

SOUTHEAST • ASIA CONSTRUCTION

JANUARY - FEBRUARY 2023



Cover Story:
Chennai Metro expansion

Features:

DokaXdek floor formwork system

Market Talk: Kobelco

Sunkoshi Marin Diversion Multipurpose Project in Nepal

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2021 Industry Global Manufacturers Sales Ranking
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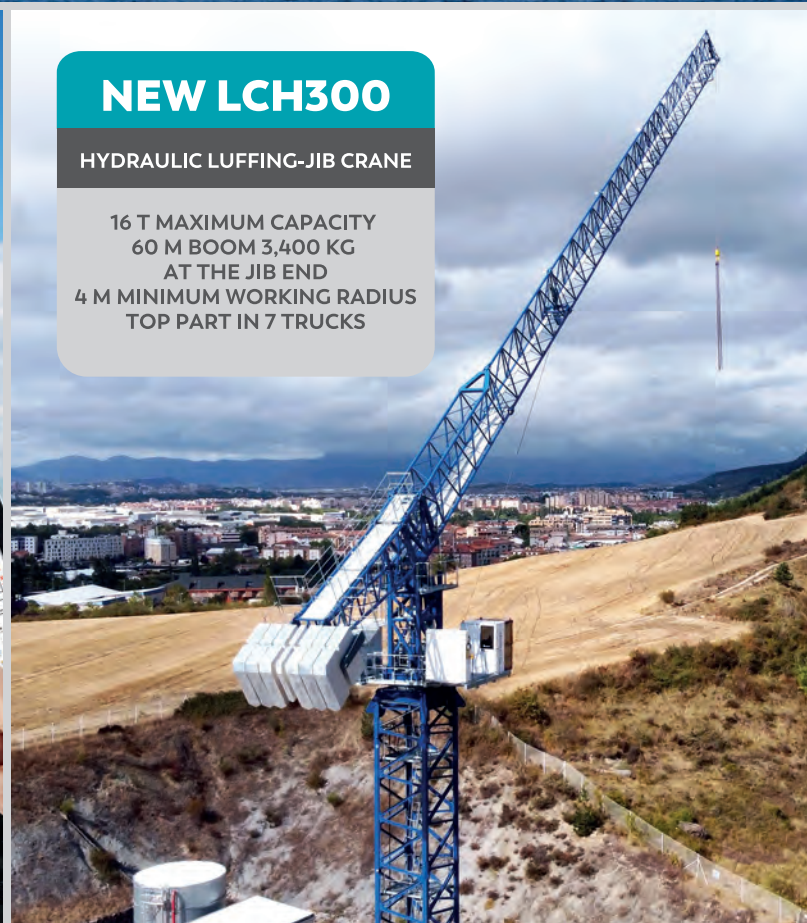
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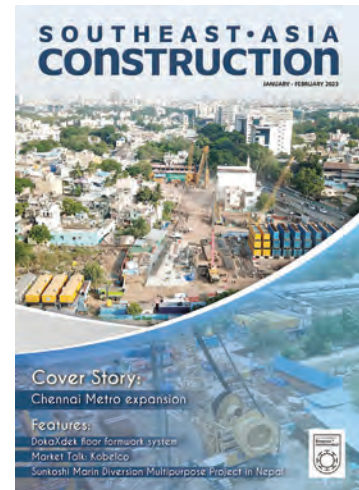
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Diaphragm wall work on Chennai Metro expansion project in India

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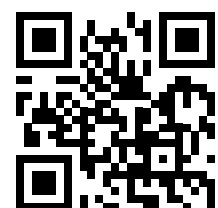
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Mitbana and Sinar Mas Land partner for new 108-ha development in Indonesia

Mitbana, a joint venture company of Mitsubishi Corporation and Surbana Jurong, together with Sinar Mas Land, are jointly developing one of the largest mixed-use developments in BSD City, Greater Jakarta, Indonesia. The new development by PT Sinar Mitbana Mas, the joint venture between Mitbana and Sinar Mas Land, is sited on 108 ha of land and will feature township and transit-oriented developments.

Envisioned as the 'Heartland of BSD City', the development is named 'Hiera', which is inspired by the Japanese characters '平和' that means peace and harmony, according to Mitbana and Sinar Mas Land. The name is a reference to how its design balances an active urban lifestyle with holistic wellness for its residents.

The companies explained that, like the heartlands of Singapore, Hiera will provide spaces that promote community building and placemaking, plus amenities for the development to be self-sufficient. A key attraction of Hiera is a car-free commercial street with retail shops, dining and entertainment options that bring vibrancy and convenience for its residents and visitors.

Hiera adopts biophilic design principles and features spaces that can be adapted in response to future pandemics, said Mitbana and Sinar Mas Land. A variety of waterfront and green spaces are spread throughout the development. To connect the various land parcels and create active corridors for recreational activities, the architects have designed a 3.7-km continuous green loop shaded with trees and ornamental plants that are modelled after the tropical streetscapes of Singapore.

The green loop will promote sustainable mobility options through dedicated sidewalks and bicycle paths, connecting commuters safely and conveniently to the public transportation nodes within Hiera, such as the future Jatake Train Station and an integrated transport hub that includes park-and-ride facilities and the BSD Link shuttle bus service.

Hiera is the first development in BSD City by Sinar Mitbana Mas and will be constructed in phases beginning in 2023. The first phase to be launched soon is a landed housing estate with wellness and holistic living at the core of its design.

Vincent Lee, deputy chief operating officer of Mitbana and president director of PT Sinar Mitbana Mas, said, "Hiera will exemplify how nature and urbanisation can coexist harmoniously. It will pioneer new and innovative designs while protecting the environment, allowing our residents to make special memories while living in a sustainable environment. With its abundant green features, peaceful spaces for rejuvenation and amenities offering connectivity and vibrancy, residents will enjoy a holistic urban lifestyle at Hiera."

Theodore G. Thenoch, CEO BSD Residential of Sinar Mas Land and vice president director of PT Sinar Mitbana Mas, said, "In building BSD City, Sinar Mas Land emphasises integrated and sustainable city-wide developments. We welcome collaborations with partners who share the same vision to accelerate the



TOP AND ABOVE: Hiera will feature township and transit-oriented developments, with a variety of waterfront and green spaces. The project is planned to be built in phases beginning in 2023.



The green loop promotes sustainable mobility options through dedicated sidewalks and bicycle paths.

development of BSD City. We are collaborating with Mitbana who has vast experience and expertise in urban developments in Japan and Singapore to enrich the new living experience and add value for the residents in BSD City."

Hiera is part of the up-and-coming West BSD, which will offer new recreational amenities, such as City Zoo by Jatim Park and Cimory Dairy Land. Hiera will also be well connected to business, shopping and entertainment centres. In addition, several healthcare and educational facilities will be in close proximity. ■

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An Exhibition with More Targeted Theme for Activities

A spectrum of activities will be held, including the two major competitive events of Construction Machinery Intelligent Product Competition and the "Golden Gear Award" for Innovative Products and Technologies, as well as 30 international high-end forums and over 100 business summits, with the purpose to fully display new products, technologies, and ideas in the field of intelligent, digital, new energy, electric and unmanned construction machinery.



An Exhibition with Higher International Notability

The exhibition, which will be promoted by 36 international media, is expected to welcome over 10,000 person times of overseas visitors from 60 countries, diplomatic envoys from 30 countries, and group visitors from 60 international business associations.



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Lintec & Linnhoff launches new factory in Malaysia

Lintec & Linnhoff has kicked off production of its asphalt and concrete batching plants at its newest facility, a manufacturing site in the state of Johor, Malaysia. New models for customers are already rolling off the production lines at the plant, which began limited-scale operations in 2021 before ramping up in 2022. The manufacturing facility covers 88,888 sq ft of space, with two planned future expansions.

Lintec & Linnhoff is manufacturing Linnhoff asphalt mixing plants and Eurotec concrete batching plants at the factory, which replaces the previous manufacturing site in northeastern Johor. The company said these plants are globally distributed, with most going to customers in Southeast Asia, the Middle East and Africa.

Plans for the new Malaysia facility were launched in 2019 and work was completed in 2021. After unavoidable interruptions caused by the Covid pandemic, Lintec & Linnhoff is now ready to showcase its newest facility, representing the latest addition to its global manufacturing portfolio.

Daniel Chan, chairman of Lintec & Linnhoff Holdings, said the new factory is a great demonstration of the Group's resilience and focus. "Over the past two years, the whole world faced the challenge of Covid and many projects were put on hold. We faced our own roadblocks, but we were determined to bring our vision to life for this new Malaysian factory. Our investment and hard work have now paid off and we can't wait to welcome customers to see the new facility. Our first plants have already been delivered and the future is very bright."



An aerial view of the factory floor.



Assembly process at the factory.



Daniel Chan, chairman (left) and Tan Suan Yap, executive director of Lintec & Linnhoff Holdings inaugurate the Group's new manufacturing facility in Johor.



The Lintec & Linnhoff team celebrates the launch of the new factory.

The factory employs a team of 50, which is expected to grow in the coming months. Being strategically located in Johor, the plants can be shipped easily to customers across Asia, the Middle East and Africa via the three ports in close proximity, said Lintec & Linnhoff. Some plants will be transported by land to Singapore, before shipping via Jurong Port. Others will go via two other nearby Malaysian ports in Johor. The new factory is just 36 km from the Lintec & Linnhoff global headquarters in Singapore.

The current facility is phase one of the planned development for the whole site that covers 282,000 sq ft. During the launch of the manufacturing facility, Lintec & Linnhoff had a groundbreaking ceremony to launch phase two of the development that further expands the facility by 76,850 sq ft. This expansion is in line with the company's plans to manufacture Lintec containerised asphalt and concrete plants in the facility. Along with this, there will be further investment in additional equipment for the factory to increase production capacity and efficiency.

According to Lintec & Linnhoff, phase three of the development will further expand the open-yard area for storage of stock plants and components, and create more space to conduct rigorous testing and erection of multiple plants before they are delivered.

The first plant to roll off the production line was a Eurotec ECO60 concrete plant, which was shipped to a customer in Madagascar. The second order was for a Eurotec Ecotec ECT60 concrete plant and a Linnhoff TSD1500 MobileMix asphalt plant, which went to a customer in Papua New Guinea. ■



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Samwoh opens new HQ, championing sustainability in Singapore's built environment sector

One of Singapore's leading integrated engineering and construction companies, Samwoh Corporation, has opened its new headquarters. Named Samwoh Smart Hub, it is the first positive energy industrial building in Singapore.

As a home-grown enterprise, Samwoh has played a pivotal role in Singapore's infrastructure development for close to 50 years. The company continues to lead the charge for transformation in the industry by championing the application of sustainable construction materials and innovative digital technologies that will shape the future of built environment.

"The completion of Samwoh Smart Hub is Samwoh walking the talk in our sustainability journey. When we conceptualised our new home, we aimed to provide a fruitful learning ground for many built environment and energy professionals; a platform to showcase and inspire others in the drive towards greater sustainability among our built environment community," said Eric Soh, CEO of Samwoh.

"We also expect the hub to deliver real benefits to Singapore by lowering carbon emissions, supporting the development of the Sungei Kadut Eco-District, and serving as a centre for the innovation of more sustainable construction materials and environmental technologies. At Samwoh, we continue to be passionate about building a liveable and sustainable Singapore for future generations."

According to Samwoh, the Samwoh Smart Hub is achieving energy surplus of about 25%. Atop its roof, there are about 2,600 solar panels which potentially can power about 300 HDB four-room flats a month. The new facility also houses the company's latest asphalt production plant, which is said to be 15% more energy efficient than conventional plants and can achieve carbon abatement of 1,220 t of CO₂ per year. This is equivalent to taking 265 cars off roads each year.

Located in the emerging Sungei Kadut Eco-District, the Samwoh Smart Hub features people-centric and collaborative work spaces for Samwoh's employees. The building is also home to the pioneering Samwoh Innovation Centre – the largest R&D centre in Singapore's construction industry – where the company's innovative recycled construction materials are developed and tested.



Located in the Sungei Kadut Eco-District, the new Samwoh Smart Hub is the first positive energy industrial building in Singapore. It was built using various types of recycled construction materials.



The facility is home to Samwoh Innovation Centre, where the company's innovative recycled construction materials are developed and tested.



The new hub also houses Samwoh's latest asphalt production plant, which is said to be 15% more energy efficient than conventional plants and can achieve carbon abatement of 1,220 t of CO₂ per year.

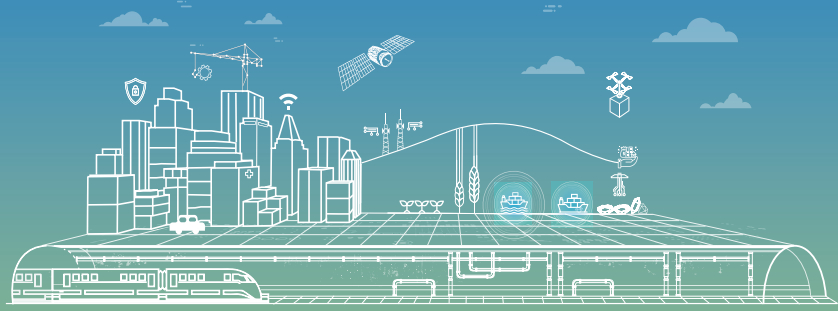
The Samwoh Research & Innovation team has successfully developed several first-of-its-kind sustainable products such as low carbon asphalt pavements, Eco-Green concrete, waste water treatment technology, and is currently trialling the use of processed plastic waste to produce asphalt.

In addition to adopting state-of-the-art technologies to bring down energy consumption, the Samwoh Smart Hub was constructed using various types of recycled construction materials. Repurposed sedimentary rocks from the Jurong Rock Cavern were also used to build certain areas of the hub.

The opening ceremony of Samwoh Smart Hub took place on 6 December 2022, graced by guest of honour Heng Swee Keat, Singapore's Deputy Prime Minister and Coordinating Minister for Economic Policies. ■

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Geo Connect Asia and Digital Construction Asia return in force in March

The 3rd edition of Geo Connect Asia on the 15th & 16th March in Singapore provides the opportunity to focus on how digital construction and geospatial-based solutions can drive productivity across the building and construction industries.

More than 100 companies will offer digital solutions, combining underground, surface and aerial technologies to assist developers, consultants, contractors, surveyors and engineers improve both their performance and connectivity across projects.

At the heart of the discussion is data, its management, storage and access, being the catalyst for operational and productivity enhancing improvements.

Digital Construction Asia, as an integral part of Geo Connect Asia, is the platform for exchange.

Drones Asia, as a co-located event, offers solutions for aerial data collection and facilities maintenance to offer cost effective methods of improving planning and operations.

In participating you will learn about the latest solutions but also be able to see how related industries are addressing similar challenges, with a focus on sustainability and resilience.



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Third runway at HKIA officially commissioned

The third runway at Hong Kong International Airport (HKIA) was officially commissioned on 25 November 2022, marking a key milestone for the airport's expansion into a three-runway system (3RS). A ceremony was held at the new Integrated Airport Centre of HKIA.

"Since the construction of the 3RS started in 2016, we have overcome many difficulties and challenges. The project is progressing on schedule with the new runway starting operation in July this year [2022]," said Jack So, chairman of Airport Authority Hong Kong (AAHK).

Construction work on the 3RS project started in August 2016. The formation of 650 ha of land (equivalent



to Hong Kong's 34 Victoria Parks) through reclamation was completed in around four years. In September 2021, a ceremony was held to mark the completion of runway pavement works.

The 3,800-m-long runway started its operations in July 2022.

According to AAHK, the expansion of Terminal 2, construction of T2 Concourse, a new baggage handling system and automated people mover system are scheduled for completion in 2024 on time and within budget. ■

LEFT: A water salute for the first arrival flight to mark the commissioning of the third runway at HKIA.

Auger Torque forms partnership in Thailand

In an ongoing effort to increase product availability, regional fabrication capability and technical support, global manufacturer of earthmoving attachments Auger Torque has established a regional manufacturing and distribution partnership with TC Brothers Thailand.

