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MAY - JUNE 2020



## Cover Story:

Basalt processing for Vietnam's  
National Route 1A highway

## Features:

MRT SSP Line project in Malaysia

Snorkel launches 'mega boom'

Market Talk: Manitou

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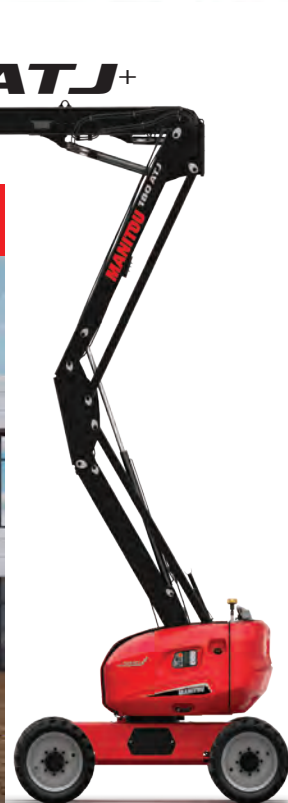
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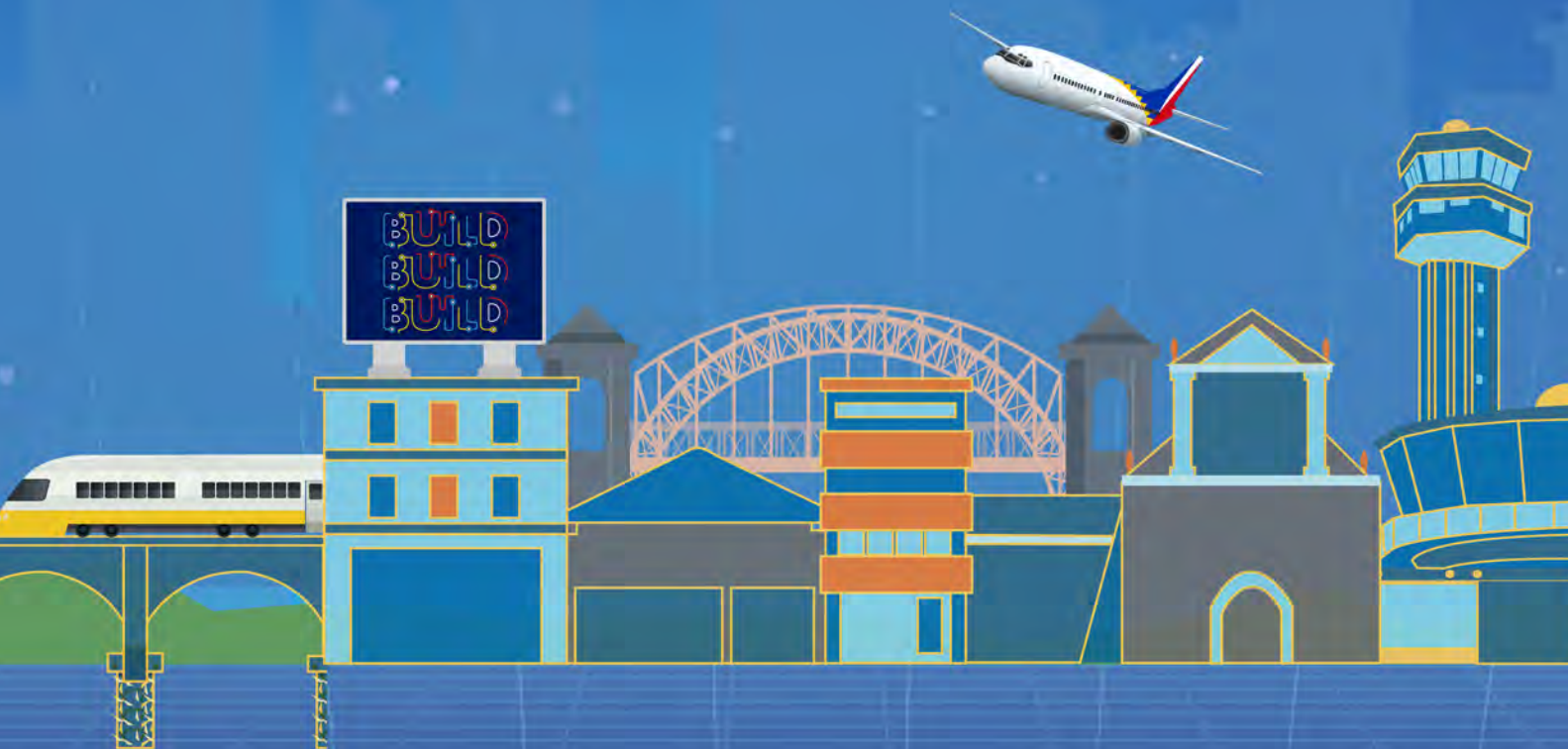
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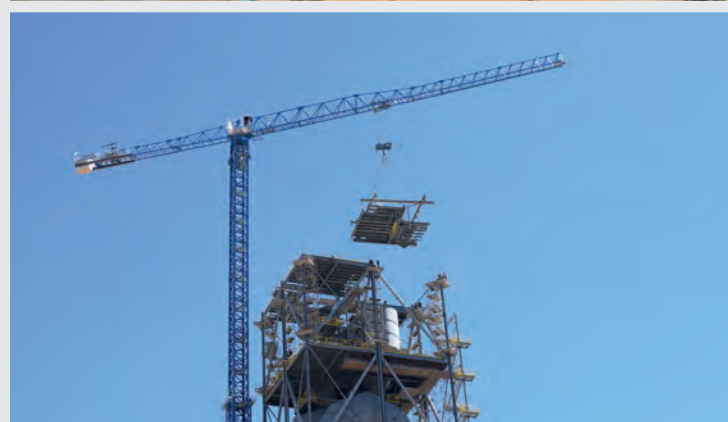


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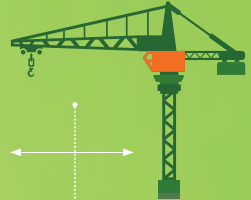
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\* Figures from 2018

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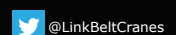
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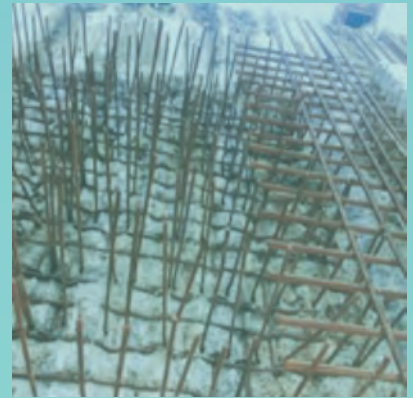
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## Cover designed by

Fawzeeah Yamin

## Publisher

Steven Ooi (steven.ooi@tradelinkmedia.com.sg)

## Associate Publisher

Eric Ooi (eric.ooi@tradelinkmedia.com.sg)

## Editor

Fabia Sugandy (seac@tradelinkmedia.com.sg)

## Marketing Manager

Felix Ooi (felix.ooi@tradelinkmedia.com.sg)

## Head of Graphics Department/ Advertisement Coordinator

Fawzeeah Yamin (fawzeeah@tradelinkmedia.com.sg)

## Graphic Designer

Siti Nur Aishah (siti@tradelinkmedia.com.sg)

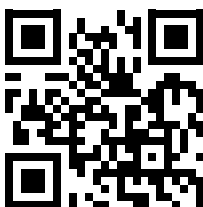
## Circulation

Yvonne Ooi (yvonne.ooi@tradelinkmedia.com.sg)

Any other matters : info@tradelinkmedia.com.sg

Website: <http://seac.tradelinkmedia.biz>

ISSN 2345-7082



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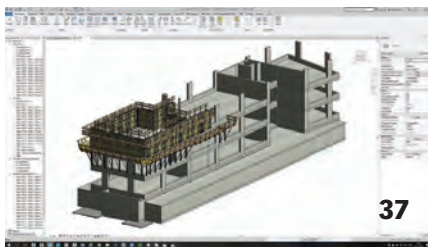
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### SOUTHEAST ASIA CONSTRUCTION is published six times a year by:

Trade Link Media Pte Ltd. RCB Registration no: 199204277K  
 Address: 101 Lorong 23, #06-04 Prosper House, Singapore 388399  
 Tel: +65 6842 2580, Fax: +65 6842 2581 / +65 6745 9517  
 Website: <http://seac.tradelinkmedia.biz>  
 Email: [info@tradelinkmedia.com.sg](mailto:info@tradelinkmedia.com.sg)

The magazine is available free-of-charge to applicants in the building and construction industries who meet the publication's terms of control. For those applicants who do not qualify for free subscription, copies will be made available, subject to the acceptance by the publisher, of a subscription fee which varies according to the country of residence of the potential subscriber. Airmail (per year): Singapore - S\$45; Malaysia and Brunei - S\$90; Rest of Asia - S\$140; Japan, Australia, New Zealand, Middle East, Europe and USA - S\$170 (Incl. 7% GST Reg: M2-0108708-2).

Printed in Singapore by Refine Printing Pte Ltd.  
 MCI (P) 043/06/2019 • ISSN 2345-7082 (Print) and ISSN 2345-7090 (E-Periodical) • KDN No: 1560 (1271)-(6)

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### INTERNATIONAL SALES OFFICE:

T. Asoshina/Shizuka Kondo, ECHO Japan Corporation  
 Grande Maison Rm 303, 2-2, Kudan-Kita 1-Chome, Chiyoda-ku, Tokyo 102, Japan  
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## MHG to build wellness residential community in Phuket

Bangkok-based developer Montara Hospitality Group (MHG) has shared one of its latest projects, a comprehensive health and wellness residential community in Phuket, Thailand. Named Tri Vananda, it is expected to be completed in 2022.

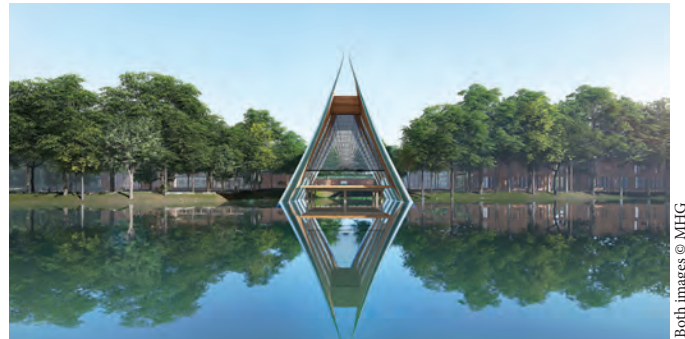
MHG is investing over THB 6,600 million (US\$220 million) in the project, which is envisioned to become Asia's largest and most comprehensive wellness residential community. It will provide 298 villas, anchored by a wellness resort specialising in integrative and functional medicine and cognitive wellbeing.

The low-density development is situated on over 230 acres and will be constructed with sustainable practices in mind, said MHG, aiming for net-zero emissions and LEED certification. Features include a tiered wetland filtration system with a botanical garden to collect, clean and store water; an organic, non-toxic farm to supply the restaurants onsite; nature trails; and renewable energy facilities such as floating solar panels on lakes.

Health and wellness amenities at Tri Vananda are designed to be best-in-class. According to MHG, a thoroughly equipped health centre will have consultation rooms, physiotherapy and TCM treatment rooms, a cognitive health centre, and facilities for health diagnostics that can treat residents and guests with tailored programmes.

A mindfulness centre on the lake will have an indoor hall and outdoor areas for meditation. Also situated on the lake are a spa with separate-sex thermal rooms, relaxation areas, a hammam and private spa suites, and a fitness centre with a 50-m swimming pool, gym, sauna, juice bar and lake pier for recreational water sports. Finally, a dedicated club designed for teens and pre-teens will foster a wellness-led lifestyle for younger community members.

Two- and three-bedroom solar-powered residential villas ranging in size from 270 sq m to 750 sq m are designed by Habita



Both images © MHG



ABOVE AND LEFT:  
Artist's impressions of Tri Vananda, a new health and wellness residential community to be built in Phuket, Thailand.

Architects together with Arsom Silp Institute of the Arts. Interior design will be helmed by the P49 Deesign.

"With the future in mind, Tri Vananda will be a multigenerational community rooted in a way of life based on the principles of wellness, sustainability and hospitality. Here, our residents and guests will enjoy some of the most fundamental and cherished attributes for overall wellbeing like clean air and nature, which are increasingly lost in urban settings, while having access to proven health and wellness therapies and programmes," said Kittisak Pattamasavei, CEO of Montara Hospitality Group. ■

## Construction of Clark International Airport 'remains on schedule'

Philippine engineering and infrastructure conglomerate, Megawide, recently announced that construction of the Clark International Airport's new passenger terminal building (PTB) remains on schedule despite the Luzon-wide enhanced community quarantine (ECQ). The project is being undertaken by Megawide GMR Construction Joint Venture Inc (MGCJV).

"Construction of the new terminal, access roads, bus station, and car parks is 96% complete with only minor works remaining. Despite any challenges we are facing, we were actually ahead of schedule before the ECQ was implemented in Luzon," said Edgar Saavedra, chairman and CEO of Megawide.

According to Mr Saavedra, the new terminal building shell has been substantially completed, and installation of mechanical, electrical, plumbing, and fire-protection (MEPF) works as well as construction of the landside works are already in the final stages.

MGCJV won the construction package for the Clark International Airport expansion project in December 2017 under a hybrid public-private partnership (PPP) scheme. The company expects to hand over the project to the Bases Conversion and Development Authority (BCDA) before the 31 July 2020 completion date.

"The ECQ has minimal impact on our construction timelines

for Clark International Airport primarily because engineering and construction are Megawide's core strengths, and the fact that we leveraged on what we learned from the Mactan-Cebu International Airport (MCIA) expansion," explained Mr Saavedra.

The partnership between Megawide and Indian airport developer GMR is also behind the development of MCIA and the contractor of the multi-awarded MCIA Terminal 2. "We learned a lot during the construction of MCIA Terminal 2. We applied all these learnings in the Clark project, including engineering techniques such as the use of glued-laminated timber for a full roof structure, and many others," said Mr Saavedra.

"That we were ahead of schedule in the construction of the new Clark PTB is a testament to the all the hard work and dedication of the people on the ground, such as our engineering and construction teams; our architect, Integrated Design Associates, who also designed MCIA Terminal 2; and the support of our stakeholders, especially the BCDA and DOTR."

The Clark International Airport's new terminal is designed to increase the capacity of the airport from four million passengers per annum (mppa) to 12 mppa. It is expected to serve as Asia's next premier gateway and could help decongest the Ninoy Aquino International Airport (NAIA) in Manila. ■

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## Keppel and CIFI to develop residential site in China

Keppel Land China Limited is establishing a joint venture with property developer CIFI Holdings (Group) Co Ltd to jointly develop a 5.85-ha residential site in New District, Taicang City, Jiangsu Province, China.

Keppel Land China, through a wholly owned subsidiary, has acquired a 49% equity interest for approximately RMB498 million in Taicang Xuchang Property Co Ltd (TXPC), which owns the site. The remaining 51% stake will be held by Shanghai Shengji Industrial Co Ltd, a subsidiary of CIFI.

