SOUTHEAST·ASIA CONSTRUCTION

JULY - AUGUST 2023

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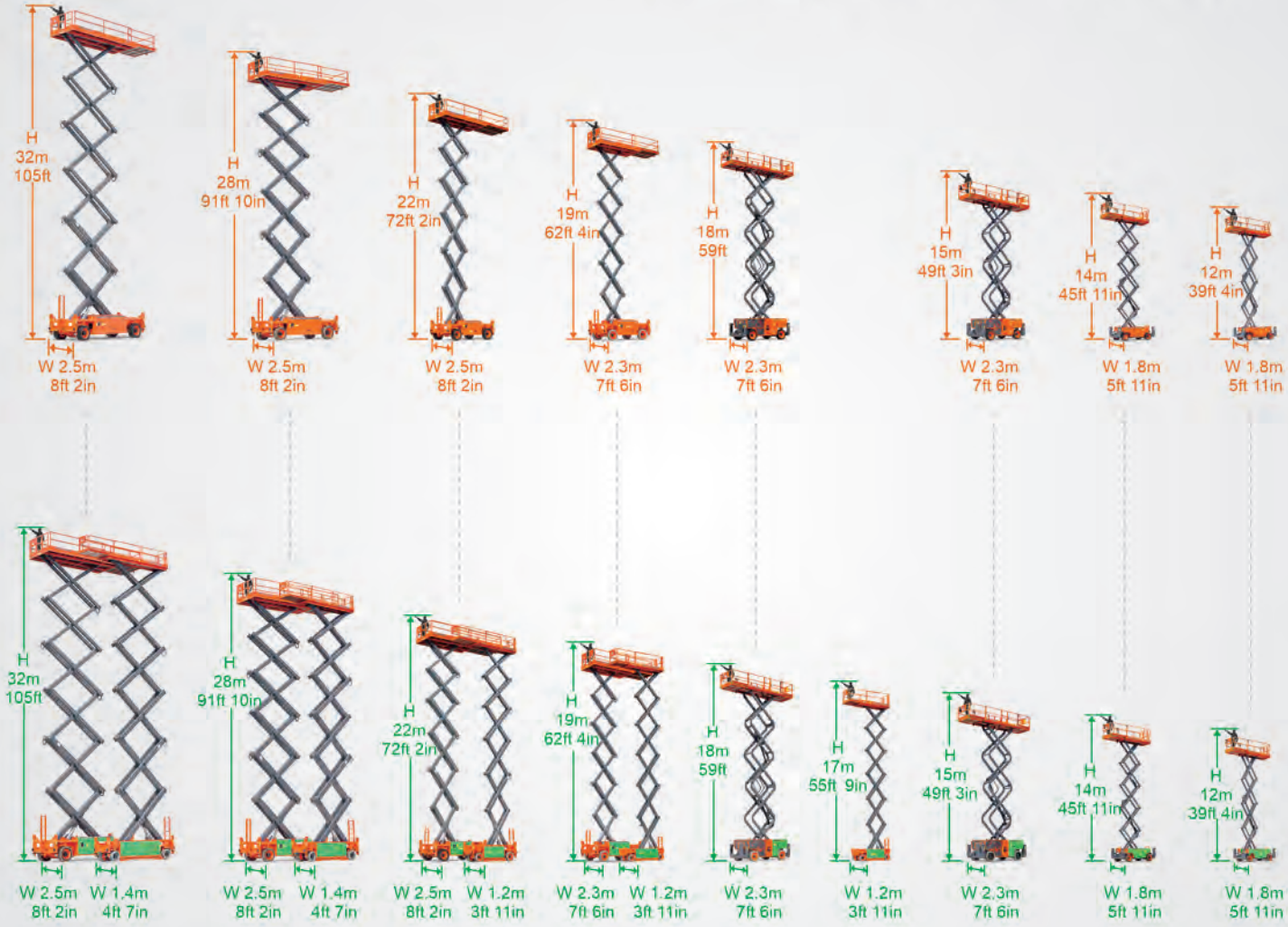

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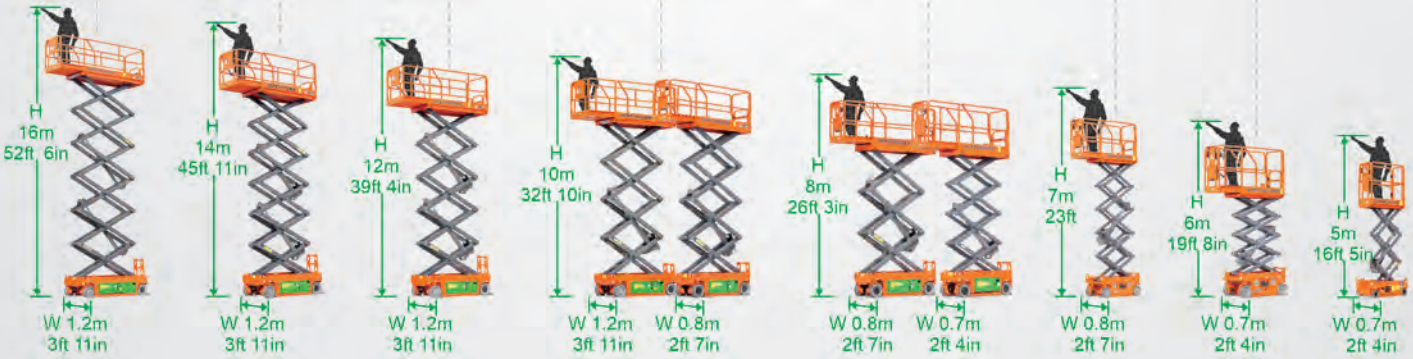

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India's first undersea rail tunnel to be built in Maharashtra

India's National High Speed Rail Corporation Limited (NHSRCL) has awarded a contract to Afcons Infrastructure Limited for the construction of a 21-km-long tunnel in the state of Maharashtra, which includes the country's first undersea rail tunnel featuring approximately 7 km long, as part of the Mumbai-Ahmedabad High Speed Rail (MAHSR) corridor.

The contract signing ceremony between NHSRCL and Afcons Infrastructure.

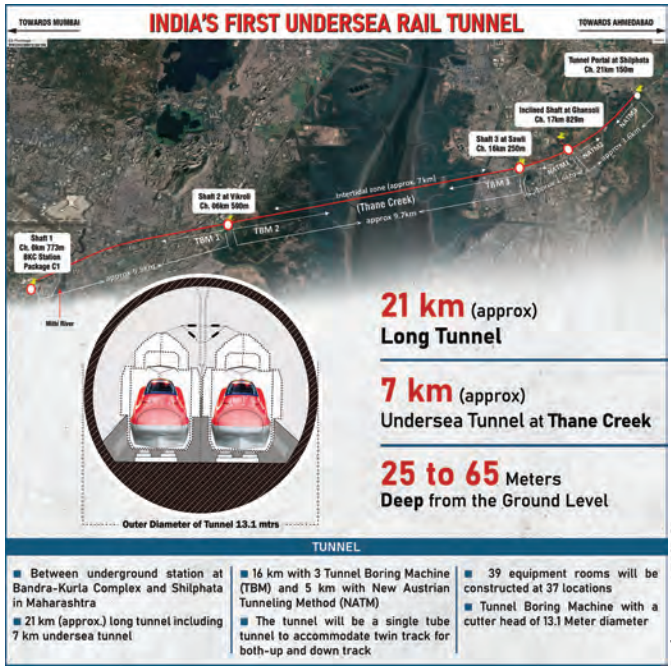
"Construction of a 21-km tunnel is one of the most challenging contracts of the Mumbai-Ahmedabad HSR corridor, which includes construction of the country's first twin-track undersea rail tunnel of 7 km at Thane Creek. Three tunnel boring machines and the New Austrian Tunnelling Method [NATM] will be used for the construction of this tunnel," said Shri Rajendra Prasad, managing director of NHSRCL.

According to NHSRC, the 21-km tunnel will run between the underground station at Bandra-Kurla Complex and Shilphata, with the 7-km undersea rail tunnel at Thane Creek (intertidal zone). It will be a single-tube tunnel to accommodate twin tracks for both up and down track. A total of 39 equipment rooms at 37 locations will also be constructed, as part of the package.

The tunnel will be around 25- to 65-m-deep from the ground level. Three tunnel boring machines (TBMs) will be deployed to create about 16 km of the tunnel portion, while the remaining 5 km will be built using the NATM method.

To construct this tunnel, TBMs with a cutterhead diameter of 13.1 m will be adopted, which NHSRCL said is quite different from the 5- to 6-m-diameter cutterheads normally used for urban tunnels in the MRTS – Metro system.

NHSRCL further revealed that three shafts at BKC (under package C1), Vikhroli and Sawli at approximate depths of 36, 56 and 39 m respectively will facilitate the construction of the project. An inclined shaft of 42 m at Ghansoli and a tunnel portal at Shilphata will facilitate the construction of the approximately 5-km tunnel. ■



Both images: NHSRCL

The first undersea rail tunnel in India will be approximately 7 km long, located at Thane Creek in Maharashtra.

New hydro-floating solar hybrid project in Thailand

The Electricity Generating Authority of Thailand (EGAT) has signed a contract with MPD Consortium, comprising Mitr Phol Energy Services Co Ltd, PEA Encom International Co Ltd and China's Dongfang Electric International Corporation, for the construction of a hydro-floating solar hybrid project at the Ubol Ratana Dam in Khon Kaen Province, Thailand.

According to EGAT, the new 24-MW facility will generate electricity from clean energy by using a hybrid system, which combines solar power and hydropower along with a battery energy storage system (BESS) to help stabilise electricity generation from renewable energy.

This new hydro-floating solar hybrid project marks another step forward for Thailand in achieving its goal of carbon neutrality by 2050, said EGAT. The authority further mentioned that it plans to develop an additional 15 hydro-floating solar hybrid projects nationwide, in order to support renewable energy demands sustainably according to the national policy. ■

Image: EGAT

The contract signing ceremony was held in May 2023 in Bangkok.

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Rubble Master opens new subsidiary in Singapore

Austria-based global manufacturer of mobile crushing and screening equipment, Rubble Master Group (RM Group), has expanded its presence in the Southeast Asian market with the opening of a new subsidiary in Singapore.

Founded in May 2023, the newly launched subsidiary – named Rubble Master SEA Pte Ltd – will further strengthen the company's network in Southeast Asia and across Asia, fostering a closer relationship with its dealers and customers in the region.

"The ambitious dealer network and our existing customers in Southeast Asia form the foundation for Rubble Master's future development together with our sales partners. Sharing continuous growth and development with our dealers and customers leads us to a very positive outlook and we are looking forward to interesting projects and successful co-operations in Southeast Asia," said Gerald Hanisch, CEO and founder of RM Group.

"The growing urbanisation and new infrastructure projects in Asia result in an increased demand for high-quality aggregates from recycling and natural rock applications. The new expansion in Asia is, therefore, a logical step we have made to be even closer to our dealers and customers. We provide customer-focused solutions, from small applications to entire machine trains," added Günther Weissenberger, managing director and CFO of RM Group.

The new subsidiary in Singapore will strengthen Rubble Master's network in Southeast Asia and across Asia.

New dealer in the Philippines

Apart from establishing the new subsidiary in Singapore, Rubble Master also recently appointed a new dealer in the Philippines, resulting in the initial sale of five RM machines.

"Rubble Master is delighted to appoint a new dealer in the Philippines, whose strategy goes hand-in-hand with RM values and the future outlook in the market. We are looking forward to a successful and prosperous partnership, as well as the great opportunities ahead of us," said Gerald Badegruber, area sales manager for Southeast Asia at RM Group.

The RM machine models ordered by the new dealer include the RM 100GO! and RM 120X crushers, plus the RM MSC8500M-3D and RM MSC10500M-3DR screens.

"The Rubble Master range of crushing and screening equipment is exactly what our customers in the Philippines are looking for, so we are excited to represent this innovative brand and its extensive range of solutions in the Philippines," continued Mr Badegruber. "Our sales, service and parts teams are already fully up to speed with the product range, so we are ready to hit the ground running. We are looking forward to supporting our customers and showing them what a difference Rubble Master can make to their operations."

The RM crushers and screeners are used worldwide for the recycling of construction and demolition waste as well as for the processing of natural stone. These machines are designed to be compact, extremely versatile and highly mobile, offering a small footprint, thus making them an excellent solution for both small operators and large consortiums. With an export rate of 96%, the RM Group is currently represented in more than 110 countries on all continents. It has 400 employees and around 110 sales partners. ■

Shanghai West Bund Financial Hub to be completed from 2026

Located at the core of Xuhui Waterfront in Shanghai, China, the new Shanghai West Bund Financial Hub will have a total development area of approximately 1.1 mil sq m. According to the developer, Hongkong Land, it is the largest single project investment ever made by the group.

The Shanghai West Bund Financial Hub is set to become a world-class commercial landmark, providing 650,000 sq m of Grade A office space, 240,000 sq m of luxury and retail space, 160,000 sq m of high-end waterfront residential apartments, as well as hotel, convention and cultural facilities. All the buildings have obtained LEED and WELL double platinum pre-certification, said Hongkong Land.

Construction of the project will take place in three phases. Phase 1 offers primarily residential properties, which are scheduled to be launched later in 2023. The serviced apartments and parts of the premium lifestyle retail areas are due to be launched by 2024.

