as possible. Koelnmesse's ambitious goal is to be climate-neutral by 2035, guided by the sustainable development goals (SDGs) set out by the United Nations.



To achieve comprehensive climate protection, it is crucial that we prevent and reduce emissions.

– Mr. Maik Fischer,
Interzum Director.



Senoplast's focus is on sustainability



Senosan Eco furniture foils are to expand the company's climate-friendly product range.

At Senoplast, the focus is on sustainable business. For more than 20 years, the company has been processing plastic waste from its customers and feeding it back into the production process.

Since 2020, it has been using its own recyclate processing plant. The CO₂ balance of the main plant in Piesendorf (Austria) is exemplary in the plastics industry: the production of 1kg of aplastic sheet causes only 8.1gm of carbon dioxide (scope 1-2).

Since 2003, Senoplast has been using a heat recovery system that saves energy costs. In addition, the company has been sourcing electricity exclusively from renewable energy sources for the past 5 years.

In addition, the plastics specialist has now implemented a photo-voltaic system to further reduce the amount of electricity it buys from outside sources.

To further reduce emissions, a new pressure filter system for the cooling water and line insulation to reduce noise are among the measures being implemented.

In the area of mobility, Senoplast is increasingly using electric forklifts as well as e-vehicles and e-charging stations for the workforce. There are also electrically powered shift buses for the workforce.

Senoplast's environmental management system was certified by QualityAustria in 2021 according to ISO 14001:2015 and EC Regulation 1221/2009.

In terms of sustainability, Senoplast is taking the next step to reduce its carbon footprint and achieve climate neutrality. In addition to the already available Senosan Eco furniture foils, which are largely made from recycled plastics, bio-plastics under the brand name Senosan Eco-B are to expand the climate-friendly product range.

In doing so, the company is following the mass balance approach, in which renewable raw materials are already used at the beginning of the production chain as a substitute for fossil raw materials.

The raw material used for Senosan Eco-B bio-plastics will be kitchen waste and waste oil, in fact renewable material not suitable for consumption. The advantages for the customers are an improved CO₂ balance of the sold products and a simple and fast solution with consistent quality.

The products are available today without additional testing costs. The overall benefits for all are the reduced use of fossil raw materials, resulting in a reduced CO₂ footprint.



The Senoplast headquarters in Piesendorf, Austria.

Tool on anvil to plan forest roads, trails

The planning and construction of logging road networks is an essential step in the logging process in natural forests. Errors in their implementation lead to an increase in the total length of open roads, an increased environmental impact, and an increase in harvesting costs, resulting in a delay in the rest of the harvesting operations.

The additional costs generated by these planning errors are even more important given the current global and sub-regional economic situation, which is leading to an increase in energy costs.

Indeed, it is estimated that a significant portion of the additional operating costs

associated with poor planning is related to fuel expenses. In Gabon, for instance, fuel costs have doubled in the second half of 2022.

In addition, sustainable management certification standards, national regulatory contexts and markets are increasingly demanding the integration of environmental aspects by forestry companies: carrying out carbon assessments, monitoring green-house gas (GHG) emissions, identifying and maintaining ecosystem services, etc.

Digital tool

A planning error can quickly lead to heavy damage to the natural environment. The consulting firm BFConsult and the company RS&D Technology are planning the development of a digital solution to assist in the planning of roads and forest trails and to evaluate their costs and



environmental impacts.

There are currently no tools to help forest managers meet the dual challenge of reducing the environmental impact of logging and controlling the costs of building forest roads and trails.

BFCConsult, along with R&SD Technology, is working on the design of a digital solution for forest managers to provide them with a planning and analysis tool for forest trail networks.

This digital GIS solution, accessible with a web browser, will operate through several independent and complementary modules. Computer models specially designed for the application will allow each user to customise the parameters according to his own environment and organisation.

Flexible in its use, the tool will also make it possible to analyse the economic and environmental performances of networks of tracks generated by it or to analyse already opened networks in the form of a summary report of performances.