According to Auger Torque, TC Brothers Thailand has an exceptional facility and is capable of manufacturing anything within the Auger Torque range alongside specific custom-made parts. TC Brothers keeps a large amount of standard Auger Torque products in stock and has direct access to the factory locations within the region.

"I believe that TC Brothers' commitment, first-class manufacturing facility, stock on the ground, engineering staff, sales team, English language

capability and location put them in a position to serve and support existing dealers and customers in the region at an extremely high level," said Kelvin Hamilton, managing director at Auger Torque Australia.

Auger Torque sees this partnership as a great way to improve the speed, service and support of its growing dealer network and number of customers using its attachments within the region.

Any parties interested in becoming a dealer, please contact Auger Torque (www.augertorque.com.au) or TC Brothers (www.tc-brothers.com) directly. ■

RIGHT: Representatives of Auger Torque and TC Brothers at bauma Munich in October 2022.



Black & Veatch to deliver seawater desalination plant in Indonesia

PT Freeport Indonesia (PTFI) has appointed Black & Veatch to design and manage the delivery of a seawater desalination plant for its Manyar Smelter in East Java, Indonesia, as part of its sustainable development commitments.

The seawater desalination plant will support the processing of mine concentrates from the Grasberg mine in West Papua. The new domestic copper smelter and refinery supports Indonesia's downstream strategy to further refine the processed mine concentrates and brings additional economic value to the local community and the country.

Black & Veatch, in collaboration with its joint operating agreement (JOA) partner PT Wika, will perform the engineering, procurement, construction and commissioning responsibilities for the seawater desalination plant.

The plant will be located adjacent to the Manyar Smelter Project. It will produce over 1,400 cu m/hr of desalinated seawater to support the copper smelter and precious metals refinery. Designed to process 1.7 million tonnes per year (MTPA) of copper concentrate, the US\$3 billion Manyar Smelter is anticipated to be the world's largest designed single line copper processing facility. ■

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IJM wins two building contracts in Penang

Malaysian contractor IJM Construction Sdn Bhd, a wholly owned subsidiary of IJM Corporation Berhad, has secured two contracts for the construction of a manufacturing facility and a commercial tower in Penang, Malaysia, totalling RM422.18 million.

One of the contracts was awarded by ASE Electronics (M) Sdn Bhd (ASEM), the Malaysian subsidiary of Advanced Semiconductor Engineering Inc, for the construction of its new chip assembly and testing facility. The contract value of this project is RM341.39 million.

Located in the Bayan Lepas Free Industrial Zone, the construction of ASEM's new semiconductor assembly and testing facility will comprise two buildings (Plants 4 and 5) with a built-up area of 982,000 sq ft. They will be constructed over two phases consisting of a six-storey production floor space, office space, multi-storey car parks, a link bridge as well as a centralised utility building base.

IJM Construction has taken possession of the project site following a groundbreaking ceremony on 10 November 2022. The project is scheduled for completion in 2025.

According to Liew Hau Seng, group CEO and managing director of IJM Corporation, ASEM has called for "green construction methods that emphasise ecological balance, conservation, and resource recycling and reuse to be adopted for the project. This aligns well with our group's sustainability agenda and proven expertise in constructing green building projects in Malaysia."

The other contract is for the construction of the 45-storey Maritime Signature commercial tower located at Karpal Singh Drive in Georgetown. Jurutama Sdn Bhd, a wholly owned subsidiary of IJM Construction, won this project with a contract value of RM80.79 million from Bionic Development Sdn Bhd in October 2022.

Construction of the commercial tower, comprising office suites, shop lots, duplex units and car parking podium, was set to commence in December 2022. It is expected to be completed within 42 months.



An artist's impression of ASE Malaysia's new manufacturing facility in the Bayan Lepas Free Industrial Zone. The development is scheduled for completion in 2025.

"Our solid track record for building construction has consistently enabled us to secure contracts from existing and new clients. These two job wins reaffirm IJM Construction's market leadership as the builder of choice in Penang," added Mr Liew.

Among IJM Construction's ongoing construction projects in Penang include Mezzo residential tower, a 34-storey hotel and office tower, Waterfront Shoppes retail mall and Penang Waterfront Convention Centre at The Light City, Gelugor, as well as a factory expansion for leading electronics manufacturing firm, ViTrox Corporation Berhad's facility in Batu Kawan Industrial Park.

"Despite continued economic uncertainty, the key markets in which IJM operates remain strong and with our continued policy of developing key strategic relationships with both our clients and supply chain, we are confident that the recent order book wins will place the company in a secure position for the future," said Mr Liew. ■

Pan-United becomes Asia's first concrete company to offer on-demand Environmental Product Declarations

Singapore's Pan-United Corporation Ltd has become the first concrete company in Asia to provide on-demand Environmental Product Declaration certificates (EPDs) that quantify the environmental impact of over 300 specialised concrete solutions in its portfolio. Customers can conveniently make better decisions on the low-carbon concrete options to be used and reported in their projects.

An EPD is a third-party-verified disclosure report documenting the materials and environmental impact of a product based on a cradle-to-grave life cycle assessment. It represents the product's 'climate change total' or 'global warming potential' quantified in terms of 'kg CO₂e' (kilogramme equivalent of carbon dioxide). The EPDs for Pan-United's concrete mix designs are independently audited to international standards such as ISO 14025 and EN 15804.

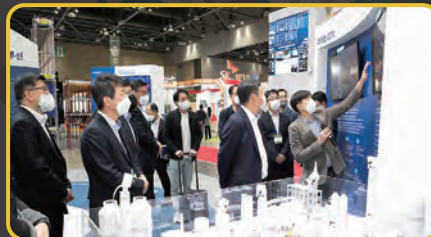
As EPDs provide accurate and credible environmental data, developers, as well as their appointed contractors and consultants, can make better decisions to lower the embodied carbon footprint of their projects. More accurate carbon reduction targets can be set in advance and greener concrete mixes can be chosen at the planning stage.

Notably, Pan-United's EPDs support customers' sustainability efforts by providing ready access to the necessary environmental impact data for certifications such as the BCA Green Mark scheme. May Ng, CEO of Pan-United Corporation Ltd, said, "We are pleased to be the first concrete company in Asia to provide EPDs on demand to our customers. These EPDs can contribute meaningfully to meeting global emissions reduction targets, particularly for embodied carbon, and advance the built environment's transition towards net zero emissions." ■

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2022 MAJOR EXHIBITORS



MRT Putrajaya Line to be fully operational in March 2023

Malaysia's Mass Rapid Transit Corporation Sdn Bhd (MRT Corp) has announced that the construction work on the MRT Putrajaya Line Phase 2 from Kampung Batu Station to Putrajaya Sentral Station has been completed and is currently in the operational readiness phase.

The 38.7-km-long section of the Phase 2 alignment, which consists of 15 elevated stations and nine underground stations, is expected to be operational in March 2023.

Last year, the 17.5-km-long Putrajaya Line Phase 1 alignment which features 11 elevated stations from Kwasa Damansara to Kampung Batu, began serving the public on 16 June 2022.

A total of 36 stations will serve the 56.2-km-long Putrajaya Line when it is fully operational. Passengers will be able to transfer to other existing rail lines at 10 different interchange stations, providing convenience and seamless transfer to their preferred destinations.

The interchange stations are Kwasa Damansara (with Kajang MRT Line), Sungai Buloh (with KTM), Sri Damansara Timur (with

KTM), Kampung Batu (with KTM), Titivangsa (with Ampang and Sri Petaling LRT Lines, KL Monorail), Ampang Park (with Kelana Jaya LRT Line), Tun Razak Exchange (with Kajang MRT Line), Chan Sow Lin (with Ampang and Sri Petaling LRT Lines), Sungai Besi (with Sri Petaling LRT Line) and Putrajaya Sentral (with ERL and KLIA Transit Lines).

During this operational readiness phase, Rapid Rail Sdn Bhd as the operator of the Putrajaya Line is conducting the final trial operations together with the turnkey contractor, MMC Gamuda KVMRT (PDP SSP) Sdn Bhd. The final trial operations are instrumental to ensure that all systems and procedures work effectively, especially the integration of systems, operations and operator readiness.

To date, the testing and commissioning – which includes the 4,000 km Fault-Free Run (FFR) test – has been completed successfully, said MRT Corp. The exact date for the commencement of Phase 2 operation will be announced once the approval process has been finalised with the relevant authorities. ■

Haulotte invests in MEWP talent training in China

Haulotte China and Changzhou Vocational Institute of Mechatronic Technology recently held a signing ceremony to mark their cooperation on MEWP talent training in a facility located in Changzhou, China.

Harry Wang, general manager of Haulotte Shanghai, explained that Haulotte, as a century-old and leading MEWP manufacturer in Europe, was first established in France, and it has always regarded the training of technical talents as one of the top priorities.

"We recognised the shortage of professionals for MEWP industry and the demand of rental companies for excellent service engineers during our business development in China and cooperation and communication with customers, so it is imperative to train MEWP talents."

Mr Wang also pointed out that Haulotte's working closely with Changzhou Vocational Institute of Mechatronic Technology, a leading vocational education organisation in China, will



Haulotte partners with Changzhou Vocational Institute of Mechatronic Technology for MEWP talent training in China.

continuously develop excellent technical talents for the MEWP industry and rental company customers in the future.

Furthermore, the move is the response of Haulotte to the initiative 'Strive to foster a team of engineers' as an important deployment of 'accelerating the development of national strategic talents' proposed by the Chinese government in 2021.

Zhu Ping, CPC committee deputy secretary of Changzhou Vocational Institute of Mechatronic Technology, said that

Haulotte is the first MEWP manufacturer to utilise the industry-education integration to cooperate with the colleges, and the pioneer in promoting the development of the industry and training talents for the MEWP industry.

"Through all-round cooperation and being deeply integrated with each other, we expect to complement each other's strengths and cooperate to train high-quality MEWP talents and highly skilled outstanding engineers," said Mr Zhu. ■

Leighton Asia secures high-rise residential project in India

Leighton Asia has won a contract to build the Aga Hall Estate, a high-rise residential project in Mumbai, India. Construction works comprise the delivery of two residential towers, which feature 45 storeys and 56 storeys, including three basements and five podiums across a 4.5 acre site with a total built-up area of approximately 153,700 sq m.

Construction of the project is scheduled to commence in January 2023 and complete in 2026. The contract will generate revenue of approximately A\$150 million for Leighton Asia. ■



RIGHT: The project comprises two residential towers featuring 45 storeys and 56 storeys.

Paya Lebar Green project in Singapore breaks ground

Certis and Lendlease have officially broken ground on the new Paya Lebar Green – set to be one of Singapore’s most advanced, green, smart-tech and super low-energy decentralised Grade-A workplaces.

The companies said that the redevelopment, part of the wider Paya Lebar commercial centre, will feature best-in-class facilities management, green building techniques and technologies as well as sustainable building design and placemaking for a future-ready workplace prioritising the health, well-being and productivity of both tenants and Certis employees.

While Paya Lebar Green will continue serving as Certis’ global headquarters, the redevelopment will create about 220,000 sq ft of prime, decentralised Grade-A office spaces complete with end-of-trip facilities and Green Plot Ratio of 3.0.

Sustainable construction

Lendlease will bring its expertise in green and sustainable construction with a focus on minimising environmental impact by reducing direct harmful emissions onsite, recycling building materials, and using low embodied carbon materials and renewable energy sources.

Lendlease will also apply an innovative modular construction of the mechanical, electrical and plumbing (MEP) system and maximise prefabrication solutions. As a result, the project is slated to attain a more than 80% overall recycling rate for construction and demolition waste.

Paya Lebar Green will comprise two buildings. Building 1 has received the International WELL Building Institute (IWBI) WELL Core Silver pre-certification for prospective tenants’ health and well-being, and was also awarded the WiredScore Platinum certification, which is the global accreditator’s highest-awarded mark.

Building 2 has also received the WiredScore Gold standard for digital connectivity rating. As an entire development, Paya Lebar Green is on track to be certified by the Building and Construction Authority (BCA) as Green Mark 2021 Platinum-Super Low Energy upon its completion in 2024.

Various tech-enhanced health and well-being features will be available as well, from embedded solutions such as natural ventilation, enhanced filtration systems and bi-polar ionisation, to IoT sensors measuring occupancy, light levels and temperatures for a comfortable yet sustainable working environment, while providing environmental data analytics for continuous operational efficiency improvements.

Aside from its quality indoor environment, Paya Lebar Green will also feature biodiverse, vertical greenery. The embedded smart and sustainable solutions will help achieve greater energy performance for the buildings. In addition, a high-performance double-glazed facade and air-conditioning mechanical ventilation (ACMV) system will facilitate the development in achieving BCA’s Green Mark 2021 Platinum-Super Low Energy rating with more than 60% energy savings.

What’s more, Certis has been advancing its smart facilities management (FM) capabilities and will be integrating the full suite of its tech-led capabilities including artificial intelligence (AI), Internet of Things (IoT) and robotics into Paya Lebar Green. ■

RIGHT: Lendlease will also apply an innovative modular construction of the mechanical, electrical and plumbing (MEP) system and maximise prefabrication solutions.



TOP AND ABOVE: Paya Lebar Green will feature green and sustainable construction with a focus on minimising environmental impact by reducing direct harmful emissions onsite, recycle building materials, and use low embodied carbon materials and renewable energy sources.



The development is slated to attain a more than 80% overall recycling rate for construction and demolition waste.



All images © Paya Lebar Green

Manitou presents hydrogen development strategy

With a target of reducing greenhouse gas emissions by 34% per hour of use of its machines in 2030, Manitou Group has set off on an ambitious course, in line with the commitments of its low-carbon trajectory communicated in January 2022 and validated by the SBTi in July.

Following on from the recent electrification of its all-terrain platform and telehandler ranges, Manitou is also looking to hydrogen as a medium-term alternative for its users. The group wants to see its electric and hydrogen ranges side by side depending on each user's applications, with a target of 43% low-emissions products marketed in 2030.

Hydrogen-powered prototype telehandler

Manitou has presented its new facilities for making its hydrogen development plan a success to journalists and elected representatives. By kitting its test centre out with a green hydrogen station, the group now has the means for testing its brand new prototype telehandler.

The first step of this plan involves guaranteeing range and reliability in real-life conditions, while testing the durability of components. The group based this first prototype on an existing model from its range of construction machines, capable of lifting loads up to 14 m. This machine will be tested and sent out to construction sites by the end of 2023 with a view to collecting valuable feedback from users to improve on this prototype.

Two types of hydrogen technology are currently being evaluated by the market, namely the combustion engine and the fuel cell. Manitou's first prototype is built around a fuel cell, but the group said it will choose the hydrogen solutions that best meet the needs of its customers.

"We are studying all the hydrogen-related technologies based on what users need. This prototype is only the first step. A second rotating telehandler prototype will be developed in the coming months. There are many benefits of green hydrogen with production possible using wind power that has no greenhouse gas emissions at all. This fits in perfectly with our low-carbon trajectory," said Michel Denis, managing director of Manitou Group.

With this first prototype, Manitou is showcasing its ability to innovate in order to measure the autonomy of this new energy while offering its customers the hydrogen solution that best meets their needs, but without compromising on performance. According to the group, almost 50 engineers and technicians are dedicated to this approach, which was launched in 2021.

To come up with an innovative solution that can be fully industrialised, Manitou hopes to rely on the support of the public authorities to develop an emerging ecosystem. Julien Waechter, VP R&D at Manitou Group, explained, "The green hydrogen sector is gradually becoming more established with the entry onto this market of a number of players.

"All of the aid mechanisms proposed by the different governments will encourage the transition to hydrogen, and will speed up the development of the distribution network and ultimately the reduction in the usage costs of our machines using this energy."

With these new facilities, Manitou intends to offer its customers new innovative prospects, with a 100% hydrogen-powered telehandler available on the market by 2026. ■



Manitou Group has revealed its roadmap for research and development on hydrogen-powered machines.