Phase 2, which is planned to be delivered in stages between 2024 and 2026, consists of offices, a hotel, a convention centre and other cultural facilities. Phase 3 will comprise offices and luxury retail, plus a premium hotel and serviced apartments. Completion of the project is expected in stages from 2026 to 2027. ■

Image: Hongkong Land

The Shanghai West Bund Financial Hub will be built in three phases.

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IJM to build Shah Alam International Logistics Hub

IJM Corporation Berhad, through its wholly owned subsidiary IJM Construction Sdn Bhd, has secured a RM653.6 million contract for the design, execution and construction of phase one of the Shah Alam International Logistics Hub (SAILH) in Malaysia. The company said the project, commissioned by Global Vision Logistics (GVL), will establish the country's first green-certified logistics hub, one of the largest in ASEAN.

Located on a 71-acre site in Shah Alam, SAILH will feature cutting-edge logistics infrastructure, advanced technology and systems, and a range of sustainable elements, showcasing IJM Construction's commitment to sustainable development and innovative solutions that meet clients' evolving needs while contributing to environmental goals.

Phase one of SAILH comprises a four-storey warehouse complex, a four-storey multi-level parking facility, and a one-storey office alongside ancillary buildings, including testing and commissioning works. Construction is scheduled to commence in the third quarter of this year, with an estimated completion timeline of 26 months. Upon completion of phase one in 2025, the development will have a total net lettable area of 2.8 mil sq ft.

According to IJM, SAILH will incorporate eco-friendly features from construction to operational phases, prioritising energy efficiency, resource conservation, and environmentally-conscious practices. These include the use of low-carbon building materials during construction to the installation of solar panels, efficient water fittings and energy-efficient lighting, elevators and air-cooling systems.

"We are honoured to be entrusted with the design and construction of SAILH," said Lee Chun Fai, group CEO and managing director of IJM. "This project reaffirms our position as a leading player in the construction industry and showcases IJM's expertise in delivering sustainable and future-ready developments. Our partnership with GVL allows us to create a world-class logistics hub that not only aligns with our net-zero commitments but also sets new industry benchmarks."

Image: IJM

Construction of the project is scheduled to commence in the third quarter of this year. SAILH is said to be the first green-certified logistics hub in Malaysia and one of the largest in ASEAN.

Oh Kim Sun, chairman of GVL, further mentioned that SAILH "is set to achieve the local GreenRE Silver Rating and gain international recognition from the Excellence in Design for Greater Efficiencies (EDGE) Advanced and EDGE Zero Carbon certifications. These standards and certifications align with the United Nations Sustainable Development Goals and the World Green Building Council's commitment to developing buildings that produce as much (or more) energy than they consume or aim to achieve a net zero future." ■

Gammon awarded Hong Kong Cyberport expansion project

Gammon Construction has been awarded a HK$3.7 billion contract by Hong Kong Cyberport Management Company Limited, a wholly owned innovation and technology company of the Hong Kong government, to construct a new development at Cyberport.

As part of the contract, Gammon will be responsible for the construction of a new 10-storey building that will provide office space, a data services platform, a multi-functional hall and ancillary facilities, as well as enhancements to the adjacent Cyberport waterfront park.

To ensure an efficient project delivery, Gammon will deploy its 'G-Twin' technology, which will allow the team to monitor work progress, streamline workflows, and collect and analyse data from various sources to support faster decision making.

"We are delighted that Cyberport has once again selected Gammon to work with them on this expansion project," said Kevin O'Brien, chief executive of Gammon. "The contract follows on from our design and construction of the foundation and excavation works, and this latest award will see us deliver a complete end-to-end construction partnership.

"We look forward to participating in this important initiative, which seeks to attract more quality innovation and technology companies and start-ups to establish their businesses at Cyberport."

Image: Gammon

The new 10-storey building will provide office space, a data services platform, a multi-functional hall and ancillary facilities.

The main construction works will commence later this year, with completion scheduled by 2025. At construction peak, the project is expected to employ a workforce of more than 1,000 people. ■

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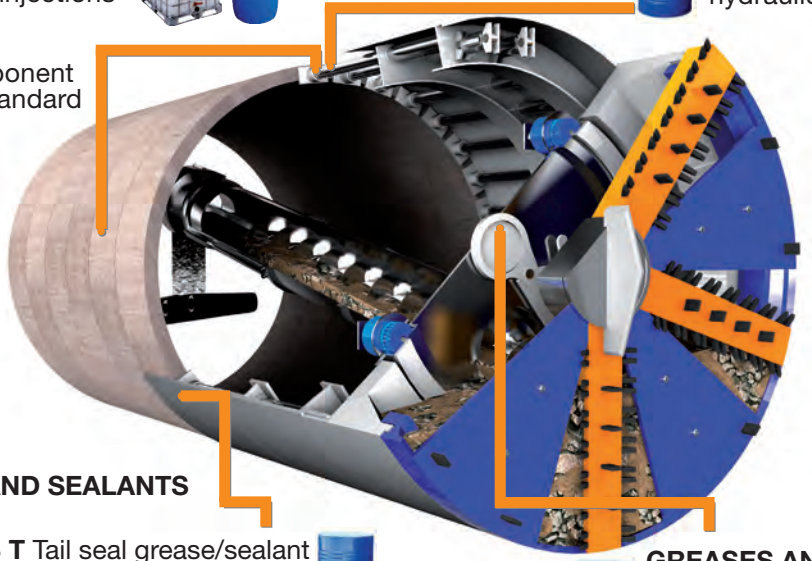

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CapitaLand unveils major development in Singapore

Singapore-based developer CapitaLand has unveiled the new 'Geneo' life sciences and innovation cluster at the 55-ha Singapore Science Park (SSP). It will comprise three properties with five buildings, covering about 180,600 sq m of gross floor area (GFA).

One of the properties is 1 Science Park Drive, which will have three Grade-A buildings, offering about 112,600 sq m of workspace as well as 3,600 sq m of retail and F&B amenities. It is targeted for completion by 2025.

Another property is 5 Science Park Drive, a future-ready business park building featuring collaborative workspaces and lifestyle amenities with a total GFA of about 25,600 sq m. It was already completed in 2019.

The third property is 7 Science Park Drive, a mixed-used complex scheduled for completion in 2024. It will house about 28,800 sq m of workspace and 10,000 sq m of serviced residence with a hotel licence.

LEFT: **The new 'Geneo' life sciences and innovation cluster is expected to be fully completed by 2025.**

BELOW LEFT: **The 27-m-high event plaza at Geneo is set to become Singapore's tallest mass engineered timber (MET) canopy structure.**

BELOW: **Geneo will be CapitaLand's first project to adopt carbon dioxide mineralised concrete.**

All images: CapitaLand

Sustainable construction

According to CapitaLand, to lower the embodied carbon footprint of the development, mass engineered timber (MET) harvested from sustainably managed forests will be used to construct the canopies and columns at the event plaza.

Compared to traditional construction materials, MET produces relatively lower net carbon emissions, with an estimated embodied carbon savings of 88% over steel and 63% over concrete, explained CapitaLand. When completed, Geneo's 3,000 sq m all-weather event plaza measuring 27 m in height is set to become Singapore's tallest MET canopy structure.

In addition, certified Singapore Green Building Product (SGBP) materials such as green concrete, architectural finishes and M&E equipment will be used in the construction of Geneo. These are to help improve indoor air quality and minimise energy consumption, making it healthier and more cost-effective for building occupants.

CapitaLand revealed that Geneo will be the company's first project to adopt carbon dioxide mineralised concrete, and the first project in Singapore to apply this green concrete for superstructure works including vertical elements, resulting in an estimated 28% reduction in embodied carbon. Carbon dioxide mineralised concrete is a type of low-carbon sustainable concrete that uses carbon capture and utilisation technology to chemically convert carbon dioxide into a mineral embedded in concrete, producing harder concrete.

What's more, instead of diesel generators, a battery energy storage system will be deployed at Geneo's construction site to power construction machinery, lowering carbon emissions by about 78% while maintaining a productive worksite.

Other green features

The 7 Science Park Drive has achieved the BCA Green Mark Platinum Super Low Energy certification from the Building and Construction Authority (BCA). It is the first CapitaLand greenfield project and first SSP property to be accorded this certification. Meanwhile, the other two properties at Geneo have obtained the BCA Green Mark Platinum certification.

Geneo is provisionally designed to achieve energy savings of about 13 mil kWh per year, equivalent to powering the annual electricity consumption of over 3,343 four-room HDB flats, said CapitaLand. Key sustainability features include SSP's first distributed district cooling network in partnership with SP Group, plus 1,400 rooftop photovoltaic solar panels that generate an estimated 1.1 mil kWh of renewable energy each year – equivalent to powering the annual electricity consumption of 236 four-room HDB flats.

CapitaLand further highlighted Geneo's design strategies, which aim to maximise building users' comfort while minimising energy use. For instance, the closely knitted u-shaped arrangement of the various buildings and the design of their accordion facade help to block out sunlight, thus reducing the amount of heat trapped within the buildings. With a total landscape area of more than 21,000 sq m, equivalent to about 33% of its site area of about 64,000 sq m, Geneo's abundant greenery further reduces the urban heat island effect while enhancing SSP's biodiversity.

Moreover, water-efficient fittings will be adopted throughout Geneo and rainwater will be harvested for non-potable uses. An auto-irrigation system will also be employed to optimise water usage for landscaping. With these provisions, CapitaLand said Geneo's estimated annual potable water savings will be sufficient to provide the water supply for 190 four-room HDB flats for a year. ■

Vietnamese contractor Coteccons signs MOU with Microsoft to accelerate digital transformation

One of Vietnam's leading contractors, Coteccons, has signed a three-year memorandum of understanding (MOU) with Microsoft Vietnam to accelerate its digital transformation effort by leveraging the power of artificial intelligence (AI) and cloud technology.

"We would like to be one of the first examples in how to digitalise the construction industry in Vietnam. We recognise that there is an urgent need to apply established technologies and techniques in new ways in order to improve not only management efficiency and productivity, and ultimately the welfare of stakeholders, but also ESG performance," explained Vo Hoang Lam, CEO of Coteccons.

"Coteccons decides to take the journey to the cloud. We are looking for a trusted technology partner who can help accelerate the growth strategy and do more with fewer resources, enabling us to focus on innovation. We are confident about this collaboration with Microsoft as the backbone of our digital journey."

Through this strategic collaboration, Coteccons will leverage Microsoft technology and solutions to accelerate its digital transformation in four areas: helping the company engage with its customers better; landing secured modern workplace; optimising the company's operations; and transforming its products and services.

According to Coteccons, the company's digital core needs to be equipped to handle technology innovation for competitive advantage, and to build next generation platforms and scalable infrastructure, modern and modular architecture along with data security, compliance and privacy requirements.

Coteccons will conduct a comprehensive assessment of its current data centre infrastructure with the help of Microsoft including hardware, software, networking and security systems, then analyse its existing data centre operations, vulnerabilities and provide recommendations for improvements.

Coteccons will also apply the design cloud reference architecture for modern infrastructure and platform as a service to unlock the benefits of cloud computing, such as scalability, cost efficiency and improved agility. The company added that it will implement and migrate its current workloads to Microsoft Azure for better performance, operations and centralised management. Coteccons plans to use Microsoft Power Platform to accelerate its business automation and digital transformation to better provide its professional design & build solution in the construction industry.

Moreover, Coteccons will establish a modern workplace with the AI-empowered Microsoft 365, which enables the company to significantly improve experience, productivity and development for its 2,000 employees, especially the frontline workers' communication and collaboration. Coteccons said it will also integrate Microsoft Zero Trust security solutions to create a more secure workplace, which can protect and manage its employees' identity, device and all data across the company.

Under the MOU framework, Coteccons will invest resources to work with and build projects that can leverage the strength of Microsoft technologies and solutions. At the same time, Microsoft will provide training to Coteccons employees on Microsoft technologies, ensuring they have the necessary skills to use, manage and maintain the system. ■

Image: Coteccons

The MOU signing ceremony between Coteccons and Microsoft Vietnam.

Vermeer opens new global parts distribution centre

Vermeer has opened a new global parts distribution centre to support its customers and dealers around the world. The company's team members will package and ship parts worldwide from the facility, which is located on the grounds of the corporate headquarters in Pella, Iowa, the US.

"Vermeer is focused on optimising this facility so we can most efficiently deliver the right part at the right time to our customers," said Tony Briggs, vice president of the Vermeer Lifecycle product group. "This facility allows customer support, engineering, procurement and logistics to be co-located. They work in conjunction with our operational team members to make sure we fulfil customer and dealer expectations daily."

The location of the global parts distribution centre leverages the manufacturing capabilities of the Vermeer mile, where most Vermeer products are assembled.

"Almost 1/3 of the warehouse is filled with parts made by different manufacturing plants on the Vermeer mile. It is very convenient for us to be located near the manufacturing facilities that supply those parts. Ultimately, we bundle the Vermeer-manufactured parts with other parts and ship the orders around the world to take care of our customers," explained Mr Briggs.

Three times more space than the previous building, the new 312,000-sq-ft global parts distribution centre includes 23 dock doors, a warehouse management system and improved warehouse technology. This investment will help drive efficiency by centralising parts storage.

"With people at the centre of everything we do, this new facility helps our team members equip dealers and support customers and that ultimately makes a real impact on their ability to get important work done," said Jason Andringa, Vermeer's president and CEO.