Carbon integration

As a response to the objectives of technicians and decision-makers in forestry companies, the solution plans to integrate the following features:

- Division into pockets of operations
- Design of the road and structure (bridges) network
- Design of the network of logging roads and yards
- Analysis of the logging road network including carbon emissions estimation

This tool aims to strengthen the cartographer's and forest manager's toolbox and to assist forest managers in their decision-making to achieve less costly and less environmentally impactful road planning.

Based on data from the scientific literature or customisable by users according to their own data and specific to their natural environment, the analysis module of the application will allow the estimation of carbon emissions of forest trail networks.

This functionality will facilitate the establishment of the carbon footprint of forest operators and will allow the carbon criterion to be fully considered during decision-making.



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Tackling energy crisis: options and choices



PETER RICHNER

Climate crisis, energy shortage and nuclear phase-out are some of the challenges we face and it is clear we need to transform our energy systems. We also know that it will be anything but easy – and costly.

The future of energy supply – wind power and solar cells, hydrogen and other sustainable energy sources – are beacons of hope, but the changeover needs ideas and a lot of time.

In the past decades, the permanent availability of cheap energy was taken for granted and was hardly ever questioned. Climate change, on the one hand, and the planned phase-out of nuclear energy on the other, have triggered discussions about a transformation of our energy system, but the necessary measures have so far been implemented only half-heartedly.

In 2022, this situation changed dramatically.

In Europe in particular – and thus also in Switzerland – there was a massive shortage of available energy. As a result of the Russia-Ukraine war, gas supplies from Russia, which previously covered more than 30% of European demand, dried up almost completely.

At the same time, only about 50% of France's nuclear power plants are currently online, as overhaul work fell behind schedule during the pandemic and, in addition, corrosion problems arose on pipelines, leading to more protracted investigations.

Practical answers

The resulting energy shortage drove up prices massively, especially for gas and electricity. For a short time, electricity prices on the futures markets for the first quarter of 2023 of more than 1,000 per MWh were asked for – a ten-fold increase within one year!

To bring supply and demand back into some kind of balance, the focus in the short term is on efficiency and energy savings measures. In the medium and long term, the aim is

to make energy available from other sources, which must be renewable and have low CO₂ emissions.

Materials science and technology development, as conducted at Empa, forms the basis, on which practical answers to these challenges can be developed. A profound transformation of our energy system within a few months or even years is hardly possible, even if currently many of us would like this to happen.

The construction of high-alpine, solar power plants and the associated adjustments to the power grid, the raising of dams of storage power plants and the switch to renewably produced hydrogen for industrial high-temperature applications involve enormous investments and cannot be implemented overnight.

The quickest and easiest way – at least in theory – is to implement behavioural changes; these are often purely a question of will. Lowering the room temperature in winter is the most obvious example, saving around 6-7% energy – per degree.

Artificial intelligence

Voluntarily constraining oneself is difficult, but there are certainly ways to significantly reduce energy demand without noticeable losses in comfort or performance. Digitisation, in particular, offers entirely new possibilities here.

Felix Bünning and Benjamin Huber from Empa's Urban Energy Systems laboratory have developed a data-based control algorithm for regulating room temperature and put it through its paces in NEST.

Using a temperature sensor, a room-specific computer model can be developed within two weeks, which is then used in combination with weather forecasts to control heating and cooling. This is done completely automatically via machine learning, without the need to know the physical parameters of a building.

This technology can thus be implemented easily, quickly, and without technical modifications in numerous buildings. Compared to conventional heating control, energy consumption can be reduced by 20-30%, as a large-scale trial in one of Empa's office buildings in Dübendorf in winter 2021/22 showed.

Quite a few other solutions are ready and waiting; their potential and feasibility have been demonstrated in the laboratory and demonstration projects in recent years.