The site has a gross floor area of 117,052 sq m and can offer 1,072 high-rise residential units. Phase 1 is scheduled for launch in the fourth quarter of 2020, with the entire project slated for completion in 2021. The total development cost is expected to be in excess of RMB2.4 billion.

The site is located in the High-Tech Industrial Development Area of Taicang City, a provincial-level economic development zone where infrastructure and other amenities are already well developed. The upcoming Shanghai-Nantong High-Speed Rail will further integrate Taicang City into the Yangtze River Delta high-speed rail network and greatly improve the connectivity between Taicang City and Shanghai.

Ben Lee, president of Keppel Land China said, "Keppel Land China is pleased to partner CIFI, one of the top 15 developers in China, for this maiden project in Taicang City. This collaboration marks our further expansion in the Yangtze River Delta region. We are confident that our residential development in Taicang City's New District will meet the rising aspirations and needs of homebuyers in the greater-Shanghai area."



© Keppel Land

The new 5.85-ha residential site in Taicang City can offer 1,072 high-rise units. Phase 1 is scheduled to be launched in the fourth quarter of 2020.

Lin Feng, CEO of CIFI said, "Ensuring win-win cooperation has always been CIFI's key operating principle and we are honoured to partner Singapore's leading developer Keppel Land on this project. I believe that the Taicang project will garner strong interest from the market with its high-quality product offerings. The project marks the start of our strategic partnership and I look forward to deepening collaboration with Keppel Land to provide cutting-edge products and excellent services to more customers." ■

## Another breakthrough for Malaysia's MRT SSP Line project

Construction of the MRT Sungai Buloh-Serdang-Putrajaya (SSP Line) has reached another milestone with the breakthrough of the underpass tunnel below the Kuala Lumpur-Seremban Expressway near Sungai Besi, contributing to the project achieving more than 70% completion.

The breakthrough, which took place in early March 2020, marked the completion of excavation works for the second of two tunnels, located between 4.7 m and 5 m beneath the busy expressway. The first tunnel breakthrough was achieved on 25 February 2020.

Dato' Amiruddin Ma'aris, project director of Mass Rapid Transit Corporation Sdn Bhd (MRT Corp) SSP Line said the breakthrough was a major milestone in the construction of the second line of the Klang Valley MRT project. "The success of the V204 underpass construction shows the strong commitment of MRT Corp as project owner and the construction team from MMC Gamuda KVMRT (PDP SSP) Sdn Bhd as turnkey contractor and WCT Berhad as the work package contractor to deliver the project according to schedule."

Both tunnels have a diameter of 5.8 m and length of 60 m, located between Taman Naga Emas and Sungai Besi stations. They were built using a combination of methods, such as micro-tunnelling using mini-sized 0.8 diameter tunnel boring machines (TBMs) and pipe-jacking to construct an arch in order for excavation of the tunnel to be carried out.

Construction of the tunnels began in March 2019 and throughout the period, the expressway above - a major transport artery leading into and out of Kuala Lumpur - remained open to traffic. Constant monitoring and various safety precautions were taken to ensure that the construction work did not have any impact on the expressway. A full-time Emergency Response Team (ERT) was on hand to implement emergency measures should road settlement or ground subsidence occur. Fortunately, no incident of subsidence was recorded.

Mr Ma'aris said construction of the SSP Line is proceeding smoothly and on schedule. "We should be able to begin operations for Phase One of the SSP Line between Kwasa Damansara station and Kampung Batu MRT station by the middle of 2021, and the rest of the line by 2022."

He added that the entire elevated guideway for Phase One operations had been completed and track-related installation programme works were performed. A total of 16 train sets had been delivered to the Sungai Buloh Depot and were ready for testing.

For the underground section, continuous twin tunnel sections between Sentul Barat station and Ampang Park MRT station, and between Chan Sow Lin and Bandar Malaysia Selatan had been completed, with a total tunnel excavation distance of 20 km out of 23.6 km or 85% completed. ■

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# SMEC grows rail and metro portfolio in South Asia

Global design and engineering company, SMEC, has strengthened its significant infrastructure portfolio in South Asia, securing two major contracts in Bangladesh and India.

SMEC has been appointed by the Bangalore Metro Rail Corporation to undertake the detailed design of viaduct and stations for Phases 2A and 2B of the Bangalore Metro in the state of Karnataka, India. In Bangladesh, SMEC and its subsidiary ACE Consultants have been awarded the feasibility study and detailed design for a new railway line from Darshana to Meherpur.

Dr Janardhan Sundaram, executive director of SMEC India, said the two major contracts would further cement the company's leading position in South Asia's rail and metro sector. "This adds to the considerable rail portfolio that SMEC has been developing in Bangladesh and India, where we are also working on the Chennai metro, the dedicated freight corridor and on Mumbai Metro Line 6. In Bangladesh, SMEC is delivering the Subregional Transport Project Preparatory Facility: Rail Component, 120 km Dhaka-Chittagong-Cox's Bazar line, and 215.22 km Padma Bridge Rail Link Project.

"These important infrastructure works will also contribute to economic growth and community livelihoods through improved transport."

Bangalore Metro Phases 2A and 2B include the 24-km section from Central Silk Board Junction to HBR Layout along Outer Ring Road, and 18 elevated stations. SMEC's role is to produce optimal designs of all architectural, building services, electrical and mechanical works for the viaduct and stations. The project will improve the interconnectivity and reach of the metro while alleviating congestion and pollution, promoting the use of public



SMEC will undertake the detailed design of viaduct and stations for Phases 2A and 2B of the Bangalore Metro.

transport in the city, and supporting the economic development of Bangalore and the state of Karnataka.

In Bangladesh, the government is investing in a rail connection from Darshana, where the current network ends, to Meherpur via Damurhuda and Mujibnagar. An integral part of Bangladesh's history, Mujibnagar is where the first independent government of Bangladesh took the oath of office in April 1971. The extended rail connection will provide safe and comfortable access for tourists visiting the historic town, which will in turn boost the local economy. SMEC is delivering a feasibility study and detailed design for the new line, as well as tendering services and mathematical modelling including detailed surveys. ■

## SMEC to deliver feasibility study for Pilikambi Hydropower Project

Continuing its partnership with Enga Hydro Power Limited, SMEC has also been appointed to deliver a feasibility study for the next phase of the approximately 18 MW Pilikambi Hydropower Project in Papua New Guinea. SMEC previously carried out the pre-feasibility study for the project, which identified its technical and financial viability, and the report on this study was submitted in July 2019.

The Pilikambi Hydropower Project is located on the Lagaip River, near the Pilikambi Village. Enga Hydro Power initiated the project in 2016 under a public-private partnership (PPP), working with private investors and the Enga Provincial Government. Once operational, the project will extend rural electrification in the Enga Province by replacing diesel generation with sustainable, renewable energy.

The major activities during the feasibility study will include supervision and management of the feasibility level field investigations, project preliminary designs, drawings and cost estimates for the analysis of the technical and financial viability of the Pilikambi Hydropower Project. Upon confirmation of the project's viability, comprehensive environmental and social studies will follow to ensure optimum project configuration.

"The development of the project will ensure the availability of reliable renewable energy throughout the grid connected areas, particularly as the Enga Provincial government is



Tilak Battharai, SMEC manager for hydropower & dams in Southeast Asia (extreme right) is seen here with the SMEC team and Tobias K Thomas, general manager of Enga Hydro Power Limited (4th from left, in blue cap).

constructing a new hospital and other government facilities in Wabag town," said Tilak Battharai, SMEC manager for hydropower & dams in Southeast Asia. "Furthermore, the injection of 15–18 MW of power will strengthen the grid reliability between Wabag and Mt. Hagen." ■



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## GS Engineering wins ITTC contract in Singapore

GS Engineering and Construction Corp, a South Korea-based company, has won a S\$639.5 million contract from Singapore's Land Transport Authority (LTA) for the design and construction of an Integrated Train Testing Centre (ITTC). The first of its kind in Southeast Asia, this development will cover approximately 50 ha located at the former Raffles Country Club site.

The ITTC is a dedicated facility that will be equipped to perform robust integrated systems testing for new and existing MRT lines in Singapore. According to LTA, integrated systems testing can be performed round the clock within ITTC, minimising the impact on passenger services. This is also more efficient and frees up limited engineering hours on the existing lines for other activities, such as maintenance and renewal works.

When completed, the ITTC will be the cornerstone of Singapore's strategy to sustain rail reliability and deepen core rail engineering capabilities. The facility will house an operations control centre, testing equipment and features around 11 km of test tracks to support endurance, performance integration, and high-speed testing for new trains and supporting systems.

The ITTC will also be equipped with a rolling stock workshop, stabling tracks and maintenance tracks to support the major refurbishment of existing trains. LTA said the design of the ITTC is modelled after similar testing centres in countries like Germany, South Korea and Japan.

Over time, the ITTC will also serve as a hub for LTA and the local rail industry to deepen their competencies in systems integration and operations and in maintenance, and to achieve engineering excellence. For example, the local rail industry will be able to evaluate new railway infrastructure, develop proofs-of-concept, as well as conduct research and development into railway technologies, using the ITTC as a testing ground.

The ITTC will also speed up diagnoses and rectification of faults, as more troubleshooting can now be done locally. Meanwhile, rail workers stand to benefit with first-hand



Both images © LTA



ABOVE AND LEFT: The first of its kind in Southeast Asia, the new Integrated Train Testing Centre in Singapore will be equipped to perform robust integrated systems testing for new and existing MRT lines.

understanding of the intricacies of new rail systems before they are deployed.

The facility will commence operations in phases. The first phase is scheduled to open by 2022 to receive new trains and systems for Circle Line 6. The ITTC is expected to be fully operational by 2024.

GS Engineering is currently constructing the East Coast Integrated 4-in-1 Depot in Singapore. The company previously built the country's Downtown Line's Gali Batu depot, Fort Canning station and Tampines East station, as well as the Thomson-East Coast Line's Woodlands station. It also has prior experience constructing and operating a train testing centre in Osong, South Korea. ■

## New luxury resort to be developed in Labuan Bajo, Indonesia

Sudamala Resorts has appointed architecture studio ESA International to create its latest beachfront retreat - Sudamala Suites & Villas, Komodo in Labuan Bajo, Indonesia. Scheduled to start welcoming guests in the second quarter of 2020, this new development is located on the west coast of Flores, East Nusa Tenggara, offering 68 suites and 16 villas.

"We are delighted to work with ESA International once again to create Sudamala Suites & Villas, Komodo, Labuan Bajo – a one-of-a-kind resort that depicts the charm and beauty of its destination. We want to introduce international-standard hospitality to Labuan Bajo, while also promoting the region's rich cultural heritage," said Emily Subrata, director of Sudamala Resorts. "ESA's expert team of architects have embraced our vision of creating the first true resort in the region's hottest destination, and we look forward to presenting this outstanding property to the world in 2020."

Based in Bali, ESA International has been involved in various projects across Indonesia. The company has also worked with major international luxury hotel brands such as Four Seasons,



© Sudamala Resorts

The Sudamala Suites & Villas, Komodo is located by the beach with views of the Labuan Bajo Strait.

Hyatt and COMO Hotels & Resorts, and it also conceived two other Sudamala resorts: Sudamala Suites & Villas, Sanur, which opened in 2011, and Sudamala Suites & Villas, Lombok in 2013. ■

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# Aurecon appoints two senior executives in Asia

Global engineering, design and advisory company Aurecon has appointed Keith Leung as its director of major projects and pursuits in Asia. Based in Singapore, Mr Leung will be responsible for smooth delivery of major projects in terms of quality assurance, risk mitigation, management and review, so that clients will benefit from an enhanced experience of collaboration and quality solutions. He will report directly to Stephane Asselin, Aurecon's chief executive for Asia.

"Keith is a great addition to our team enhancing our project delivery offering to our clients and projects in Asia," said Mr Asselin. "Growing our business in Asia is a key strategic objective for Aurecon. Keith has demonstrated an intricate understanding of Asia's infrastructure and built environment landscape, with a proven track record of blending opportunity and delivery to successfully execute major projects. Having Keith onboard will strengthen our ability to deliver better value to clients and grow our business in Asia."

Mr Leung joins Aurecon from Singapore-based consultancy YWL Engineering, where he served as director since 2017. Prior to that, he spent 15 years at AECOM, where his last position was vice president of operations & infrastructure for Southeast Asia. Mr Leung oversaw all the company's Southeast Asian business activities and took a leading role in ensuring corporate governance at the company, as well as serving as the regional head of the Office of Risk Management.

Mr Leung's career spans 34 years where he played a key role in the design and engineering of high-profile projects in Asia, including the Common Services Tunnel in Marina South, Singapore; Hong Kong Science Park Phase 2 Development in Hong Kong; and the Second Stage Expressway System in Bangkok, Thailand. He brings a wealth of experience with a diverse range of engineering skills, including risk management, planning, design, project management, procurement and contract administration to Aurecon's clients and their projects.

"This is an exciting time to be joining Aurecon and I believe we are well-placed to take advantage of the growing number of opportunities that are developing in this part of the world," said Mr Leung. "Projects here are also growing in complexity, both technically and in terms of stakeholders' expectations. With my background in major projects across the region, I look forward to



FAR LEFT: **Keith Leung**, director of major projects and pursuits in Asia.



LEFT: **Ray Chan**, director of operations, infrastructure - Greater China.

bringing together Aurecon's multi-disciplinary expertise to help bring our clients' projects to life in Asia."

In addition, Aurecon has appointed Ray Chan as its director of operations, infrastructure – Greater China. In his new role, Mr Chan will be responsible for leading all services delivered to clients and projects, driving financial and operational performance, and developing team competency.

"The infrastructure and transport sectors in Greater China continue to lead the world in terms of ambition, scale, and pace of development. It is also constantly being disrupted by digital advances and the pursuit for innovation. With the appointment of Ray Chan, Aurecon is in a better position to help our clients develop smart and innovative solutions for their unique challenges," said Johnny Lam, Aurecon's managing director for Greater China.

Drawing on his extensive experience in major infrastructure projects, including MTRC Shatin Central Link, Express Rail Link, and South Island Line and similar mega projects in Hong Kong, Mr Chan will bring the best local and international expertise from Aurecon to deliver world-class innovative solutions that will bring clients' bold ideas to life. Prior to joining Aurecon, Mr Chan was technical director and head of tunnels and ground engineering at Atkins China Ltd.

"I am delighted to have this opportunity to grow Aurecon's infrastructure business in Greater China. Clients here have bold dreams that will require not just technical engineering skills, but also commercial acumen to make their investments viable and sustainable for the long-term. I look forward to working with them to design infrastructure that supports prosperity and growth of our region," said Mr Chan. ■

## LiuGong acquires Hertz China

Herc Holdings has sold all of its interest in Hertz Equipment Rental Company Limited (also known as Hertz China) to Guangxi LiuGong Machinery Co Ltd. The acquisition was completed on 1 May 2020.

"The sale of our business in China completes the disposition of all of our international operations to better focus on the North American market," said Larry Silber, president and chief executive officer of Herc Holdings Inc. "We are pleased that the business will transition to LiuGong, a leader in the construction equipment and material handling industries in China. We believe that LiuGong will offer a significant growth

platform for the Hertz China team."