As part of this strategy, the group has developed its first prototype telehandler running on green hydrogen.



Manitou intends to offer a 100% hydrogen-powered telehandler to the market by 2026.

Global modular construction market to witness growth as demand for efficient construction methods rises: Repot

According to Frost & Sullivan's recent analysis, 'Global Modular Construction (MC) Growth Opportunities', a shift in awareness towards the use of modular buildings because of the Covid-19 pandemic has unlocked growth opportunities in the MC market globally.

Prefabricated or off-site constructed building units, including walls, floors, rooms and frames, are associated with the industry. In response to socioeconomic trends such as the labour shortage, sustainability and customer demand, MC aims to address the post-pandemic era's call for more efficient construction methods. As a result, the global MC market is expected to grow at a compound annual growth rate (CAGR) of 5.5% to US\$142.06 billion by 2028, up from US\$103.09 billion in 2022.

"Customers' surging preference for modular buildings in the post-pandemic era has encouraged MC market participants to broaden their manufacturing and assembly design capabilities," said Melvin Leong, Homes & Buildings senior director at Frost & Sullivan. "The move will increase the use of digital solutions to speed up modular building design and approval processes and focus on sustainable manufacturing practices."

Mr Leong added, "The next two to three years will see the use of MC to build healthcare facilities and schools in rural areas and temporary housing for displaced populations. Therefore, market participants must work with engineers and architects to improve modular building design in response to changing demand for



Modular construction aims to address the post-pandemic era's call for more efficient construction methods.

indoor air quality and sustainability."

To tap into the growth prospects of the expanding MC sector, market participants should: develop end-to-end capabilities in MC product design, customisation, manufacturing, installation and maintenance; establish partnerships with companies from other industries, enhancing internal processes (for example, design, production and assembly) that will add value to customers; collaborate with government agencies to improve MC regulations to create uniform standards; and develop green MC products that promote sustainability and energy efficiency during the building life cycle. ■

'World's tallest 3D printed building' is now in Saudi Arabia

Saudi Arabia-based developer Dar Al Arkan has unveiled its three-storey 3D printed villa made using a 3D construction printer from COBOD International. The project is located in Shams Al Riyadh, northwest of Riyadh, the capital of Saudi Arabia, in a new development project of 12 mil sq m of land, which is part of the Saudi Vision 2030.

Wael Al Hagan, 3D construction printing project manager at Dar Al Arkan, said, "Our efforts are focused on developing the kingdom's real estate sector by integrating the latest trends and technologies, drawn from global best practices to enhance our industry locally and deliver on the objectives of Vision 2030. The introduction of 3D construction printing enables us to focus on greater flexibility of design, strengthen productivity and achieve higher cost efficiency."

The three-storey, 345 sq m house features a total height of 9.9 m, making it the tallest on-site 3D printed building in the world, said COBOD. The first floor has an area of 130 sq m, which includes a spacious hall with several living areas, a kitchen and two toilets. The second floor is 140 sq m with three bedrooms (one of which is a master bedroom), two bathrooms, a living room and a balcony.

The third floor covers a roof annex, which holds a maid's room with a bathroom, a multipurpose hall and a laundry room. Although it consists of three floors, in Saudi Arabia such a building is referred to as a two storey + annex, due to the third floor being somewhat smaller than the first two floors.



The three-storey house has a total height of 9.9 m, dubbed the tallest on-site 3D printed building in the world.

The project was carried out using local materials and the D.fab solution developed by Cemex and COBOD. This solution allows COBOD customers to source 99% of the concrete materials locally, while only relying on 1% sourced from a central location. According to COBOD, less than €10,000 was spent on the printed materials.

Following the printing of the first villa, Dar Al Arkan has now moved the printer to use on another villa project. ■



CALENDAR OF EVENTS

// Events in Asia

bauma Conexpo India

31 Jan to 3 Feb 2023

India Expo Centre (IEC)
Greater Noida, Uttar Pradesh, India
Website: www.bcindia.com

Modular & Pre-Con Korea

16 to 19 Feb 2023

Korea International Exhibition Centre (KINTEX)
Goyang, South Korea
Website: www.modularkorea.com

Geo Connect Asia

15 to 16 Mar 2023

Sands Expo & Convention Centre
Marina Bay Sands, Singapore
Website: www.geoconnectasia.com

BuildTech Asia

28 to 30 Mar 2023

Singapore Expo
Singapore
Website: www.buildtechasia.com

Trenchless Asia

17 to 18 May 2023

Kuala Lumpur Convention Centre
Kuala Lumpur, Malaysia
Website: www.trenchlessasia.com

Korea International Construction & Industrial Safety Expo (K-Con Safety Expo)

13 to 15 Sept 2023

Korea International Exhibition Centre (KINTEX)
Goyang, South Korea
Website: www.k-consafetyexpo.com

// Events outside Asia

World of Concrete

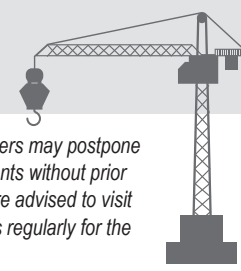
17 to 19 Jan 2023

Las Vegas Convention Centre
Las Vegas, Nevada, USA
Website: www.worldofconcrete.com

Conexpo-Con/Agg

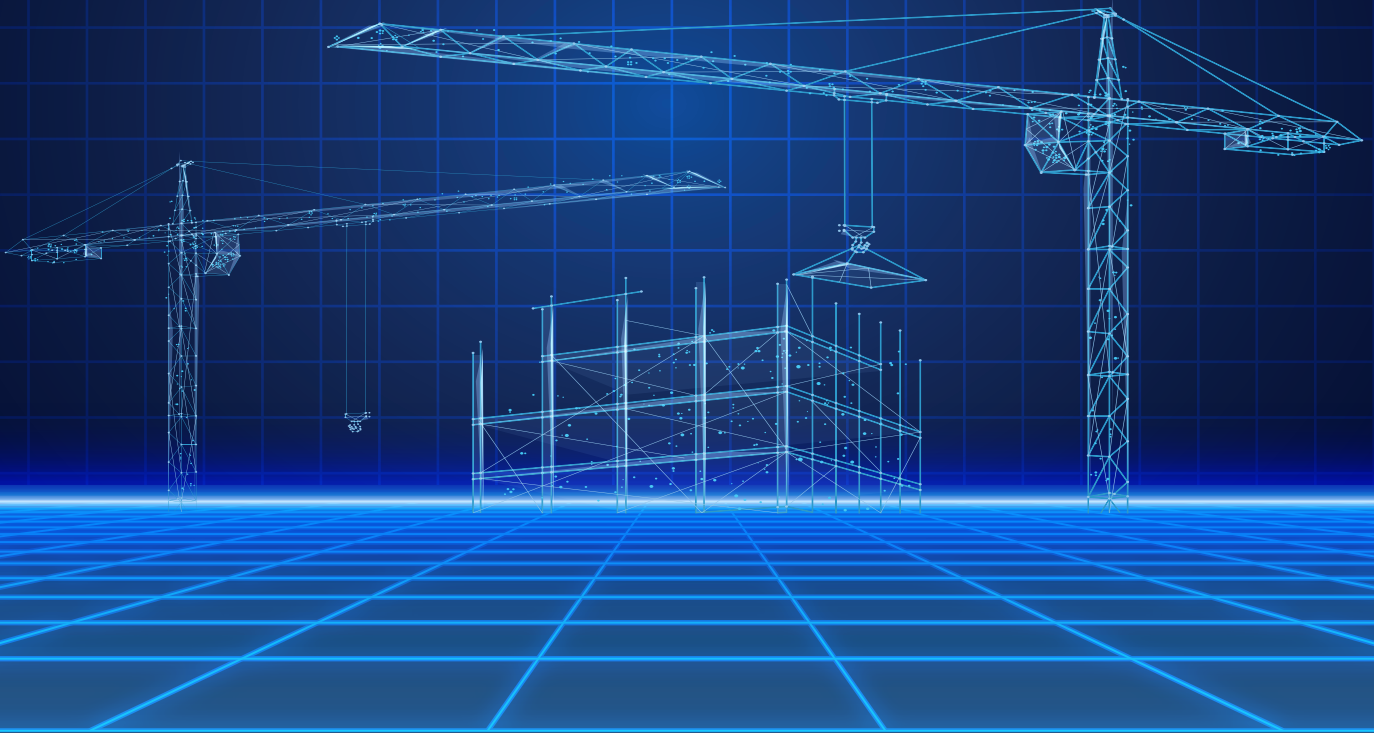
14 to 18 Mar 2023

Las Vegas Convention Centre
Las Vegas, Nevada, USA
Website: www.conexpoconagg.com



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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Women in powered access training

The International Powered Access Federation (IPAF) launched its Women in Powered Access initiative back in May 2022. Inspired by IPAF president Karin Nars, who became the first woman elected to the role when confirmed at the IPAF AGM in London in March, the initiative aims to showcase opportunities open to women – both those already working in roles in powered access and those considering joining it.

In her address to the IPAF Summit, Ms Nars said, “Inclusion is important because it enables people to share different perspectives in a supportive environment. Safety is a joint effort to which everybody can and should contribute – we cannot afford to exclude anybody from the conversation surrounding safety.

“An important first step is to encourage more women to bring their knowledge, passion and work ethic to our industry. We already have thousands of women in our industry whose stories have not been told. And their stories are something young women need to see and hear – to help them become inspired and learn about paths women have taken in our industry.”

IPAF said the response to its initiative has been very encouraging, with women from across the spectrum reaching out to share their stories about what inspires them in their roles and to impart advice to others seeking to follow in their footsteps.

Powered access training

Adele Coupe is training manager at Certora Training, an independent UK company with centres in locations including Bromsgrove, Chesterfield and Livingston. She is also currently serving a second term on IPAF’s Training Committee. She was one of the first people to get in touch with IPAF when the Women in Powered Access initiative was launched.

“I recently celebrated 22 years in the industry,” she said. “I got involved in June 2000, working for a Manchester company that was selling IPAF training. I moved to Derbyshire in 2002 and following this relocation, I joined Mentor in 2010 [the company has since rebranded as Certora Training] as a training coordinator, and quickly became access equipment account manager, responsible for expanding IPAF training sales and developing this side of the business.

“I have since become the training manager and part of my role includes arranging standardisation meetings for instructors, measuring the quality performance of our services, and ensuring the business is up to date on industry changes.

“It’s fantastic that IPAF is encouraging more women to join what is still a predominantly male-dominated industry, I am proud to be involved in this initiative.”

Ms Coupe also invited Emily Bonsall, Certora’s managing director, to share her story as part of the initiative. Hers is certainly an inspirational story of a rapid rise from industry entrant to someone in a position of seniority. “I joined Mentor Training in 2003 as a marketing assistant for a year’s work placement from university,” she recounted. “As a 20-year-old, I wasn’t even really aware of the industry, let alone considering working in it – I soon realised it had so much to offer.

“In 2005 when I graduated, I returned to Mentor as a marketing coordinator. I have been lucky enough to work in an organisation that allows individuals to grow and develop with no limits on their aspirations, regardless of their gender, hence my role today! Working in all departments and gaining experience



IPAF’s Women in Powered Access initiative aims to showcase opportunities open to women – both those already working in roles in powered access and those considering joining it.

directly associated to training delivery, course creation, developing standards and the associated marketing – I can honestly say that I have never been bored!”

The sheer variety of the work in powered access is a theme that many of the women we have spoken to touch upon. As Debbie Lewis, an IPAF independent instructor, commented, “This is a very rewarding job and there are lots of opportunities to gain new skills and pass this knowledge on to your training delegates. Every day is different – no two days are the same!”

Kate Bell, head of UK training for Nationwide Platforms, part of the Loxam Group, echoed the sentiment. “What I love about this industry are the hard-working people that you meet and the challenges we face – no two days are ever the same. I get to play a part in assisting our customers from personal and professional development through to fulfilment and completion of a project – with safety being paramount, so everyone goes home safe to their families and loved ones at the end of each day,” she said.

“The customers we work with are fantastic, really safety-conscious owing to their high-risk working environments. This creates agile and innovative thinking, which in turn inspires me.”

This focus on safety being the key driver of a passion for quality training is another recurring theme, and a worldwide one at that. Sara Trabucchi, training manager of Elevo-Kiloutou in Italy, said, “I am fascinated by aspects of safety; I love giving operators the tools to allow them to go home in the evening after working with MEWPs.”

Ms Coupe further shared her passion. “I try to make a real impact with my work and help others. I’ve been an ambassador for training for a long time, coupled with a passion for safety in the industry. I hope to continue to make a difference and contribute towards helping people get home safely after working at height.”

Anna Sara Costa Morais, an-IAPA shortlisted operator training Instructor with Mills, a major rental company and training provider in Brazil, also emphasised safety as a key driver in her career. “MEWPs offer different solutions to a real problem that I experience in this role, and I fell in love with the concept that yes, it is possible to perform work at height in a safe way.

“I embrace this as the perfect professional development project, to specialise more and more in safe methods of operation of MEWPs to work at height. More and more new technologies keep arising to benefit safe operation; I want to continue to learn and to share my knowledge.”

Ms Bonsall added, “Seeing people develop their skills, knowledge and behaviours and creating an environment where they can be successful. Whether they be learners attending one of our training courses, instructors and assessors delivering training, or members of my team. I am inspired when I see how our services and the industries that we operate in have such a positive impact on the capabilities and safety of others.”

Ms Lewis also finds fulfilment in helping people overcome their fears to boost their skills and confidence. “I try my best each day to give my training delegates confidence through gaining a qualification that helps them in their workplace. I also enjoy helping them overcome their fear of heights and try to make the day as enjoyable as possible for them – it’s very rewarding seeing people achieve something that they thought they couldn’t do.”

When it comes to offering a few sage words of advice to other women in the industry or those plotting a new career path, all are full of encouragement for those who would follow in their footsteps.

Ms Bell said, “If you are thinking about joining the industry and are looking for a diverse, challenging and rewarding career, just do it! For those who are already within the industry and are wanting to progress their career further – set yourself some goals and arrange a structured feedback session with your line manager.

“Don’t be afraid to ask what you need to do to progress those goals; self-awareness and the willingness to evolve is key. Above

all, always be yourself, stay focused and be inspired! Gender should not determine your success, only you can do that!”

Likewise, Ms Bonsall is keen to convey her enthusiasm to potential new entrants into the world of powered access. “Get involved – it is a great industry to work in and one I can honestly say I’ve never struggled in, regardless of the demographic split. There are so many opportunities, from administration to compliance, marketing to engineering, finance to instructing.”

Ms Trabucchi agreed. “The keystone is competence and knowledge: I wanted to learn everything about MEWPs. It’s not a job that everyone can do, you must have a great desire to learn, to get your hands dirty and to be around people.

Frontline instructors Ms Lewis and Ms Morais are also resounding in their advice to not let the perceived gender imbalance in the industry put women off. “If you have good communication skills and enjoy meeting lots of different types of people, this is an excellent career choice,” said Ms Lewis.

“Don’t think this is not a role for you, it is suitable and rewarding for either a man or woman. If you can work on your initiative and communicate well with people, then give it a go! I love my job and look forward to every day!”

“It is worth saying that difficulties still exist,” admitted Ms Morais. “But [women’s] perception, resilience and plurality only add value to work teams, allowing us to dream big and to go far!” ■

Website: www.ipaf.org/en/ipafs-women-powered-access-initiative

IPAF hosts successful Singapore event

Around 400 industry stakeholders and safety professionals in Singapore have participated in a webinar and members’ meeting hosted by the International Powered Access Federation (IPAF) on 11 November 2022. The webinar was followed by an in-person dinner and networking session for all IPAF Singapore members, in a new format conceived by members of IPAF Singapore Country Council to maximise attendance and convenience.

The webinar was hosted via Zoom and attracted more than 400 registered attendees. The objective was to inform all stakeholders on issues relating to the safe use of powered access and was organised in collaboration with IPAF Singapore Council members. In the context of a concerning trend of workplace incidents involving powered access in Singapore, IPAF and its Singapore members created the webinar to aid safety practitioners in their efforts to promote the safe use of powered access.