Vermeer's new global parts distribution centre will support its customers and dealers around the world.

The new global parts distribution centre is the second facility Vermeer has opened in 2023. Earlier this year, the company expanded its parts manufacturing footprint in Des Moines, Iowa. That facility manufactures horizontal directional drill (HDD) tooling and utility tractor attachments.

As the number of products and markets Vermeer supports expands, the company continues to invest in its aftermarket efforts to meet the needs of a global economy. ■

Skyjack names new president, Ken McDougall to retire

Global aerial platform manufacturer Skyjack has appointed Charlie Patterson as its new president, effective 1 January 2024. He will succeed Ken McDougall, who will retire at the end of the year. They will be working together over the next several months to facilitate a smooth transition.

Mr McDougall started his career at Skyjack's parent company Linamar in 1987 as a tool designer, moving up into various key roles including global sales and estimating manager, and vice president of operations. His tenure also saw the acquisition of two telehander lines from Carelift/Zoom Boom and Volvo, a crucial foundation for the company's existing telehandler line up.

More recently, Mr McDougall led Skyjack's immense global capacity increases. Taking the number of manufacturing plants from two in Canada to five globally, Skyjack's potential global unit capacity is expected to increase 235% when compared to 2022. In addition, Mr McDougall's tenure saw a number of successful Skyjack product launches, such as the Elevate telematics system as well as updated boom and vertical mast lines.

Current president of Skyjack, Ken McDougall (left), will retire at the end of the year. Charlie Patterson (right) will take over as new president.

"It has been an honour to serve as Skyjack president during this period of immense growth and transformation. 2023 marks my 36th anniversary with Linamar and Skyjack, and over those years, I have had the great pleasure of working for and with countless talented and dedicated individuals," said Mr McDougall, two-time Skyjack president. "I am confident that with his experience, knowledge and leadership skills, Charlie Patterson will do an outstanding job in moving Skyjack forward."

Currently vice president of international operations, Mr Patterson started with Skyjack in 2000 as UK sales manager and went on to head the UK and European operations for the company. He oversaw the opening of Skyjack offices in the UK, Germany, France, Sweden and Australia and previously led sales in Asia Pacific.

"I am thrilled and honoured to take on the role as Skyjack president," said Mr Patterson. "Ken has done an exceptional job moving Skyjack forward to date, and I look forward to continuing to build upon that momentum. As always, Skyjack will be dedicated to being easy to do business with, while developing simple and reliable solutions for rental companies worldwide." ■

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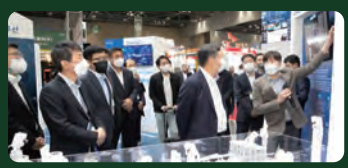


CALENDAR OF EVENTS

// Events in Asia

WOCA (World of Concrete Asia)
10 to 12 Aug 2023
Shanghai New International Expo Centre
Shanghai, China
Website: https://en.wocasia.cn

K-Con Safety Expo (Korea International Construction & Industrial Safety Expo)
13 to 15 Sept 2023
Korea International Exhibition Centre
Goyang, South Korea
Website: www.k-consafetyexpo.com

CBA Expo (ConsBuild Asia)
13 to 15 Sept 2023
Bangkok International Trade & Exhibition Centre
Bangkok, Thailand
Website: www.consbuildasia.com

BCT Expo (Building Construction Technology Expo)
20 to 22 Sept 2023
Impact Exhibition and Convention Centre
Bangkok, Thailand
Website: www.bct-construction.com

BICES
20 to 23 Sept 2023
China International Exhibition Centre (New Venue)
Beijing, China
Website: www.e-bices.org

Infrastructure Connect!
1 to 3 Nov 2023
Indonesia Convention Exhibition
Tangerang, Indonesia
Website: www.infrastructureconnect.id

Philconstruct
9 to 12 Nov 2023
SMX Convention Centre Manila &
World Trade Centre Metro Manila
Metro Manila, The Philippines
Website: www.manila.philconstructevents.com

Excon India
12 to 16 Dec 2023
Bangalore International Exhibition Centre
Bengaluru, India
Website: www.excon.in

Geo Connect Asia
6 to 7 Mar 2024
Sands Expo & Convention Centre
Marina Bay Sands, Singapore
Website: www.geoconnectasia.com

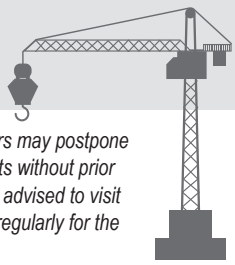
Trenchless Asia
26 to 27 June 2024
SMX Convention Centre Manila
The Philippines
Website: www.trenchlessasia.com

bauma China
26 to 29 Nov 2024
Shanghai New International Expo Centre
Shanghai, China
Website: www.bauma-china.com

// Events outside Asia

World of Concrete
23 to 25 Jan 2024
Las Vegas Convention Centre
Las Vegas, Nevada, USA
Website: www.worldofconcrete.com

bauma
7 to 13 Apr 2025
Munich Trade Fair Centre
Munich, Germany
Website: www.bauma.de



Note: *The organisers may postpone or cancel their events without prior notice. Readers are advised to visit the event websites regularly for the latest update.*

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Reports rise but fatality rate falls, IPAF global safety report shows

Despite reports increasing over the past year, the fatality rates of the leading types of accidents have declined – an encouraging sign that collective action across the powered access industry to tackle key underlying causes of accidents is starting to take effect, according to the latest report from the International Powered Access Federation (IPAF) based on analysis of incidents logged through its accident reporting portal.

Launched via webinar on 28 June, the IPAF Global Safety Report 2023 analyses the latest data collected via the IPAF portal (www.ipafaccidentreporting.org) covering the period 2013-2023, focusing particularly on year-on-year trends to identify how well the industry is doing in tackling the key causes of accidents involving powered access.

While mobile elevating work platforms (MEWPs), mast climbing work platforms (MCWPs) and construction hoists are statistically among the safest ways to work at height, this year's report shows that in 2022 there were 759 reports of safety incidents from 34 countries, up 15% and 21% respectively. There were 831 people involved, and 102 deaths reported, a decline of around 19% on 2021, when there were 126 fatalities.

In terms of incidents resulting in deaths or major injury, falls from the platform remained the most common underlying cause, with overturns second. Hit by machine, vehicle or object was third, entrapment fourth and electrocution or electric shock fifth. Mechanical failure was joint seventh with falls from height (no machine involved) – a notable reduction following a spike in reported incidents across 2021.

In 2022, the main sectors from which reports were received were rental activity, construction, and facilities management. There were 45 fatalities and 39 major injuries in construction – a decrease in the number of fatalities reported in 2021, when there were 55 deaths. In facilities management there were 15 fatalities, down on 2021, and rental activity saw three fatalities in 2022, the same as in 2021, and 19 major injuries. The top MEWP categories involved were 3a-type machines with 217 incidents (26%), followed by 3b types on 197 (24%), and 1b vehicles on 152 (18%). Compared to 2021, 3a MEWPs saw 60 more reports, to replace 3b machines for the most reports.

Brian Parker, IPAF's head of safety and technical, commented, "When we look at the data from 2022 and the key trends and annual changes, there are some encouraging signs. For one, reporting has increased, both in terms of the number of reports received in total and countries reporting; up from 692 reports from 28 countries in 2021 to 831 (and counting) from 34 countries worldwide in 2022.

"There are now more countries where IPAF members are mandated to report all incidents into the portal, and the three countries where it is a requirement of membership have seen increased reporting over the past three years. Reporting companies can also benefit from new dashboards to benchmark safety performance.

"The other key statistic is that, while reports have increased, the number of deaths has fallen. In 2021 there were 126 deaths reported, the same as in 2020. However, in 2022, that number was 102 – this means the effective fatality rate among reported incidents has reduced by around one fifth (19%). This is cause for cautious optimism.

The IPAF Global Safety Report 2023 analyses the latest data collected via the IPAF accident reporting portal covering the period 2013-2023, focusing particularly on year-on-year trends to identify how well the industry is doing in tackling the key causes of accidents involving powered access.

"It is not yet possible to directly measure the impact of industry safety campaigns and the introduction of new safety and technical guidance or updates to training. But it is nonetheless encouraging to think campaigns such as IPAF's Don't Fall for It! or High Voltage! along with key technical guidance documents may have helped to save lives or reduce the risk of accidents leading to life-changing injury since being published."

Peter Douglas, CEO and managing director of IPAF, said, "IPAF continues to empower all operators and supervisors to report incidents quickly, easily and, if so wished, anonymously via its ePAL app. We hope this unlocks widespread reporting of accidents, as well as minor and near-miss incidents that often go under-reported.

"I would like to again thank all those who make this report possible: The IPAF International Safety Committee (ISC) – and in particular, Mark Keily, who after two years as chair will step down to make way for Alana Paterson, the vice chair – the IPAF team, and of course all those who continue to input reports into IPAF's portal. Only by gathering this data from all corners of the globe, wherever powered access is used, can we continue to produce this report, and to drive all the initiatives IPAF leads on to make our industry as safe as possible."

Mark Keily, SHEQ director at Sunbelt Rentals Ltd and chair of IPAF's ISC, added, "We can never be complacent. Even while, statistically speaking, our industry becomes safer year on year, we cannot accept that accidents will happen when using powered access equipment. We hope that by highlighting the sometimes stark warnings that the analysis in the report raises, we can pull together to shift the dial on safety awareness.

"We all must keep banging the drum for better and wider incident reporting worldwide, including minor incidents and near misses, which we know are so very valuable for helping analyse trends and preventing the more serious accidents occurring." ■

IPAF signs safety agreement with Korea Crane Association

The International Powered Access Federation (IPAF) has signed a memorandum of understanding (MOU) with the Korea Crane Association (KCA) for closer co-operation in the realm of work at height safety. The MOU was signed in May 2023 by Romina Vanzi, IPAF's head of regional development & MCWPs, and One-Kyu Chung, chairman of KCA.

The signing of this MOU is said to be the first of its kind in South Korea, where IPAF has steadily been increasing its profile since appointing Roberto Kim as a dedicated representative for the country in early 2020.

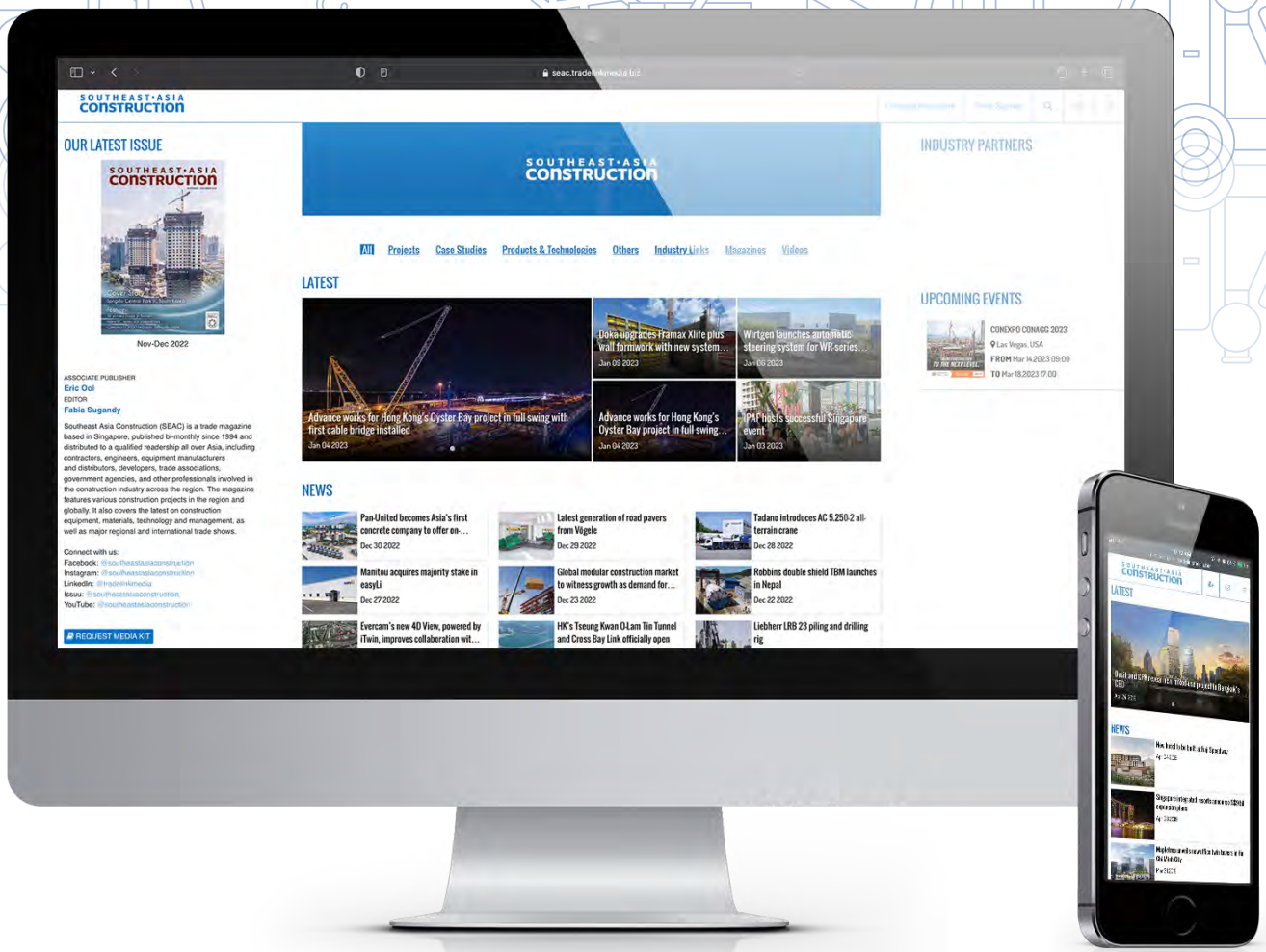
Among the MOU's objectives are a commitment for the two organisations to co-operate in the Korean powered access industry to promote and enable the safe and effective use of mobile elevating work platforms (MEWPs), to aid companies in achieving compliance with legislation, national and international standards, expanding quality training, and to jointly participate in relevant exhibitions, conferences and seminars.