Kevin Thieneman, vice president of LiuGong Machinery said, "For construction equipment, rental is the largest industry segment in Europe and North America and is projected to become a significant portion of the industry in China. Rental already represents more than 90% of the industry for aerial work platforms in China. We are pleased to acquire a business led by an experienced team trained in the business methodologies of one of the world's leading rental companies. The Hertz China business will enable LiuGong and our dealers to accelerate the development of rental solutions both in China and globally." ■

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## One Bangkok reaches another milestone

One Bangkok Co Ltd - a joint venture between TCC Assets and Frasers Property - together with Concrete Products and Aggregate Co Ltd (CPAC) and their partners (KCS & Associates Co Ltd, Stonehenge Inter Plc, and Italian-Thai Development Corporation Limited) recently announced the completion of the largest raft (mat) foundation pouring in Southeast Asia for an office tower at One Bangkok, a new large-scale district development planned to open in 2023.

The work involved the coordination of 547 trucks, providing a total of 23,725 cu m of concrete. According to One Bangkok, the continuous foundation pouring took place over a 33 hour-and-15-minute period. The 4.5-m-thick raft foundation for the 170-m office tower – one of the first buildings to welcome tenants in 2023 – employed 2,200 t of reinforced steel, and the concrete used is a special low-heat material containing a high compressive strength of 600 kg/sq cm.

One Bangkok said to ensure minimal disruption to the surrounding community, dust control systems were installed around the site, plus air and noise pollution sensors were set up both within and outside the district.

The site and its surrounding area were also cleaned thoroughly, added One Bangkok, with the company prioritising sustainable initiatives and the community's wellbeing during the process. These measures included complete wash bays for all vehicles before leaving the site, and the cleaning and sweeping of adjoining roads and footpaths.

The piling works on the project were completed in June 2019. One Bangkok is scheduled to open in 2023, with full completion in 2026. It will offer five premium grade-A office buildings, five



Both images © One Bangkok



ABOVE AND LEFT: The raft foundation pouring for one of the office towers at One Bangkok has been completed. It involved the coordination of 547 trucks, providing a total of 23,725 cu m of concrete.

luxury and lifestyle hotels, three luxury residential towers, four interconnected retail precincts, and art and cultural hubs. ■

## Sunshine Insurance Financial Centre tops out in Beijing

Global architecture and design studio Woods Bagot and Chinese company Sunshine Insurance recently celebrated the topping out of the new Sunshine Insurance Financial Centre in Beijing. The 205-m-high building is located on the East Third Ring Road and Guanghua Road, adjacent to the iconic China Media Group headquarters and China World Trade Centre.

The 42-storey development provides offices, multi-functional event space and business amenities spanning 90,000 sq m. Scheduled for completion in November 2020, the project is targeting a LEED gold rating.

According to Woods Bagot, Sunshine Insurance's ground-level podium takes inspiration from a lotus flower with a bulbous form and an open ceiling that highlights plantings in the garden, challenging the conventional square footprint common to most towers in the central business district (CBD). The tower reaches skyward from a regular square base on the ground level and gradually ascends to an oval shape on top. The shape of the building rotates upward to create maximum long-distance view for the upper level offices and a 360-degree response to its surroundings. The tower's facade follows the route of the sun, on which the sunbeam is cast and reflected throughout the day.

"The unique design strategy resolves the site's limitation as we attempt to maximise the project's value given a compact site area with other office towers nearby. As a result, we offer this one-of-a-



© Woods Bagot

The upcoming Sunshine Insurance Financial Centre is pictured above at the centre, foreground. The project is slated for completion in November 2020.

kind commercial building to the stakeholders and the future Beijing CBD community," said Jean Weng, Woods Bagot's China director.

"This project is very different from other commercial office towers we did in the past. Not only because of its prime location, but the design of the building also fits in the overall dynamic of the CBD urban environment." ■

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## Haulotte Australia moves into new premises

Haulotte Australia recently inaugurated its new office, located on the southeast side of Melbourne, Victoria. The new premises provides more than 118,400 sq ft of work space for the company's 50 employees. It is about three times the size of the old facility and can accommodate a broad selection of Haulotte mobile elevating work platforms (MEWPs) and telehandlers.

This latest move follows the increased demand for Haulotte machines in Australia and New Zealand. "The new facility will allow us to better cater to our customers' logistical needs," said Keith Clarke, general manager of Haulotte Australia.

The extra space will allow Haulotte Australia to grow its business and improve its service offer. The large parts department will speed up delivery times, increasing the company's efficiency and allow for future growth in its parts holding.

The new building also includes training facilities to enhance customers' skills and promote the safe use of Haulotte



LEFT, BELOW AND BELOW LEFT: The opening ceremony for Haulotte Australia's new premises, located on the southeast side of Melbourne, Victoria.



equipment. "This inauguration marks a new chapter and emphasises our commitment and confidence in the

Australian powered access market," said Alexandre Saubot, CEO of Haulotte Group. ■

## Manta receives two Potain MCT 565 topless cranes in Singapore

Manta Equipment has received two brand-new Potain MCT 565 M25 topless cranes in Singapore and recorded immediate success with both. Hock Guan Cheong Builder purchased the first crane from the company and is using it for residential construction projects, while BHCC Construction is renting the second one for use on housing projects.

"We chose the MCT 565 because the Potain topless crane has better lifting capacity compared to the similar class of cranes from other manufacturers," said Benjamin Goh, marketing manager at Manta Equipment.

The MCT 565 M25 offers a 25 t maximum load capacity and jib length configurations from 30 m to 80 m in 5 m increments. At its 80 m jib end, the crane can handle an impressive 4 t. Despite its increased size, this new model stays true to the design characteristics of Potain topless cranes, with easy transport and erection combining with excellent on-site performance.

Manta Equipment is one of Asia's leading tower crane rental companies. It serves primarily the construction and infrastructure sectors in Singapore, Hong Kong and Macau. In Singapore the company has been leasing Potain cranes to customers for over 25 years.

"Since the MCT 565 launched at bauma China 2018, popularity is continuing to grow," said Darren Tan, regional sales manager for tower cranes at Manitowoc Cranes – Greater Asia Pacific. "With many contractors preferring topless cranes and job sites using heavier construction materials, we expect to see more demand for the MCT 565, which is now the largest topless crane from Potain's Asia Range." ■



ABOVE: The handover ceremony for the Potain MCT 565.



LEFT: At its 80 m jib end, the MCT 565 can handle an impressive 4 t.



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# Hyundai to develop hydrogen-powered excavators

Hyundai Construction Equipment has signed a Memorandum of Understanding (MOU) for a joint development of hydrogen fuel cell construction equipment with Hyundai Motors and Hyundai Mobis. Together, the three companies will look to develop hydrogen-powered forklifts and medium/large hydrogen-powered excavators over the next few years.

According to the MOU, Hyundai Motors and Hyundai Mobis will design and manufacture hydrogen fuel cell systems, including power packs, while Hyundai Construction Equipment will design, manufacture and evaluate the performance of excavators and forklifts. The target date for mass production and distribution has been set for 2023.

Hyundai said that unlike conventional diesel engine-based equipment, hydrogen-based electric construction equipment uses electricity produced through the chemical reactions between hydrogen and oxygen as its power source, meaning no emissions of toxic gases into the air. Given the rapidly rising demand for eco-friendly equipment around the world in recent years, hydrogen-based construction equipment is expected to help Hyundai Construction Equipment compete in the global construction market moving forward.

Furthermore, compared to lithium batteries, which reportedly have been marred by structural issues limiting various attempts to increase battery capacity, hydrogen fuel cells are believed to be much easier to expand, making them a much more logical choice for large forklifts or excavators.

The partnership between Hyundai Construction Equipment and Hyundai Motors is also expected to give the construction equipment industry a boost in terms of creating a hydrogen-based ecosystem.

Hwang Jong-hyun, head of R&D division for Hyundai Material Handling at Hyundai Construction Equipment said, "With this latest agreement, we've prepared a foundation upon which we



Hyundai CE has signed an agreement for a joint development of hydrogen fuel cell construction equipment with Hyundai Motors and Hyundai Mobis.

can secure core technology in hydrogen-powered construction equipment ahead of our competitors. Hyundai Construction Equipment will do its very best to meet the challenges that lie ahead, as countries around the world attempt to establish global standards in terms of certifying the performance of equipment and legislating relevant laws for the commercialisation of hydrogen-powered construction equipment, and play a leading role in the market moving forward."

In the past decade, Hyundai Construction Equipment has been focusing on developing eco-friendly construction equipment and machinery. The company mass-produced the first reel-type electric excavator (wired-type equipment used with its power cable plugged in) in 2010 and in 2018, it developed a small electric excavator equipped with a large capacity battery for the first time in Korea. ■

## Carmix temporarily closes production site in Italy

In view of the Covid-19 situation, the Italian manufacturer Carmix has temporarily closed its production site in Noventa di Piave, Venice, following the Prime Minister's decree to stop all non-essential production activities. This is part of the government's emergency measures in slowing down the spread of the virus.

Nevertheless, Carmix stated it will continue to support its customers, dealers and stakeholders by focusing all efforts on its sales network and online training. Carmix's sales network and supports services are available around the world - in Europe, Asia, the Middle East, Africa and the Americas.

In its official announcement, Carmix also stressed that its entire sales network and support services have taken steps to be always by their customers' side. Area managers are launching various initiatives, such as online training for technicians and dealers, thereby ensuring that Carmix expertise and products continue to be known, as well as providing the knowledge and strategies needed to produce quality concrete.

Manuela Galante, Carmix marketing director said, "Although our production site will remain closed in the coming weeks, following the Italian Government's directions, we will continue to support our customers and partners. Carmix has always aimed at



Carmix 3500 TC mobile batching plant on display at Conexpo 2020.

creating a close-knit, active community, as can be seen from our Facebook page with over 204,000 followers. It's in tough times that a community proves its worth, because it can keep people together and activate initiatives such as online training." ■

*Note: All information is correct at the time of printing. Future updates will be announced by the company in due time.*

## Snorkel joins Cat Allied Vendor Program

Global manufacturer of mobile elevating work platforms, Snorkel, has announced its partnership with Caterpillar Inc as a preferred vendor for the Cat Allied Vendor Program.

Expanding upon the existing relationship that Xtreme Manufacturing has enjoyed as part of the Cat Allied Vendor Program in North America since July 2012, sister company Snorkel is now offering its full product range of Snorkel lifts, including mobile elevating work platforms (MEWPs), telehandlers and material lifts, throughout North American locations as well as in EMEA (Europe, the Middle East and Africa) and Asia.

The Cat Dealer Rental Stores are a combined global network of more than 1,400 dealer-owned locations for Caterpillar and Allied equipment, offering the largest construction equipment rental fleet in the world.

Matthew Elvin, CEO of Xtreme Manufacturing and Snorkel said, "We are excited to expand our partnership with the Caterpillar Allied Vendor Program. With Snorkel's worldwide presence, we can easily and effectively support sales, service and spare parts from a global manufacturing and distribution network.

"At Snorkel, we are proud of our 60-year heritage as leaders in the aerial lift industry, and with a mindset of continuous improvement, we consistently deliver safe, simple and reliable equipment that is easy to maintain with a low cost of ownership. We are looking forward to working with The Cat Rental Store locations around the world."

In North America, all rental locations will benefit from access



Snorkel is offering its full product line through the Cat Allied Vendor Program, including its family of electric scissor lifts (pictured).

to regional sales managers for fast sales support and product demonstrations as needed. Additionally, a team of product support representatives along with a national service manager and a field service manager, are dedicated to providing training, spare parts, service and warranty.

This level of support will be replicated in the EMEA and Asia regions, through Snorkel's direct sales and service team, and backed by an extensive distribution footprint providing fast local access to service and spare parts. ■

## Allu forms new R&D company and appoints new managing director

Allu Group has established a new R&D company, which aims to develop future attachment technology, solutions and equipment. It is headed by Markku Jonninen, founder of Allu Group Oy and chairman of the board.

On 1 April 2020, Allu Innovation and Research Centre Oy became operational to develop new equipment, products and solutions through the use of the latest innovative technology. This new company will operate as a separate corporate entity alongside the other Allu Group companies, but independent to the existing Allu manufacturing, production and general operational structure.

Allu Innovation and Research Centre Oy will form the cornerstone of Allu's ongoing R&D programme providing cutting edge solutions, designed to make customers more efficient, productive, environment-friendly and profitable. It is envisaged that following successful testing and fine-tuning, applicable new innovations will be incorporated into new Allu products which will subsequently be introduced to market.

### New managing director

Allu Group has also appointed Peter Grönholm as managing director of Allu Finland, with effect from July 2020. He is currently vice president for supply chain and operations in Germany at Cavotec Group, a supplier of industrial equipment.

Mr Grönholm has extensive experience in sales and marketing as well as supply chain management, and also as a managing director of international organisations in Finland and abroad. His positions over the years have been in the US, Norway and



LEFT: Peter Grönholm, new managing director of Allu Finland. RIGHT: Allu Transformer hydraulic attachments.

Germany, and he has also been responsible for business in several other countries including North America and the Nordic countries.

"Allu's strategy is for profitable growth, earnings and internationalisation. Peter is a result and solution-focused, well-thought-off team player, in addition to which he has achieved great results with strong leadership skills. Peter's experience in international business also played a significant role in the selection," said Mr Jonninen.

"For me, Allu is a positive challenge in Finland after several years abroad. It is a well-known brand in its field and a well-managed company with great growth potential. I look forward to being part of the team to further develop Allu's business," said Mr Grönholm. ■

Date	Events in Asia	Organiser & Contact
2 to 4 Sept 2020	IRF Asia-Pacific Regional Congress & Exhibition Bali Nusa Dua Convention Centre Bali Indonesia	International Road Federation (IRF) Tel: +1 703 535 1001 Email: melabyad@irf.global Website: www.irf.global/event/asrc3-bali
9 to 11 Sept 2020	Intermat ASEAN & Concrete Asia 2020 Impact Exhibition and Convention Centre Bangkok Thailand	Comexposium & Impact Exhibition Management Tel: +662 833 5315 Email: info@asean.intermatconstruction.com Website: asean.intermatconstruction.com
3 to 6 Nov 2020	bauma Conexpo India 2020 Huda Ground Gurgaon, New Delhi India	Messe München Tel: +49 89 949 20251, Fax: +49 89 949 20259 Email: info@bcindia.com Website: www.bcindia.com
5 to 8 Nov 2020	Philconstruct 2020 SMX Convention Centre & World Trade Centre Manila The Philippines	Global-Link Exhibitions Specialist Tel: +632 893 7973 Email: info@gesi.com.ph Website: www.philconstructevents.com
17 to 18 Nov 2020	Trenchless Asia 2020 Kuala Lumpur Convention Centre Kuala Lumpur Malaysia	Westrade Group Ltd Tel: +44 1923 723990 Email: pharwood@westrade.co.uk Website: www.trenchlessasia.com
19 to 21 Nov 2020	Myanbuild 2020 Myanmar Expo Hall Yangon Myanmar	AMB Tarsus Events Group Tel: +95 1 2301311 (ext 2075) Email: ei@ambtarsus.com Website: www.myanbuild.net
24 to 27 Nov 2020	bauma China 2020 Shanghai New International Expo Centre Shanghai China	Messe München Tel: +49 89 949 20251, Fax: +49 89 949 20259 Email: info@bauma-china.com Website: www.bauma-china.com
9 to 11 Dec 2020	OS+H Asia 2020 Marina Bay Sands Singapore	Messe Duesseldorf Asia Tel: +65 6332 9620, Fax: +65 6332 9655 Email: osha@mda.com.sg Website: www.osha-singapore.com
10 to 12 Mar 2021	BuildTech Asia 2021 Singapore Expo Singapore	Sphere Exhibits Pte Ltd Tel: +65 6319 4021 Email: buildtechasia@sph.com.sg Website: www.buildtechasia.com
24 to 25 Mar 2021	Geo Connect Asia 2021 Suntec Convention and Exhibition Centre Singapore	Montgomery Asia Email: effie@montgomeryasia.com Website: www.geoconnectasia.com
Date	Events outside Asia	Organiser & Contact
8 to 11 Sept 2020	Bauma CTT Russia 2020 Crocus Expo International Exhibition Centre Moscow Russia	Messe München Tel: +49 89 949 20251 Email: info@bauma-ctt.com Website: www.bauma-ctt.ru/en
22 to 24 Jun 2021	Hillhead 2021 Hillhead Quarry Buxton, Derbyshire, England United Kingdom	The QMJ Group Ltd Tel: +44 115 945 4367 Email: hillhead@qmj.co.uk Website: www.hillhead.com
4 to 10 Apr 2022	bauma 2022 Munich Trade Fair Centre Munich Germany	Messe München Tel: +49 89 949 11348 Email: info@bauma.de Website: www.bauma.de

**Note:** The show organisers may change the dates of the event or postpone/cancel it without prior notice, so readers are advised to visit the show websites regularly for the latest information.