However, they have not yet found their way onto the market – simply because they did not pay off at the previous process for energy and CO₂. The NEST unit, Solar Fitness and Wellness, for example, is equipped with an innovative energy concept that can reduce the energy consumption of saunas and steam baths by a factor of three; and, in combination with storage technologies, it can be powered almost exclusively with solar energy.

Only now, when hotels are suddenly confronted with ten-fold higher electricity prices, is interest in this technology suddenly skyrocketing, and chances are good that implementation with partners from the industry will become realistic.

Smart options

The same applies to the widespread use of smart meters. Although the technology is well known and appropriate devices are available, Switzerland is taking its time with implementation – in another 4 years, 80% of all electricity meters are to be replaced by smart meters.

In the current situation of uncertain power supply, the widespread installation of such smart meters would be a prerequisite to be able to control demand in a targeted manner in the event of a shortage by centrally controlling appliances whose operation is not time-critical, such as heating or boilers.

So there are many solutions ready and waiting to be implemented, paving the way for a climate-neutral, reliable and affordable energy supply. However, further efforts are needed to successfully follow the path to the end. The focus is on solutions that allow



energy to be stored for various periods and transported over long distances.

New concepts for batteries based on non-critical raw materials and recycling concepts for high-performance batteries that are crucial for mobility are the focus of various research projects at Empa.

Complete energy self-sufficiency in Switzerland makes neither economic nor technical sense. In addition to the domestic expansion of renewable energies, ways must therefore be found to import renewable energy, especially in winter.

It is doubtful whether this will be possible from nearby countries, as our neighbours' energy systems are likely to develop in a very similar way to ours.

In other places in the world, however, the potential for renewable energy production is huge, for instance in the desert regions of North Africa, West Asia or in Patagonia and Australia. Transporting it over such long distances in the form of electricity is not

feasible, though.

The electricity generated from wind or the sun must first be converted into chemical energy carriers such as hydrogen, ammonia or synthetic hydrocarbons. This makes energy storable and transportable at the same time.

New catalysts and catalytic processes are essential to make the chemical conversion processes as efficient as possible and to produce energy carriers that provide the greatest possible benefit, for example as a substitute for (fossil) kerosene.

Thanks to its expertise in materials science and technology development, Empa will continue to develop new solutions that will make it possible to put our energy system on a sustainable footing. However, we as a society must muster the necessary will and the corresponding seriousness to successfully master this challenging path together.



— The writer is Deputy Director, Empa 'NEST', where many environment-friendly building and energy technologies for the future are being realised and tested.

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Understanding the grading of American hardwood

This article will continue to answer questions we have received from buyers throughout the world. If you have a question regarding the rules for grading American hardwood lumber, or if there is any other topic you would like to see in future articles pertaining to hardwoods from the US, write to india@americanhardwood.org

Sometimes we receive hardwood lumber from the United States that is not entirely flat. The lumber is kiln-dried, usually around 8-10% moisture content, and the grading seems accurate. Is there some kind of rule for these boards that are not flat?

Yes, there is an allowable tolerance for these pieces. When lumber is going through the drying process, first on sticks in the open air or pre-drier stage, then in the dry-kiln, stresses occur in the boards.

The lumber will shrink in volume by an average of around 7%, depending on the species and thickness. These stresses will also cause the lumber to 'move around' as water



is being removed. This movement is the deviation you mention from a flat board.

The NHLA rule for this is covered in several paragraphs in the Rule Book. Firstly, in the definition of a 'cutting' it states: "In the grades of Selects and Better, the entire board must be flat enough to surface two sides to Standard Surfaced Thickness. In the Common grades, just the individual cutting must be flat enough to surface two sides to Standard Surfaced Thickness, after it has been removed from the board."

To calculate what a rough-sawn board must 'clean-up to' (surface to), the NHLA rule for Standard Surfaced Thickness calls for an inspector to subtract 3/16 inch (4.76 mm) for any board 1× inch thick (38 mm) or less.