The announcement also means that the KCA is set to open an IPAF training centre in Korea, following the Korea Rental Corporation, which was accredited as the first IPAF training centre in Korea in 2018 – just one example of how the MOU will further enable the wider promotion of quality MEWP operator training in the country.

With this MOU, IPAF and KCA will co-operate closely to promote work at height safety in the Korean powered access industry.

Ms Vanzi said, "The powered access industry in Korea is similar in size to that of the UK; IPAF has been working to increase the profile of quality training and industry safe practice in Korea since before the pandemic, so this link-up with the Korea Crane Association is an important step forward in spreading the safety message and building engagement with end users of powered access equipment.

"The agreement has been signed and will run for five years before it needs to be renewed; we very much look forward to working with the KCA to further promote work at height safety, quality training and offer each other mutual support at industry events." ■



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Thailand's CBA Expo 2023 to take place in September

CBA Expo, also known as ConsBuild Asia, will be held from 13 to 15 September 2023 at the Bangkok International Trade & Exhibition Centre (BITEC) in Bangkok, Thailand.

Organised by MB Global Marketings, the event will showcase a variety of machines, tools, equipment, technologies and innovations for the construction, building and mining industries. It is expected to attract over 4,000 trade buyers from Thailand and neighbouring countries, such as Cambodia, Vietnam, Myanmar and Laos.

CBA Expo 2023 aims to help enhance work efficiency and contribute to increased productivity in the Thai construction market, particularly in response to the challenges posed by the Covid-19 pandemic, said MB Global Marketings.

The organiser shared that the Economic Intelligence Centre of Siam Commercial Bank Public Co Ltd has predicted that the value of public sector construction in 2023 is expected to expand, reaching 817,0000 million baht, driven by the continuous construction of mega-projects and the progress made in previous projects. Additionally, there will be new project tenders and construction. The investment budget for the year 2023 is also expected to increase.

The value of private sector construction in 2023 is projected to expand to 586,000 million baht, added MB Global Marketings. This is mainly driven by residential and commercial real estate construction, including office buildings and retail spaces, as well as renovation of retail spaces and hotels to accommodate the recovery of domestic purchasing power and international tourists.

According to MB Global Marketings, OCR Co Ltd, a local distributor of heavy machinery from China-based XCMG, will be joining the CBA Expo to showcase its innovations, such as electric-powered machines that address environmental sustainability. "The current construction industry is on the rise after slowing down during the pandemic, which brings new challenges that entrepreneurs must adapt to and [they] look for new technologies to apply to the business," said Sirapop Tantitham, managing director of OCR.

Tun Engineering Co Ltd, a local distributor of concrete mixing equipment under the KPT brand and Sicoma concrete mixers, will also take part in the event. Other exhibitors will include Midland Co Ltd, an expansion of the Hiab crane brand; SCS Fabrication Co Ltd, a manufacturer and distributor of hoists, accessories and structural components for construction and mining machinery; and Cobiax Deutschland GmbH, a technology and innovation manufacturer based in Germany, to name a few. ■

Website: www.consbuildasia.com

ABOVE: **OCR Co Ltd, a local distributor of XCMG equipment, will be joining the CBA Expo to display several innovations, such as electric-powered machines (pictured).**

BOTTOM LEFT: **Tun Engineering Co Ltd, a local distributor of concrete mixing equipment under the KPT brand and Sicoma concrete mixers (pictured), will also be exhibiting at the CBA Expo.**

New milestone for Caterpillar Rayong Thailand Tractors

Caterpillar Rayong Thailand Tractors (CRTT) has reached a new significant milestone, marking its 10 years of operations. In March, a ceremony was held to recognise this achievement. Caterpillar said the event was dedicated to the many employees and their families who play a crucial role in the facility's success.

Established in 2011, CRTT is a Caterpillar manufacturing hub located in Rayong province, Thailand, building medium track-type tractors for customers around the world. In April 2013, the facility rolled out its first model. Since then, it has produced and supplied over 8,000 machines to customers worldwide.

"CRTT is continuing Caterpillar's legacy which has made us proud over the past decade and will continue into the future. The team's hard work, innovation and perseverance have greatly contributed to the growth of the company," said Phongphan Luanmuang, general manager of CRTT.

"Our talent has also greatly impacted the medium tractor facility's reputation of being a high flexibility, low-cost producer and remain competitive in the market. CRTT will continue to grow and is committed to delivering top-quality products and services to our customers with the help of our amazing teams."

Caterpillar added that beyond operations, CRTT is heavily involved with the local communities. Employees volunteer their time to help those in need, promote reforestation, agriculture gardens and English language classes. As a testament to the commitment to corporate social responsibility, they have received AMCHAM (American Chamber of Commerce in Thailand) Corporate Social Responsibility (CSR) Excellence Recognition Gold Award for eight consecutive years. ■

Website: www.cat.com

TOP: **The Caterpillar Earthmoving leadership team visited the CRTT facility to mark its 10th anniversary. Established in 2011, CRTT manufactures medium track-type tractors for customers around the world.**

MIDDLE AND RIGHT: **The 10th anniversary ceremony took place earlier in March, during which all models were on display at the tractor exhibition.**

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BCT Expo to support digital transformation in construction

Building Construction Technology Expo (BCT Expo) will return to Bangkok, Thailand, from 20 to 22 September 2023, taking place at the Impact Exhibition and Convention Centre. The event is expected to draw more than 150 exhibitors and attended by over 4,000 trade visitors from Thailand and surrounding ASEAN region.

As in last year's edition, BCT Expo 2023 will be themed 'Towards digitalisation of the building and construction industry – are you ready?', supporting digital acceleration changes in every aspect of the building and construction industry through the application of digital technologies.

Impact Exhibition Management Co Ltd, the organiser of BCT Expo, revealed that "despite squeezed by labour shortages, rising material costs and digital disruptions, Thailand's construction industry is still a slow adopter of technology.

"Globally, the increasing use of technologies like artificial intelligence (AI), Internet of Things (IoT) and augmented reality (AR), has shown that construction companies must invest in and adopt technology in order to stay competitive."

LEFT, BELOW LEFT AND BELOW: **BCT Expo 2023 will focus on the theme 'Towards digitalisation of the building and construction industry – are you ready?', supporting digital acceleration changes in every aspect of the building and construction industry.**

The company added, "IoT has proven to be beneficial for an industry that is facing multiple major challenges, such as large construction sites to manage, labour shortages, tight timelines, hazardous working conditions, strict health and safety protocols, rising costs, etc. Combined with related emerging technologies such as building information modelling (BIM), 3D printing, AI and robotics, precise measurements, big data and digital tools, the IoT-driven technologies are instrumental in helping construction companies to increase efficiency of projects, and more importantly improve profit margins."

The Thai Building Information Modelling Association (TBIM) is at the forefront of encouraging Thailand's construction sector to hasten its adoption of technology. "The mission of TBIM is to act as a medium to develop and disseminate good BIM standards for Thailand's construction industry. TBIM aims to develop national BIM standard protocols, become the centre of BIM knowledge sharing, and promote BIM international collaborations," said Dr Sant Chansomsak, president of TBIM.

BCT Expo is supported by the Thai government and industry associations, including the Ministry of Transport, Department of Public Works and Town & Country Planning, Department of Rail Transport, Thai Contractors Association under H.M. The King's Patronage, and TBIM.

"BCT Expo 2023 is set to provide the regional construction industry and market with a dedicated face-to-face international forum to meet, discuss and exchange views, learn new knowledge and trends, forge new business deals, network, and address issues of digital disruptions and transformation impacting the industry today," concluded Loy Joon How, general manager of Impact Exhibition Management. ■

Website: www.bct-construction.com

ABOVE AND BELOW: **A wide range of technologies, digital solutions, machines and equipment will be presented at the event.**

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New Hamm Tier 3 HC-series soil compactors

In mid-2023, Hamm will launch new models of its UN ECE R96 (Tier 3)-compatible soil compactors. A total of six models of the HC-series will be introduced, comprising the HC 208 D, HC 208 P, HC 228 D, HC 228 P, HC 268 D and HC 268 P, each with a weight of either 20 t, 22 t, or 26 t.

Manufactured at the Wirtgen factory in China, the new soil compactors have a working width of 2,140 mm and will be available in Southeast Asia, Africa and the Middle East. They are suitable for a wide range of stabilisation, earthworks and CBT applications, compacting different types of material.

These new HC-series models combine high compaction quality with easy operation and maintenance. Several optional features are also available, so customers can select machines that match their requirements.

To achieve excellent compaction performance, all new models use a highly efficient Cummins engine with a rated output of 154 kW. The engine complies with the UN ECE R96 (Tier 3) specifications and is fuel-efficient. The innovative cooling system, in which the cooling air is drawn in from behind the operator platform and emitted at the rear, provides an optimised air supply and increases the lifespan of the power packs. It also prevents hot air from reaching the operator platform.

Hamm soil compactors come with an ergonomically designed operator platform, which provides a high degree of comfort as well as all-round visibility that gives an unrestricted view to the rear, the tyres and the surroundings for greater safety on the jobsite. The machines can be optionally equipped with a cabin featuring heating and air conditioning. Alternatively, they are available with a canopy. In both cases, a spacious platform has ample legroom and allows individual adjustment of the seat and steering wheel. A user-friendly operating panel features a clearly designed information display and intuitive operation using international symbols.

Displays for engine RPM and drive speed are standard equipment for the Chinese market. The Hamm compaction meter (HCM) for obtaining quick information on compaction progress can be added optionally. High-power LED working lights are another optional feature, generating enhanced visibility.

A drum drive helps in scaling gradients of up to 61% with confidence, while a three-point articulated joint provides outstanding driving and steering characteristics, guaranteeing unsurpassed directional stability and driving comfort. The chassis design ensures homogeneous weight distribution across the drum and the wheels – even at the full steering angle. Moreover, the new soil compactors can effectively absorb impacts, even on rough terrains, and can also handle tilting when driving along curves.

The Hammtronic electronic machine management system is standard in all soil compactors of the HC series, enabling optimised load distribution that leads to tremendous gradeability and low fuel consumption. It adjusts the diesel engine speed to meet the power requirements of the individual drives.

In addition, the efficient Eco mode delivers fuel savings of up to 20% and results in reduced CO2 and noise emissions. The new machines also offer manual traction control to transfer the torque as required. As an option, customers can choose models with a differential gear for even greater traction.

The HC-series compactors produce a consistently high compaction performance, regardless of whether they are equipped with a smooth drum or padfoot drum ('P' models). Customers who need both drum types can use the optional padfoot shell kit, consisting of three components. This enables easy conversion of the smooth drum to a padfoot drum, making it ready to compact cohesive soil.

When it comes to maintenance, the new models offer a huge advantage in terms of their engine, since this is freely accessible from all sides. The key points for daily checks are also located on one side of the machine, and the hood opens towards the operator platform via gas springs, all of which make maintenance tasks fast and uncomplicated. ■

Website: www.wirtgen.com

Hamm supports operators with a clearly designed, language-neutral display, ensuring safe handling of the compactor without the need for any special language skills.

The new Hamm HC-series soil compactors will be available in Southeast Asia, Africa and the Middle East. The machines feature a weight of 20-26 t, 154 kW engine (Tier 3) and working width of 2,140 mm.

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Bauer launches cutter system for confined jobsites

Bauer has introduced its new BCS 185 cutter system, which can cut trenches up to a depth of 90 m. The company said the innovative design of its BCS systems combines proven technology with a vast variety of other useful features as well as the necessary modularity for today's ever stricter transport requirements.

"Our multi-functional MC duty-cycle cranes are used for a wide range of applications, first off as base carriers for our cutters and grabs, but also for lifting work or dynamic soil compaction," explained Leonhard Weixler, head of the diaphragm wall division at Bauer Maschinen. "For anyone who doesn't require this multi-functionality but needs equipment that is specially optimised for trench cutting, we have extended our BCS portfolio with the newly developed BCS 185. And the feedback from our customers is excellent."

The BCS 185's base carrier is a Bauer MT 185, which offers high stability and comprehensive HSE features, including a rear-view camera, integrated service platforms and an ergonomic, comfortable cab layout. The inner workings of the cab are identical to the Bauer duty-cycle cranes. Various electronic assistance systems (integrated into the latest version of the Bauer B-Tronic system) support the operator effectively and increase productivity at the same time. The MT 185 is equipped with a fuel-efficient Volvo engine that complies to all different emissions standards worldwide.

The BCS 185 is also available with the Bauer Turning Device, which allows this cutter to work in extremely confined construction sites and will still be able to 'cut the corners'. "This is making the difference in today's cutter operations," said Mr Weixler. It enables the cutter to be twisted between -50 and +95 degrees from its normal position to reach every corner in the excavation pit without a problem. Together with the overall compact dimensions of the BCS 185, the range of efficient cutter applications under restricted space conditions is further enhanced.