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# OS+H Asia 2020 postponed to December

The 12th edition of Occupational Safety and Health Exhibition for Asia (OS+H Asia) has been postponed to the end of the year and will take place from 9 to 11 December 2020. The show was originally scheduled for 26-28 August.

As the region's leading exhibition focusing on workplace safety and health, OS+H Asia 2020 will now be held alongside Medical Fair Asia at Marina Bay Sands, Singapore.

"In light of the evolving Covid-19 situation surrounding border restrictions and heightened social distancing measures, and in consultation with industry partners, we have taken the decision to postpone OS+H Asia 2020 to December this year," said Gernot Ringling, managing director of Messe Düsseldorf Asia, the show organiser.

"Delivering an exhibition that optimises participants' investment in time and resources is one of our top priorities, so we anticipate that the December dates will maximise participation and engagement from regional and international attendees."

Mr Ringling added, "We are optimistic that the co-location of OS+H Asia with Medical Fair Asia - representing the synergistic portfolios of occupational safety, security and healthcare - will come at a time when businesses will be on the lookout for sourcing and networking platforms, as well as heightened industry demand for solutions as companies look to adapt workplaces and protect employees for the future."

"We would like to thank all OS+H Asia partners, exhibitors, and registered visitors from around the region for their continued support and look forward to welcoming them in December."

The last edition of OS+H Asia took place in 2018 at Suntec Singapore, attracting 200 exhibitors from 20 countries. It was attended by more than 5,000 trade visitors from 36 countries, a 15% increase over the 2016 edition. The show also welcomed more than 40 visiting delegations and groups representing various sectors, including building and construction, offshore marine, electrical and electronics, engineering services, and warehousing and logistics. In addition, the show drew more international visitors with participants from countries such as Malaysia, Indonesia and Thailand. This highlighted the relevance of OS+H Asia as the leading regional networking and procurement platform for the latest workplace safety and health products and solutions.

OS+H Asia is held in Singapore biennially, and was inaugurated in 1998. The exhibition is driven by A+A, the world's leading trade fair for all aspects of safety, security and health at work, organised by Messe Düsseldorf in Germany.

The OS+H Asia team said it will be in touch with all confirmed exhibitors and participants regarding event logistics and planning for the 2020 edition. ■

Website: [www.osha-singapore.com](http://www.osha-singapore.com)



ALL IMAGES: The last edition of OS+H Asia took place in 2018 at Suntec Singapore, attracting 200 exhibitors from 20 countries. It was attended by more than 5,000 trade visitors from 36 countries.

# ASEAN Super 8 postponed to Oct; ICW moves to 2021

Due to the Covid-19 pandemic, ASEAN Super 8 trade show in Kuala Lumpur, Malaysia, has been postponed to 20-22 October 2020. Organised by Informa Markets, the event will be held at the Malaysia International Trade and Exhibition Centre (MITEC). Meanwhile, International Construction Week (ICW) hosted by Construction Industry Development Board (CIDB), which has been held simultaneously with ASEAN Super 8 since last year, will now be moved to 2021.

Informa Markets said the decision to reschedule ASEAN Super 8, which was originally slated to take place from 23 to 25 June 2020, is taken after careful consideration and close consultations with the key stakeholders, exhibitors and industry partners.

"We believe the revised new dates will allow more time for normality and confidence to return to the marketplace, ease travel restrictions and provide all-around better conditions for exhibitors and visitors to engage," said YBhg. General Tan Sri Dato' Seri Panglima Mohd Azumi Bin Mohamed (Rtd), co-chairman of Informa Markets in Malaysia.

ASEAN Super 8 will feature Southeast Asia's eight built environment exhibitions, namely ASEAN M&E, Tenaga Expo, ASEAN Lift, ASEAN Solar, ASEAN Light, Futurebuild SEA, Heavy Mach and IFSEC Southeast Asia. And after a one-year gap, the

region's premier Refrigeration, Ventilation and Air-Conditioning Expo (REVAC) will make its comeback, in response to the strong interest and demand from exhibitors and visitors.

"ASEAN Super 8 is the leading event for the Malaysian built environment as well as across the region, bringing different trade shows focusing on building and construction, power and energy, solar, HVAC, lift and escalator, lighting, heavy machinery and security under one roof. We are working closely with Informa Markets, industry stakeholders and the relevant government agencies, and are committed to supporting the entire construction industry and the continued success of ASEAN Super 8," said chief executive of CIDB Malaysia, Datuk Ir. Ahmad 'Asri Abdul Hamid.

Informa Markets stressed that it will take the necessary precautionary measures at the exhibition venue to ensure the safety and well-being of all participants. At the same time, the organiser will closely monitor the development of the Covid-19 issue and adhere to the government's instruction, make appropriate and necessary adjustment to the exhibition, if needed.

The 2019 edition of ASEAN Super 8 attracted 339 participating companies covering various industry sectors, with a solid turnout of 16,781 trade visitors. ■

Website: [www.super8asean.com](http://www.super8asean.com)



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# bauma Conexpo India to be held in November 2020

The next edition of bauma Conexpo India is set to take place from 3 to 6 November 2020 at the Huda Ground, Gurgaon, New Delhi. Instead of mid-December as in the previous editions, this year for the first time the show will be held in early November. The organisers - bC Expo India Pvt Ltd, Messe München GmbH, and AEM (Association of Equipment Manufacturers) - hope the new date will result in even better participation.

The last edition of bauma Conexpo India took place in December 2018, attracting 668 exhibitors from 26 countries and 39,173 visitors from India and neighbouring states. This year, around 700 national and international companies are expected to attend the show, which covers 195,000 sq m of exhibition space.

The Indian market seems to be slowly recovering. Based on the government announcements and expert forecasts, bauma Conexpo India will encounter a generally favourable market environment at the end of the year. After a difficult year in 2019, when sales of construction and building material machinery fell to 80,000 units, management consultancy Off Highway Research anticipates a significant upturn in the coming years: machine sales are expected to increase to up to 120,000 units by 2023. India's role as a regional export hub is also of great importance in this context.

According to recent statements by Nitin Gadkari, India's Minister of Road Transport and Highways, the country plans to make massive investments (US\$1.4 billion) in infrastructure measures again in the coming years. The money is to be used primarily for the construction of roads and waterways as well as airports, ports and smart city projects. As a result, construction equipment sales are expected to increase by up to 40%.

bauma Conexpo India could also benefit from a recovering Indian construction industry that is slowly picking up speed. Bhupinder Singh, CEO of bC Expo India Pvt Ltd said, "The Government has several projects that are underway, and these planned projects will help create a surge in the heavy construction equipment market.

"With bauma's strong global presence, our joint organiser AEM and resilient support from associations like ICEMA, BAI and other industry bodies, we are certain that we will build an engaging, meaningful and highly focused business platform



ABOVE AND LEFT: The last edition of bauma Conexpo India in 2018 attracted 668 exhibitors and 39,173 visitors.

for our stakeholders from the infrastructure and construction equipment sector."

Riccardo Viaggi, secretary general of CECE (Committee of European Construction Equipment) added, "bauma Conexpo India - as part of CECE's International Exhibition Partnership Programme - is of great importance for CECE members. The trade fair offers a unique opportunity to connect European companies to the Indian market and vice versa. Indeed, CECE member companies see India as a great opportunity in terms of increased sales, also thanks to the continued investment in infrastructure at state and federal levels. ■

Website: [www.bcindia.com](http://www.bcindia.com)

## Hillhead delayed to June 2021

In light of the ongoing Covid-19 pandemic, Hillhead 2020 is being postponed by 12 months. The show, to be held at the Hillhead Quarry, Buxton, the UK, will now take place from 22 to 24 June 2021. "The health and safety of exhibitors, visitors, contractors and employees is our number one priority and with the peak of the epidemic predicted to coincide with the show in June, this would be severely compromised," said Richard Bradbury, Hillhead event director. "Following an extensive consultation process, the decision has been taken to delay the event by a year to allow market conditions to stabilise and to best support the construction and quarrying industry during this challenging period." ■

Website: [www.hillhead.com](http://www.hillhead.com)



# Geo Connect Asia rescheduled to March 2021

Following the cancellation of Geo Connect Asia 2020, in view of health and travel safety concerns connected to the still-evolving Covid-19 situation, Montgomery Asia has announced that the event will now be held from 24 to 25 March 2021.

Taking place at the Suntec Convention & Exhibition Centre in Singapore, the event will build on the foundations laid in 2020 and is expected to attract an even larger number of sponsors, exhibitors, and speakers from across the region and around the world.

According to Montgomery Asia (the event organiser), Geo Connect Asia 2020 had garnered a positive reception from businesses and stakeholders in the ASEAN geospatial space and received strong support from industry trade associations and various media partners. The event was set to bring together over 50 regional and international exhibitors and poised to attract 2,500 attendees from across the region with a high-level thought leadership focused conference. These numbers are expected to grow in 2021.

Rupert Owen, the event director said, "We remain committed to successfully delivering Southeast Asia's inaugural globally-focused geospatial exhibition and conference in 2021; with this in view, I would like to thank all our partners, sponsors, exhibitors, delegates, media partners, venue operators and contractors for their unwavering support. The geospatial space in Southeast Asia remains a hugely exciting one, and we will return with a bigger and even more exciting programme next March, the preferred month for the global industry events calendar."

Ng Siau Yong, director of geospatial and data division and chief data officer at Singapore Land Authority (SLA), a leading Knowledge Partner that supports Geo Connect Asia 2020, commented, "SLA & GeoWorks noted Montgomery Asia's decision. We will nonetheless give our full support to the new and exciting event in 2021. This event has already attracted top-level speakers, international exhibitors and visitors from technology-based capabilities to capacity building. We look forward to receiving the same or even higher level of support in building this strongly knitted community in 2021."

John Whitehead, APAC director of sales and distribution at Trimble, a platinum sponsor of Geo Connect Asia 2020, has also spoken out in support. "Given the seriousness of the Covid-19 outbreak, not only in Asia but around the world, we fully understand and concur with the organiser's decision to relaunch Geo Connect Asia at a later date," he said. "As a platinum sponsor, we continue to support Geo Connect Asia, and we are confident that the 2021 edition will be a great success."

The ASEAN Federation of Land Surveying and Geomatics (ASEAN FLAG), which was set to host its 73rd ASEAN meeting alongside Geo Connect Asia 2020, has also expressed solidarity and support for the decision. The ASEAN FLAG president Gerry Ong said, "As part of ASEAN, we are deeply concerned about the Covid-19 outbreak and its impact on the region. While we remain fully committed to the ASEAN geospatial industry and to Geo Connect Asia, we understand that the health and safety of all attendees at the event are of paramount concern. As such, we look forward to a bigger and better Geo Connect Asia in 2021."

By holding Geo Connect Asia to a later date in 2021, it is anticipated that a wider range of regional and international geospatial solutions providers will be in attendance. The



Trimble on show at the Digital Construction Conference in Indonesia in November 2019. The company will also be participating at the inaugural Geo Connect Asia in Singapore in 2021.

build-up to this year's cancelled edition of Geo Connect Asia has laid the groundwork for a successful future edition, with various partnerships established regionally and internationally. ■

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## Roberto Kim named IPAF representative in South Korea



The International Powered Access Federation (IPAF) has appointed Roberto Kim (left) as its new representative for South Korea, boosting efforts to grow its membership in the country and foster greater engagement across the powered access industry as part of the Federation's three-year strategic plan.

This appointment will help serve membership in South Korea and wider Southeast Asia, said IPAF, as demand from its manufacturer members and rental companies to help promote the safe and effective use of mobile elevating work platforms (MEWPs) continues to rise.

"South Korea is an important country for IPAF, with a total MEWP rental fleet comparable in size to that of the UK, many machines being used in manufacturing, technical and processing industries and the associated logistics chains," said Romina Vanzi, IPAF's head of regional development. "The country offers

challenges and opportunities in terms of aligning best practice with globalising standards, assisting MEWP manufacturers and rental companies with technical and safety issues, and rolling out operator and manager training as widely as possible, as well as working with regulatory bodies and end users to increase recognition of safety and technical standards and IPAF training."

Mr Kim will report to Raymond Wat, IPAF's Southeast Asia regional manager, and will be actively engaging with IPAF's members, industry partners and prospective members in South Korea and wider Southeast Asia over the coming months.

Mr Wat commented, "Roberto is a very experienced professional and has worked most recently in the mobile crane industry. He is a qualified instructor of operators of this type of machinery and an active member of the board of the Korean Crane Association. I am delighted to welcome Roberto to the IPAF team and very much look forward to working with him to continue to grow our presence and profile in South Korea." ■

## IPAF's eLearning offers remote MEWP training solutions

Candidates seeking to renew or obtain Powered Access Licence (PAL) Cards to operate MEWPs and those wishing to undertake specialist management training are advised to opt for online distance learning by IPAF, which has also introduced measures to temporarily extend expiring PAL Cards by 90 days for those who complete an eLearning module.

IPAF has also doubled the maximum amount of time between a candidate successfully completing their operator theory module via eLearning and the mandatory practical assessment to 90 days, to allow training centres to manage demand against recommended safe practices during the coronavirus pandemic.

New applicants will not receive a PAL Card until successful completion of the practical test, but any current PAL Card holder whose card is due to expire may have the expiry date extended under special measures.

On successful completion of the online operator theory eLearning module, and until such time as a practical assessment can be safely undertaken, a PAL Card's validity may be extended by up to 90 days from the date on which completion of the online module is certified.

IPAF will request that all employers and contractors requiring a valid PAL Card to allow holders to operate MEWPs or access work sites recognise these temporary extensions of an expiring PAL Card, subject to their discretion.