Raymond Wat, IPAF regional general manager for Southeast Asia, began his presentation with the question: “What are the elements to ensure a safe use of MEWPs ecosystem at your workplace?” He went on to outline 18 key elements involved in the safe use of mobile elevating work platforms (MEWPs), as well as the free IPAF resources available to assist in implementing these.

Bryant Ee, an IPAF Singapore Council member, then presented on safety features on MEWPs, in which he emphasised the importance of the operators’ awareness of the features specific to various types of boom and scissor lift. He highlighted how a thorough knowledge of the machine can make a big difference in the outcome of any serious incident encountered by operators.

The webinar was followed by a meeting specifically for IPAF Singapore members. The meeting considered several agenda items, while also facilitating the introduction of new members. Items considered included the location of the IPAF Asia Conference & Showcase 2023, the election of IPAF Singapore Council members,



IPAF Singapore recently organised a webinar, meeting, dinner and networking session.

and planning activities and campaigns for 2023.

IPAF Singapore members were also invited to join an in-person event hosted by Aver Asia, and co-sponsored by Omni Machinery, Galmon (Singapore), TVH Singapore, Lian Hup Brothers, and Manitou Asia. Around 35 attendees took part in the dinner and a networking session to catch up with each other for the first time since the Asia Conference in July.

The networking session began with a speech from each sponsor, with TVH Singapore and Manitou Asia offering their premises as venues for future events. Mr Wat suggested future in-person gatherings in the first and final quarters of 2023 at the proposed locations. ■

IPAF has announced that the next Asia Conference & Showcase will take place in Bangkok, Thailand, in August 2023. The date and venue will be confirmed in due course.

Conexpo 2023 set for biggest show yet

Conexpo-Con/Agg, already recognised as the largest trade show in North America, has officially sold all available exhibit space, guaranteeing the 2023 edition will be the biggest in its history, announced the organiser Association of Equipment Manufacturers (AEM).

“The addition of the new West Hall and Diamond Lot at the Las Vegas Convention Centre gave us, and our exhibitors, a number of new opportunities to show how we are taking the construction industry to the next level,” said Dana Wuesthoff, Conexpo-Con/Agg show director. “Now at 2.8 mil sq ft of exhibits, there’s more for construction pros to see than ever before.”

AEM shared that the show, now nearly 5% bigger than the record set in 2020, will feature 1,800 exhibitors and 150 education sessions during its run from 14 to 18 March 2023. Plus, the current pace of attendee registration is nearly double what it was at this time for the 2020 show.

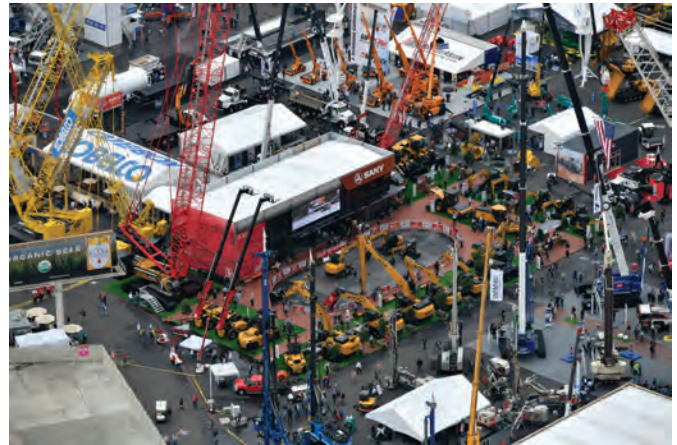
Despite being the largest Conexpo-Con/Agg ever, recent additions to the Las Vegas Convention Centre (LVCC) will make it the easiest to get around as well. Beneath the entire LVCC campus runs the Convention Centre Loop, an underground transportation system designed by Elon Musk’s The Boring Company that transports convention attendees throughout the campus in under two minutes in Tesla vehicles, free of charge.

“We are excited to welcome Conexpo-Con/Agg back to Las Vegas for another record-setting event,” said Brian Yost, chief operating officer of the Las Vegas Convention and Visitors Authority (LVCVA), which owns and operates the LVCC. “The addition of the West Hall and the Convention Centre Loop will only further enhance the ‘Only Vegas’ experience for attendees and exhibitors.”

“This is the event that construction professionals, especially those making company-level decisions, and those needing professional development hours, can’t miss,” said Phil Kelliher, Conexpo-Con/Agg show chair and senior vice president of Caterpillar.

“Seeing the new equipment and techniques on a screen doesn’t compare to seeing it all in person. At the show, you can see the equipment, ask questions of the manufacturers themselves, and really understand what the equipment and education can do for your career and business.” ■

Website: www.conexpoconagg.com



ALL IMAGES: Conexpo-Con/Agg 2023 will feature 1,800 exhibitors and 150 education sessions during its run from 14 to 18 March, set to be the biggest in its history.

Next Geo Connect Asia to be held in March 2023

Geo Connect Asia will return on 15-16 March 2023 at the Sands Expo & Convention Centre, Marina Bay Sands, Singapore, combining an exhibition of more than 100 companies and a series of conferences.

The Main Stage Conference theme, 'Advancing sustainable & resilient geospatial solutions for an interconnected world', reflects the need to respond to sustainability goals with the pressing challenges associated with climate change, urban growth and food security.

Organised by Montgomery Asia, Geo Connect Asia 2023 incorporates Digital Construction Asia and is co-located with the inaugural Drones Asia show. The combined event is expected to attract more than 3,000 delegates and visitors from Singapore, the Asian region, and beyond.

Supported by the Singapore Land Authority, Geo Connect Asia offers a platform for Southeast Asia's governments, businesses and not-for-profit sectors to bring geospatial, locational intelligence and remote sensing into the mainstream.

In addition to the main conference, the Digital Underground Connect Expert Stage returns with the title 'Advancing Subsurface

Utility Mapping for Construction and Asset Management'.

A second Expert Stage runs with the theme 'A data driven roadmap for measuring sustainability in the construction world; a third Expert Stage on road and rail infrastructure is in formation.

In a diverse region of 640 million people, ASEAN (Association of Southeast Asian Nations) shares both common values and ambitions as it looks to grow into becoming the world's fourth-largest trading economy.

Demands on managing its resources will be supported with the co-location of the UNGGIM seminar titled 'Geo-enabled effective land administration'. The seminar is co-organised by the United Nations Expert Group on Land Administration and Management (UN-EG-LAM) and the UN-GGIM-AP Working Group 2 on Cadastre and Land Management.

According to Montgomery Asia, Geo Connect Asia 2023 has received the support of more than 30 industry organisations. It welcomes Trimble as Platinum Sponsor for the third consecutive event and Topcon as a Silver Sponsor for the first time at the event.

The last edition of Geo Connect Asia took place on 1-2 June 2022, attended by close to 2,000 geospatial professionals from 36 countries. The event drew over 40 exhibitors from 14 countries, plus 79 prominent speakers and moderators. ■

Website: www.geoconnectasia.com



ALL IMAGES: Geo Connect Asia 2023 incorporates Digital Construction Asia and is co-located with the inaugural Drones Asia show.



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Caterpillar Global Operator Challenge – APAC Finals

The 2022/2023 Global Operator Challenge (GOC) is the second time that Caterpillar has hosted the event globally. More than 10,000 machine operators from around the world applied to join this competition. Seventy-five Cat dealers from 35 countries held preliminary events qualifying operators for regional semi-finals.

In the end, these global dealers hosted 3,500 operators for the initial phase of the competition. Of the 3,500 that competed in their local dealer events, 84 operators progressed to one of four regional semi-finals held in Spain, the US, Brazil and Japan.

Having beaten the competition in Cat dealer events in their respective home countries, 13 contestants from five Asia Pacific countries (India, Indonesia, Japan, Philippines and Australia) battled it out once again at the Global Operator Challenge Asia Pacific Regional Finals. It took place on 19-20 October 2022 at the Chichibu D-Tech Centre in Saitama Prefecture, Japan.

This time, to make the competition even more challenging and robust, Caterpillar has added the requirement that every event must feature three different challenges on three separate pieces of equipment. This means operators must master a broad assortment of machines in order to qualify for the next round. Participants are scored based on their skills, efficiency, safety as well as their competence in using integrated technology to enhance the machine's performance.

The Asia Pacific Finals in Japan saw over 200 people in attendance, including customers, dealers, media and Caterpillar personnel. After two days of intensive competition on the 320 Next Gen with 2D, the 950M Z medium wheel loader and the 303 CR Next Generation mini excavator, the contestants proved their mettle and stood up to the challenges that tested their operational agility, mental toughness and skills in using integrated technologies to enhance machine performance.

"We are privileged to bear witness to some highly skilled manoeuvres, keen precision and intense focus during the challenges. It's an eye-opening experience to see how well our Cat machines can perform in the hands of experts," said John Fallows, Caterpillar's vice president of sales and marketing, Global Construction Industries, Asia Pacific. "The best machine without an operator cannot do much, but in the hands of a skilled operator, it can build wonders."

"This competition celebrates the operators, the people who come to work every day to build a better world in their communities under unbelievably difficult and challenging environments," added Toby Matthieu, Caterpillar's industry manager of sales and marketing, Building Construction Industries, Asia Pacific. "Their skills are needed more than ever today and we hope this competition can go a long way in helping tackle the talent shortage of skilled operators around the world."

Carl Thomsen, Caterpillar's senior product demonstrator instructor, who was at Chichibu to judge and score the Asia Pacific Finals, shared his thoughts on what he saw during the competition. "I had the privilege of assessing operators from Southeast Asia, Australia and Japan in the Global Operator Challenge Asia Pacific Regional Finals. The competitive spirit of the operators was very apparent," he said.

"With so much at stake, the contestants showed their determination to win by taking the challenges very seriously. All I can say is, look out Las Vegas, because we are sending three very determined professional operators your way!"



ALL IMAGES: Three winners from Asia Pacific will compete in the 2023 Global Operator Championship Finals in Las Vegas, to be held during Conexpo-Con/Agg in March.

The winners for the Global Operator Challenge Asia Pacific Regional Finals are: Masato Imai from Tanaka Industry, representing Sangyo NCD Japan; Patrick Doheny from CRE Group, representing William Adams Australia; and Nick Thompson from Modcon Civil, representing Cavpower Australia.

These three winners will have the chance to represent Asia Pacific against six other competitors from around the world at the 2023 Global Operator Championship Finals in Las Vegas, the US, to be held during Conexpo-Con/Agg in March. ■

Website: www.cat.com/operatorchallenge

Building Construction Technology Expo 2022 in Thailand

After a two-year hiatus, Building Construction Technology Expo (BCT Expo) returned to its face-to-face format from 21 to 23 September 2022, at the Impact Exhibition and Convention Centre in Bangkok, Thailand.

More than 3,760 trade visitors from 23 countries attended, which included VIP buyers, trade buyers, construction professionals, conference delegates, government officials, media, industry associations and construction-related educational institutions.

Themed ‘Towards Digitalisation of the Building and Construction industry – Are You Ready?’, the event saw over 120 exhibitors from eight countries showcasing their building and construction technologies, digital solutions, machinery systems and equipment, covering all sectors of the building and construction industry.

“We were very impressed with the quality of the many attendees at BCT Expo. Thailand is one market that we are intending to expand into, and with the many positive responses received at the event, it further reinforces our decision to set up a shop here. Next year, we will surely exhibit in a bigger way with the introduction of new construction technology and engineering solutions,” said Michael Chua, director of Skyspot Pte Ltd, Singapore.

“BCT Expo presented us with a great opportunity to meet with many prospects seeking construction technology solutions. In addition to Thai prospects, we have also made contacts with people from Singapore and Malaysia,” said Jeremy Pownall, head of APAC at Converge, the UK.

One of the highlights of BCT Expo 2022 was the business-matching programme. More than 100 VIP buyers from Thailand and surrounding countries participated, with over 632 pre-arranged business meetings conducted, providing opportunities for buyers and sellers to connect, discuss new partnerships and forge business deals.

“This event had enabled us to re-engage our suppliers from various countries, especially from Thailand and China. We are seeking suppliers of building and construction products, and I was delighted to join the business-matching programme where we met face-to-face with many potential suppliers. We will certainly be back in 2023,” said Sivansak Ney, assistant director of The Bhumi Emerald, Cambodia.

BCT Expo 2022 also featured a knowledge exchange platform comprising more than 45 seminar topics, hosted by 59 industry professionals and experts, discussing the latest industry trends, market opportunities, solutions, innovations, best practices, and technology disruptions impacting today’s building and construction sector.

In addition, the event served as a key ‘public-private sector engagement platform’ – providing an opportunity for related government agencies to connect, brief and update the private sector on government’s infrastructure development plans, smart city projects, sustainability policies, site safety regulations, and public project tender process.

Another highlight was the Building Information Modelling & Technology (BIM & Tech) Pavilion, with its display of the latest building and construction technologies. Moving forward, BCT Expo will continue to collaborate with the Thai BIM Association (TBIM) to introduce more BIM, digital and technology related solutions for next year’s event.

“BCT Expo serves as an effective platform to push for BIM



ALL IMAGES:
Building Construction Technology Expo returned to its face-to-face format in September 2022, attended by more than 3,760 trade visitors from 23 countries.

adoption and digital transformation in Thailand, enabling design, construction and engineering professionals to work together,” explained Dr Sant Chansomsak, president of Thai BIM Association.

“While BCT Expo’s BIM & Tech Pavilion showcased the latest digital and technology solutions, we are pleased to have successfully organised our Thai BIM Association (TBIM) conferences, which was a well-attended gathering of BIM professionals to network, discuss on trends and career opportunities, and address issues affecting our BIM profession today.”

The next edition of BCT Expo will be held from 20 to 22 September 2023 at the Impact Exhibition and Convention Centre. The event is expected to be bigger in size and scale, focusing on key areas impacting the building and construction industry today, such as digitalisation, technology, innovations, sustainability, safety, and human resource. ■

Website: www.bct-construction.com

Dynapac Paving MasterClass event returns in 2022

Dynapac Asia Pacific has concluded the second edition of its Paving MasterClass, which took place on 1 November 2022 in Bangkok, Thailand. This exclusive event was held in collaboration with Pin Siam Co Ltd, with approximately 170 operators in attendance.

A Dynapac initiative for construction machinery operators, the company said the goal is to create a cohesive environment where operators can efficiently and effectively operate Dynapac equipment, with the highest safety standards.

The Paving MasterClass event focused on the advance training of Dynapac equipment and provided a refresher course on best practice guidelines. Attendees were also given the opportunity to demo the Dynapac SD2500CS paver and network with fellow industry professionals.

“We are very excited to resume our Paving MasterClass after the pandemic and are thankful for the opportunity to put together this event with Pin Siam,” commented Ihab Eldessouky, regional general manager of Dynapac Asia Pacific. “Corporate social responsibility (CSR) has never been more prominent on our regional agenda than it is today. We believe in equipping our operators with the right skills and safety practices.

“We hope to create an exclusive network to connect operators across Thailand and to provide a cohesive environment to support and celebrate what they do. We want this event to be a platform where they can network within the community, improve and share knowledge.”

Mr Eldessouky added, “We believe this hands-on experience will empower our operators to learn the different features of our paving equipment; to realise the full potential of Dynapac pavers and how we (Dynapac) can support our operators in building safe roads for the Thai community.”

Dynapac highlighted that, alongside the guidance of its certified trainers, this event aims to create a tight-knit community for Dynapac operators, who play a key role as the driver of its paver machines. ■

Website: www.dynapac.com



ALL IMAGES: Dynapac Asia Pacific held its Paving MasterClass 2022 in Bangkok, Thailand, in collaboration with Pin Siam Co Ltd. The event saw approximately 170 operators in attendance.



K-Con Safety Expo 2022 in South Korea

Korea International Construction & Industrial Safety Expo (K-Con Safety Expo) 2022 took place from 19 to 21 October at Kintex, in Goyang, South Korea.