Another highlight is the arrangement of the hose drums in the boom, thanks to which the cutter system delivers a highly streamlined impression overall. The 30 t winch has been specifically designed for use in the mid-sized range. With a maximum hook load of 43 t, the BCS 185 can be equipped with a wide selection of Bauer cutters allowing trench widths of up to 1,500 mm. According to Bauer, this cutter system is not subject to crane permit regulations, hence any requirements for the operators are eliminated.

The new BCS 185 cutter system already started its operation in the south of China, revealed Bauer. It had been shipped to the construction site beginning of June and was assembled in a record time of only 22 hours. The first unit in Europe will soon travel to the French city of Toulouse. ■

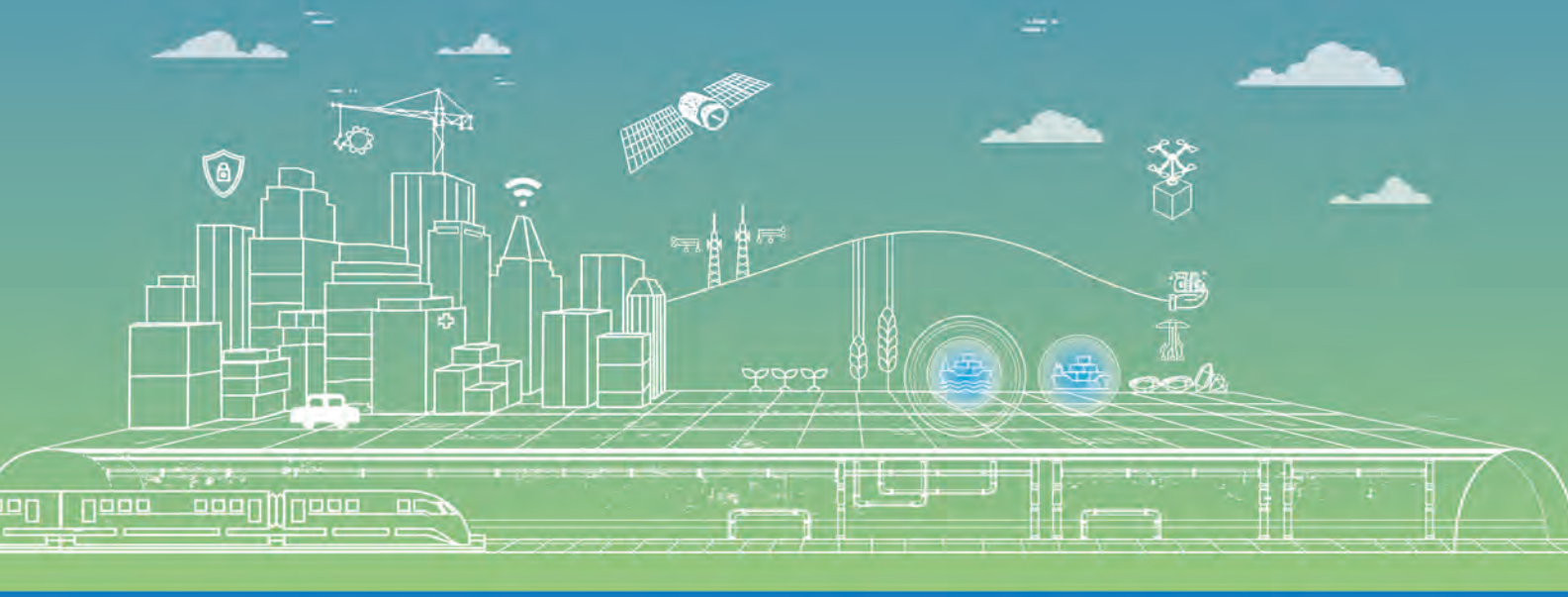
Website: www.bauer.de

Both images: Bauer Group

LEFT: **The new Bauer BCS 185 cutter system can cut trenches up to a depth of 90 m. One of its highlights is the turnable HDS 90-T hose drum system.**

ABOVE: **The BCS 185 has started its operation in the south of China.**

GEO CONNECT Asia 2024



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Compact, efficient Vermeer mini skid steers

The Vermeer CTX100 mini skid steer is designed with vertical lift boom arms – which keep the load closer to the machine – offering a higher lift capacity than a similarly-sized radial lift machine. Vermeer has also increased the hinge pin height to 227.33 cm to make loading materials into a brush chipper, truck or trailer more efficient.

The CTX100 features a tipping capacity of 1,334 kg and a rated operating capacity of 467 kg. The machine is equipped with a universal mounting plate to power a variety of attachments. It comes standard with dual auxiliary hydraulic controls, which range from 30.6 l/min up to 58.7 l/min depending on the demand of the attachment.

Like other models in the Vermeer compact utility loader lineup, the CTX100 also has a chariot-style, ride-on platform. The enhanced operator station features a single, pilot-operated joystick for smoother operation. The spring-cushioned platform keeps operators out of the mud and debris and provides additional support when working in rough terrain. The operator presence system is integrated into the platform, in which the ground drive and attachment motion is suspended if the operator steps off the machine.

Meanwhile, the Vermeer CTX160 mini skid steer offers a rated operating capacity of 725 kg, 56.8 l/min of auxiliary hydraulic flow and a width of 106.7 cm. The machine delivers all-around performance while remaining compact and nimble to operate.

The CTX160 can handle jobs such as moving heavy material and working ground-engaging attachments to efficiently manoeuvre in congested operating conditions. For landscaping, hardscaping, rental, utility and general construction work, this model gives contractors efficient performance in a compact-sized machine.

The CTX160 features a vertical lift path design, with a hinge-pin dump height of 225.4 cm for efficient clearance when dumping material in to a trailer or truck. With a weight of 1,814.4 kg and a 22.9 cm rubber track undercarriage, the machine delivers optimal traction when transporting heavy material and in harsh working environments. Its Vermeer chariot-style ride-on platform has an integrated operator presence system that disengages the loader's ground drive and attachment motion when the operator steps off the machine. The platform also offers operator comfort and visibility.

The control station on the Vermeer CTX160 includes a single, pilot-operated joystick for smooth functionality. It has a dual auxiliary system so the operator can switch between high flow for ground-engaging attachments and low flow for optimal control. Also, the unit's universal mounting plate fits a wide range of Vermeer-approved attachments. ■

Website: www.vermeersea.com

The CTX100 mini skid steer has a tipping capacity of 1,334 kg and a rated operating capacity of 467 kg. Vermeer has also increased the hinge pin height to 227.33 cm to make loading materials into a brush chipper, truck or trailer more efficient.

The CTX160 mini skid steer offers a rated operating capacity of 725 kg, 56.8 l/min of auxiliary hydraulic flow and a width of 106.7 cm. The machine delivers all-around performance while remaining compact and nimble to operate.

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Large-capacity, modular boom lifts from Dingli

Chinese manufacturer Dingli offers a wide range of large-capacity, modular boom lifts with working heights from 16 to 44 m. These comprise D-, M- and T-series featuring three types of power sources: diesel (orange), electric (green) and hybrid (blue). According to the company, the machines meet the standard container transportation requirements and come with completely independent intellectual property rights.

The D-series, developed by Dingli Research Centre, has maximum working heights of 16-22 m. Its maximum capacity has been increased from 230/300 kg to 300/454 kg. This series is equipped with an integrated axle, which results in a lightweight design, simple maintenance and easy transportation.

The M-series, jointly developed by Dingli and Italian manufacturer Magni, has maximum working heights of 22-34 m and maximum capacities of 300/454 kg. The model below 30 m offers a safe working capacity of up to 454 kg. This series is also equipped with an integrated axle and provides simple maintenance, high power, excellent efficiency and safety, and easy transportation.

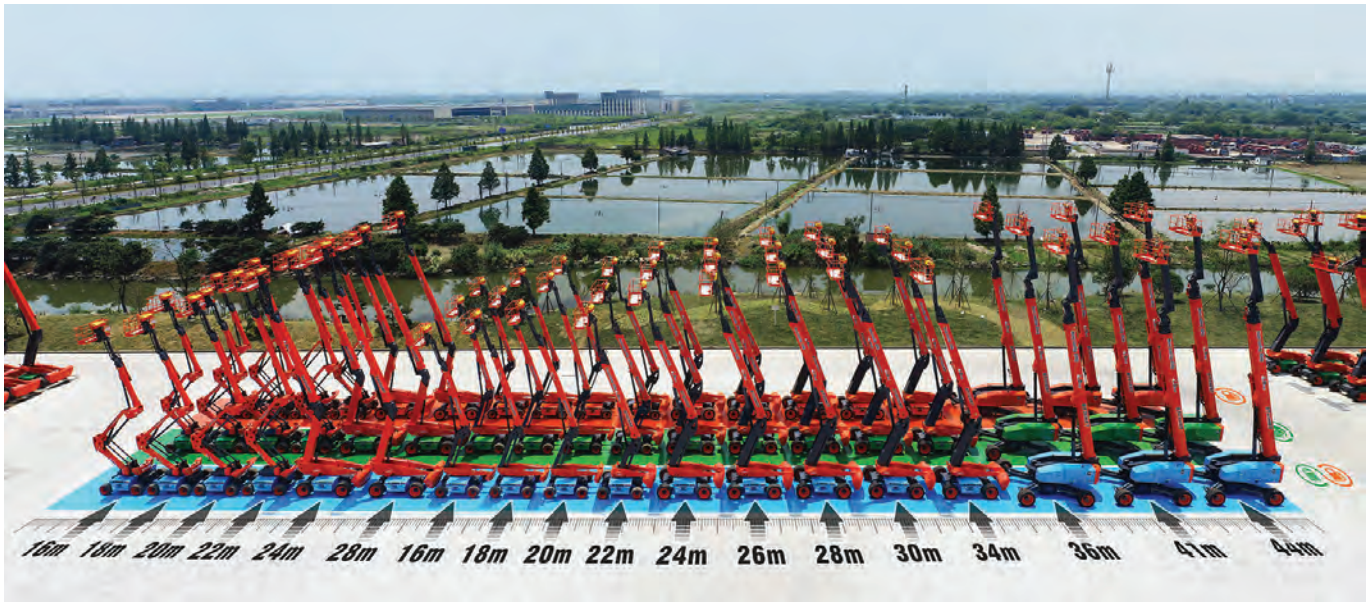
The T-series, jointly developed by Dingli and German manufacturer Teupen, has maximum working heights of 36-44 m and maximum capacities of 300/454 kg. Dingli said this series adopts a "one-key on-site bridge expansion design," with benefits that include not only large capacity but also simple maintenance, high power, excellent efficiency and safety, and easy transportation.

ABOVE AND BOTTOM: **Dingli's large-capacity boom lifts with a modular design include the D-, M- and T-series, covering working heights from 16 to 44 m. They offer three types of power sources: diesel (orange), electric (green) and hybrid (blue).**

All the boom lifts feature a modular design, added Dingli. This means that the models with the same drive power but different heights share the same R&D platform; and those with different power sources (diesel, electric and hybrid) and different heights also share the same R&D platform. Eighty five percent of the components are compatible, reducing costs of maintenance, spare parts storage and manpower.

Dingli revealed that the company now offers more than 200 models of aerial work platforms for the global market, which include scissor lifts, boom lifts, vertical masts, and more. ■

Website: https://en.cndingli.com



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MAPEI UTT: SUPPORTING UNDERGROUND SITES GLOBALLY

MAPEI'S UTT (UNDERGROUND TECHNOLOGY TEAM) DIVISION OFFERS AN EXTENSIVE RANGE OF SOLUTIONS DEDICATED TO UNDERGROUND CONSTRUCTION APPLICATIONS, INCLUDING VARIOUS WATERPROOFING SYSTEMS AND ADMIXTURES. **ENRICO DAL NEGRO, DIRECTOR OF UTT LINE**, EXPLAINS SOME OF THE MAIN CONSIDERATIONS WHEN DEVELOPING THESE PRODUCTS AND SHARES INSIGHTS ON SEVERAL IMPORTANT PROJECTS AS WELL AS THE LATEST INNOVATIONS FOR THE MARKET.

1 When was the UTT division created and how has the product line grown over the years?

Enrico Dal Negro (EDN): The UTT business unit was created in September 1999, the year I joined Mapei. Initially it consisted of products already in the company portfolio with a cross-section of areas of use and applications, and then it was gradually extended with the introduction of specific products to support excavation and completion of each work.

The first project we worked on was the renovation of the Mont Blanc tunnel following the fire in March 1999. This was a very important project, where we were given the opportunity to demonstrate the versatility and reliability of our products, many of which were developed in a very short space of time.

The line today is more complete and is gradually being extended with new products, driven by our intuition and the demand from both the mechanised tunnelling and traditional excavation markets.

2 Mapei UTT has been involved in a number of major projects around the world. Can you share some of them?

EDN: In our domestic market Italy, we are involved in many projects, thanks to the national investment plan for the coming years in both renovation works and new construction projects. We are working on high-speed rail projects, such as the third Milan-Genoa link and the Naples-Bari and Catania-Messina stretches, as well as the Brenner base tunnel and the 106 Jonica highway.

Enrico Dal Negro, global director of UTT line at Mapei Group.