"We urge those wishing to undertake IPAF training, whether they are new applicants or renewing an existing qualification, to first locate and contact their nearest IPAF-approved training centre to find out what eLearning options are available to them, and to schedule where required a practical assessment if possible, to allow our training providers to manage demand," said Giles Councill, IPAF's director of operations.

"A theory module for MEWP operator training can be conducted online anywhere, any time, on most devices and, provided that a practical assessment is completed within the 90-day period, the candidate will be issued their IPAF PAL Card in the usual way. It's also worth pointing out that the operator theory eLearning



module is available in multiple languages to suit the candidate's requirements, wherever they are in the world."

Mr Councill added, "With regards to IPAF's MEWPs for Managers, this is currently available in English, and in a special ANSI-compliant variant suitable for the US market, with German set to be made available via our eLearning suite very soon.

"It is possible to complete MEWPs for Managers entirely in eLearning, though it is still assigned to training candidates in the usual way by an approved IPAF training provider. Please contact your nearest IPAF training centre in the first instance to find out more and to schedule your training requirements; we hope that the added flexibility offered will assist candidates in completing their training safely and conveniently in the face of ongoing constraints to restrict the spread of the Covid-19 disease.

"The full impact of Covid-19 on IPAF training availability is changing daily. We accept the possibility that workers may struggle to find available training to qualify them to operate an MEWP or to renew an existing PAL Card, and therefore we are asking the industry to support these temporary measures. We will review these periodically in line with the best available national and international guidance." ■

## IPAF Asia Conference postponed to July 2021

The annual IPAF Asia Conference & Showcase, scheduled to be held in July 2020 in Seoul, South Korea, has been cancelled owing to uncertainty around the global coronavirus outbreak. It is now scheduled to take place in July 2021.

Raymond Wat, IPAF's Southeast Asia regional general manager said, "This event was highly anticipated, with members looking forward to networking with the Korean MEWP industry delegates. It is held each year to continue developing solutions to known powered access industry issues across Asia. However, the health and welfare of our team and all event attendees must take precedence.

"Based on activities worldwide to address the Covid-19 outbreak and in line with IPAF's decision to reschedule our international Summit & IAPAs in London in April to October, and other prominent events around the world we decided to take action to postpone the IPAF Asia Conference 2020 to July 2021. The location will still be Seoul, South Korea.

"We also appreciate that there are travel restrictions in place imposed by many of our member companies and/or national governments, while the World Health Organisation advises against travel at this time and for the foreseeable future to help restrict the virus from spreading, so we appreciate that planning for an event even some months away would have involved a great deal of uncertainty for anyone thinking of attending."



Romina Vanzi, IPAF's head of regional development said that, with South Korea being an important country for IPAF, it's a natural choice as a host country for the next IPAF Asia Conference & Showcase. "We remain committed to bringing the event here in 2021. A date and venue details will be announced as soon as it is confirmed."

Mr Wat added, "Any sponsors who booked to support the IPAF Asia Conference 2020 will have their sponsorship package reserved for IPAF Asia Conference 2021. We apologise for any inconvenience this decision may cause, and hope that you will be able to join IPAF for the rearranged Asia Conference & Showcase 2021." ■

## IPAF welcomes new international standard on MEWP operator controls

IPAF welcomes the introduction of a new international standard on MEWPs operator controls - the ISO 21455:2020. Published in April 2020, it culminates a decade of work from IPAF, its members and the UK Health and Safety Executive (HSE) to standardise the actuation, displacement, location and method of operation of MEWP control.

The new standard is the result of work that commenced in 2010 when the UK HSE began to look into MEWP entrapment and control design. It also builds on research first undertaken by IPAF into which, if any, methods of operation and orientation of MEWP controls might be standardised across different brands and models to further improve safety. The UK HSE research resulted in the reports RR960 and RR961 being published in 2013.

Following the publication of the reports, the UK HSE and MEWP manufacturers began discussions through IPAF's Manufacturers' Technical Committee (MTC) and the Association of Equipment Manufacturers (AEM), which led to the creation of the Manufacturers of Elevating Work Platforms Council (MEWPC), later penned as the MEWP Industry Manufacturers Group (MIMG). Human factors and ergonomics research work done by the UK's Health and Safety Laboratory (HSL) also played an important role.

The outcome of this collaboration was a proposal in 2015 to develop an international standard for MEWP control performance, location, marking and method of operation, which eventually brought about the release of the new ISO standard.

As part of the standard development process, a research project led by IPAF and EWPA (Elevating Work Platform Association)

in Australia, a simulated MEWP platform with a multi-position control panel was taken to construction sites and industry events. Operators of varying experience took part in a research exercise using the control panel. The resulting data proved invaluable to the members of the standard's development committee, ISO TC 214 Working Group 1, as they determined joystick controller orientation relative to the work platform floor.

Peter Douglas, CEO and MD of IPAF said, "This unprecedented co-operation between global MEWP manufacturers, trade associations and the UK HSE resulted in the new MEWP control standard. It shows how important IPAF's committees are in driving forward standards globally and it is gratifying to see this project moving to fruition and improving the safety of MEWPs by standardising the controls."

Chris Wraith from IPAF member Access Safety Management Ltd and former IPAF technical & safety executive, who also worked to introduce the new standards commented, "IPAF and its members were heavily involved throughout this 10-year journey and should be proud of their involvement in producing this landmark standard, which now sets a new international benchmark for MEWP control design."

IPAF North American manager Tony Groat, who is a member of ISO TC 214 added, "I believe this standard provides new language that can impact control designs to improve the operator's intuitive direction of motion based on the position of the control panel-tilted towards or away from the operator. I am optimistic that this standard will immediately influence MEWP manufacturer's and country design standards in their next revisions." ■

# Wirtgen's new large milling machines complete F-series

Wirtgen has added the W 220 Fi and W 250 Fi to its F-series of large cold milling machines. These new models serve a wide range of applications at a maximum milling depth of 350 mm – from surface course rehabilitation and fine milling work to complete removal of the surface.

Various drive concepts are available to ensure maximum, optimal milling performance. These include a two-speed Dual Shift powershift transmission for the W 220 Fi, and an Active Dual Power dual engine drive for the W 250 Fi. The new models have an engine power of 801 hp (W 220 Fi) and 1,010 hp (W 250 Fi).

Like the other F-series models (the W 200 Fi, W 207 Fi and W 210 Fi), the W 220 Fi and W 250 Fi are also setting new standards in terms of milling performance and machine efficiency. In the automatic mode, the Mill Assist standard assistance system provides an optimal balance between performance and operating costs. This not only improves milling performance, but also reduces diesel, water, and pick consumption, as well as CO<sub>2</sub> emissions.

The machine operator can also preselect a working strategy from 'cost-optimised', 'performance-optimised', or 'milling texture quality'. For example, it is possible to define the required milling texture quality on a scale of 1 (coarse) to 10 (very fine) in advance at the touch of a button.

Mill Assist also automatically controls the two-speed Dual Shift powershift transmission. Together with the diesel engine, the intelligent control of the two-speed powershift transmission extends both the upper and lower range of possible milling drum speeds. At lower speeds, fuel and pick wear can be significantly reduced. At higher speeds, high milling pattern quality is ensured even in the case of high area performances.

With the Active Dual Power dual engine drive of the W 250 Fi, depending on the project situation and the pre-selected working strategy, Mill Assist then automatically controls just one or both motors. In addition, the engines operate efficiently at optimally adapted speeds. This significantly reduces costs for diesel and cutting tools.

Furthermore, the Wirtgen Performance Tracker (WPT) calculates the precise surface milling performance, milling



ABOVE AND BELOW: The new Wirtgen W 220 Fi and W 250 Fi large cold milling machines serve a wide range of applications at a maximum milling depth of 350 mm. Various drive concepts are available to ensure excellent milling performance, including a two-speed Dual Shift powershift transmission for the W 220 Fi (above) and an Active Dual Power dual engine drive for the W 250 Fi (below).



volume, and consumption values for the machine. All-important performance and consumption data are displayed on the operator's platform in real time for the milling machine operator and are also

sent to the machine operator by e-mail in an automatically generated report immediately after completion of the milling work. ■

Website: [www.wirtgen-group.com](http://www.wirtgen-group.com)

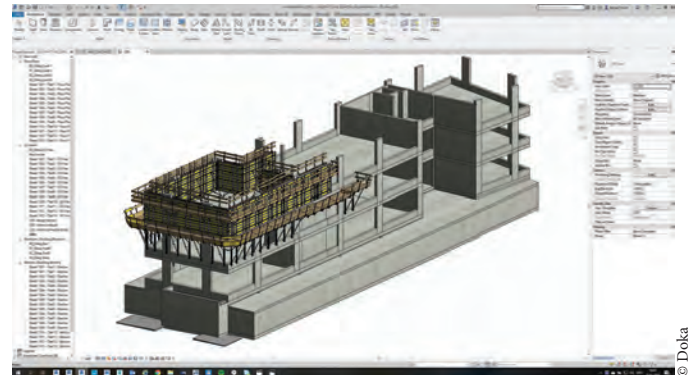
## DokaCAD for Revit software for 3D formwork planning

A collaboration between Doka and Autodesk, the new DokaCAD for Revit represents the overall formwork planning process in building information modelling (BIM). It is an Autodesk Revit plug-in that allows native, automated formwork planning in BIM software.

DokaCAD for Revit enables rapid 3D formwork planning for all project types, increases productivity through the use of positioning guides, and supports BIM collaboration. The software offers access to more than 40,000 model solutions from Doka's own CAD-independent Tipos logic for fast and efficient planning.

Using formwork automation saves time compared to manually positioning components and provides technically correct solutions every time. DokaCAD for Revit can be used to establish cycles that optimise safety, time and costs, as well as assembly and deployment plans for the formwork elements and including the bill of materials.

Construction companies can use formwork designs supplied by Doka in their own Revit model without any loss of data; they are also able to plan the formwork themselves. Besides the software, Doka provides an extensive Revit library of approximately 4,500 formwork components that can be used free of charge. Doka's Revit families have a high level of detail (LOD) of 400.



Doka has used the DokaCAD for Revit to map the formwork solutions for the SOFiSTiK office building project in Germany.

In October 2019, DokaCAD for Revit was presented to a broad audience for the first time at the Autodesk University in Darmstadt, Germany. The software is expected to be available later this year, starting from the end of the first quarter. ■

Website: [www.doka.com](http://www.doka.com)

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# Liebherr HS 8200 duty-cycle crane and LRB 355 rig

The HS 8200 is the new Liebherr duty-cycle crawler crane in the 200-t category. It was built based on its predecessor, the HS 895 HD, but boasts greater performance capacity. Thanks to the newly designed drive system, the machine's performance is increased by 15%. Its load capacity is also increased by up to 15%.

Available globally, the new duty cycle crane is ideal for extraction work and is capable of not only using a dragline bucket but also a grab. For deep foundation purposes, the machine can be applied for dynamic soil compaction, as well as fitted with a casing oscillator or fixed leader. When digging a shaft, the winches can even be used with the full 35-t line pull in the fourth layer. Equipped with various counterweight options, the HS 8200 also impresses in lifting operations.

The new design allows the maximum transport weight of the HS 8200 to be reduced to a mere 48 t, about 12 t lighter compared with the previous model. The rails and walkways on the uppercarriage, which enable safe access to all service and maintenance points at all times, do not have to be dismantled during transportation. This facilitates quick transfers between jobsites and is a significant economic advantage.

The ground pressure visualisation of the HS 8200 calculates the current ground pressure of the machine in real time and compares it with the specified safety limits of the relevant jobsite. This ground pressure is displayed in the operator's cab and the operator is permanently aware of whether the machine is situated in, or is approaching, a critical area. Thus, dangerous movements can be avoided or adapted in good time.

The HS 8200 also has a new cabin focusing on operator comfort. For example, the oil levels of the swing drives, as well as the grab and closing winches can be simply observed on the operator's monitor. The cab features a modern air-conditioning system with improved airflow, an optimised field of vision and reduced noise emission, plus an ergonomic operator's seat with integrated heating and cooling.

In addition, the new Liebherr LRB 355 piling and drilling rig features an innovative design and intuitive assistance systems. According to Liebherr, several units are already working on jobsites.

Available globally, the LRB 355.1 can



be used for various deep foundation applications, such as drilling with Kelly equipment or full displacement tools, and working with vibrators or hydraulic hammers.

For easy transportation, the rig's crawlers can be removed from both types of undercarriage. This reduces the maximum transport weight by approximately 14 t. To minimise the transport length, the leader can be folded. For a longer leader version with 27 m, this saves 7 m. A further advantage is that the machine can be transported with a mounted leader, sledge and ropes. Thus, it can be mobilised even more quickly on the jobsite.

The LRB 355.1 is equipped with a Liebherr diesel engine (750 kW) that complies with the NRMM exhaust certification Tier 4 and Stage V. The new BAT 450.1 with a torque of 450 kNm serves as rotary drive and has automatic torque regulation, continuous speed optimisation and four electronically adjustable speed ranges.

As with the HS 8200 crane, the ground pressure visualisation of the LRB 355.1 calculates the current ground pressure of the machine in real time and compares it with the specified safety limits of the relevant jobsite. The LRB 355.1 is also equipped with a new cabin that emphasises on operator comfort.

Locking of the Kelly bar's telescopic sections is made significantly easier with the aid of the Kelly visualisation system in the LRB 355.1. Thanks to the real-time display of the Kelly bar's locking recesses on the cabin monitor, the operator always knows the actual distance to the next

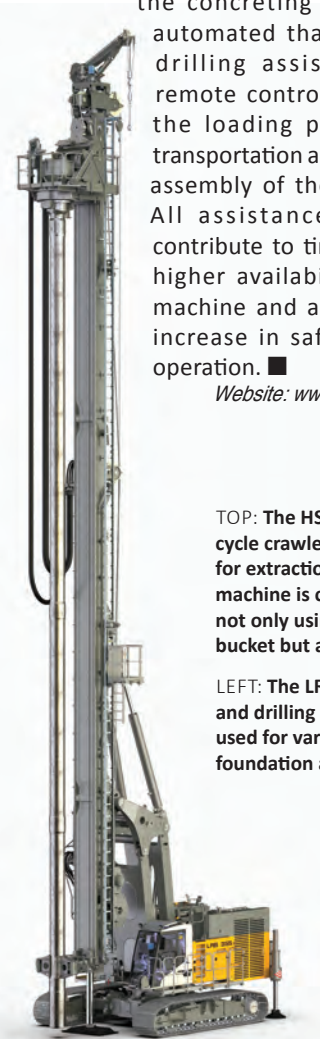
locking recess. Colour indications inform when the bar can be locked. Furthermore, false positioning of the Kelly bar during the shake-off process is indicated through a warning signal.