For all lumber thicker than this, an inspector would subtract ÷ inch (6.35 mm) to calculate the Standard Surfaced Thickness. In addition to the lumber cleaning-up, some allowable skips, chips, or torn grain are permitted on the board as well.

In looking at the lumber you are purchasing, first the grade must be established. If the grade is Selects, FAS1Face, or FAS, the entire board must meet the criteria for surfacing to standard thickness for surfaced lumber.

For example, a 1-inch or 4/4 (25.4-mm) board must clean-up to 13/16 inch (20.6 mm). If the grade you are purchasing is No. 1 Common, just the individual clear cuttings used in establishing the 66 2/3% yield must meet this standard surfaced thickness requirement.

Often we get complaints that rough-sawn lumber we are looking at has got some slight cupping in it. They are not taking into account that the lumber is 27- or 28-mm thick and when surfaced it will be slightly under 2-mm thick. A lot of imperfections will disappear in this surfacing process.

This rule for Standard Surfaced Thickness will also be applied to a board that has some slight season checking, slight fungal stain or any imperfection on the rough-sawn surface of the board.

The bottom line is that the NHLA rules recognise that when we subject green lumber to the rigors of the drying process, it is not the rough-sawn board we intend to utilise, but the surfaced, semi-finished board we are after.

In the AHEC publication, ‘A Guide to Sustainable American Hardwoods’, reference is made to No. 2A Common, but my supplier only quotes me No. 2 Common. He tells me they are the same thing. Are they?

Yes and no. Prior to 1990, the NHLA rules had one designation to this grade, which was No.2 Common. There were 15 species that only required the No. 2 Common cuttings to be sound and not clear.

For example, if you were to purchase No. 2 Common basswood, you would receive lumber that was only required to have 50% sound cuttings. You could specify No. 2A Common and then you would receive lumber that was required to have 50% clear cuttings.

This rule was changed in 1990 to drop the No.2 Common grade name and always use the No.2A Common name for cuttings to be clear and No.2B Common for cuttings to only be structurally sound. If the grade of No.2 Common is used, then, technically, it could contain all the No.2A and No.2B that is produced.

The problem is that some suppliers have always used the No. 2 Common grade name and are slow to catch on! Just talk to your supplier and clarify that you are both talking about the same thing, and it shouldn't be a problem.



I purchase Face and Better tulipwood and receive boards with knots and splits on them. My supplier says they meet the minimum required by the NHLA. Is there any grade better than FAS1 could specify?

The grade of FAS is the highest grade for hardwood lumber in the US domestic market, as far as the NHLA Standard Grades go. In any given parcel of FAS lumber, you will have boards that have some knots and splits, because the minimum requirement for FAS lumber is 83 1/3% clear (defect-free) wood.

This means that on a 12-foot board, there will be a minimum of 10 clear feet. In this same parcel there should also be boards that are 100% clear. The NHLA grading rules always talk about a range of quality, meaning that in any given parcel of a particular grade there will be a range of percentages from the absolute minimum to just under the next higher grade's required minimum.

The price for each grade reflects this range of quality as well. You could ask your supplier to provide you with all 100% clear boards, but be prepared to pay for them because you would be upsetting the range of qualities for other shipments your supplier is putting together. Any exemption to the NHLA grades can be negotiated into a sales contract.

However, be sensitive to what you are asking for and what the additional costs may be! For more information on American hardwoods, and to learn more about different species and grades, visit: www.americanhardwood.org.



ICA creates a 'hotel' for insects!



There are over 20,000 species of bees worldwide, but their welfare is jeopardised by human activities (the use of pesticides) and climate change. Yet, these tiny pollinating creatures play a vital role in the balance of an ecosystem, which is imperative for human health and well-being.

ICA SpA has created a cosy shelter not only to accommodate the little friends that protect our ecosystem but also to educate the upcoming generations.

The purpose of the initiative is to provide the general public with a “sustainability space” which will raise awareness primarily among children and teenagers. It is also a valuable way to protect local resources and give Mother Nature a helping hand to do what she does best.