The event showcased a wide range of smart solutions and workplace safety equipment from global players. It drew about 140 exhibitors on an area of 10,000 sq m, with approximately 25,000 visitors in attendance, according to the organiser Kintex.

Highlights of K-Con Safety Expo 2022 included construction & safety leaders' forum, CSMA business meetings, online business meetings, on-site guided tours for safety executives, and Koreatech industrial safety policy CEO seminar.

The event featured 79 hosted buyers from 18 countries, with 142 meetings. The online international business meetings had 34 hosted buyers and 77 meetings, while the CSMA local business meetings had 45 hosted buyers and 65 meetings.



K-Con Safety Expo showcases a variety of smart solutions and workplace safety equipment.

K-Con Safety Expo 2022 was held concurrently with Digital Transformation Fair (DTon) 2022; Tool Tech & Smart Welding Automation Fair 2022; and 2022 Heating, Air-Conditioning, Refrigeration and Fluid Exhibition in Korea.

The next edition of K-Con Safety Expo is scheduled to take place from 13 to 15 September 2023 at Kintex, covering an area of 11,000 sq m. Official registration for exhibitors started in December 2022. ■

Website: www.k-consafetyexpo.com

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Latest generation of road pavers from Vögele

Vögele has unveiled its new Dash 5-generation of road pavers – comprising the Super 1900-5(i) and Super 2100-5(i) models – as well as its new AB 500 and AB 600 extending screeds. The Super 1900-5(i) manages pave widths between 2.55 m and 11.5 m, and the Super 2100-5(i) up to 14 m.

The ErgoPlus operating concept from Vögele has been further optimised, with its touchscreen and smartphone shelf, delivering greater convenience for digital road construction. The new Paver Access Control (PAC) function enables Dash 5 pavers to be equipped for work on the job site more quickly, more conveniently and more safely. The control unit positioned on the screed allows all the initial steps – such as switching on lights, starting the diesel engine, booting up the machine control system, putting up the hardtop and locking it in position, as well as lowering the screed – to be performed safely and conveniently from ground level.

The combination of PAC and Light Package Plus offers additional convenience and safety. The integrated lighting provides even illumination of the whole working area. As the lighting is permanently integrated in the hardtop design, it is not necessary to transport separate lights to the job site and fit them there.

The automation of processes has been intensified in the Super 1900-5(i) and Super 2100-5(i) pavers using assistance and control systems. Process automation not only prevents paving errors, but also increases efficiency and paving quality. Examples of this are the AutoSet Plus, already tried and tested in the market, as well as two new Niveltronic Plus functions, Assist and Edge Control.

The AutoSet Plus of the Dash 5 generation simplifies handling even further and new functions have been added. The Niveltronic Plus Assist helps the operator pave the road accurately in predefined cross-sectional profiles. Paving parameters can be entered on the display and the progress of construction monitored accordingly.

The Edge Control now also makes it possible to control screed width, and to steer along a tensioned wire. The physical reference is detected with the aid of a sonic sensor for this purpose. Measurement of screed width in the hydraulic cylinders delivers a precise position signal for what in future will be fully automatic screed width control on the basis of 3D data.

In addition, the new material handling control prevents load peaks and facilitates an optimum head of mix in front of the screed throughout the entire paving process. The Power Tunnel available as an option demonstrates its strengths primarily in paving jobs involving the extending screed without bolt-on extensions. The hydraulically extending limiting plates for the auger tunnel ensure an optimum level of material in front of the screed, even with hydraulic extensions fully extended. Retraction and extension of the Power Tunnel can be controlled together with screed width adjustment.

Both pavers are powered by a liquid-cooled six-cylinder diesel engine from John Deere. The Super 1900-5(i) has an output of 149 kW at 2,000 rpm, whereas the Super 2100-5(i) delivers 187 kW at 2,000 rpm. The Eco mode reduces costs and facilitates low-noise operation.

The new Dash 5 pavers are also equipped with a further optimised Vögele EcoPlus low-emissions package. The functions of the Dash 3 generation – including the splitter gearbox, the energy-optimised tamper drive and the controlled hydraulic oil temperature circuit – can still be found in the Dash 5 machines.



The new Vögele Dash 5 road pavers include the Super 2100-5(i) and Super 1900-5(i) models.



ABOVE: The Vögele ErgoPlus 5 operating concept features greater safety and convenience for users.

LEFT: The new Paver Access Control (PAC) function ensures quicker and safer commissioning of the Dash 5 pavers.

Overhauling the speed-controlled fan, additional noise insulation measures and optimised material handling have made the new machines much more efficient, powerful and quiet – all with increased performance.

What's more, the new AB 500 and AB 600 extending screeds of the Dash 5 pavers feature simplified handling on the job site, thus reducing setup times. More powerful heating rods lead to quicker screed heating. The Dual Power Shift function, hydraulic tamper stroke adjustment, ensures even greater time savings and process optimisation. This technology is already proven in the SB 300 and SB 350 fixed-width screeds of the Dash 3 generation. There is now no need at all for mechanical adjustment of tamper stroke, enabling operators to set the ideal tamper stroke for the paving task in question simply at the touch of a button. ■

Website: www.wirtgen-group.com

Dingli expands oil-free & all-electric series with large-wheel scissors

Dingli has added two mini scissor lift models – the JCPT0607PAH and JCPT0708PAH – to its oil-free & all-electric series. Equipped with large wheels, these units are compact, flexible and light in weight.

The oil-free & all-electric series from Dingli has no hydraulic system. It uses electric actuators for lifting, lowering and steering, instead of traditional hydraulic oil cylinders.

The first nine models of the series have been launched earlier in 2022. They feature a maximum working height of 10 m and maximum load of 450 kg, delivering benefits such as low energy consumption, high safety, easy maintenance, greater comfort and more environment-friendly, among others.

According to Dingli, these newly introduced mini oil-free & all-electric scissor lifts can handle more complex working conditions. Their large wheels provide a better ability to overcome obstacles. The units can also enter and exit elevators easily, and they are specifically designed for working at height in the building mezzanine.

Another advantage of the series is its simple maintenance. With no hydraulic system, it avoids system problems like valve core stuck, oil leakage, oil change, or high- and low-temperature efficiency reduction. The maintenance-free, permanent magnet synchronous motor and AGM battery significantly reduce maintenance costs.

The JCPT0607PAH and JCPT0708PAH also feature low energy consumption. The total transmission efficiency of the direct motor drive systems can reach up to 95%, resulting in more than 30% energy saving compared with the traditional hydraulic system, said Dingli.

Furthermore, the scissor lifts have higher levels of water and dust resistance, with built-in position sensors and real-time data monitoring of the full stroke. The drive system enables temperature, load and variable torque control, thus increasing safety.

Both units deliver greater comfort as well, thanks to their full stroke proportional control that eliminates the jitter caused by self-gravity lowering of the hydraulic system.

Dingli's oil-free & all-electric series offers maximum working heights from 5 to 16 m, with maximum loads of between 230 and 450 kg. ■

Website: <https://en.cndingli.com>



The new JCPT0607PAH (left) and JCPT0708PAH mini scissor lifts with large wheels are part of Dingli's oil-free & all-electric series.



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Goldhofer FT Series for cost-efficient transportation

The new Goldhofer FT Series pivot-mounted pendulum axle combination offers excellent flexibility and investment security for the heavy haulage industry. This smart system unites semitrailers in the heavy payload class and heavy-duty module combinations, especially for on-road transportation.

Thanks to its intelligent configuration and accessory packages, the FT Series can be combined with almost all Goldhofer modules. The ultimate benefit of this new type of vehicle is that transportation system changes can be made without any difficulties at any time. This allows a flexible response to changing market requirements and reduces the total cost of ownership in the long term.

According to Goldhofer, at the time of purchase, the FT Series can be adapted to individual requirements, thus avoiding the compromises that were often necessary in the past when placing an order. Basic width and bending moment, for example, can be individually specified for all standard bogies.

The highlight of this transport system is a new wheel set. With its intelligent design, the new unit not only offers an optimised suspension stroke of 640 mm and a steering angle of 60 degrees, but also the flexibility to adapt to changing requirements – even after purchase.

There are five different single and twin tyre options to choose from for a loading height of between 770 and 935 mm for axle loads of 22 to 26 t. Furthermore, to facilitate easy integration of the new FT Series into the existing fleet, the axle suspension cylinders can be specified for compatibility with Goldhofer's entire heavy-duty portfolio.

As a result, the FT Series can be used on a customised basis for combination with all existing module systems. "This enables customers to configure individual vehicle combinations for a perfect match with their momentary operational requirements," said Robert Steinhauser, vice president sales & service transport technology at Goldhofer. "Existing vehicles are not replaced, but individually integrated into the new system."

Full integration is also possible with existing equipment such as cargo decks, goosenecks and turntables for long loads. The FT Series portfolio includes smart solutions such as rear bogies with an excavator boom recess, which are also optionally available with an extendable tele-spacer for lengthening the loading area on platform combinations.

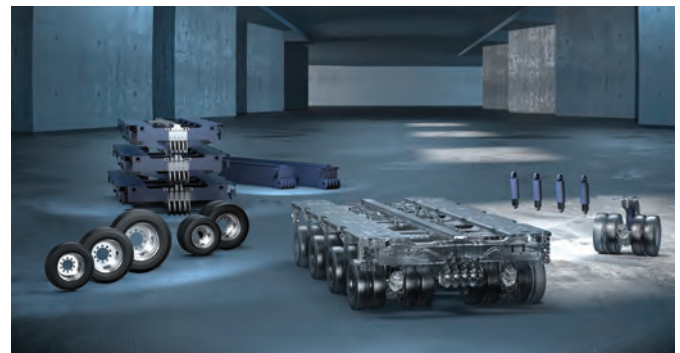
Goldhofer pointed out that changing market requirements can necessitate major costs on new vehicles and business models, but this problem is solved by the FT Series. Future requirements are taken into account at the time of purchase as changes to the transportation system can be made at any time without any problems.

The FT Series also opens up previously untapped business opportunities, added Goldhofer. For example, the scope for modifications to the bogies means greater access to the pre-owned vehicle market, while cooperation with new partners and cross-rental business are facilitated as well.

The pool of potential customers in the event of a sale and of owners in the event of future additions to the fleet are no longer



The new FT Series unites semitrailers in the heavy payload class and heavy-duty module combinations, especially for on-road transportation.



Thanks to its intelligent configuration and accessory packages, the FT Series can be combined with almost all Goldhofer modules. Transportation system changes can be made without any difficulties at any time.



The FT Series was recently launched at bauma 2022.

limited to those with the 'right' vehicles, said Goldhofer, making it a big advantage in terms of the resale value of the fleet.

"The overall concept of the FT Series leads to a sustainable reduction in total cost of ownership and provides our customers with the maximum flexibility for their future plan," concluded Mr Steinhauser. ■

Website: www.goldhofer.de

Volvo introduces EC550E T3 excavator in Asia

Volvo Construction Equipment has launched its new EC550E T3 excavator in Asia, offering tonnes per hour production close to a 70-t-class machine but with lower fuel consumption.

Thanks to its buckets and fast cycle times, the EC550E delivers 35% greater production than the 50-t-class EC480D in typical dig and dump applications. In fact, its production levels approach those of a 70-t-class machine, said Volvo.

The larger bucket is enabled through the increased undercarriage dimensions (for greater stability), as well as upgrades to the frame, boom and arm. The fast cycle times result from the engine's high torque at a remarkably low rpm combined with the large displacement pumps.

According to Volvo, the EC550E's dimensions, lifting capacity and engine are well in line with some competitor 70-t-models, but it consumes considerably less fuel. In addition to the efficient engine and electrohydraulic joystick commands, the EC550E has the industry's most high-performing hydraulics.

The EC550E is the first excavator to use Volvo's pioneering independent metering valve technology (IMVT). Instead of a conventional spool-type main control valve (MCV), the machine uses dedicated valves – for feed and return for each actuator.

Oil is pumped exactly according to demand at any given moment to eliminate hydraulic losses and deliver an extreme level of fuel efficiency with excellent controllability.

Furthermore, the EC550E can fill an AG35 or AG40 hauler with four to six buckets. This means that Volvo now offers two perfect match excavators for A35G or A40G haulers in Asia – the EC750D and the EC550E, depending on customers' productivity and efficiency needs.

Using Volvo Site Simulation, the local dealer can recommend the best fleet and site set-up to maximise productivity and efficiency. Meanwhile, fuel efficiency reports and operator training can help reduce fuel expenditure further. ■

Website: www.volvoce.com



TOP, MIDDLE AND ABOVE: Thanks to its buckets and fast cycle times, Volvo EC550E excavator delivers 35% greater production than the 50-t-class EC480D in typical dig and dump applications.

LEFT: The EC550E's dimensions, lifting capacity and engine are well in line with some competitor 70-t-models, but it consumes considerably less fuel.

Manitou unveils new electric telehandlers

Manitou has launched its first 100% electric compact telehandler, the MT 625e, with a capacity of 2.5 t and a height of 6 m. Fitted with a 25 or 33 kWh lithium-ion battery, this model reduces maintenance by 56% and drastically reduces the total cost of ownership for the user.

Suitable for indoor or city centre use, or for renovating historic buildings, the MT 625e benefits like all the models in the compact telehandler range from the Safety Pack and the Harmony screen for safe and easy operation. According to Manitou, the MT 625e guarantees performance as good as the internal combustion version and is the same size.

In addition, Manitou has introduced the electric version of its rotating telehandler models – the MRT 2260e and MRT 2660e – from the recent Vision+ range. Featuring a loading capacity of 6 t for a lifting height of 22 m and 26 m respectively, these models enjoy the same performance level as the internal combustion machines, even allowing simultaneous boom movements, said Manitou. The 700 V/65 kWh lithium-ion battery ensures optimum use of these models, even in difficult climate conditions like in Northern Europe.

For an additional 4 hours, a second 700 V/65 kWh battery can be provided for the MRT 2260e and MRT 2660e. Users have a third option with the hybrid version of these models using a range extender. This configuration improves flexibility, in particular to make long journeys between two sites or to charge the battery on sites that do not always have electric charge points.

There are also several charging mode options for the MRT 2260e and MRT 2660e, with an on-board 11 kW charger for charging in 4 hours 30 minutes, and an on-board 22 kW charger that takes just 2 hours 15 minutes. An even quicker solution is available to users with another on-board charger that enables charging in under an hour. Manitou said the charging source must be 400 VAC. ■

Website: www.manitou.com

RIGHT: One of the electric rotating telehandlers, the MRT 2660e, has a lifting height of 26 m.

BELOW AND BELOW RIGHT: The MRT 2260e electric rotating telehandler has a lifting height of 22 m.



RIGHT AND BELOW: The MT 625e electric compact telehandler comes with a 25 or 33 kWh lithium-ion battery. The machine features a capacity of 2.5 t and a height of 6 m.





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Liebherr LRB 23 drilling rig and HS 8070.1 crawler crane

Liebherr LRB 23 piling and drilling rig provides an engine output of 600 kW, making it suitable for common deep foundation works, such as Kelly drilling, double rotary drilling, full displacement drilling and continuous flight auger drilling, as well as soil mixing and applications with a vibrator or hydraulic hammer.

Featuring a compact design, the LRB 23 can be transported in one piece, resulting in easy mobilisation between jobsites. The remote control simplifies the loading process for transportation and also the assembly of the machine.

The advantages of the rigid leader are proven in operation. It can withstand high torques, even Kelly drilling is possible, said Liebherr. The BAT 300 rotary drive delivers a maximum torque of 300 kNm.

Locking of the Kelly bar's telescopic sections is made easier with the aid of the Kelly visualisation system. Thanks to the real time display of the Kelly bar's locking recesses on the cabin monitor, the operator is permanently informed about the actual distance to the next locking recess. Colour indications inform when the bar can be locked. Furthermore, false positioning of the Kelly bar during the shake-off process is indicated through a warning signal.

During continuous flight auger drilling, the concreting process is automated – thanks to the drilling assistant. All assistance systems contribute towards time savings, higher availability of the machine, and a significant increase in safety during operation.