During continuous flight auger drilling, the concreting process is automated thanks to the drilling assistant. The remote control simplifies the loading process for transportation as well as the assembly of the machine. All assistance systems contribute to time savings, higher availability of the machine and a significant increase in safety during operation. ■

Website: [www.liebherr.com](http://www.liebherr.com)

**TOP: The HS 8200 duty-cycle crawler crane is ideal for extraction work. The machine is capable of not only using a dragline bucket but also a grab.**

**LEFT: The LRB 355 piling and drilling rig can be used for various deep foundation applications.**



# ACP 300 ContiHRT asphalt plant from Ammann

Ammann's new ACP 300 ContiHRT asphalt plant was unveiled at Conexpo 2020. The unit is capable of producing mix consisting of more than 60% RAP. This new continuous plant features Ammann's innovative recycling technology, already proven worldwide, which maximises RAP utilisation and meets the world's most stringent emissions guidelines. The gentle pre-heating of the RAP, compared to traditional cold feed to superheated virgin aggregates, prevents thermal stress on the asphalt concrete (AC) content and ensures a highly homogeneous final mix.

The plant incorporates a RAP dryer for the addition of recycled materials and a separate cold recycling feed. "Separate drying and mixing processes ensure the highest quality and versatility – even with complex designs utilising RAP and additives," said Gunter Tesch, Ammann's commercial support manager for plants.

The High Recycling Technology (HRT) plant's gentle preheating prevents AC oxidation, enabling both the aggregate and the coating to be reused – a significant cost saver. The preheating process also minimises fuel consumption and dramatically reduces the levels of CO2 and other pollutants.

The plant is capable of incorporating shingles, liquid additives, fibre granulate and foam AC. It can access a recycling system for RAP utilisation up to 60%; a separate cold recycling system for 30%; or a combination of the two.

The ACP 300 ContiHRT can also produce a high amount of mix without any RAP. Warm mix can be produced with or without RAP. Maximum continuous production capacity of the plant is approximately 299 t/hr (330 USt/hr).

"It's highly sustainable, and that leads to cost savings," said Gilvan Pereira, Ammann's region director for the Americas. "It's the best of many worlds. The high recycling technology creates a very sustainable mix. You're essentially turning waste into aggregate. The low temperatures reduce fuel costs – and minimise emissions, too. This provides value on many levels. You're developing a green product and reducing costs in the process."

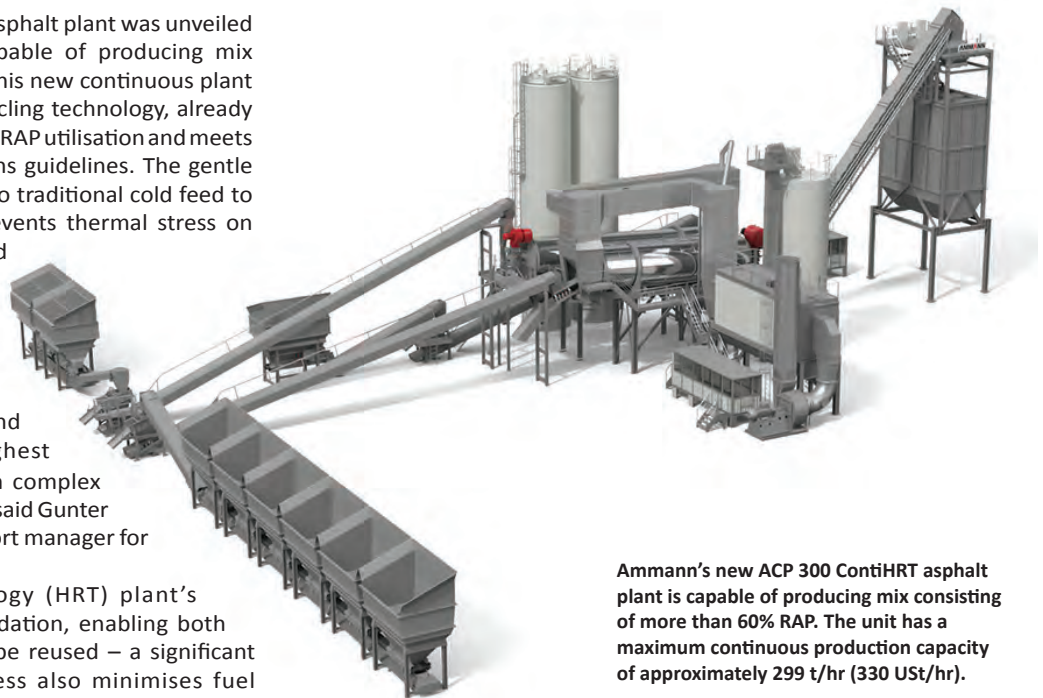
The proprietary as1 Control System, the brains of the ACP 300 ContiHRT, is operating in hundreds of plants around the world. The system is highly regarded for its intuitiveness, quality and cost-saving efficiency.

A unified service platform and stairway concept allows effortless ergonomic access to the major asphalt components – especially Ammann core parts such as burners, drums, filters and the twin-shaft mixer.

Installation and relocation of the plant is quick and uncomplicated. The horizontal design ensures fast and easy assembly and disassembly. Optional quick cabling and steel skids further speed up the relocation process.

A wide range of optional equipment is available. It includes burners for light oil, natural gas and LPG; storage silos of 299 t in two compartments or 599 t in four compartments, which are available as long-term storage solutions; and AC tanks with superior insulation, a filling pump and tank-to-tank pumping and circulation. Cold feed system options comprise additional feeders, vibrators and gravimetric dosing. ■

Website: [www.ammann.com](http://www.ammann.com)



Ammann's new ACP 300 ContiHRT asphalt plant is capable of producing mix consisting of more than 60% RAP. The unit has a maximum continuous production capacity of approximately 299 t/hr (330 USt/hr).



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# Link-Belt introduces TCC-800 telescopic crawler crane

The latest telescopic crawler crane from Link-Belt, the 75-t TCC-800, comes with a four-section 11.8 – 36.5 m full-power boom that reaches a maximum tip height of 56.2 m (with full boom) and Link-Belt's SmartFly pinning system.

The SmartFly system helps to ensure proper fly erection and stowage sequence while minimising work at height. The TCC-800 offers optional one or two-piece 10.6 – 17.6 m fly.

According to Link-Belt, the TCC-800 will begin field-testing soon and its first shipments is scheduled to take place in the fourth quarter of 2020. The company said the crane's predecessor, the top-selling TCC-750, has been a cornerstone of the telecrawler market since its initial debut in 2008.

New to Link-Belt's telecrawler lineup is variable side frame track positions (V-CALC) on the TCC-800. "V-CALC, in the case of the new TCC-800, offers the added flexibility to operate the crane with side frames in asymmetric configurations. Pulse 2.0 monitors actual side frame position, auto-selecting the correct chart," explained Scott Knight, Link-Belt's product manager for lattice and telescopic crawler cranes.

The TCC-800's variable side frame combinations, new cab with 20 degrees of tilt and Pulse 2.0 offer an operator a multitude of options for any jobsite - everything from pile driving, bridgework to plant work, and general construction. The crane also has an optional wireless remote control system, which allows the operator to be out of the cab and still have control of the machine.

The TCC-800 will utilise a Stage 5 dual-compliant Cummins QSB 6.7 engine with 232 hp at 2,000 rpm for greater fuel economy, improved quiet operation and cold-start capability. Other advancements include pressure read-out on all hydraulic circuits, viewable on Pulse 2.0 display.

Total vision package with right-side swing camera, winch-view camera, and rear-view camera give the operator great jobsite visibility during setup and lifting. Single axis or joystick controls are also available, both offering the operator selectable foot or hand controls for travel operation. Textured paint on all vertical surfaces and slip resistant paint on all horizontal surfaces improves durability and footing.



ALL IMAGES: The 75-t TCC-800 telescopic crawler crane is equipped with a four-section 11.8 – 36.5 m full-power boom, which reaches a maximum tip height of 56.2 m (with full boom), as well as Link-Belt's SmartFly pinning system.



In addition, new high-performance variable displacement pumps provide power control and load sensing on the TCC-800 for smooth functioning of all operating processes. Matching 19 mm grooved drums have 254.2 m of rope capacity with 7,656.6 kg maximum line pull and 147 mpm maximum line speed. The list chart on the TCC-800 also includes a maximum four-degree list chart for increased performance in varying jobsite conditions.

The TCC-800 self-assembles with 17,463 kg of upper counterweight and two 1,360-kg sections of carbody counterweight. For transport, the crane moves in two loads: main unit transports under 45,359 kg with fly, side frames attached, hook block and ball, lifting sheave and full tank of fuel; overflow includes counterweight sections and stays below 20,184 kg. Clearance height on a lowboy transport trailer stays below 3.9 m.

## Link-Belt SmartFly system

The SmartFly system is easy to erect and

stow, thanks to its simple yet innovative design elements. For rough terrain cranes, front carrier-mounted boom controls allow for raising and lowering the boom at ground level throughout the procedure. Colour-coded spring-loaded latches indicate which length fly is being erected or remaining stowed.

A hydraulic cylinder and ramp releases the fly and returns it to its stowed position. The interlocking access gates keep the fly secure at all times and guide the operator through the proper steps for pinning and unpinning the fly. Boom head speed screws provide fast, complete alignment and engagement of main connecting pins, all with the operator at ground level. All of this adds up to a logical design that is robust, simple and an efficient one-person operation.

Link-Belt said it has broadened the SmartFly technology across multiple product lines – from on-highway truck cranes to telescopic crawler cranes, rough terrain cranes, and all-terrain cranes. ■

Website: [www.linkbelt.com](http://www.linkbelt.com)

# Dingli electric boom lifts make global debut

Chinese manufacturer Dingli has introduced its modular series of electric boom lifts to the global market, comprising seven models with maximum working heights from 24.3- to 30.3-m and maximum load capacities up to 454 kg. There are five telescopic boom lifts (the ETBJ30ERT, ETB28ERT, ETBJ26ERT, ETB26ERT and ETB24ERT) and two articulating boom lifts (the EAB28ERT and EAB24ERT).

A special ceremony was recently held by Dingli at the Zhejiang Deqing Mogan Mountain Airport to showcase one of the models, the EAB28ERT articulating boom lift. It offers a 28.1-m maximum working height and 230-kg maximum load capacity. The event was attended by 1,500 guests from more than 700 rental companies.

Dingli's new electric boom lifts are equipped with an 80-V lithium battery as well as two charging modes, quick (1.5 hours) and slow (6 hours). This maintenance-free lithium battery comes with BMS battery management system to ensure the safety of the machine.

According to Dingli, once fully charged, these electric boom lifts can operate for three to four days based on an eight-hour shift. The machines' axle features a 100% hydraulic differential lock, with a ground clearance of 0.4 m.

Dingli further mentioned that with the modular design concept, its new electric boom lifts share 95% of the same main components and 80% of the same structural parts as its engine-powered boom lifts. ■

Website: [www.cndingli.com](http://www.cndingli.com)



ABOVE: The new EAB28ERT electric articulating boom lift from Dingli has a 28.1-m working height and 230 kg maximum load capacity.

LEFT: Dingli's new electric boom lifts are equipped with an 80-V lithium battery. The machines are capable of working for three to four days, based on an eight-hour shift.

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## Grove GMK6400-1 and Potain MDT 569 cranes

The new 400-t Grove GMK6400-1 from Manitowoc sets new standards in the 400 – 450 t class. It follows in the footsteps of its predecessor, the GMK6400, but includes additional reach, enabling it to take on jobs that usually require a seven-axle (or even eight-axle) crane.

The GMK6400-1 has a main boom of 60 m. When fitted with its full complement of jib, it can achieve a maximum tip height of 136 m. The crane also boasts a compact design, with a length of 17.5 m and boom overhang of 1.8 m. Plus, it offers the MAXbase outrigger option for better flexibility in on-site positioning.

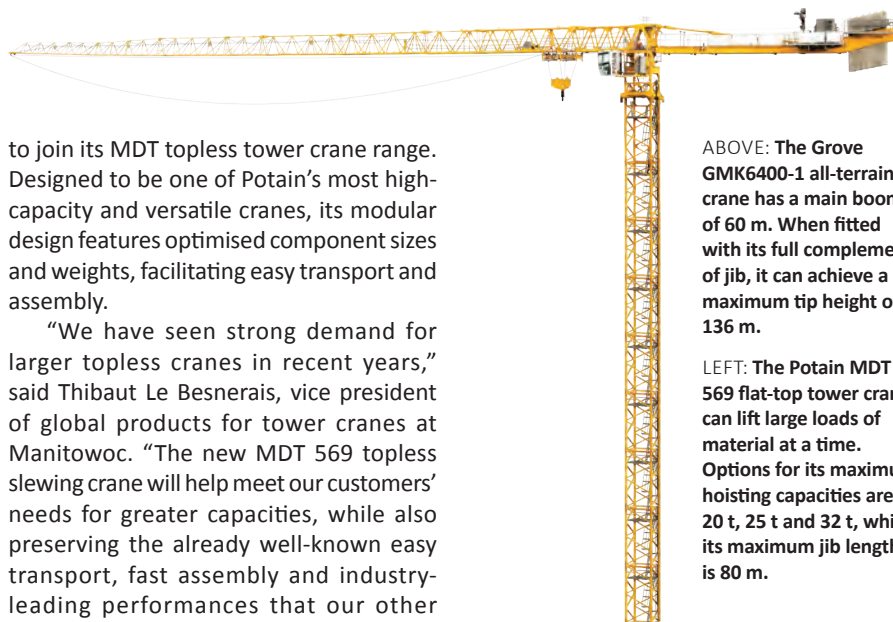
The capacity-enhancing MegaWingLift attachment is available as an option for the GMK6400-1, and the self-rigging addition can be ready in less than 20 minutes without the need for an assist crane. This attachment increases lifting capacities up to 70% and makes the crane well-suited to applications such as bridge construction, wind farm work or tower crane assembly, while the crane is also likely to prove popular in general construction or on petrochemical and industrial plants.

Unlike the GMK6400, the GMK6400-1 is fitted with Manitowoc's crane control system (CCS), including boom configurator mode, while operators will enjoy the latest GMK carrier cabin with its larger space and better visibility.

"We have upgraded this crane to use all of the latest technological advances, including our crane control system (CCS) and MAXbase variable outrigger system, which increases capacities on the main boom," said Andreas Cremer, vice president of product management for all-terrain cranes at Manitowoc. "On top of that, its easy and fast setup enables it to handle more work in a day."

The new the GMK6400-1 has a single engine, just like the GMK6400, although the hydraulic system is improved. With Linde hydraulics in the superstructure there is a higher oil flow, which in turn delivers higher operating speeds. The new engine conforms to the latest requirements for both Tier 4 emissions standards and Euromot 5. Movement both on and off the road is seamless, thanks to its driveline that includes the Megatrak suspension system and the Megadrive hydrostatic drive for on-site positioning.

In addition, Manitowoc has introduced the new Potain MDT 569, the latest model



to join its MDT topless tower crane range. Designed to be one of Potain's most high-capacity and versatile cranes, its modular design features optimised component sizes and weights, facilitating easy transport and assembly.

"We have seen strong demand for larger topless cranes in recent years," said Thibaut Le Besnerais, vice president of global products for tower cranes at Manitowoc. "The new MDT 569 topless slewing crane will help meet our customers' needs for greater capacities, while also preserving the already well-known easy transport, fast assembly and industry-leading performances that our other topless cranes deliver."

The MDT 569 can lift large loads of material at a time. Options for its maximum hoisting capacities are 20 t, 25 t and 32 t, while its maximum jib length is 80 m. Tip capacity is up to 4.2 t when using the 25-t-capacity model and working with 80 m jib. Maximum line speed is 195 m/min when the crane is equipped with the 150 HPL hoist. The crane can be equipped with a new 8 m cross-shaped base that is simple to assemble and more cost effective compared to previous bases.