Overseas, we have done a lot of works in Norway and northern Europe as a whole. We have also seen considerable growth in Canada and the US, and we are constantly working on projects in South America. We are also starting to see more growth in Australia.

As far as Asia is concerned, we work a lot in Singapore and Hong Kong, and we are also seeing strong growth in India.

The projects we work on are quite diverse, from underground railways to mines, from rail tunnels – a sector undergoing particularly strong growth for environmental sustainability reasons – to road tunnels, hydraulic tunnels and sewer systems.

3 In recent years, sustainability has become a main focus for the global construction industry. How much attention is paid to the environmental compatibility of Mapei UTT products?

EDN: Environmental compatibility is a fundamental characteristic of our products. We realised right from the start that this aspect would be highly important for the market and we made very quick progress, including with respect to our competitors. We were the first to establish a reference standard, especially in the field of soil conditioning for TBM excavation works, a sector in which the need for eco-sustainable products is particularly important.

We managed to combine high-performance products and respect for the environment, something that is not always easy to achieve, and this has led to us building trust with our clients. For example, we have the Polyfoamer Eco family of foaming agents, which over the last few years has developed from Polyfoamer Eco 100 to Polyfoamer Eco 100 Plus and then Polyfoamer Eco 1000 Plus, with a progressive improvement in environmental performance characteristics.

We can also say the same for all the products from the line that now come with WGK (Wassergefährdungsklasse) certification, which evaluates the impact a product has on groundwater and classifies the risk of contamination on a scale of 1 to 4, with all our products having a rating of between 1 and 2.

Mapei waterproofing membranes have been applied in tunnelling projects around the world.

4 The durability of structures is another critical aspect of the industry. What is the approach to this concept across the UTT product line?

EDN: In terms of durability, it is very important that products are used and applied correctly. At Mapei, we have the possibility of offering high-level solutions that are able to minimise their impact in the event of poor use – often because of the difficult environments where the actual work is being carried out – and guarantee, nonetheless, proper durability.

Nowadays, large-scale projects are required to have a service life of at least 100 years, apart from a few exceptions, such as the Brenner tunnel, where a service life of 150 years is required. This long arc of time is due to the high cost of building and repair projects, and also the desire to minimise their social impact, because interrupting a service provokes considerable disruption for its users.

5 Mapei always puts emphasis on innovation and research. What are the most recent and cutting-edge UTT products from a technological perspective?

EDN: Undoubtedly the products from the Polyfoamer Eco family of foaming agents, as well as the admixtures for concrete – which focus on maintaining the concrete's high performances while looking to reduce cement consumption. With our products we try to reduce their impact on the environment to a minimum.

By 'low impact' we mean not only low emission of CO_2 during the production phase, but also less impact at the time they are actually applied. And it is here that chemistry is an enormous help in making products more sustainable. In this sense, it is worth remembering that chemistry is not synonymous with pollution, but rather with research, development and the possibility of making people's lives easier in a sustainable way.

The Polyfoamer Eco 100 Plus foaming agent was used in the EPB TBM to bore the Santa Lucia Tunnel in central Italy, the longest three-lane tunnel in Europe.

6 Does the UTT division also provide site supports?

EDN: Our support service, which we call Technical Service, starts at the preliminary laboratory phase where we carry out a series of tests based on real site conditions to identify our best proposal in order to meet the requirements of a particular project. We propose our most suitable products along with their relative dosage rates and application parameters.

Once we have been awarded a contract, we go over the tests and parameters again to define certain fine details where required. We then pass to the application phase; we are also present during this phase to make sure the product is used correctly and in the best way possible. We follow sites during each and every phase. The technical service is an important element with highly skilled personnel at the service of clients, who also have ability to develop, if and when necessary, bespoke proposals for a specific site. ■

On-site technical support is also provided to ensure that the product is used correctly and in the best way possible.

Website: www.mapei.com.sg

Article courtesy of Realtà Mapei International 95

Paving the way to better roads

Heavy-duty paver

The newly launched Vögele Super1880 L is a heavy-duty tracked paver designed for paving both water-bound materials and asphalt mixes. This model is available with emission level 3 or lower in defined markets across Southeast Asia, Oceania, the Middle East, Africa and Eastern Europe.

Powered by a high-performance, six-cylinder diesel engine rated at 158 kW, the Super1880 L is suitable for use on motorway projects and rural roads. The paver has a maximum pave width of 9.5 m.

The engine features an Eco mode that reduces the nominal speed from 2,000 to 1,700 rpm. This Eco mode can reduce operating costs and noise emissions significantly. All drive components operate with maximum efficiency, from the diesel engine to the hydraulic system.

The optimised crawler unit with additional track carrier rollers maximises the quiet running of the paver. The separate, electronically-controlled drives installed in the sprockets of the crawler tracks permit constant straight movement and precise steering through curves. In addition, they allow engine output to be translated into pave speed with no loss of power.

Meanwhile, the long crawler tracks with large footprints provide for maximum tractive effort, allowing the paver to progress well at a constant speed even when operating on difficult terrain. A separate drive and electronic control unit are provided for each crawler track, ensuring positive tracking when moving straight as

well as accurate cornering. At the same time, new track pads deliver optimal traction on any base. Their high abrasion resistance makes for a long service life; and they are also easy to replace during servicing.

The long, extended hopper enables fast unloading of trucks, while the powerful conveyor system (longitudinal, lateral) delivers a high throughput rate and continuous material flow.

Any mix truck can dock onto the Super1880 L without difficulty, thanks to its great length and low feed height. The wide, oscillating push-rollers can be moved 150 or 75 mm forward for convenient and jerk-free material supply to the paver from any kind of feed vehicle. The large material hopper holds up to 15 t, which enables rapid unloading of the feed trucks and ensures that there is an ample buffer of material when changing trucks.

The Super1880 L is equipped with the ErgoBasic operating concept, which has been designed based on the ErgoPlus operating system. Vögele has also developed the Niveltronic Basic, a system for automated grade and slope control. It is integrated into the machine control system and therefore adapted to the paver model concerned. This Niveltronic Basic system is simple to use and intuitive, making it easy for operators to navigate their way around the system.

TOP AND OPPOSITE: **The new, heavy-duty Super1880 L paver can be used for paving both water-bound materials and asphalt mixes. It has a maximum pave width of 9.5 m.**

ABOVE: **The paver is simple to operate, equipped with the ErgoBasic operating concept.**

A number of screed options are available for combination with the Super1880 L. The Universal Class paver can be combined with the AB 480, AB 500, AB 570 and AB 600 extending screeds. Through the addition of bolt-on extensions, the maximum paving width amounts to 7.8 m with the AB 480

extending screed, to 8.5 m with the AB 500, to 8.7 m with the AB 570, and to 9.5 m with the AB 600.

Extending screeds are ideal for applications where pave width varies and premium pavement quality counts. Thanks to their sturdy single-tube telescoping system, these screeds can be set quickly and accurately to any pave width desired. They are available in TV version (with tamper and vibrators).

Furthermore, the Super1880 L can be combined with the SB 300 HD fixed-width screed. This screed has been specially developed for the use of cold materials in roadbase construction, such as cement-treated base (CTB). Its deep screed plates make for excellent floating behaviour. Depending on the layer thickness and material, the tamper stroke can be set to 2, 4 or 7 mm. In combination with the special tamper geometry, this ensures particularly high compaction values.

Compact pavers

Vögele has also introduced its new Super 1400 (tracked) and Super 1403 (wheeled) pavers, featuring compact dimensions and a versatile range of applications. They are characterised by a robust undercarriage and material handling system, powerful yet economical drive technology, and simple, intuitive handling. Meeting the EU Stage 3A or US EPA Tier 3 emissions standards, both models are available in Southeast Asia, Oceania, the Middle East, Africa, Latin America and Eastern Europe.

In combination with the AB 480 extending screed – which includes compacting systems consisting of tamper and vibrators – these new Universal Class pavers achieve a high degree of pre-compaction as well as pave widths of between 2.55 and 4.8 m. Additional bolt-on extensions make it possible to implement a maximum width of up to 6 m for the wheeled model and up to 7.3 m for the tracked model. With compact dimensions, the machines are highly manoeuvrable and thus suitable for tight construction projects in city centres and also for larger projects – such as rehabilitation of old motorways or construction of new ones.

The Super 1400 and Super 1403 provide a laydown rate of 600 t/hr. Powered by a 101 kW four-cylinder diesel engine from John Deere, the machines deliver a high output, even on relatively large construction projects. The efficient drive cooling system ensures maximum reliability, even in extreme tropical climates. The hydraulics can control material handling accurately, facilitating

TOP: **The new Super 1400 tracked paver (on the left) and Super 1403 wheeled paver feature a laydown rate of 600 t/hr.**

ABOVE: **These two new pavers are also equipped with the ErgoBasic operating system, which is simple, intuitive and reliable in operation.**

an optimum head of material in front of the screed. Likewise, the screed itself is designed for efficiency and quality; the optional electric screed heating heats all components in contact with the material quickly and evenly, preventing adhesion of the material and securing an even surface structure.

These two new pavers are equipped with the ErgoBasic operating system as well, which was developed on the back of the ErgoPlus 3 operating system using the same logic and symbols. This makes it really easy for users to switch between different classes of Vögele paver. ErgoBasic offers all the basic functions for high-quality paving and is especially simple, intuitive and reliable in operation.

Furthermore, the new Universal Class pavers feature the Niveltronic Basic system for automated grade and slope control. This function is fully integrated in the machine control system and therefore tailored precisely to suit the paver model concerned. It can be adjusted separately for each side of the screed using a compact, highly robust remote control unit and can be combined with a wide range of Vögele sensors. ■

Website: www.wirtgen.com

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The curious 'Case' of Pithampur plant

A closer look at the Case global manufacturing hub in India and what it has to offer

Case Construction Equipment, a global brand of CNH Industrial, recently invited key media from India, Africa, the Middle East and Asia Pacific to visit its manufacturing plant in Pithampur, India. Southeast Asia Construction (SEAC) joined the event and had the opportunity to witness the advanced manufacturing processes and technologies used at the facility to produce construction equipment for global markets.

At the event, Case also presented a selection of products catering to various markets with demonstrations of the 1110EX soil compactor, CX220C LC HD crawler excavator and the newly launched 570SV backhoe loader.

The Pithampur plant in the state of Madhya Pradesh, built in 1989, is one of Case's eight manufacturing hubs. It produces various types of equipment, including crawler excavators, compactors, backhoe loaders, and in the future skid steer loaders. These machines are not only targeted at the local market, but also exported to several countries in Asia Pacific, Africa, the Middle East, as well as North and Latin America.

Spread across 40 acres of land, the Pithampur plant operates according to the CNH Business System (CBS), which involves all employees across the entire organisation to drive greater

accountability, agility, efficiency and safety. In 2022, the facility reached the significant milestone of manufacturing 50,000 backhoe loaders.

Case revealed that the plant achieves consistently high quality with its class-leading and automated production technologies, such as robotic welding, laser cutting and high-precision machining. It has ISO certifications for its quality, health & safety, environmental and energy performance.

"Our state-of-the-art facility in Pithampur operates to the high manufacturing standards of CNH Industrial plants across the world. With its range of high-quality construction equipment that stands out for the reliability and durability that are the hallmarks of the Case brand, it serves the Indian domestic market and exports to more than 75 countries. India is a global manufacturing hub and a strategically important market for Case Construction Equipment's growth in the region," explained Satendra Tiwari, plant head at CNH Industrial, India.

The Pithampur plant also houses an important research and development (R&D) facility to ensure that machines go through regular upgrades and are future ready. The solar panels installed at the plant help provide up to 25% of renewable energy, as part of its effort to reduce carbon emission and contribute to CNH Industrial's sustainability goals.

New V-series backhoe loader

The new 570V and 570SV backhoe loaders are produced at the Pithampur plant. They feature a brand-new cab, which is one of the largest in its class. The ROPS/FOPS cab equipped with air conditioning (optional) and improved internal storage capacity raises operator comfort and ergonomics.

The FPT engine and the driveline deliver outstanding power, traction and torque density on all terrains, guaranteeing a high performance. The range includes models with power of 86 and 97 hp, which can be equipped with 2WD or 4WD axle and transmission, and a Power Shuttle 4x3 transmission that pushes the machine across any terrain and gradient.

These V-series backhoe loaders can also be fitted with a fixed or extendable arm for longer reach and deeper digging depth. The straight loader arm assures strong breakout force and high dumping height. The tilting engine hood and optimised layout of components allow for safe and easy maintenance.

Matteo Calo, AME and APAC CE product management director of CNH Industrial (left) and Francesco Muci, AME and APAC commercial training manager of CNH Industrial (right) at the Pithampur plant during Case's media event.

LEFT: **The new Case 570SV backhoe loader features a brand-new cab, which is one of the largest in its class.**

OPPOSITE: **Product demonstrations showcasing (from left) the 1110EX soil compactor, CX220C LC HD crawler excavator and the newly launched 570SV backhoe loader.**

Spread across 40 acres of land, the Pithampur plant operates according to the CNH Business System (CBS). In 2022, the facility reached the significant milestone of manufacturing 50,000 backhoe loaders.

Robust crawler excavator

The CX210C/CX220C LC HD crawler excavator is also manufactured at the Pithampur plant. This model has been developed with a stronger boom, arms and undercarriage structures, with increased thickness to make it suitable for the harshest application. It can be used in stone quarry, general and road construction, earthworks and mining applications.