In addition, the latest generation of duty-cycle crawler cranes from Liebherr, the HS 8070.1, has a lifting capacity of 70 t and is ideal for various applications, including material handling, deep foundation and lifting operations.

Using a new jack-up system, the crawlers can be easily disassembled for transportation, so reducing the transport weight to less than 35 t. The platforms and railings must no longer be removed before transportation, said Liebherr.



Liebherr LRB 23 piling and drilling rig (left) and HS 8070.1 duty-cycle crawler crane (below left).



Instead of a single counterweight, the HS 8070.1 now features a modular system. Thus, the user can mount the counterweights individually as required, depending on the application.

The boom of the HS 8070.1 is compatible with the HS 8100.1, so customers can use attachments such as the HSG 5-18 slurry wall grab on both machines and install thicker slurry walls with a more compact machine.

As opposed to the fixed system, the new floating A-frame system ensures higher performance in dynamic applications, according to Liebherr. It also simplifies and speeds up the assembly and transportation of the machine. The user-friendly design extends to the tank neck, which is easily accessible via a platform on the uppercarriage. ■

Website: www.liebherr.com

MyJobsite: Digital tool from Liebherr for deep foundation machines

Liebherr has introduced MyJobsite for its deep foundation machines. The tool allows a clear digital view and simplified documentation of data from the most varied of sources, as well as the processing, evaluation and interpretation of these in relevant information (e.g. performance parameters, construction progress, machine capacity, etc).

Based on such information, quality control of certain processes on the jobsite can be carried out. This creates the basis for the optimisation of working processes and ultimately for saving time and money.

A list of all work processes can be stored in MyJobsite with the help of planning data, and thus work steps can be systematically completed. Machine and process data can be called up live and are continuously updated. As a result, the user always has a full overview of planned, active and completed processes, as well as the current progress of the jobsite.

In accordance with ISO 27001, all collected data are enciphered and securely stored following highest security



standards. The data can be completely deleted at any time upon customer request.

The software interface is simple to operate and intuitive. With the jobsite dashboard, users always keep up-to-date. All relevant jobsite figures and machine data are clearly prepared. Therefore, MyJobsite can deliver information about progress, usage, actual events, and much more.

MyJobsite comes in handy in the deep foundation sector, given most of the work results cannot be seen and inspected following completion, as they are below the surface and outside the field of vision. Using MyJobsite, the quality of work can be verified and documented in accordance with DIN 1536.

Based on standardised protocols, all necessary documents can be quickly created with only a few clicks and entries. Furthermore, live emails or SMS messages inform defined persons about the actual progress of the jobsite. ■

LEFT: MyJobsite gives a clear view of all jobsite data at the press of a button.

MyCrane Inspections App boosts crane rental confidence

A new inspections app that allows customers to rent lifting equipment with confidence is now available at MyCrane. Downloaded via the Apple or Android stores, this free MyCrane Inspections App helps prevent fraud and reduces risk by digitalising the crane rental inspection process.

The app, available in more than 35 languages, makes use of artificial intelligence (AI) to verify data such as location of the crane and the authenticity of registration documents.

By following push notifications from the app, images of the crane can be uploaded, along with key data about the equipment. Only live image and video recording can be accepted, while in-app fraud detection and recognition is another feature of the app.

According to MyCrane, the new app is particularly useful where clients impose the condition and maximum age of equipment, or where clients have specific requirements around inspection. It can be used by anybody with access to a smart



The new MyCrane Inspections App verifies images and data about cranes available for rent, increasing customer confidence.

phone and does not require specialist knowledge. Customers can make use of the inspections app to review the condition of the equipment, prior to placing an order.

"Our new app is another innovative tool that offers a high level of transparency for our customers, reassuring them that the proposed equipment is as described, and helping to minimise disputes," said Andrei Geikalo, founder and CEO of MyCrane.

"Crane rental providers will also find the inspections app useful. In the case of bare rentals, for instance, our app may provide proof of discrepancies between the outgoing inspections and incoming inspections when the equipment is confirmed off-rent and being returned to the crane provider, because it will be so simple to verify the condition of the equipment.

"Now, anybody can use the inspections app to easily and quickly request a safety and quality check – at any time."

At the point of registering on MyCrane, crane owners can use the inspections app to create their fleet listings. Those who have verified the status and condition of their fleet will be highlighted to customers of MyCrane's crane rental tool, as a further indication of quality.

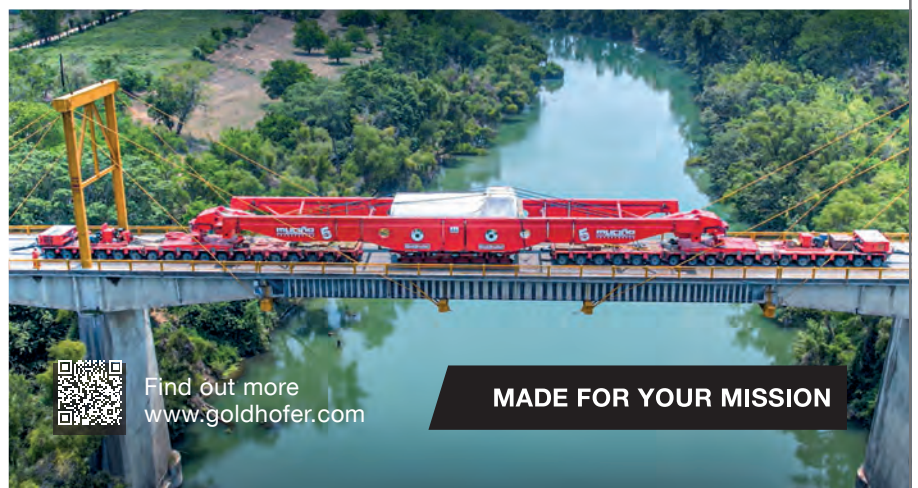
In one click, crane rental providers will be able to sell their verified equipment, with all supporting images in place, on the MyCrane Marketplace. ■

Website: <https://my-crane.com>



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KOBELCO STANDS TALL IN THE FACE OF CHANGE

SINGAPORE IS ONE OF THE ESTABLISHED MARKETS IN ASIA FOR KOBELCO CRAWLER CRANES. SEAC RECENTLY MET UP WITH TAKESHI MIYASHITA, THE NEW MANAGING DIRECTOR OF KOBELCO INTERNATIONAL (S) CO PTE LTD (KISCO), TO DISCOVER MORE ABOUT THE COMPANY'S LATEST ACTIVITY IN THE COUNTRY AND ITS EFFORTS TO ADAPT TO A RAPIDLY CHANGING ENVIRONMENT.

1 Mr Miyashita, Kobelco crawler cranes have been deployed throughout Singapore – on both small and large-scale construction projects. What makes the machines a popular choice among customers?

Takeshi Miyashita (TM): We have been a market leader in Southeast Asia for more than a decade, so our customers know us very well. They like the reliability, safety and comfort of our machines, as well as the service support that we provide. Kobelco cranes serve as a long-term investment for them, which can hold a good resale value.

To ensure reliability, our cranes are built with high-quality materials, parts and components (we pay attention to even the smallest details). We want to minimise the time and cost of any repairs to the machine to ensure the shortest downtime possible.

Comfort and safety features are critical elements in the day-to-day operation, as crane operators often work for long hours. Singapore is considered a mature market in Asia, with very strict safety measures on construction sites. Operator comfort and safety in operation are top considerations in the design of our Kobelco crawler cranes.

An efficient service support system is another key factor in the customers' decisions. Our global parts centre for cranes is strategically located in Singapore, making it a huge advantage for local customers. The facility was opened in 2015 to serve all countries outside of Japan. It shortens parts delivery times, boosting our machines' reliability further.

Because of all these benefits, our cranes have become an asset to our customers. This is particularly the case in Singapore, where crawler crane owners are normally required to renew machines after certain years. By then, Kobelco models are still in good working condition – as long as they are well maintained – so the owners can resell their old units to less-regulated markets.

In this regard, Kobelco International (S) Co Pte Ltd launched its used equipment business in 2021. To simplify this resale process, our Kobelco crane owners can just come to us to trade in their old Kobelco machines!

As a testament to our products and services, our long-time customer and authorised crane dealer for Singapore and Malaysia, Sin Heng Heavy Machinery, has extended its partnership with us.

Since 2021, we have received orders for about 24 units through Sin Heng, which is also a renowned provider of crane rental services in Singapore. The company has sold nearly 600 Kobelco cranes to date – reflecting customers' continued trust in us.



Mr Miyashita sees a positive sign in the industry, as crane owners and operators in Singapore are becoming more safety-conscious when it comes to equipment use and maintenance.

2 What technology does Kobelco use to help crane owners and operators manage their fleets more efficiently?

TM: Our current Kobelco crane remote observation satellite system (K-CROSS) allows both owners and operators to keep track of their machines. It helps minimise downtime and maintenance costs. We encourage them to take advantage of it.

This user-friendly system enables remote monitoring of the crane from the owner's desktop. It delivers daily, weekly and monthly reports so that the owner can present the data in a simple, easy-to-read format.

It is very useful for all parties, including us. For example, when a problem occurs with our machine on the job site, we can analyse the data first before sending our service engineers, to help us provide a better solution.

If required, Kobelco can provide training for our customers so that they are able to use this system more effectively.

3 You mentioned that Kobelco is now offering a used equipment service. How can customers benefit from it?

TM: Our used equipment service was introduced in 2021 targeting

Kobelco customers in Singapore who want to trade in their old Kobelco cranes for new ones. We always have stock of good-quality used Kobelco cranes.

This 'buy-back' initiative aims to make it easier for Kobelco owners to replace their cranes, especially in Singapore where they need to purchase new machines constantly.

Kobelco engineers will inspect the old machines and overhaul and test these cranes to ensure optimal working conditions before putting them for sale.

Anyone interested in our used equipment service may contact us for more details (inquirykisco@kobelco.com).

4 Singapore's construction industry has undergone several transformations in the last few years, even before the pandemic. Have you seen any progress in terms of cranes?

TM: Yes, crane owners and operators are becoming more safety-conscious when it comes to equipment use and maintenance – which is a positive sign for the industry.

With proper maintenance, we can prevent machine failure, increase safety and extend the machine's life in general. Our service support team can assist customers in performing their machine maintenance operations.

At Kobelco, we are constantly educating our customers on the importance of good maintenance. We also provide training for our dealers all over the world to ensure they have the necessary maintenance skills.

5 The pandemic has transformed many business practices and the mindset of customers within a short period of time. How do you respond to such rapidly changing conditions?

TM: We are aware of the rapid changes in this competitive market environment. We are constantly exploring new concepts and design ideas for our new crane products with pricing acceptable in the marketplace without sacrificing the safety and quality of our products.

However, given Singapore is a mature market in the region, we believe that many local customers will look beyond the initial buying cost of the machine. They will also think of long-term returns for their business.

Our strong partnership with Sin Heng is the best example of this, and it's more crucial than ever in the post-pandemic



Kobelco crawler cranes have been deployed throughout Singapore, on both small and large-scale construction projects.



Sin Heng Heavy Machinery is an authorised dealer for Kobelco cranes in Singapore and Malaysia. The company also uses the cranes to provide lifting services for various industries, including construction, offshore, marine, infrastructure, geotechnical, and oil & gas.

era. Sin Heng is not only our dealer, but also uses our cranes to provide lifting services for various industries including construction, offshore, marine, infrastructure, geotechnical, and oil & gas.

As an established crane rental services provider in Singapore with operations across Southeast Asia, Sin Heng has to plan for its future growth. In making a business decision, the company has taken into account the long-term benefits offered by our machines – such as reliability, safety,

resale value, and more – which outweigh the initial buying cost.

Sin Heng's decision to continue with Kobelco cranes, despite the increased range of options in the market, is a confirmation of our long-standing reputation and the high reliability of our machines that can help the company achieve its business goals.

Kobelco cranes are designed to stand the test of time – and ultimately reduce the cost of doing business for our customers. ■

Websites:

KISCO: www.kobelco-cranes.com/southeast-asia | **Sin Heng:** www.sinheng.com.sg
Kobelco's used equipment service: www.kobelcocm-global.com/pickup/kisco-used



The DokaXdek table can be combined with the DokaXdek panel and DokaXdek I-frame.



The DokaXdek system in use.

DokaXdek floor formwork system

Doka has unveiled its new slab-formwork family, DokaXdek, which consists of three elements – DokaXdek table, DokaXdek panel and DokaXdek I-frame. This highly versatile system has been designed to address current and future issues such as safety, ergonomics and economy on construction sites worldwide.

“With DokaXdek, we are launching a floor-slab formwork system that covers the requirements of our customers from small to large construction sites,” said Robert Hauser, CEO Doka.

The DokaXdek table offers all the usual advantages of a slab table, such as speed, safety and economy – especially on medium to large construction sites. With a robust, hot-dip galvanised steel frame, this system has excellent durability, flexibility and handling. The slab table is available in four different formats of 4 or 5 m in length, and 2 or 2.5 m in width. The swivel head ensures a strong connection between the DokaXdek table and Eureka floor props. It also adds flexibility, as it can be bolted in both longitudinal and cross profiles.

The DokaXdek table can lift slabs up to 112 cm in thickness. A special feature is the 12 cm height which saves space for easier storage and transportation. The low profile format also reflects Doka’s commitment to sustainability. Up to three times as many tables can be transported on a single truck than before, thus reducing CO2 emissions as well as saving time and money. The slab table from the DokaXdek family can be coupled modularly and seamlessly to all DokaXdek handset and Dokaflex systems.

The DokaXdek panel is a flexible and lightweight two-person handset formwork system that can be set up safely from the ground. It comprises a robust aluminium frame with a resistant powder coating and highly durable Xlife panel for many and, consistently good concrete results. The low weight and the size of 1 x 2 m make the system easy to handle, thereby improving safety and easing manual transportation around the construction site. The flexible support head can be mounted anywhere on the panel frame, and in combination with the Doka floor prop provides the necessary support.



The DokaXdek I-frame can form slabs in a one-person setup.



The DokaXdek panel can be assembled and disassembled from the ground, requiring only two people.



LEFT: The DokaXdek table offers all the usual advantages of a slab table, such as speed, safety and economy – especially on medium to large construction sites.

BELOW: DokaXbot allows forming of slabs at heights of up to 5.2 m and also forming at the slab edge.

In addition, the DokaXdek panel offers a great deal of flexibility in assembly. Panels can be erected lengthwise and crosswise, and can be swiveled up sideways. By adding just one other prop, the system can handle slab thicknesses of up to 40 cm in standard use and even up to 65 cm. The smart up-lift protection secures the panels and the entire system during handling and in windy conditions.

The DokaXdek I-frame represents a completely new innovation; its prototype was shown for the first time at bauma 2022. Weighing less than 15 kg, the I-frame delivers improved ergonomics and reduced physical strain for workers. It can be easily combined with the DokaXdek panel, and enables increased geometrical flexibility. It also comes with a flexible support head and an integrated uplift protection, for improved construction site safety, flexibility and ergonomics. The DokaXdek I-frame is planned to be on the market in 2023.

What’s more, Doka has taken a major step towards automation on the slab formwork construction site by developing the DokaXbot. A brand-new prototype of the unit was displayed at bauma. Safe and fast slab formwork erection for heights of up to 5.2 m and forming at the slab edge are now made simpler with this system.

The DokaXbot is door-entry capable and therefore universally applicable. An operator pre-positions it in the correct location. The DokaXdek panels and DokaXdek I-frames are semi-automatically lifted to the selected height and placed in position. As a result, the DokaXbot reduces the workload of the site crew and in turn increases the crew’s safety and productivity.

“With the DokaXbot, we have a real game changer up our sleeve – slab forming will become more automated. In this way, we are unlocking new potential for our customers in terms of cost-effectiveness, while focusing more than ever on people and their needs in terms of ergonomics and safety,” said Mr Hauser.