The MDT 569 is also more compact for transport than previous cranes, needing only nine standard containers to transport the crane's upper assembly. The topless design adds flexibility to sites where multiple cranes overfly the construction zone at the same time. Operators will

**ABOVE: The Grove GMK6400-1 all-terrain crane has a main boom of 60 m. When fitted with its full complement of jib, it can achieve a maximum tip height of 136 m.**

**LEFT: The Potain MDT 569 flat-top tower crane can lift large loads of material at a time. Options for its maximum hoisting capacities are 20 t, 25 t and 32 t, while its maximum jib length is 80 m.**

find comfort and efficiency when using Manitowoc's CCS system, as well as the crane's ergonomic controls and Ultra View cab. The first crane is expected to be shipped in July 2020.

"Our focus is to bring to the market a robust crane in a compact design, offering multiple transportation options without compromising performance," said Mr Le Besnerais. "In addition, the MDT 569 can be fully assembled and erected in only two days, with time-saving features such as fast jib and counter-jib connections, and an automatic tensioning and slackening system for the trolley rope." ■

Website: [www.manitowoc.com](http://www.manitowoc.com)

# Haulotte unveils HT16 RTJ telescopic boom lift

Haulotte's latest telescopic boom lift, the HT16 RTJ (named the HT46 RTJ in the US), provides a working height of 16 m. The machine was recently unveiled at Conexpo 2020 in the US, and is planned to be launched in Europe and Asia Pacific over the next few months.

The HT16 RTJ features an updated design utilising mechanical axles, which allows for a smaller engine while still maintaining the rough terrain performance of a larger engine. For optimal safety, the boom lift is equipped with Haulotte innovations: Haulotte Activ'Shield Bar to prevent crushing risks; Haulotte Activ'Lighting System to ensure safety during night-time loading and unloading operations; Haulotte Stop Emission System to limit pollution and noise; and Haulotte Activ'Screen to provide key information about the machine in real time.

Speaking on the direction that Haulotte is taking in the market, Carlos Hernandez, the company's executive managing director for the Americas explained, "We launched the Pulseo Generation in 2018, a new generation of all-electric off-road machines as part of our 'Blue Strategy'. All our thermal energy machines will gradually integrate the technologies developed on Pulseo. In fact, the new HT46 (HT16) telescopic boom that we are showing today will be the last internal combustion machine from Haulotte as we complete our telescopic range."

Mr Hernandez further mentioned that Haulotte machines are mainly used in urban or peri-urban areas. "We are seeing more and more 'low emission zones' appear, with more than 200 major cities in the world already prohibiting the use of polluting or noisy equipment. The future belongs to zero emission machines."

According to Haulotte, it is currently building a strategy of providing a full solution portfolio, which includes machines but focuses on the customer and the network of services around the machines that make the customer successful. The company also revealed that the development of new service offers using fleet management solutions will be coming soon, and is expected to take centre stage in the coming years.

"Haulotte services are essential for all our customers, especially rental companies," highlighted Mr Hernandez. "We support them in the growth of their business model: through advice on product offerings, financing solutions, training, quality technical support, etc."

"Whether directly or through our distributor networks, we closely collaborate with our customers throughout the life cycle of our machines. From pre-sales to after-sales advice, we are in a relational approach, much more than transactional."

"That close relationship is also a key step in our development of new products. Most of the users of our equipment are not experts in driving aerial work platforms, so we must think about use around safety, simplicity and comfort of use to allow the productivity benefits expected by the operator. This is why close relations with our rental partners, we create specifications that meet both application expectations and fleet management requirements."

Total cost of ownership (TCO) is one of the essential guidelines for managing the development of a new machine. Thus, the new HT16 RTJ (HT46 RTJ) is designed from the ground up with TCO in mind, said Mr Hernandez. Built with an eye on the reduction and optimisation of maintenance costs, it is ready for new technologies such as IoT to make it possible to move from curative maintenance to preventive maintenance, which will then lead Haulotte to the goal of predictive maintenance.



ALL IMAGES: The new Haulotte HT16 RTJ telescopic boom lift (named the HT46 RTJ in the US) has a 16-m working height. The machine is expected to be launched in Europe and Asia Pacific over the next few months.

Today, Haulotte generates 85% of its business internationally compared to 15% in France, where the company's headquarters is located. Its main area of activity, Europe, accounts for nearly 55% of total activity; Asia for nearly 30% and America for 15%. The company said it is counting on China's strong potential, which alone will - in the medium term - represent the equivalent of the European market. ■

Website: [www.haulotte.com](http://www.haulotte.com)

# Goldhofer launches Stepstar semi lowloaders

With the Stepstar series, Goldhofer has added a new generation of self-tracking semi lowloaders to its extensive range of heavy-duty and special-axle transport solutions. These three- to five-axle semi-trailers offer various features such as an intelligent load securing system, a practical range of accessories, and a user-friendly operation. The vehicles can be used for everyday haulage operations, with maximum axle loads of 12 t and payloads of up to 70 t.

Thanks to their advanced design, the self-tracking Stepstar semi lowloaders come with an excellent payload-to-weight ratio. This has been achieved through weight reductions in comparison to comparable vehicles, resulting in a higher payload of 1 t or more.

“With the Stepstar, haulage and construction companies now stand to benefit from significantly more efficient and economical utilisation of their fleets,” said Rainer Auerbacher, head of transport technology at Goldhofer AG.

For maximum service life, the new semi lowloaders are fitted with rugged low-maintenance premium components, including low-maintenance axles and landing gear from BPW as well as tail support legs with convenient foot operation and automatic height adjustment, and an Ermax LED lighting system for good vision and high visibility in the dark especially during bad weather. The high degree of standardisation means that spare parts can be obtained quickly and easily if required.

The intelligent lashing system on the Stepstar semi lowloaders offers almost infinite flexibility for securing loads in compliance with the most rigorous codes. It comprises a large number of anchor points and lashing rings, not only on the frame but also in the excavator boom recess and on the gooseneck.

In addition to Wader container pockets and drive-over recessed lashing lugs on the tail, the entire deck is also fitted with lashing rings (RUD Optilash Fix 10 t) that retract into the frame. As a special highlight, an optional extra is available in the form of pocket stakes on the gooseneck for form-fit load securing.



Another useful accessory is the TraffideckGO deck covering, which combines enhanced load security with reduced lashing requirements.

Designed for flexible transportation to and from construction sites, the extra long and wide excavator boom recess on the Stepstar has no cross members and is open to the rear. This makes it possible to carry even bigger excavator booms while simultaneously reducing overall height, a major advantage on routes with height restrictions.

“The bottom line here is fewer hassles with permits and more cost-effective working,” said Robert Steinhauser, Goldhofer’s director of sales for Europe and North Africa. Loading and unloading are equally fast and simple operations as the new semi lowloaders come with light and long ramps, which are suitable for almost all self-propelled cargos, with simple adjustment for increasing the width to 2,990 mm or sliding the ramps completely together. The advantages also include a low ramp angle and a ground-friendly lowering mechanism. The ramps, which can be retrofitted as required, also offer fast and easy mounting and removal for fuel savings on the return journey and flexible use within the Stepstar family. ■

Website: [www.goldhofer.de](http://www.goldhofer.de)



ALL IMAGES: The Stepstar series is a new generation of self-tracking semi lowloaders from Goldhofer. These vehicles can be used for everyday haulage operations, with maximum axle loads of 12 t and payloads of up to 70 t. They are designed with various features such as an intelligent load securing system, a practical range of accessories, and a user-friendly operation.

# Highest reaching scissor lift from Skyjack

The new SJ9263 RT is the last model in Skyjack's new range of full-size rough terrain scissor lifts, providing a working height of 21.03 m. The unit is capable of working at six stories, making it ideal for rental companies.

The SJ9263 RT is rated for four people and offers a platform that spans 7.12 m with the dual extension deck option. The scissor lift also shares common features with the rest of the full-size range, including Skyjack's axle-based four-wheel drive, Axldrive, Smartorque engine, pairing peak performance with low maintenance, and fully accessible service components.

With the SJ9263 RT being a brand new class for Skyjack, the company has ensured it took the time needed for additional testing and redesign prior to launch. The scissor lift is currently in its final stage of testing and is expected to

be in full production at Skyjack's Ontario facility, Canada, starting in the second quarter of 2020.

"We wanted to ensure this machine matches the rest of our product line in the sense that when it comes to market, it is a simple and reliable product," said Corey Connolly, product manager at Skyjack. "The market was stuck between what's always been offered and niche products that come with higher acquisition costs, so we wanted to keep the design simple and at a price point that makes sense for our customers." ■

Website: [www.skyjack.com](http://www.skyjack.com)

RIGHT: The new Skyjack SJ9263 RT rough terrain scissor lift has a working height of 21.03 m, and is capable of working at six stories.



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## Two in one: Maeda and Oktopus work hand in hand

Antar Cranes Services Ptd Ltd offers a safe, productive solution for contractors who need to carry out glazing work, by using a combination of an Oktopus vacuum lifting device and a Maeda mini crawler crane (spider crane).

The Oktopus Glass-Jack GL-CC 600 DES vacuum lifting device is able to handle up to 600 kg glass elements. Manufactured by German company Wirth GmbH, the device can lift both flat and curved glass panels as well as window components.

The suction frame of the Oktopus lifting device can be tilted hydraulically by 120°, rotated 360° and swivelled by  $\pm 35^\circ$ . All functions are operated with the help of a radio remote control. A 24-V DC operated vacuum pump generates the necessary negative pressure in the suction pads.

The Oktopus lifting device has an optical and acoustical warning equipment to indicate its deviations from the nominal condition. Even in case of complete failure of energy supply, the vacuum remains for at least five minutes in each suction pad, so that the load can be lowered safely.

The MC285CWM-3 mini crawler crane from Japanese manufacturer Maeda features a compact design, with only 750 mm in width. It provides a lifting capacity of 2.82 t x 1.4 m, maximum working radius of 8.205 m x 0.15 t, and maximum lifting height of 8.7 m (on the ground). The crane's travel speed is 0-2.2 km/h, with a 20 degree gradeability.

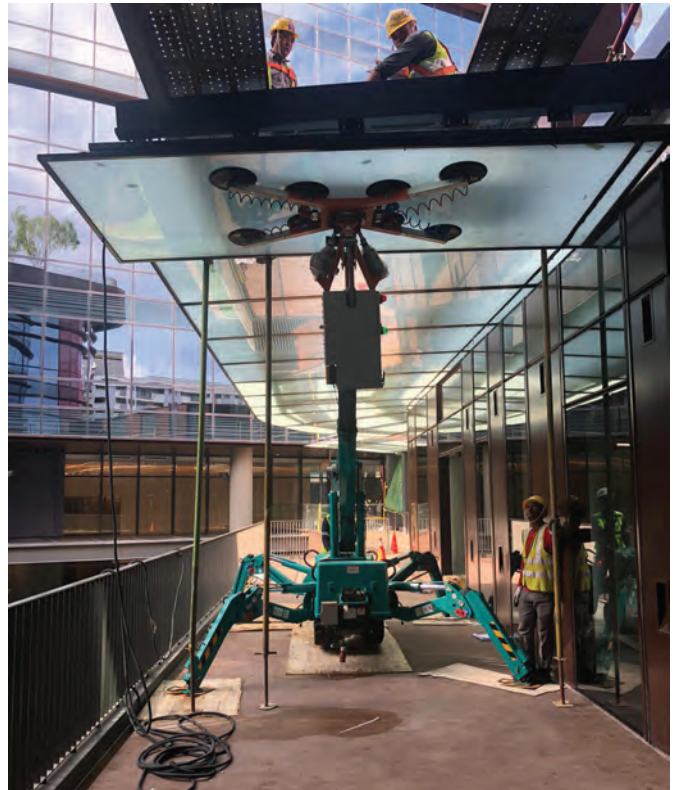
The MC285CWM-3 is a new model equipped with various functions, including a programmable moment limiter, crane/outrigger interlock system, digital feedback remote control (wireless), four-fall/two-fall hook block, voice warning system and data logger.

Andrew Tan, general manager of Antar Cranes further highlighted the importance of both units as a combined solution. "Using the Maeda spider crane together with the Oktopus lifting device results in manpower savings, as users can minimise the number of workers on site. At the same time, it increases safety when handling large and heavy glass panels at height. Imagine the number of manpower needed to handle a 600 kg glass panel. Ultimately, it would make the entire project safer. Compared with the traditional method, this solution can achieve a higher productivity improvement and also more time- and cost-effective." ■

Website: [www.jpnelson.com.sg/antar](http://www.jpnelson.com.sg/antar)



The Oktopus Glass-Jack GL-CC 600 DES vacuum lifting device is able to handle up to 600 kg glass elements. It can lift both flat and curved glass panels as well as window components.



ABOVE: The Oktopus vacuum lifting device being used together with a Maeda mini crawler crane (spider crane) to perform glazing work on a construction project in Singapore.

LEFT: The combination of the Oktopus lifting device and Maeda spider crane allows for manpower savings, as users can minimise the number of workers on site. This also makes the project safer.



# Hamm H CompactLine and H-series compactors

Hamm recently presented its innovative compactors at Conexpo, including the H CompactLine that comprises models up to 7 t and the H-series with models between 10- and 25-t. All of the compactors have three-point articulation for even weight distribution and superior driving stability. They also stand out for their ease of operation, great visibility, high level of safety, excellent productivity, wealth of equipment variants and wide range of options.

The smaller compactors in the H CompactLine are ideal for small or confined construction sites. Hamm is believed to be the only manufacturer that offers models with VIO drums, in addition to the usual equipment variants. Thanks to this, the rollers can compact with oscillation or vibration.

The H 5i and H 7i CompactLine compactors feature weights between 5- and 7-t respectively (drum widths of 1.37 m or 1.68 m) with an extremely compact design. The H 7i model measures approximately 4.4 m - it is said to be the world's shortest compactor in this weight class. These compactors provide an outstanding ground clearance due to their traction drive using wheel motors, while the design of the front section enables a large slope angle.

Furthermore, the H CompactLine compactors have an excellent climbing ability of up to 60%. They are highly versatile owing to numerous options. Customers can choose between smooth and padfoot drums as well as two-part padfoot shells. The H 7i is also available with a VIO drum, capable of compacting with either vibration or oscillation.

The Hamm H-series compactors cover a huge spectrum of earthwork applications. The machines are fitted with smooth or padfoot drums. Thanks to the Easy Drive operating concept, all models are easy to operate and comfortable. Hamm is reportedly the only manufacturer in the world to offer a VIO drum for compactors in this class.

With the VIO drum, the H-series models can compact with oscillation or vibration as desired. Another highlight is their high linear load. Added to this is the large slope angle and enormous climbing ability that allow the compactors to work effectively even on slopes of up to 60%. There are numerous options for them as well, including padfoot segments, vibration plates and dozer blades. ■

Website: [www.wirtgen-group.com](http://www.wirtgen-group.com)



The Hamm H 5i and H 7i H CompactLine compactors feature a compact design and high versatility, with a climbing ability of up to 60%. They are designed with three-point articulation for even weight distribution and superior driving stability.