The excavator is powered by a six-cylinder, 6.7-l engine from FPT, which works well with the Case intelligent hydraulic system that features five automatic energy saving functions for greater machine efficiency. These functions constantly adjust the engine rpm and the hydraulic pump displacement to match the actual power requirement at any time.

Various soil compactors

Another product range from the Pithampur plant is soil compactors. One of the models, the 1110EX, is designed for heavy-duty applications. It is suitable for road building and construction jobsites, as well as mining operations. The FPT S8000 Tier III engine has been recently upgraded to deliver a bigger performance, with maximum power increased to 110 hp at 2,300 rpm and 430 Nm maximum torque at 1,400 rpm. The machine is fitted with a drum shell with up to 32 mm thickness – believed to be the highest in the market – whose higher weight and strength guarantees excellent productivity and reliability.

The EX-series compactor offers two configurations: the Case 1110EX-D with drum drive and increased traction is ideal for slopes and landfills, while the Case 1110EX-PD featuring drum drive and clamp-on pad foot is a perfect solution for compacting more cohesive materials such

TOP: **The Pithampur plant is one of Case's eight manufacturing hubs, producing various types of equipment. These machines are targeted at global markets, including India, Africa, the Middle East, Asia Pacific, as well as North and Latin America.**

ABOVE: **The plant adopts advanced, automated production technologies such as robotic welding, laser cutting and high-precision machining. It also houses an important R&D facility to ensure that machines go through regular upgrades and are future ready.**

LEFT: **Ajay Saxena, head – plant quality at CNH Industrial (on the left) gave the media a tour of the plant.**

as clay and silt. The higher applied force of 33,475 kgf and 34,655 kgf on the 1110EX-D and 1110EX-PD respectively means that the machines can finish the job with fewer passes. The four-points articulation joint provides an oscillation angle of +/- 15° and steering angle of +/- 37°, resulting in a short turning radius of just 3.42 m.

The 450DX mini vibratory compactor is designed with a high ground clearance, which makes working on uneven surface much easier. The bigger drum diameter of 725 mm ensures an even compaction in every condition of the ground. Powered by a four-cylinder engine, the machine is ideal for shoulder compaction, service lane, breakdown lane compaction on highways, narrow alleys and hilly roads. It has an oscillation angle of +/- 10° and steering angle of +/- 33°. With its reduced steering radius of 3 m, this model is agile enough to operate in narrow spaces. Large anti-vibration mounts are also available for effective isolation and longer machine life.

The 752EX tandem compactor provides a comfortable and safe operator station, equipped with resilient mount operator platform featuring anti-vibration mounting (AVM) pads, styled user-friendly operator console, rotating operator seat and tiltable steering (optional). The cab offers uninterrupted front and rear visibility with its large rear mirrors, sloping water tank design and well-located work lights. The machine has 17 mm drum thickness and heavy-duty articulation joint, and is powered by a four-cylinder FPT engine that delivers 76 hp at 2,200 rpm and torque of 332 Nm at 1,300 rpm. ■

Website: www.casece.com/apac/en-sea

TOP: **The new V-series backhoe loaders include models with power of 86 and 97 hp, which can be equipped with 2WD or 4WD axle and transmission, and a Power Shuttle 4x3 transmission that pushes the machine across any terrain and gradient.**

ABOVE: **The 1110EX soil compactor is designed for heavy-duty applications. This model is ideal for road building and construction jobsites, as well as mining operations.**

LEFT: **The CX220C LC HD crawler excavator offers a stronger boom, arms and undercarriage structures, with increased thickness to make it suitable for the harshest application.**

Sichuan Lexi Expressway

A key transportation project in China, the Sichuan Lexi Expressway serves as an important pathway to alleviate poverty and increase ecological tourism, driving local economic development. With a total length of 151.8 km and a connecting line of 40 km, this megaproject runs through four counties and will connect to the planned expressway from Xichang to Zhaotong. Contractor Sichuan Highway Planning, Survey, Design and Research Institute Ltd was engaged to build the four-lane highway with a design speed of 80 km/hr within a five-year period.

To complete the job, however, Sichuan Highway had to overcome the project's complicated topography and geology.

In this project, contractor Sichuan Highway had to overcome a complicated topography and geology. The team used Bentley's collaborative BIM and digital twin software to develop models for 234 bridges, 42 tunnels, 82 culverts, 33 relocated roads and ditches, and 36 spoil grounds. The new expressway is on track to be completed in July 2025.

Image: Sichuan Highway Planning, Survey, Design and Research Institute Ltd / Sichuan Lexi Expressway Co Ltd

Over 80% of the roadway length consisted of bridges and tunnels. In fact, the project covered 746.68 ha, with 137 bridges (42,773 m), 41 tunnels (84,006.5 m), six diverging interchanges, 71 culverts and pathways, four overpasses and aqueducts, and nine ramp toll stations. Furthermore, the project would run through 'the gene bank of subtropical plants,' which include nature preserves and tree farms with rare and protected plants. The local climate is unstable, with about 270 rainy days in a year and up to three months of precipitation in the winter, making construction, transportation, and safe operation difficult.

Searching for advanced method

Facing engineering and technical challenges, Sichuan Highway knew that traditional design and construction methods could not accommodate the project. A 40-km section running through uninhabited land had no access roads, electricity supply, or communication facilities. "People had to sleep outside in cold or heat, walk through uninhabited mountains and dense forests, and climb deep trenches and gullies filled with bogs," said Jixing Dong, BIM engineer at Sichuan Highway Planning, Survey, Design and Research Institute.

Additionally, the team comprised over 1,500 employees in varied disciplines, including over 40 experts that range from national and provincial engineering design masters and members working for the state's council. These disciplines needed to contribute to and communicate on this already complex project.

Therefore, Sichuan Highway sought BIM and digital twin software that had a strong carrying capacity, wide discipline applicability and unified data format, and support secondary development to meet the above application requirements. The team also wanted the application to help improve design quality and timeliness of later-stage service, raise professional and technical standards, and provide digital operation and maintenance to ensure standardised workflows and high data quality.

Improving collaboration with BIM

Sichuan Highway conducted an in-depth analysis of several software products. The team ultimately opted for Bentley applications and, after reviewing all available options, chose the open modelling applications to establish a connected data environment, integrating and streamlining design and construction processes.

"For the Lexi Expressway project, a 151.8-km highway digital twin model was created based on Bentley [applications], which provided high-quality engineering data to all parties involved in the project; improved the level of project management, design and construction; and produced good economic benefits and social benefits," said Qiao Ke, director of BIM centre at Sichuan Highway Planning, Survey, Design and Research Institute.

The team began by using ContextCapture to collect data and develop a reality model. Because the topographic data of the project was from complex sources and in multiple formats, the team used Bentley applications to standardise multi-source surveying and mapping data. With Bentley's OpenBridge and OpenRoads applications, Sichuan Highway developed models for all aspects of the project, including roads, tunnels, intersections, and traffic engineering. Bentley's MicroStation was also used to ensure that all data was in the same format, guaranteeing first-class BIM data quality.

The applications' automated features streamlined development, making it easy for everyone on the project to efficiently collaborate. Moreover, these models can be updated in real time for use during future operations and maintenance.

Greater work efficiency

By using Bentley's collaborative BIM and digital twin software, Sichuan Highway developed models for 234 bridges, 42 tunnels, 82 culverts, 33 relocated roads and ditches, and 36 spoil grounds. The team efficiently manages over 500,000 components and 5.73 million attributes.

Sichuan Highway expects that using the applications will reduce project costs by CNY 20 million to CNY 30 million, improving data integration, standardisation, and design accuracy; identifying more than 1,000 errors; and shortening the early stages of construction.

On track to be completed in July 2025, the Sichuan Lexi Expressway will connect areas for improved economic development. The roadway plays an important role in the Sichuan's network, serving as an important pathway for poverty alleviation and ecological tourism. Once operational, it will effectively drive local economic development and create many local jobs. ■

Website: www.bentley.com

Tampines Viaduct

Hwa Seng Builder tackles a challenging jobsite in Singapore

The new Tampines Viaduct in Singapore connects TPE, Tampines Expressway, to PIE, Pan Island Expressway (Tuas) and Upper Changi Road East. Opened in February 2023, this new 1.8 km one-way viaduct aims to ease traffic congestion in the area by providing an alternative route for motorists.

The construction of the project posed some challenges, as the installation work had to be carried out in a very tight site condition, with less space to perform heavy lifting tasks. Singapore-based contractor Hwa Seng Builder Pte Ltd (HSB) was commissioned to undertake the job; and for this, the company relied on a 70 t telescopic crawler crane from Sennebogen.

Because the road was partially active during construction, there were special safety requirements for the crane. The Sennebogen 673 E fully adhered to these regulatory requirements. The lifting tasks on the project involved the handling of concrete piles, installation of rebar cages, as well as assembling and dismantling of column formwork in tight, active public roads. Therefore, the crane had to be extremely stable to minimise the need of movement around the jobsite.

ABOVE: **Work on the Tampines Viaduct was carried out in a very tight site condition, with less space for heavy lifting tasks.**

OPPOSITE: **Singapore-based contractor Hwa Seng Builder completed the project successfully, assisted by a Sennebogen 673 E telescopic crawler crane.**

LEFT: **Equipped with an extended crawler undercarriage, the 70 t Sennebogen 673 E crane provides high stability. Its full-power boom can telescope under load, thus avoiding the need to move during most operations.**

With concrete barriers surrounding the site, the work required a small footprint. The prior setting of the 'virtual wall', an added safety function that creates swing restriction to the Sennebogen 673 E, allowed the operator to focus on the task at hand without worrying about the concrete barriers. This makes the crane well-equipped for such delicate operations. Another highlight of the 673 E is its full-power boom that can telescope under load, thus avoiding the need to move for most tasks.

Safe lifting above the road

The formwork and other materials to be lifted weighed about 2 t each and featured unusual shapes, which could easily be caught by the wind and in turn complicate the lifting tasks. However, the sturdy 70 t telescopic crawler crane, sitting on a 4.8 m track when fully extended, provides high stability. Together with its robust boom, swaying activities were greatly minimised.

"A fair amount of my lifting tasks is below 30 m high. The Sennebogen 673 E fits perfectly on the sweet spot between being on the right capacity and boom length that will not cost an excess overweight. This is a big advantage compared to other crane types which usually have plenty of excess weight," said Tee Ley Shui, the crane operator.

Raymond Sia, logistic coordinator at HSB, explained that "as the columns for the viaduct are in between the main road, we have to move the Sennebogen 673 E telescopic crawler crane almost every day from site to site depending on the lifting schedule. The retractable undercarriage and being able to load up and down the low-bed trailer with its counterweight is indeed a time saver."

TOP: **The new 1.8 km one-way viaduct was built to ease traffic congestion in the area by providing an alternative route for motorists.**

ABOVE: **The local Sennebogen dealer, Aly Energy Singapore, also supported Hwa Seng Builder on this project.**

Aly Energy Singapore, the local Sennebogen dealer, was also supporting HSB on this project, especially in after-sales services. "Aly Energy has been supporting HSB closely for more than six years, which gives me the confidence to deploy Sennebogen cranes on complicated jobsites," said Mr Sia. ■

Website: www.sennebogen.asia

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Ashton Asoke-Rama 9

Ananda adopts digital tools to build one of Bangkok's iconic residential projects

The Ashton Asoke-Rama 9 residential complex in Bangkok, Thailand, stands 50-storeys tall and consists of twin towers, namely Alpha and Omega. Completed in 2021, this landmark building was developed by Ananda Development PCL. It is located in the centre of the city, about 230 m away from MRT Rama 9.

To deliver the project in a more efficient and collaborative manner, with higher quality results, Ananda opted for digital solutions from start to finish. The company recognised two key features that would push it forward: centralised data and consolidated reporting. This created a single source of truth for the project and connected multiple, disparate teams.

The Ashton Asoke-Rama 9 is a twin-tower residential complex in Bangkok, featuring 50-storeys tall. To deliver the project in a more efficient and collaborative manner, with higher quality results, Ananda Development opted for digital solutions from start to finish.

Integrating data for better outcome

By using an integrated, core software platform from Procore, all stakeholders from owners to builders to subcontractors, could see updates in real-time and use actionable data insights on this ambitious project.

"Our goal over the past two years has been to develop the professional standards of our contracting teams, and we now have the data to share with contractors to highlight potential improvements," said Thanit Thanadirek, business digitisation manager at Ananda Development.

With the digital platform, Ananda was able to make informed decisions more frequently, combating the unrelenting pressures on labour and shortages from the supply chain.

Contractors were centrally tracking data in the platform, providing a real-time, transparent view of materials and costs. Using the Procore Correspondence tool, the third-party contractors were also able to create their own forms and collect data, resulting in improved productivity, more reliable forecasting and ultimately, cost improvements.

This was a turning point for contractor

By using an integrated, core software platform from Procore, all stakeholders from owners to builders to subcontractors, could see updates in real-time and use actionable data insights on this project.

buy-in on the Ashton Asoke-Rama 9 development. The business saw a 40% gain in efficiencies while the condominiums were built with control and visibility at every step.

The integration of third-party applications has been pivotal in the meticulous design and construction of Ashton Asoke-Rama 9. By connecting their virtual design and construction (VDC), the design, operations and site teams could make daily strides.

Using data directly from various platform tools and integrating them with its own internal safety database analytics, Ananda ensured that standards were met and incidents were meticulously managed.