Located along the cycle path of the Castellaro Park in Civitanova Marche, the ‘Bugs Hotel’ was set up on the scientific advice of Hort, a former spin-off of the Department of Agriculture at the Politecnica delle Marche University.

It includes three educational boards containing fascinating facts about the little lodgers of this fun hotel, but also insights



into local wildlife. There are five cute outlines of insects made from coloured wood coated with the Arborea Bio range (coatings for exteriors made from materials from renewable sources) that add a touch of whimsy and visual interest to the setting in a joyful celebration of bio-diversity.

An absolute first in their local area, this original project aims to reach out to school children, especially the primary-school segment; but basically, this is a universal theme that is of interest to all age ranges.

ICA will be holding 20 classroom lessons lasting 2 hours per session and a qualified agronomist will lead children through an exciting journey of discovery into the little world of bees, butterflies, and other small “heroes” who preserve the world we know and love.

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Sheela Foam acquires Furlenco

Sleepwell mattress' parent company, Sheela Foam, has signed an agreement to acquire stakes in online furniture retailer Furlenco. The deal with Furlenco marks Sheela Foam's entry into the rapidly growing online furniture e-commerce business.

Sleepwell proposes to acquire around 35% stake in Furlenco for cash consideration of 300 crore, which is subject to customary working capital and other adjustments. This roughly values the Bengaluru-based company at around 857 crore (over US\$ 100 million).

Furlenco provides subscription-based furniture and home decor on rent along with relocation services and is backed by Zinnia Global Fund, CE-Ventures and Lightbox Ventures and actor Amir Khan. With investment in Furlenco, Sleepwell will now compete with new-age companies such as Rentomojo, Rentickle, Cityfurnish and Pepperfry.

Greenply announces 'Green Vision'

Greenply Industries, one of India's largest interior infrastructure brands, has pledged to plant 50 million saplings by the year 2025, which is aimed at environmental conservation and sustainable development. These saplings will be planted across Gujarat, Nagaland, Uttar Pradesh and West Bengal. The plantation activity will also help in the sustainable procurement of raw material and the financial viability of the ecosystem while generating employment opportunities for the local communities where the organisation functions.

By setting this ambitious target, the company aims to contribute substantially to the restoration of forests,



US approves 'tip-over' safety standard



The US Consumer Product Safety Commission (CPSC) received no "significant adverse comments" on its federal safety standard for clothing storage furniture and, as a result, the new standard will take effect from September 1, 2023.

The new standard is based on ASTM International's F2057-23 voluntary standard. All US-made products within the scope of the standard with a manufacture date on or after September 1 must meet the stability and labelling requirements within the rule.

Jiangsu Huidian commissions Siempelkamp's U-flaker

In a milestone for a revolutionary Siempelkamp concept in China, Jiangsu Huidian

New Materials Co, Ltd. put its U-flaker into operation at its Shuyang site. This is the Siempelkamp Group's third U-flaker that has been installed in China. Two others are being operated at plants in Guangxi and Shandong.

The U-flaker, developed by Siempelkamp's subsidiary Pallmann, sets new standards for this type of board both in terms of product quality and resource efficiency. This process allows the use of smaller log diameters of less than 80 millimetres and other wood assortments that would otherwise not be suitable for other direct flaking processes.

combat deforestation, and boost the overall ecological balance. By extending its efforts to reforestation, Greenply Industries aims to create a virtuous cycle of sustainable development that benefits both the company and the environment.

Burkle: perfect partner for finishing



One of the world's leading technology partners for spray coating is the Germany-based Robert Burkle GmbH. With product lines ROBUSeco and ROBUSpro, it covers all requirements, from entry-level to high-end applications. Burkle showcased some

highlights from this product segment at this year's Ligna Hannover (15-19 May).

"Our company received a lot of attention at Ligna. Particular areas of interest for our customers were digitalisation and automation," said Mr Matthias Picker,

Vice-President (Woodworking Division), when reflecting on the trade fair.