According to Doka, the DokaXdek system, with the DokaXdek table and DokaXdek panel, will be available in Germany, Austria, Norway and Sweden from the end of 2022 and will roll out internationally in 2023. ■

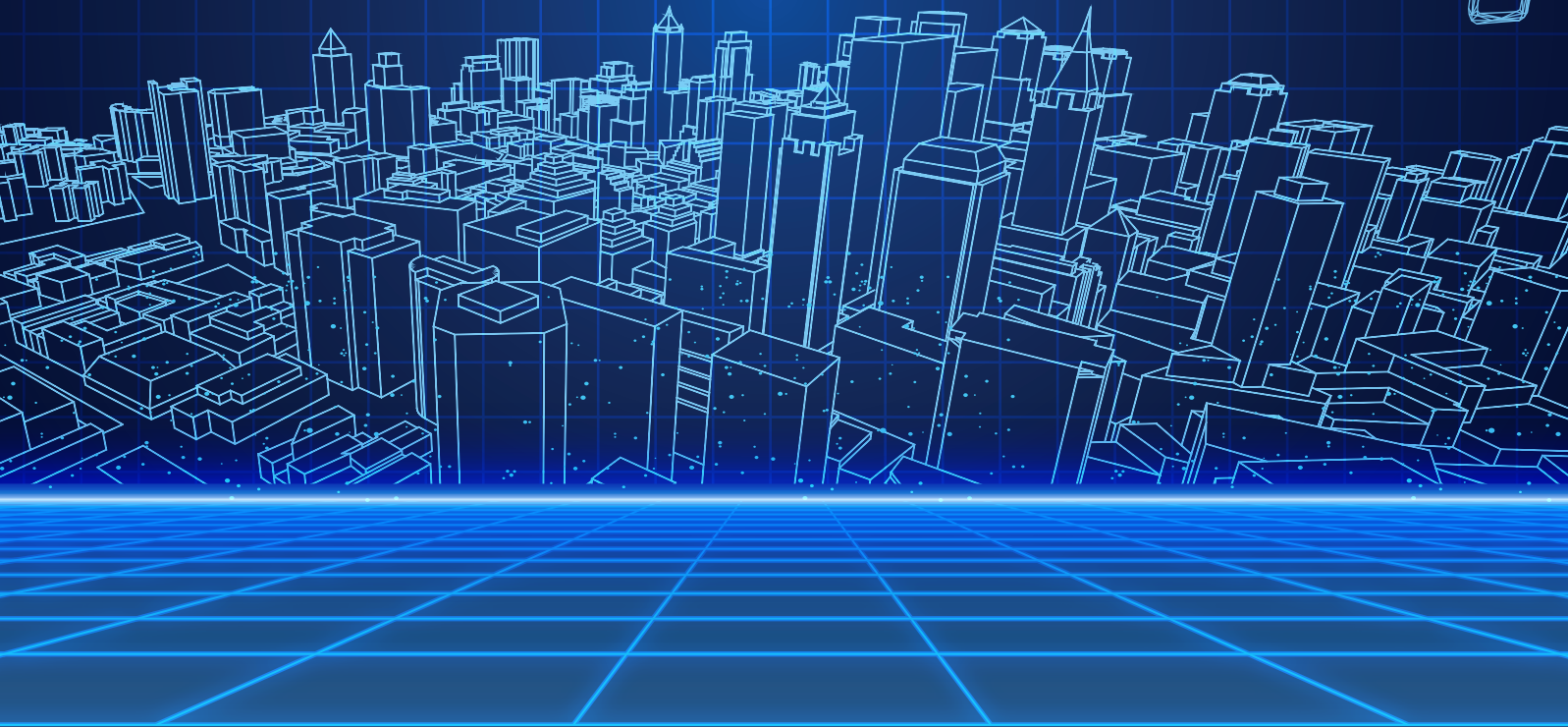
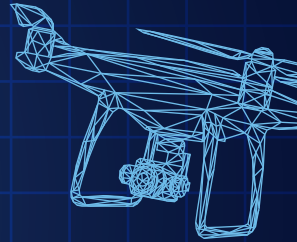
Website: www.doka.com



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Bentley extends iTwin Platform capabilities

At the recent Year in Infrastructure (YII) Conference, which took place in November 2022, Bentley Systems announced new capabilities of its iTwin Platform, significantly extending the scope and interoperability of infrastructure data that engineering firms and owner-operators can use to create and leverage digital twins in design, construction and operations workflows.

The new iTwin Platform capabilities will power Bentley Infrastructure Cloud, a set of solutions that span the end-to-end infrastructure lifecycle and value chain, encompassing ProjectWise, Synchro and AssetWise, unified and made interoperable by Bentley's infrastructure schemas.

iTwin Experience is a new cloud product to empower owner-operators' and their constituents' insights into critical infrastructure by visualising and navigating digital twins. Significantly, iTwin Experience accelerates engineering firms' 'digital integrator' initiatives to create and curate asset-specific digital twins, incorporating their proprietary machine learning, analytics and asset performance algorithms.

iTwin Experience acts as a 'single pane of glass,' overlaying engineering technology (ET), operations technology (OT) and information technology (IT) to enable users to visualise, query and analyse infrastructure digital twins in their full context, at

any level of granularity, at any scale, all geo-coordinated and fully searchable.

iTwin Capture – for capturing, analysing and sharing reality data – enables users to easily create engineering-ready, high resolution 3D models of infrastructure assets using drone video and survey imagery from any digital camera, scanner or mobile mapping device. Infrastructure digital twins of any existing assets can accordingly start with reality modelling, rather than requiring a BIM model.

iTwin Capture offers the highest-fidelity and most versatile means of capturing reality to serve as the digital context for surveying, design, monitoring and inspection processes.

iTwin IoT – for acquiring and analysing sensor data – enables users to seamlessly incorporate Internet of Things (IoT) data created by sensors and condition monitoring devices. Infrastructure IoT can be used effectively for real-time safety and risk monitoring in operations and construction activities, including to measure and visualise environmental changes, structural movement or deterioration for condition assessment, maintenance scheduling, and to prompt precautionary interventions.

By securely incorporating real-time data at scale from among hundreds of sensor types, iTwin IoT increases the value of engineering and geotechnical data.



iTwin Experience is a new cloud product to empower owner-operators' and their constituents' insights into critical infrastructure by visualising and navigating digital twins

Bentley's engineering applications, powered by iTwin

According to Bentley, in the 2022 Going Digital Awards, the proportion of finalists crediting iTwin reached 42%. Noting the sophistication and maturing of digital delivery approaches, as evidenced by the 2022 finalists' projects, Bentley presented a broadening of its strategic priorities for iTwin, including adding 'digital-twin native' advantages to its infrastructure engineering applications.

In the keynote, founder and chief technology officer of Bentley Systems, Keith Bentley, described the evolution of iTwin from a set of open-source programming libraries to a platform-as-a-service used by Bentley and partners to develop, run and extend applications that use digital twin workflows. Bentley's engineering applications will next take advantage of iTwin capabilities on the desktop. Users will continue to work with these applications as they are accustomed to, but alongside the usual resulting .dgn file, the engineering applications will also create and synchronise an iModel, Bentley's specialised container to semantically align and federate infrastructure engineering data within digital twins. iModel and iTwin will enable users to participate in data-centric workflows, including for integration, validation of design intent, rules checking, clash detection, component queries and reuse, quality assurance, and digital-twin deliverables creation.

"It is clear to me that infrastructure digital twins are the future of our industry and our company. Our digital twin journey began four years ago with a series of open source projects to create cloud-native tools, called iTwin.js. It has evolved into the iTwin Experience that is the workhorse for digital twin solutions from Bentley and others," explained Mr Bentley. "I'm very proud of the tremendous progress we and our users have made using the iTwin Platform, as evidenced in the current YII submissions.

"Phase 2 of our journey involves improving our existing desktop products using the same iTwin engine. Users of our MicroStation and engineering design and analysis applications will next gain new features that can make their projects more efficient, more connected, and the results more valuable. We can do that by augmenting, not replacing, their existing tools, workflows, file formats and deliverables. The iTwin engine will run on the same desktop 'in process' with the design applications, synchronising a local iModel and connecting to cloud services when and as necessary."

Integration with immersive 3D environments

At the same time, Julien Moutte, vice president of technology at Bentley Systems, described the enhanced interoperability of the iTwin Platform, including integration with 3D environments, such as Unreal, Unity and NVIDIA Omniverse, to enable immersive experiences across a wide range of devices.

"From the start, we created services in the iTwin Platform that allow software developers to align and federate infrastructure data from different sources. We are now opening the doors of the metaverse for those digital twins, enabling new use cases and immersive experiences.

"Our interoperability with game engines via USD, glTF, DataSmith and 3DFT unlocks a whole new world of possibilities for application developers. We are excited to see what our users can achieve by combining such technologies, which are fundamental building blocks of the infrastructure metaverse."

Speaking about the broadening ecosystem adoption of iTwin technologies, Mr Moutte announced that Adobe has licensed Bentley's iTwin Capture for its Substance 3D Sampler application, which enables designers to easily transform real-life pictures into a photorealistic surface or environment.



iTwin Capture – for capturing, analysing and sharing reality data – enables users to easily create engineering-ready, high resolution 3D models of infrastructure assets using drone video and survey imagery from any digital camera, scanner or mobile mapping device.

Alexis Khouri, vice president, growth, 3D and metaverse at Adobe, said, “Bentley’s iTwin Capture capabilities in Substance 3D Sampler will help Adobe’s creative professional customers to populate their 3D experiences and save many hours (or even days) of 3D modelling time. Adobe’s strategic collaboration with Bentley will allow us to offer an easy-to-use and state-of-the-art 3D capture solution for 3D artists and designers of all levels.”

In a performance-redefining breakthrough, Bentley has developed a new iTwin Platform service that enables software developers and digital integrators to stream digital twins into Unreal Engine, the leading game engine from Epic Games, to create immersive experiences for fly-throughs and multi-user collaboration.

“Infrastructure digital twins are becoming fundamental building blocks of



iTwin IoT enables users to seamlessly incorporate Internet of Things (IoT) data created by sensors and condition monitoring devices. Infrastructure IoT can be used effectively for real-time safety and risk monitoring in operations and construction activities.

Major projects in Indonesia and Singapore shine at Going Digital Awards 2022

The 12 winners of the 2022 Going Digital Awards in Infrastructure, hosted by Bentley Systems, were announced in London, the UK on 15 November. Three of them are from Southeast Asia, including one in Indonesia and two in Singapore.

This annual awards programme honours the extraordinary work of Bentley software users advancing infrastructure design, construction and operations throughout the world. It is held alongside the Year in Infrastructure (YII) Conference.

Finalists presented their projects before global press and 11 independent jury panels. The jurors determined the winners of the 12 award categories from 36 finalists, which were shortlisted from over nearly 300 nominations submitted by more than 180 organisations from 47 countries.

The three winners from Southeast Asia are:

1). PT Wijaya Karya (Persero) Tbk Integrated High Speed Rail and Station Jakarta – Bandung Jakarta – Bandung, Indonesia
(Winner – Rail and Transit category)

The integrated high-speed rail between Jakarta and Bandung aims to reduce congestion between the two cities and foster a culture of public transportation in Indonesia. Spanning 143 km in length and featuring various structures, the project presented geological and coordination challenges, compounded by an accelerated project schedule amid a global pandemic. Having used 2D design and conventional survey methods on past projects, resulting in delays, additional cost and inefficient construction, lead contractor PT Wijaya Karya (Wika) realised that it needed an integrated BIM and digital twin solution.

Leveraging Bentley’s open civil design and reality modelling applications, and digital twin technology, Wika developed a connected digital ecosystem and single source of truth, facilitating dynamic modelling and the generation of an intelligent digital



ABOVE: The winners of 2022 Going Digital Awards in Infrastructure.



LEFT: Bentley’s CEO Greg Bentley showcases one of the 2022 Founders’ Honors recipients.

twin. The integrated solution streamlined workflows, improving efficiency, design quality and calculation, saving US\$185 million in construction costs and shortening the construction schedule by six months. The project sets a benchmark to develop open digital building blocks for integrated public transportation in Indonesia.

2). Jacobs and PUB, Singapore’s National Water Agency Tuas Water Reclamation Plant (TWRP) Singapore
(Winner – Water and Wastewater category)

Singapore’s National Water Agency, PUB, is building the state-of-the-art Tuas Water Reclamation Plant (TWRP), providing a treatment



virtual worlds that empower people to interact, collaborate and solve problems together,” said Marc Petit, vice president, Unreal Engine Ecosystem at Epic Games. “The seamless workflow and high performance that Bentley offers by integrating the iTwin Platform with Unreal Engine will help developers achieve new levels of immersion in complex visualisations and simulated experiences.”

Bentley said iTwin Experience is still in early access, while iTwin Capture and iTwin IoT are available now. iTwin Experience incorporates capabilities from OpenCities Planner. iTwin Capture incorporates capabilities from ContextCapture and Orbit 3DM. iTwin IoT incorporates capabilities from the sensemetrics platform and Vista Data Vision. ■

Website: www.bentley.com

ABOVE LEFT: Keith Bentley, founder and chief technology officer of Bentley Systems, speaking at the Year in Infrastructure (YII) Conference 2022.

LEFT: Bentley’s YII Conference and Going Digital Awards 2022 took place on 14-15 November in London.

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facility for industrial and household wastewater designed to maximise water recovery and reduce energy consumption. Jacobs is responsible for design and construction management, including managing and integrating digital information across 17 contract packages. They want to achieve world-class digital delivery, but faced challenges coordinating and managing the voluminous data and multiple disciplines. Previous software packages proved ineffective, so they sought a cloud-based digital platform capable of collaborative, federated modelling.

Jacobs selected the Bentley iTwin Platform, establishing a web-based digital environment and single source of truth, enabling real-time access to a digital twin and democratising BIM and digital transformation across multiple stakeholders. The solution automated information extraction, improving engineering quality, efficiency and collaboration. Establishing a connected digital platform enhanced construction and project delivery and optimised digital capabilities, streamlining workflows. The digital twin will provide a seamless transition into digital asset management for operations and maintenance.

**3). Singapore Land Authority
SG Digital Twin Empowered by Mobile Mapping
Singapore**
(Winner – Surveying and Monitoring category)

Singapore Land Authority (SLA) initiated a national 3D mapping of Singapore via aerial and street mobile mapping with a ‘capture once, use by many’ objective, to create a smart, resilient and sustainable nation. The project presented challenges when integrating aerial and mobile-captured data, compounded by difficulties refining 600 billion point clouds and sharing 25 terabytes of mobile mapping data with government agencies and stakeholders.

SLA needed a comprehensive, web-based application to manage the massive amount of data and develop a digital twin. SLA selected Orbit 3DM to manage and integrate the large volume of point clouds and images, then generated a digital twin, bridging data sharing with multiple users via cloud-based resources. Compared to traditional mapping methods, rapid mobile mapping using Bentley’s application saved S\$26 million and one year in



ABOVE: Integrated High Speed Rail and Station Jakarta – Bandung, Indonesia (the winner in Rail and Transit category).

LEFT: Tuas Water Reclamation Plant, Singapore (the winner in Water and Wastewater category).

capture and processing time. The digital solution increases data availability by 50%, enables accurate data extraction, and delivers a sustainable, collaborative digital twin that can be used for multiple planning purposes.

In addition to the Going Digital Awards in Infrastructure winners, Bentley’s CEO Greg Bentley highlighted the Founders’ Honors in his plenary session on 15 November. These projects are chosen individually by the Bentley founders from the hundreds of Going Digital Awards nominations received.

The Founders’ Honors recognition is presented to a small number of exemplary projects, individuals and organisations that particularly inspired Bentley in its mission of advancing the world’s infrastructure, while sustaining both the global economy and the environment. ■

Website: www.bentley.com/events/going-digital-awards/winners

Tadano AC 5.250-2 all-terrain crane



The new Tadano AC 5.250-2 is a five-axle all-terrain crane with a maximum capacity of 250 t. It has a main boom length of 70 m, which can be extended by 42 m with a HAV main boom extension, allowing it to reach a system length of 112 m. According to Tadano, all available main boom extensions from 5.8 to 36 m are self-rigging.