"Ananda is well advanced in its digitisation journey to transform its performance in the construction sector, and revolutionise its role in the broader business community. Procore has been a foundational platform for us. Our end-users understand our goal in building with Procore is to achieve better performance outcomes now and into the future," said Mr Thanadirek. ■

All images: Procore

With the digital platform, Ananda was also able to make informed decisions more frequently, combating the unrelenting pressures on labour and shortages from the supply chain.

Website: www.ananda.co.th / www.procore.com/en-sg

Electrifying Southeast Asia

The recent arrival of Southeast Asia's first fully electric construction equipment from Volvo Construction Equipment (Volvo CE), and the trials of the machines at Kim Hock's facility in Singapore, will likely serve as a springboard for construction companies in the region to begin – or expand – their electrification solutions.

The move is also likely to have wider implications for the region's construction industry – creating greater awareness of the technology, paving the way for other electric heavy equipment and advanced green innovations, and eventually helping the industry accelerate its sustainability transformation.

Southeast Asia Construction (SEAC) visited the Kim Hock facility to learn more about these electric machines, and talked to Volvo CE about its decision to bring the technology to the region.

Taking the lead in Singapore

"We are proud and excited to be the first company in Singapore with the access to these electric machines," said TS Lim, general manager of Kim Hock Corporation, a leading player in the metal recycling business. "Throughout our history, we've used technology to help us work more effectively and in a greener way.

Two Volvo L25 Electric compact wheel loaders are currently undergoing testing at Kim Hock's Jurong facility. This effort is part of the company's commitment to attaining a net-zero carbon footprint and enhancing the overall sustainability of its operations.

The machines are battery-powered, delivering zero exhaust emissions. "No fumes, hardly any noise, and less vibration for the operator," explained Mr Lim. "The machine charging process is simple. We do an hour during lunch and a standard charge overnight."

Each of the electric machines comes with a 40 kWh battery pack, and is expected to carry out six to eight hours of work per charge. It features a 2.1 t payload and maximum speed of 20 kph. "We are very impressed with them. The power and performance are comparable to diesel machines," noted Mr Lim.

The Kim Hock facility is one of the largest recycling plants of its type in Singapore, handling more than 15,000 t of steel per month, and stripping out other metals for re-use, including copper and aluminium. It also collects and recycles wood and horticultural waste, employing a variety of machinery to assist with different stages of its work and continually updating its infrastructure to make the business greener.

Sustainability has been a key focus for

ABOVE: **One of the L25 Electric compact wheel loaders undergoing testing at the Kim Hock facility in Singapore.**

BELOW AND BELOW RIGHT: **Each of the electric machines has a 40 kWh battery pack, and is expected to perform six to eight hours of work per charge.**

Kim Hock for some time. In collaboration with Volvo CE's Special Application Solutions (SAS) team, the company has already acquired two EC480EL excavators, dual-powered with an electric motor and a Volvo Stage V diesel engine. The machines operate mostly using their electric motor, which is attached via cable directly to the mains power supply. In situations where they are not able to operate via electric power, they run from the in-built diesel engine.

Over the last several years, Kim Hock has also started recycling wood and horticultural waste, to produce wood chips. These are used as a power source to generate electricity to power several functions at the plant and sold externally to be used in new products.

LEFT: **TS Lim, general manager of Kim Hock Corporation, said that the company has aligned many aspects of its business with the government's Singapore Green Plan 2030.**

BELOW: **The Kim Hock facility employs a variety of machinery to assist with different stages of its work and continually updates its infrastructure to make the business greener.**

"Exploring the utilisation of these new electric machines from Volvo helps us move towards our goal of being a low emissions business with a net-zero level of industrial waste," said Mr Lim. "Our customers have ambitions to decarbonise and with our passionate team and technology partners such as Volvo, we are committed to supporting them in their pursuit of reaching their targets."

Mr Lim underlined that "as an industrial company, we know we have a part to play in creating a greener Singapore, and we have aligned many aspects of our business with the government's Singapore Green Plan 2030. Moving forward, we will electrify our machines as much as we can."

Electric models for Southeast Asia

For the Southeast Asian market, three models are being offered – the ECR25 Electric compact excavator, L25 Electric compact wheel loader and EC55 Electric excavator – aimed at the region's construction industry. Volvo CE said the machines are available for both purchase and rent. All of them are battery-powered.

The ECR25 Electric compact excavator is a 2.6-2.8 t capacity machine with a 22.3 kN breakout force. It is equipped with an on-board charger for general charging, an external fast charger (optional for indoor/outdoor specifications), and a 20 kWh battery capacity, allowing for three to four hours of work per charge.

"The ECR25 Electric is two times quieter than its diesel version," said AM Muralidharan, head of productivity & retail development for Asia at Volvo CE. "The machine can be charged up to 80% in about 55 minutes using the fast charger." The on-board charging time is about five hours.

Unlike a diesel excavator, the ECR25 Electric consumes almost no energy while idling thanks to an inbuilt stop/start system, so it only consumes energy during the minutes it works. The machine has a slightly higher operating weight than its diesel equivalent, but also delivers more continuous motor power.

LEFT AND BELOW: **With less noise and fewer vibrations in the cab, the electric machines provide a more comfortable work environment for the operator. They also produce zero exhaust emissions.**

The L25 Electric compact wheel loader features a 2.1 t payload and maximum speed of 20 kph. The machine comes with a 40 kWh battery pack and is expected to perform six to eight hours of work per charge. It is fitted with an automatic park brake with hill-hold functionality and a range of customisable work modes.

Like the ECR25 Electric, the L25 Electric wheel loader has a slightly higher operating weight than its diesel equivalent, but then offers a higher static tipping load too. The on-board charging time takes approximately six hours, while the off-board charging time is about two hours.

The EC55 Electric excavator is a 5.5 t electric machine built at the Volvo CE facility in China, which is presently the world's largest market for e-mobility equipment. The EC55 Electric is based on its diesel-powered counterpart, the EC55D, but delivers even better performance and controllability, as well as quiet operations and zero emissions. Power comes from two lithium battery packs of 400 V that work continuously for four to six hours per charge.

The electric construction machines offer the same productivity benefits as their diesel equivalents but with less noise, fewer vibrations and no exhaust fumes, explained Volvo CE. As a result, they can be used in new locations, such as indoors, or in other sensitive environments.

In Europe and the US, Volvo electric machines have been deployed on a number of projects, including a wine cellar construction at a vineyard outside Verona, Italy; a trail-building development for a nature reserve in Virginia, the US; and an off-grid property development in the deserts of California, the US.

According to Volvo CE, the performance of its electric excavators and loaders has been successfully tested on ambient temperatures between -10°C and 40°C. The batteries are designed to last the full life expectancy of the machine.

'Increasing focus' on the region

The three electric machines launched in Singapore "will act as a launchpad for further sales, both in Singapore and the wider regional market," said Tomas Kuta, president of Asia region at Volvo CE.

"Singapore is a natural market for electric construction machines with a strong focus on sustainability, efficiency and safety in its construction industry," explained Mr Kuta. As the Singapore Green Plan 2030 is driving the country forward, he believes that there is strong potential for much wider use of electric machines in the industry.

Speaking with SEAC at the launch event, Mr Kuta acknowledged that the higher purchasing cost of electric machines remains one of the main barriers, especially in Southeast Asia. "We need to provide more education to the industry about the long-term benefits of electric machines, which are substantial, including zero emissions, low noise, fewer vibrations and less maintenance."

Less maintenance means lower servicing cost, unlike diesel machines that require regular maintenance. "Therefore, owners of electric machines are able to recover their higher purchasing cost through their lower operating cost," said Mr Kuta. This, combined with the environmental benefits,

The new electric machines introduced by Volvo CE to the Southeast Asian market include (from top) the L25 Electric compact wheel loader, ECR25 Electric compact excavator and EC55 Electric excavator. All of them are battery-powered, and offer the same productivity benefits as their diesel equivalents.

can make electric machines an appealing choice for the industry.

"Creating awareness of the technology is one area we're working on," added Mr Muralidharan. "This is the reason we're offering trials for our customers, so that they have the confidence to use the machine." He mentioned that in Singapore, the awareness of such technology is "getting better, and we're already seeing that there are customers who want to use the machine. We cannot underestimate this transformation."

Although the battery-electric technology is still in its early stage of development, it is evolving at a rapid pace around the world. This is a good sign for the industry, because "as the demand increases and the technology advances, the price of batteries will drop and in turn reduce the cost of electric machines," said Mr Kuta.

Another challenge in the region that Mr Kuta pointed out is the scarcity of charging infrastructure for electric construction machines. "This is a government-driven effort and it varies from country to country."

To support customers' needs, Volvo CE offers charger options for its electric machines. "We have slow and fast chargers," shared Mr Muralidharan. "With the slow charger, the charging time is about seven to eight hours, or the whole night. If you want to charge during lunch time, we recommend to use the fast charger, which takes up to two hours."

Mr Kuta further highlighted that the lack of government support for electric construction equipment also discourages the industry from taking the first step. "The government needs to lead the way in order to accelerate the electrification process," opined Mr Kuta. "The countries with a high adoption rate of electric

Tomas Kuta, Volvo CE's president of Asia region (far left) and AM Muralidharan, Volvo CE's head of productivity & retail development for Asia (left) spoke with SEAC about the company's decision to bring its fully electric machines to Southeast Asia.

The electric machines were officially unveiled by (from left) Roger Tan, Volvo CE's head of market Southeast Asia; Mr Kuta; Jenny Egermark, Chargé d' Affaires a.i. at the Embassy of Sweden in Singapore; and Mr Muralidharan.

The launch event was held on 7 June 2023 in Sentosa, Singapore, allowing guests to view the electric machines up close and experience them first-hand.

FAR LEFT, ABOVE AND LEFT: **The performance of Volvo CE electric excavators and loaders has been successfully tested on ambient temperatures between -10°C and 40°C. With their environmental benefits, these electric machines can be used in sensitive environments, even indoors.**

construction machines have shown that the government can really help speed up the process, for example, by offering subsidies to manage the initial cost."

The introduction of Volvo CE electric machines in Singapore is the company's fifth launch in Asia, following China, South Korea, India and Japan. "We're increasing our focus on the Southeast Asia region, as it has become an important market for us," said Mr Kuta. "We've seen some countries progressing in a positive and stable manner, like Indonesia and Malaysia."

Mr Kuta also sets his sights on the Philippines, Thailand and Vietnam. Altogether, "there are a lot of opportunities in the emerging markets across Southeast Asia, which will continue to grow over the coming years."

The journey towards 2040

In the past couple of years, Volvo CE has steadily rolled out its electric construction machines to countries around the world, focusing on those with the strongest potential. "Our company wants to reach net-zero emissions by 2040, and as part of that and our commitment to Science Based Targets, we want to reduce emissions from our product line by 30% by 2030, as well as reducing emissions from our own operations by 50% in the same timeframe," affirmed Mr Kuta.

Volvo CE aims to have 35% of the machines it sells powered by electromobility by 2030. According to the company, it already provides the widest range of electric construction machinery for the industry today.

Mr Kuta revealed that Volvo CE is no longer making any investments in the development of diesel-driven compact equipment up to 5 t. The company's existing models are only available for production. "By 2040, we want 100% of the vehicles we produce to be fossil free. We expect a gradual shift into battery electric and fuel-cell electric vehicles."

"Our compact machines up to 20 t are battery powered, while the larger-capacity models come with cable electric," said Mr Muralidharan. "We are doing more than just converting diesel to electric; we are also looking into motion recuperation – how we can save the energy and use it in a more efficient way through some sort of movement, like the braking system."

Other innovations that Volvo CE is currently developing include alternative fuel and hydrogen fuel-cell machines. In achieving net-zero emissions by 2040, the company has announced that it will work together with its supply partners and focus on circularity, in addition to setting its interim goals by 2030.

Mr Kuta noted, however, that "the decarbonisation journey will take place at different rates in different parts of the world. We have separate timelines for each of the regions, but all of them are on the same path to meeting our 2040 target."

Among Volvo CE's recent sustainability initiatives in Southeast Asia is the opening of a component rebuild centre in Indonesia, through its dealer PT Indotruck Utama (ITU). Mr Kuta said the company is keen on exploring a similar approach in the region. "Having a local rebuild facility is much more environment-friendly. Plus, it shortens parts delivery time as we're closer to our customers."

Furthermore, Volvo Group has recently established a new division called Volvo Energy, which will manage all batteries used within the group – including those of construction equipment – at the end of their lifecycle. "It will look at various solutions, such as recycling batteries or reusing them for other types of applications," said Mr Kuta.

Without doubt, the push towards the adoption of electric equipment represents an important solution that will help accelerate the sustainability transition in the construction industry – but it is not a one-way process. As Mr Kuta reiterated, "Make no mistakes, this is a major change not only for OEMs, but also for all stakeholders – owners, developers, contractors, distributors, and the governments. It is a combined effort." ■

Website: www.kimhock.com.sg / www.volvoce.com

Details on the electric machines: www.volvoce.com/asia/en-as/products/electric-machines

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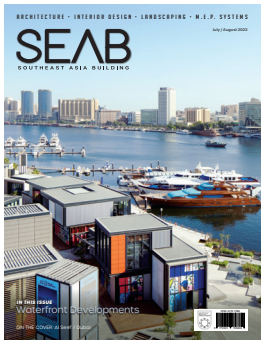

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