Because of the shortage of skilled workers, it is difficult to find employees. This needs to be compensated through hardware and software automation of processes and workflows.

"With a broad offer of digitalisation tools, virtual commissioning and digital twin software along the customers' process chain, Burkle is a perfect partner to deliver such high demands on production output with automated solution, especially around finishing processes such as spray- and roller-coating," Picker noted. "We look forward to the post-trade fair conversations. We are sure that we'll implement several new solutions together with our market partners," he added.

Henkel's Chennai plant is carbon-neutral

Henkel's Adhesive Technologies' plant in Chennai has achieved carbon neutrality, marking a significant milestone in the company's ambitions to become climate positive across its global operations by 2030. The Adhesive Technologies factory in Tuzla (Turkey) and the Chennai production site are the first two Henkel facilities across the India, West Asia and Africa region to be carbon-neutral.

The switch to zero-carbon footprint was achieved at the Chennai plant by drawing electricity from on- and offsite renewable energy sources, along with the deployment of energy-efficient solutions such as LED lighting, smart motion sensors and natural lighting.

Henkel will transform all of its production sites in India into carbon-neutral sites by 2030, sourcing 100% of its

electricity from renewable sources, and reducing the use of fossil carbon sources through state-of-the-art technologies.

EuroTech exclusive distributor of Cobot Lift

The Danish manufacturer Cobot Lift, which is the leader in the field of mobile and stationary solutions, has appointed the vacuum technology specialists, euroTech Vertriebs GmbH as its exclusive partner in Germany.



Cobot Lift offers mobile and stationary solutions while euroTech complements the clever way of lifting with sophisticated vacuum technology. Cobot Lift has significantly upgraded the performance of its collaborative robot system by increasing the payload of the integrated UR10 robot from 10 to 45 kg. This is made possible by a vacuum tube lifter that carries most of the weight.

Online course for building with timber

The first edition of a seven-week online course on 'Sustainable Building with Timber', developed by TU Delft's Faculty of Architecture and the Built Environment and the TU Delft Circular Built Environment Hub, will start on 18 October, 2023.

The newly designed online course offers a carefully crafted curriculum designed to give participants a holistic understanding of sustainable timber construction. All stakeholders in the built environment – architects,

developers, engineers, consultants and policymakers – can gain knowledge and skills needed to exploit the enormous potential of timber construction.

This ambitious project, initiated by FSC Netherlands and FSC Denmark, aims to increase the amount of wood from sustainably managed forests used in social housing construction. For more information and to register, visit <https://online-learning.tudelft.nl/courses/sustainable-building-with-timber/>

Fraunhofer endorses Altendorf's safety system

Fraunhofer IPA (Institute for Manufacturing Engineering and Automation) recently conducted a study on two current safety assistance systems for sliding table saws:



capacitive and camera-based safety assistance systems. Both principles use suitable sensors to first detect a hazardous situation and then remove the saw blade from the danger zone in the shortest possible time.

Both, the capacitive and the camera-based systems, reliably detected the test pieces under the selected test conditions and led to the lowering of the saw blades. However, only the camera-based system was able to avoid damage to the test specimens in all tests. With the successful certification by the German Employers' Liability Insurance Association for Wood and Metal, Altendorf is setting the future standard for safety in sliding table saws.

Rockfon and Vox India renew partnership

Vox India, a leading provider of innovative interior solutions, has announced the renewal of its contract with Rockfon, a renowned manufacturer of acoustic ceiling and wall solutions. With a commitment to sustainability, both brands prioritize the use of eco-friendly materials and energy-efficient manufacturing techniques, making them trusted partners for diverse projects.

By leveraging Vox India's expertise in the interior solutions industry and its extensive distribution network, both companies aim to expand their reach and provide specialized interior solutions to their customer base. This collaborative effort ensures that customers have access to the most innovative and sustainable solutions available, creating beautiful, comfortable, and safe indoor environments.