The crane features a lifting capacity of 14.5 t with a 70-m boom length at a radius of 12 to 24 m, and lifting capacity of 11 t with a boom length of 47 m at a radius of 42 m.

There are transportation configuration options for the AC 5.250-2. For instance, the crane can carry a three-sheave hook block for lifting loads of up to 67.3 t or a 5.8-m heavy-lift runner on board while remaining within a 12-t axle load configuration – not to mention that the transportation mounts for the HAV extension are included by default in the 12-t axle load.

Tadano said the AC 5.250-2 can be used as a taxi crane without a support vehicle while remaining within the legal axle load limit of 12 t. And if the axle load is increased to 16.5 t, it can also carry up to 20 t of its maximum counterweight of 80 t.

The AC 5.250-2 can pick up its total counterweight of 80 t in three lifts: 46.6 t with a full 360° radius of up to 6.2 m followed



TOP, ABOVE AND RIGHT: The AC 5.250-2 all-terrain crane has a main boom length of 70 m, which can be extended by 42 m with a HAV main boom extension, allowing it to reach a system length of 112 m.

by two lifts of 15.2 t, with each split into 10 and 5.2 t for mounting on the right and left of the base package. If necessary, the counterweight can be split into smaller pieces as well, making it possible, for example, to pick up the 5.5-t base plate from a distance of up to 20.1 m across the full radius.

“Thanks to the IC-1 Plus crane control system, which comes as standard, the available radius can even be significantly increased at certain slewing angles,” said project manager Peter Kleinhans. In addition, given the counterweight can be split into a large number of elements with none weighing more than 10 t, it ensures maximum flexibility for transportation logistics. This means that relatively small trucks can be used for transportation when required by space conditions at a work site.

The IC 1 Plus crane control system determines the crane’s maximum lifting capacity for every boom position as a function of the superstructure’s slewing angle, and in real time to boot. Thus, the crane is always able to take advantage of the maximum lifting capacity available to it – especially during lifts over the outriggers. The outriggers can be extended asymmetrically to 0, 25, 50, 75, and 100% positions.



TOP, ABOVE AND BELOW: The AC 5.250-2 can pick up its total counterweight of 80 t in three lifts: 46.6 t with a full 360° radius of up to 6.2 m followed by two lifts of 15.2 t, with each split into 10 and 5.2 t for mounting on the right and left of the base package.





Using the Surround View camera system, the operators can optimally position the crane at work sites. This system uses six crane cameras to show a computer-assisted diagram of the maximum possible extension lengths for the outriggers at the crane's current location.

"With Tadano Surround View, crane operators can take a look at a display in the cab to know exactly how they need to position the crane at their work site in order to extend all outriggers sufficiently and ensure that they are using the required counterweight tailswing radius. This eliminates tedious and time-consuming measurements and testing when looking for a location from which to operate the crane, making the latter ready for use faster," said Mr Kleinhans.

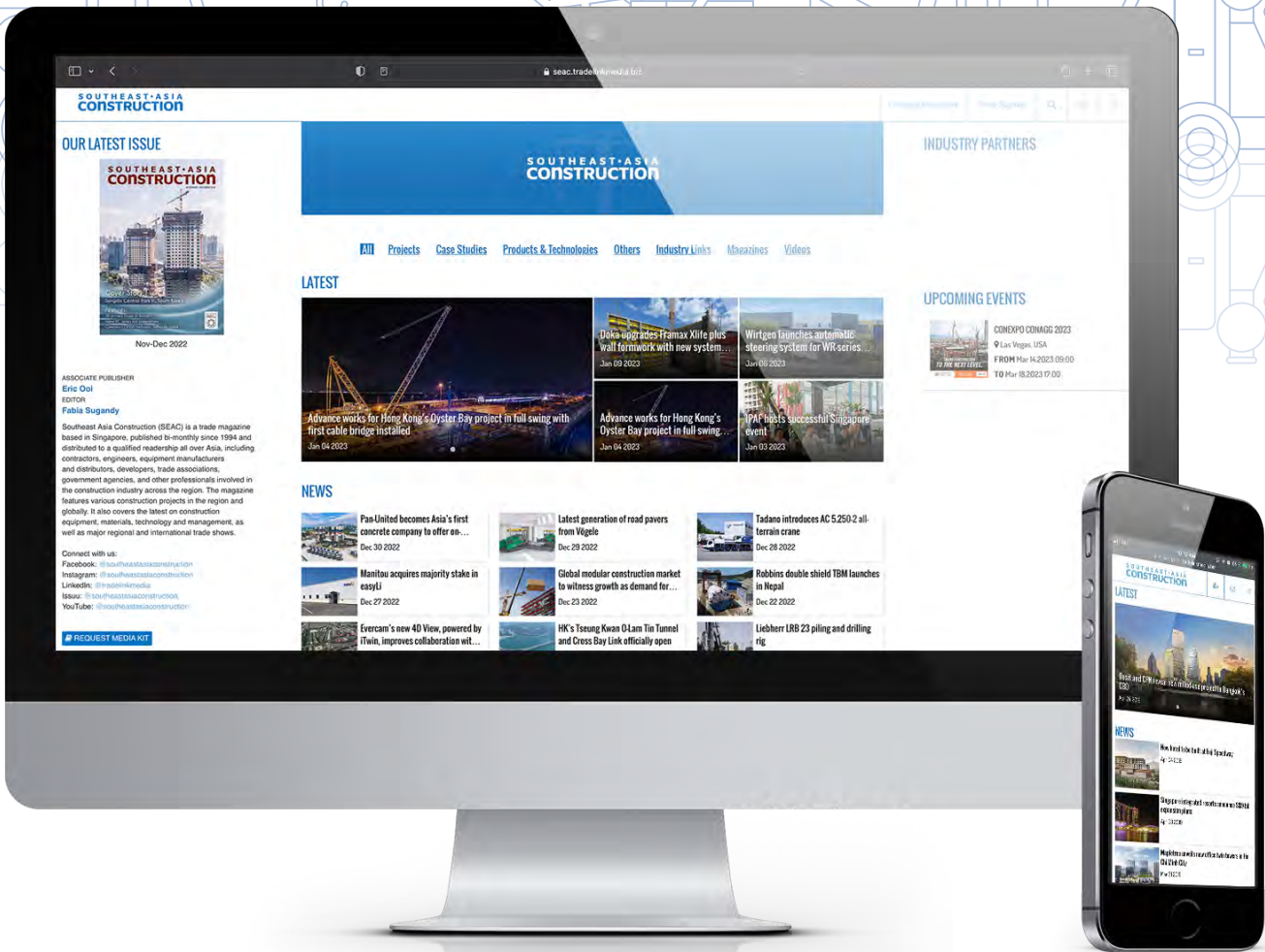
The AC 5.250-2 is powered by a Mercedes-Benz engine with an output of 522 hp and a maximum torque of 2,600 Nm. The HVO-compatible diesel engine meets the latest EU Stage V requirements. It is particularly cost-effective thanks to its eco mode, which ensures that the engine always outputs the exact amount of power that the crane actually needs at any one time, with the IC-1 crane control system taking care of the corresponding calculations.

For operator comfort, all hydraulic components that emit noise are located away from the superstructure cab. The spacious design behind both cabs also provides maximum operating comfort and a pleasant work environment. To ensure safety, there are intelligently positioned access points, attachment points for operators' personal safety equipment, and a step that can be extended from the carrier to make it safe and comfortable to enter and exit the superstructure cab. ■

Website: www.tadano.com



TOP AND ABOVE: The AC 5.250-2 can be used as a taxi crane without a support vehicle while remaining within the legal axle load limit of 12 t.



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Chennai Metro expansion

Like many large cities in India, Chennai has experienced rapid population growth in recent years. The need for infrastructure in this capital of Tamil Nadu state is correspondingly high as a result. One solution to deal with the high traffic volume in the heavily built-up city is to move it underground. The Chennai Metro was opened in 2015 and so far has two lines with a total length of approximately 46 km. Now the network is to be expanded.

Diaphragm wall construction in Chetpet

Phase 2 of the extension includes the Chetpet Metro Station, a major project, which started in April 2022. As part of this development, Bauer Engineering India Pvt Ltd, a subsidiary of Bauer Spezialtiefbau GmbH, was engaged to carry out the required diaphragm wall work.



In total, Bauer constructs more than 15,100 sq m of diaphragm wall up to a depth of 35 m. When building a panel, the work is divided into three steps: excavation of the trench using bentonite as the stabilising slurry, installation of the steel reinforcement cages, and concreting work.

“The steel reinforcement cages are each around 33 m long and weigh 35 t,” said Hassan Farhat, project manager at Bauer India. In total, 286 cu m of concrete is filled in for each diaphragm wall panel in just six hours, with 30 secondary panels produced by the beginning of November 2022.

According to Bauer, what’s special about this project is that there is zero tolerance for the trench excavation. But this is not the only challenge, as the site is in an area with significant rainfall in the monsoon season, i.e. during the construction phase. In addition, the ground composition of sand, silt, stiff clay and rock is very demanding.

“Another challenge is logistics. Since the new metro station is located directly in the urban area, the work needs to be implemented in a very confined space. This requires extreme caution and excellent organisation,” continued Mr Farhat.

A Bauer MC 96 duty-cycle crane with DHG-C hydraulic grab as well as an MC 128 duty-cycle crane with BC 40 cutter are being deployed on the project. Digital tools such as the Bauer data management software b-project and the Virtual Site Installer are also being used.

“We are currently running on time and are more than satisfied,” said Mr Farhat. “If everything continues to go as planned, we expect to successfully complete the project before the end of the year [2022], and thus a few weeks before the originally scheduled completion date at the end of January.” ■

Website: www.bauer.de

LEFT: Overview of the construction site in Chetpet, Chennai. Bauer Engineering India was engaged to carry out the required diaphragm wall work.

BELOW: The Bauer MC128 duty-cycle crawler crane deployed on the project.





BOTH IMAGES: The 6.4-m-diameter Robbins double shield TBM is used to bore the 13.1 km headrace tunnel for the Sunkoshi Marin Diversion Multipurpose Project (SMDMP) in southern Nepal. The tunnel is connected to a new 28.6 MW surface powerhouse on the Marin River to alleviate the shortage of power supply in the area.

Sunkoshi Marin Diversion



In October 2022, China Overseas Engineering Group Co Ltd and China Railway No. 2 Engineering Group Co Ltd launched a 6.4-m-diameter Robbins double shield tunnel boring machine (TBM). The TBM is boring the 13.1 km headrace tunnel for the Sunkoshi Marin Diversion Multipurpose Project (SMDMP) located in southern Nepal.

The tunnel is connected to a new 28.6 MW surface powerhouse on the Marin River to alleviate the shortage of power supply in the area. It will also be used for farmland irrigation in the districts of Dhanusha, Mahottari, Sarlahi, Rauthat and Bara in the Terai Plain, diverting water from the Sunkoshi River to the Marin River. Since the TBM's launch, it has bored over 500 m, with a best week of 224.6 m and a best day of 36.6 m.

The headrace tunnel is being bored through granitic rock with maximum overburden of 1,320 m. Geological conditions may include squeezing ground, fault zones, and water inflows. In particular, a major fault zone is located approximately 4 km into the tunnel at Dhanamana Khola.



Multipurpose Project

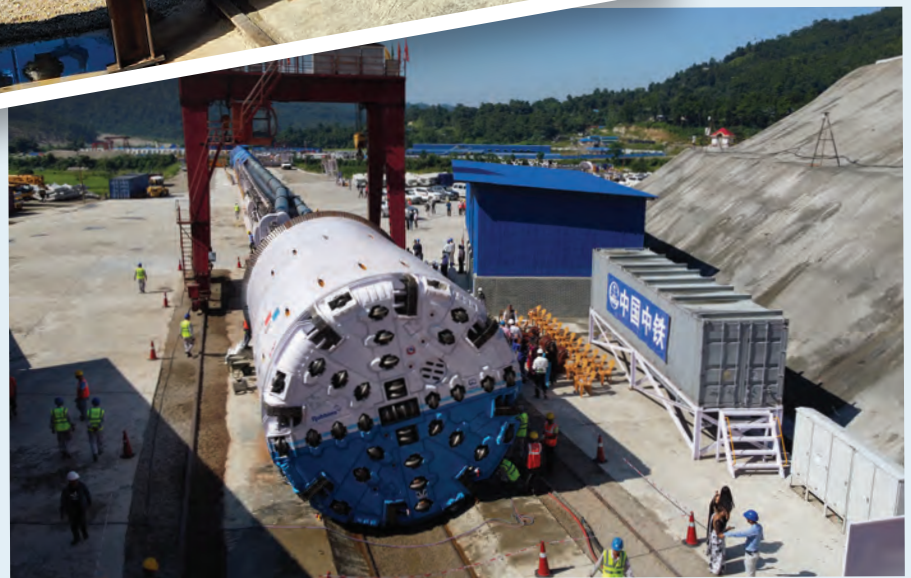


LEFT: The Robbins double shield is suitable for ground conditions including granitic rock with sections of squeezing ground and fault zones with potential water inflows.

BELOW: The TBM shield is a tapered design to reduce the risk of becoming stuck in squeezing ground. There is also an enclosed cutterhead design to reduce the collapse of surrounding rock.

The TBM was customised for the conditions, said Liu Fengfan, project manager for contractor B-2/COVEC. “The TBM shield is a tapered design to reduce the risk of becoming stuck in squeezing ground; there is an enclosed cutterhead design to reduce the collapse of surrounding rock as well,” he explained.

“The TBM has overcut capabilities, and a high thrust. It has also been designed to be equipped with an extra high torque cutterhead drive, as well as strong auxiliary thrust to be used in squeezing ground or weak fault zones to keep the machine from becoming stuck.”



As for the major fault zone, to be reached in approximately June 2023, and other zones of concern, Mr Liu’s plan is well-thought-out. “We have prepared the advance geology forecast along with

technical measures and equipment to cope with the extraordinary geological conditions. These include advance drainage holes, pre-excitation grouting (both ordinary and chemical), and other methods based on our experience. When we reach the major fault zone at Dhanamana Khola we will go slow, with more probe drilling while in the fault zone.”

The tunnel is the machine’s second: on its 12.2 km first tunnel (the Bheri Babai Diversion Multipurpose Project/BBDMP), the TBM finished nearly one year early and achieved 1,202 m advance in one month.

“The Robbins TBM at BBDMP successfully broke through the 12.2 km tunnel and overcame extraordinary geological conditions especially in fault zones,” said Mr Liu. “Its stable and excellent performance and function have been verified very well. We have much confidence in the TBM to be used in SMDMP.” ■

Website: www.robbinstbm.com



Since its launch in October 2022, the double shield TBM has bored over 500 m, with a best week of 224.6 m and a best day of 36.6 m.

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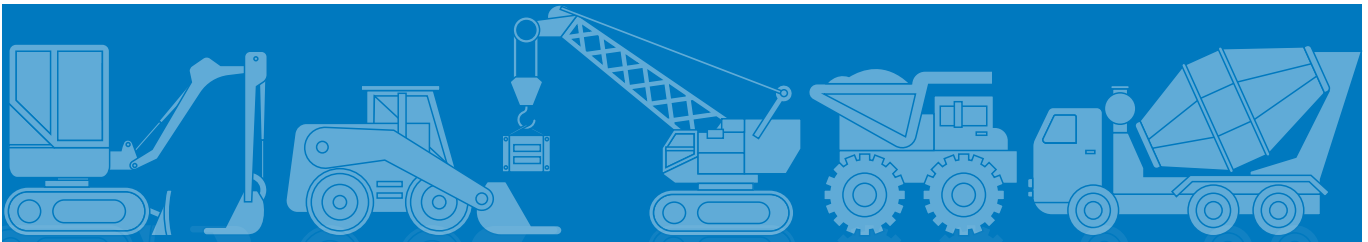
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