Malaysia to increase bamboo in construction

The Biotechnology Research Institute at the University of Malaysia in Sabah province has worked on bamboo tissue culture to create bamboo for the use in development of construction materials. The research team at BRI is perfecting cultivation of giant timber bamboo species, notably *Dendrocalamus asper* (Betung Bamboo) and *Gigantochloa levis* (Poring Bamboo).

These bamboo varieties possess exceptional strength, durability and rapid growth rates making them suitable for use in construction. The widespread use of bamboo in the construction industry has the potential to significantly reduce carbon emissions associated with resource intensive materials while simultaneously contributing to the preservation of forests.

Schuler named top SME consultant

'Top Consultant', a scientific customer survey that determines the best consultants for small and medium-sized businesses, has selected Schuler Consulting GmbH as one of the best SME consultants in Germany and has been awarded the 'Top Consultant' seal 2023.

The WGMB (Scientific Society for Management and Consulting) had previously examined how well the participants advised their medium-sized clients. More than 150 consulting firms applied for the Top Consultant seal this year, 124 were successful and can now carry the seal.



Anca institutes Female Machinist Award

Anca, a leading global manufacturer of CNC grinding machines, has launched its first Female Machinist Award. This new accolade aims to recognize and honour the outstanding achievements of female machinists in the tool and cutter grinding industry. By promoting gender diversity and equality, Anca is dedicated to fostering an industry that excels in every aspect.

The Female Machinist Award is open to women of all skill levels who are actively working with Anca technology in the tool and cutter grinding industry. A panel of

experienced professionals from the tool and cutter grinding industry will serve as judges for this award.

The winner will have exclusive access to the Anca team, including top-tier leadership, skilled engineers, and renowned product experts. The prize also comes with opportunities to network with like-minded professionals and participate in educational seminars and workshops.

Roseburg orders Siempelkamp MDF plant



More than 50 years after supplying Roseburg Lumber with its very first composite panel press line, the US wood-based panel producer, the company has once again placed an order on Siempelkamp for a new MDF plant with a ContiRoll.

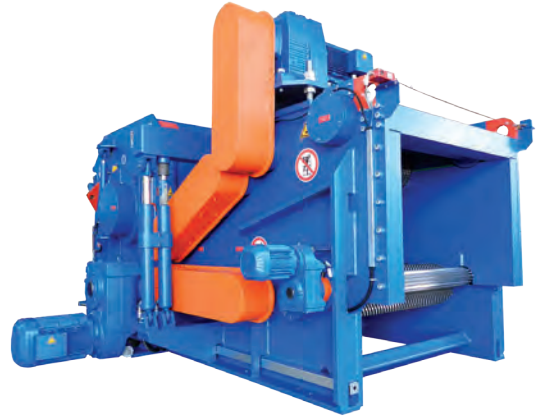
Roseburg Forest Products is considered one of the largest private forest owners in North America and is passionate about forest products. The newly commissioned Siempelkamp-equipped plant is part of a \$700 million total planned investment in the Southern Oregon region. The investment includes a new state-of-the-art production MDF plant and a component manufacturing centre. It also includes technological optimizations and upgrades to existing plants. The overall project is considered to be the largest known manufacturing investment in rural Oregon and one of the largest private capital investments in the state's history.

Greenpanel extends Dieffenbacher MDF plant order

Greenpanel Industries has ordered a Dieffenbacher A Maier chipping line for an MDF plant to be installed in Andhra Pradesh. Scheduled to begin operating in mid-2024, the plant is the third ordered by Greenpanel.

The order also includes the drum chipper feeding line, consisting of a chain bed conveyor adapted for multiple crane feeding, a cleaning zone and a chipper belt conveyor

with a metal detector. The company will use the chipping line to process eucalyptus into high-quality wood chips for MDF manufacturing.



Enrico Aureli new President of Acimall



Enrico Aureli has been nominated as the new President of Acimall for the 2023-26 term. He will be supported by

Raphaël Prati (Chief Marketing & Communications Officer at Biesse, Pesaro). They succeed Luigi De Vito (General Manager at SCM Group, Rimini) and Marianna Daschini (Managing Director at Greda, Mariano Comense), who respectively served as President and Vice-President in the 2020-2023 period.

The association of Italian manufacturers of wood and furniture technology unanimously approved the proposal presented by the board of directors. Since 2008, Enrico Aureli has been sitting on the management board of SCM Group. He is a board member of Ucima (Italian Association of packaging machinery manufacturers) also, where he held the role of President from 2016-20.

Jowat SE is Gold Standard winner

Jowat SE has again been honoured with the Best Managed Companies Award sponsored by Deloitte Private, the newspaper *Frankfurter Allgemeine Zeitung* and the Federation of German Industries (BDI). As a competition and label denoting quality and excellence, the Best Managed Companies programme is designed to build a national and global ecosystem of exceptionally managed private businesses. The international orientation is a unique characteristic of this programme. Best Managed Companies was established in the 1990s by Deloitte in Canada and has since been launched successfully in more than 45 countries.



Unilin, Barberan host open house



Unilin Technologies, the IP and technology division of Mohawk Industries, partnered with Barberan to organise an exclusive Open House event showcasing digital printing for the flooring industry at the Barberan premises in Barcelona, Spain. The event provided attendees with insights into the technical aspects of digital printing for the flooring industry, particularly for SPC and laminate products.

The presentations focused on the return on investment of digital printing and market demand insights with input from key distributors around the world. The Open House event was also a demonstration of their state-of-the-art digital printing machine for embossing in register. The DeepBlue EIR printer impressed attendees with its speed, precision, and versatility in producing high-quality, customizable flooring products and showcased the potential for digital printing technology to revolutionize the flooring industry.

Xylexpo 'Early Bird' registrations open

Preparations for the next Xylexpo, the biennial international exhibition of woodworking and furniture industry technology, scheduled from 21 to 24 May 2024, at FieraMilano-Rho, are underway. The organisers have launched the registration campaign for all exhibitors who do not want to miss the opportunity to be in Milan with 'early bird' exhibitor registrations.

Following the success of the Xylexpo Digital platform initiative in 2022, it will continue to be made available

and operators who cannot attend the exhibition will have the opportunity to experience the Xylexpo 2024 atmosphere. It will offer its online visitors a one-of-a-kind opportunity to walk through the booths, join issue-specific "tech tours", listen to interviews and follow the itineraries. All these contents will be available later on via the Xylexpo digital platform.

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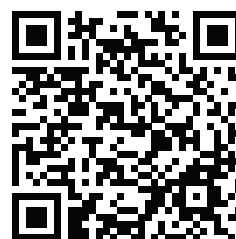


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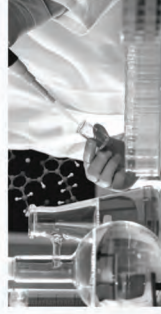
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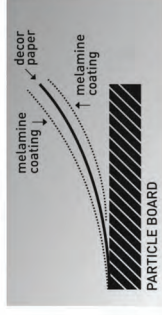
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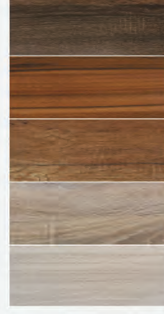
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SLIMMEST
& THINNEST

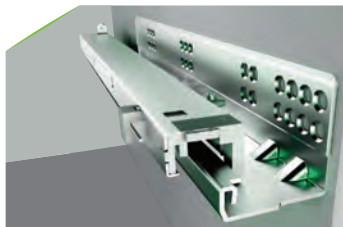
1.5MM

Rigo Drawer

HINGES



UNDER MOUNTED CHANNELS



TELESCOPIC CHANNELS



DRAWER SYSTEMS