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## Demag CC 3800-1 lattice boom crawler crane

Featuring a lifting capacity of 650 m at a radius of 12 m and a maximum load moment of 9,152 meter-tonnes, the Demag CC 3800-1 lattice boom crawler crane is a cost-effective option for various projects. It is also suitable for erecting wind turbines with a hub height of up to 117 m without a Superlift system.

The Demag CC 3800-1 comes with a 144-m main boom, but the crane's maximum system length can be extended all the way up to 171 m with the optional boom booster. The welded steel structure consists of up to seven sections with a length of 12 m and is designed to be directly mounted on the crane. It also boosts the main boom's stiffness, further increasing its lifting capacity.

When fitted with the boom booster and a lightweight rigid lattice jib, the CC 3800-1 has a maximum hook height of 185 m and lift loads of up to 71.5 t. Thus, the crane can tackle lifts that would normally be handled by cranes in the 750-t class.

With the optional 'Fall Protection Device', the CC 3800-1 offers maximum safety during setup and disassembly. So if a person on the lifeline falls, the system is able to arrest their fall at a large distance from the ground, significantly lowering the risk of injury.

The Superlift Split Tray, which is also optional, features quick coupling technology that makes it possible to easily uncouple the counterweight that is no longer needed after erecting the main boom. After doing



The Demag CC 3800-1 can be fitted with a boom booster.



The Superlift Split Tray features quick coupling technology.

this, the crane can simply move with the Superlift counterweight that is actually needed, saving assembly time, minimising the amount of personnel needed, and eliminating the need for an assist crane.

The optional Flex Frame unit can be used to replace the standard telescopic cylinder. As such, the Superlift counterweight radius can be adjusted to any dimension between 13- and 21-m with the full counterweight. This means less counterweight needs to be set up and removed, significantly reducing setup times.

Demag also offers the CC 3800-1 crawler crane in a different form as the PC 3800-1 pedestal crane, which outdoes its 'brother' by 100 meter-tonnes with a load moment of 9,252 meter-tonnes. The Demag PC 3800-1 is available as a complete crane or as an additional carrier, and the quick coupling system makes it possible to easily switch between the crawler and pedestal carriers.

A Demag PC 3800-1 equipped with axle lines can be easily configured for an axle load limit of 12 t or a total vehicle weight of less than 100 t, depending on the relevant regulations determining whether a vehicle is street-legal.

At the work site, a 390-kW Mercedes Benz diesel engine delivers ample power under all operating conditions. Moreover, the crawler tracks can be controlled independently of each other, as well as in opposite directions, with a tractive force of 1,400 kN per side. ■

Website: [www.demagmobilecranes.com](http://www.demagmobilecranes.com)

## Demag equips AC 45 City, AC 55-3 and AC 60-3 with Flex Base

Demag is following up on the success of its AC 45 City by equipping the AC 55-3 and AC 60-3 all terrain cranes with Flex Base, a stepless variable outrigger system. The company said this decision was made due to "positive feedback from its customers, and in line with its goal of making the models perform even better in a broad variety of scenarios."

The Flex Base system provides a competitive advantage, as it enables cranes to extend their outriggers to any point within their available range, all the way to surrounding obstacles and get the largest possible outrigger base in any scenario. In combination with the IC-1 Plus control system, this means that cranes are able to carry out even more lifts from positions that are otherwise simply unreachable.

In order to make the stepless variable extension system possible, Demag also made modifications to the outriggers' steel structure and the IC-1 Plus control system software. Moreover, the online IC-1 Lift Plan planning tool for PCs and mobile devices supports users to prepare for lifts in advance. This tool makes it possible to determine the exact position and configuration of the crane at the work site under consideration of the load being lifted, so that every crane job can be as fast and cost-effective as possible. The IC-1 Lift Plan planning tool is available for free after registering online. ■



Demag AC 55-3 all-terrain crane is now equipped with Flex Base.

# Sandvik UJ440i jaw crusher and modular hanging screen

The Sandvik UJ440i is an intelligent, fuel-efficient and user-friendly mobile jaw crusher available for the global market. It is designed for trouble-free operation, thanks to its onboard integrated 'intelligence' system. This allows for simplicity of operation, as the UJ440i is continuously and automatically monitored by the control system that operates the unit, enabling full optimisation of production.

The UJ440i is equipped with the Sandvik CJ412 with a large jaw size (1,200 x 830 mm), which offers great size reduction and consistent performance. Production is maximised through the generous feed opening coupled with a hydraulic close side setting (CSS) that enables rapid changes through push button operation. The jaw also comes complete with a level sensor as standard to maintain optimum material flow in the chamber when crushing.

The UJ440i tracked mobile jaw crusher is fully operated via radio remote control and can be ready to work in less than 20 minutes on site, with safe set-up from ground level. The hopper walls are hydraulically foldable and automatically locked in position, and the main conveyor has an adjustable discharge height. The unit is also fitted with rubber lined impact zones to reduce wear, minimise maintenance downtime, as well as reduce noise.

The model is very versatile and can be offered in three different variants to suit specific application: Comfort – with grizzly feeder for crushing on clean rock and gravel; Classic – with grizzly feeder and live under screen for crushing rock and gravel; and Trend – with pan feeder and live pre-screen for crushing on clean rock and gravel with a lot of fines.

Another highlight from Sandvik is a new double-deck modular hanging screen, designed for the company's latest range of mobile 2-series crushers. The unit enables customers to produce two screened products and recirculate any oversize back into the crusher. Among the benefits of this modular hanging screen is its ability to be adapted quickly for operation in open- or closed-circuit configurations.

With a modular design, the screen can be used as a fully self-contained, detachable or stand-alone unit. It is available on Sandvik QI442 Impactor, as well as Sandvik QH332 and QS332 cone crushers.

The screen is equipped with an adjustment system, which allows it to be



The Sandvik UJ440i mobile jaw crusher is designed for trouble-free operation, thanks to its onboard integrated 'intelligence' system.



ABOVE: Sandvik's new double-deck modular hanging screen (on the right) enables customers to produce two screened products and recirculate any oversize back into the crusher.

LEFT: The screen can be used as a fully self-contained, detachable or stand-alone unit. It is suitable for Sandvik's latest range of mobile 2-series crushers.

quickly reconfigured to produce one single sized finished product or two sized finished products, depending upon the customer's demands at that time. The screen can be hydraulically repositioned to create a single deck hanging screen, using the top deck as a breaker deck without the need for a screen mesh removal.

The oversize conveyor may be hydraulically rotated for material stockpiling (90°) of up to three products on the ground, or removal (180°). The tail

section can also be raised hydraulically to give improved ground clearance for transport when loading or unloading.

The complete modular hanging screen can be installed or removed from the plant in less than 30 minutes, without the need for any lifting equipment on site. Sandvik's hanging screen option delivers multi-functionality as a 1, 2 or 3-way split screener offering high flexibility to the customers. ■

Website: [www.rocktechnology.sandvik](http://www.rocktechnology.sandvik)

# Bauer performs specialist foundation work in Bhutan

Construction work has been underway on two large-scale hydroelectric plants in Bhutan - the Punatsangchhu-1 project since 2009 and Punatsangchhu-2 since 2013. Both facilities are located on the Puna Tsang Chhu River, approximately 80 km and 94 km from the capital Thimphu.

Bauer Spezialtiefbau GmbH was previously involved in the construction of these two power plants. In 2011, the company constructed diaphragm walls up to 80 m deep for the upstream cofferdam and executed injection work on Punatsangchhu-1. Bauer returned to the site a few years later to carry out slope stabilisation after a massive landslide on the right bank of the river.

In 2014, Bauer was tasked to execute injection work to seal the Punatsangchhu-2 upstream cofferdam, a project that was successfully completed in 2015. "The Punatsangchhu-2 project involves the construction of a 90-m-high dam, an 8.5-km-long pressure tunnel and several caverns in the power plant complex," explained Frank Berner, operations manager at Bauer Spezialtiefbau.

Recently, Bauer was contracted again to perform specialist foundation engineering work on the project after an underground cavern collapsed at Punatsangchhu-2. The company was commissioned by main contractor Jaiprakash Associates Limited to carry out 18,000 m of soil injection for subsoil stabilisation as well as to install 19,000 m of tieback anchors.

Along with various equipment for the injection work, up to five drilling rigs are being used at the same time, including KR 806 and KR 909 rigs from Klemm Bohrtechnik GmbH. "The main challenge of this project is the cramped working environment. With a width of approximately 18 m and a height of 8 m, the work area is extremely small, creating an extremely challenging environment for equipment and personnel," said Mr Berner. "Also, we're in the Himalayas, which presents unique challenges for logistics."

Bauer's work on the Punatsangchhu-2 project is expected to take around 15 months. ■

Website: [www.bauer.de](http://www.bauer.de)



Both images © Bauer Group



**LEFT:** In a cavern of the Punatsangchhu-2 hydroelectric plant, Bauer being commissioned to carry out 18,000 m of soil injection for subsoil stabilisation as well as to install 19,000 m of tie-back anchors.

**ABOVE:** Up to five drilling rigs operating at the same time, including the KR 806 and KR 909 rigs from Klemm.

# Mammoet helps build landmark Sky Bridge at HKIA

Mammoet has successfully assisted Hong Kong International Airport (HKIA) to create a new panoramic point with the installation of its Sky Bridge – which is reported to be the world’s longest airside bridge. This pedestrian bridge spanning 200-m-long connects HKIA’s Terminal 1 with the North Satellite Concourse and is high enough for the world’s largest passenger aircraft to pass underneath.

For the project, Mammoet was able to transport the bridge using its Mega Jack 5200 system installed on self propelled modular transporter (SPMT) – the first time the Mega Jack 5200 had been used on SPMT.

The team faced the challenge of having a limited time period to transport a load weighing approximately 5,700 t over 3 km. Mammoet overcame this challenge by designing a solution that provided flexibility to the client, minimised disruption to the HKIA’s day-to-day schedules and provided successful delivery of work, all within a confined space.

The project first saw the team transport the bridge to a distance of 3.5 km across the taxiway within just five hours. Transportation to the final erection area was performed using 264 axle lines of SPMT. The bridge was temporarily set down on the airfield’s apron, with the supports taking 10% of the weight, and jacked-up to its installation height of 14.3 m.

Next, the bridge was picked up and lifted above the final location - above the piers - before being lowered into position. The team also closely monitored the Mega Jack’s hydraulics during the welding works by the client, China State Construction Engineering. In total, it took seven days to complete all necessary work.

Edwin Blösser, project manager at Mammoet said, “This project saw Mammoet go through detailed planning and work 24 hours throughout the nine-day critical time period given to us. This enabled us to accommodate both the client and airport authorities’ requests while ensuring the timely erection of the bridge.”

“We are pleased with the work done by the Mammoet team,” commented Charles Tse of China State Construction Engineering Corp Ltd. “The project was completed on schedule with minimal disruption to the HKIA’s daily activities and this was especially important close to the Lunar New Year period, when we expect an increase in traffic flow at this airport hub.” ■

Website: [www.mammoet.com](http://www.mammoet.com)



ABOVE:  
Mammoet installing the 200-m-long Sky Bridge at Hong Kong International Airport (HKIA). It is set to be the world’s longest airside bridge when completed, linking HKIA’s Terminal 1 and the North Satellite Concourse.

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# ChemGrout grouting plant on Singapore's sewer project

A ChemGrout CG500/3C6/EHT Versatile grouting plant has been working on a sewer project in Singapore. The unit features dual 265-l variable speed mixers, with a 57-l hopper, pressure of 18 bar and variable flow up to 76 l/min.

The project involves supplying and laying of HDPE lined reinforced concrete sewer pipes by pipejacking and mined tunnelling methods, located in Buangkok Green and Sengkang East areas. The CG500/3C6/EHT grouting plant being used on this project was supplied by ChemGrout dealer in Singapore, Acme Equipment Pte Ltd.

The ChemGrout CG500-series grouting plant comes in various power options, including electric/hydraulic, diesel/hydraulic, gasoline/hydraulic and air driven. There are also different flow rates and pressures. The CG500HP line delivers a maximum flow up to 90 l/min and maximum pressure up to 135 bar. The CG500 Geotech range provides a maximum flow up to 60 l/min and maximum pressure up to 38 bar.

Based in Illinois, USA, ChemGrout manufactures a variety of standard and custom-built grouting equipment to handle a diverse range of materials and capacities (from 3.8 to 284 l/min), with pressures from 3.4 to 138 bar. High-pressure pumps can manage pressures up to 138 bar and flows up to 189 l/min. The ChemGrout grouting equipment can be skid- or trailer-mounted with power options that include air, gasoline, diesel, electric and hydraulic.



Acme Equipment is headquartered in Singapore, offering decades of experience in the construction industry. The company has a vast network of offices throughout Asia, and played an important role in the supply of quality equipment and materials for the development of the construction industry. ■

Website: [www.chemgrout.com](http://www.chemgrout.com) / [www.acme.com.sg](http://www.acme.com.sg)

ALL IMAGES: The ChemGrout CG500/3C6/EHT Versatile plant has been supplied to carry out grouting work on a sewer project in Singapore. The unit has dual 265-l variable speed mixers, with a 57-l hopper, pressure of 18 bar and variable flow up to 76 l/min.



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# MANITOU ASIA GOES ELECTRIC AND 'CONNECTED'

IN AN EFFORT TO OFFER LOW EMISSION SOLUTIONS, MANITOU RECENTLY INTRODUCED ITS FULLY ELECTRIC AERIAL WORK PLATFORM (AWP) TO THE ASIAN MARKET, THE OXYGEN 200 ATJ E BOOM LIFT. **BERND FREUDENMANN, MANAGING DIRECTOR OF MANITOU ASIA AND VICE PRESIDENT OF MANITOU APAC,** TALKS FURTHER ABOUT THIS INNOVATION AND SHARES THE DIRECTION OF THE COMPANY IN THE REGION.

## 1 How is Manitou looking to support the construction and industrial sectors in Asia through AWP's?

**Bernd Freudenmann (BF):** At Manitou Group, we tap upon latest technological advancements to design and build innovative machines that are tailored to our users' requirements and hence, better serve the construction and industrial sectors.

Striving to shape instead of just follow market trends, we constantly innovate to create value and benefits for our customers with the lowest total cost of ownership.

Every machine produced by Manitou is now a 'connected machine', commonly referred to as a smart machine. We adopt it as a standard to allow users to fully harness the benefits offered by the Internet of Things. A 'connected machine' can provide real-time access to machine data, remote access, remote diagnosis, and even remote troubleshooting to realise better service levels and improved utilisation.

With connectivity, users can plan their maintenance well in advance to optimise uptime of machines. End users, rental companies, and manufacturers can track the machine status, running hours, and the machines' operating parameters like potential errors codes. Envisaging connectivity as a very big benefit for end users, rental companies, and dealers, we have incorporated it as a standard in our machines to support our customers' requirements.

Connectivity also enables prompting of scheduling of maintenance via the app, MyManitou. Users can send photos on site through MyManitou, or go to their Manitou dealer directly, depending on their preference. Ultimately, connectivity will increase the productivity of the machines.



Mr Freudenmann speaking at the Manitou inaugural showcase event in Singapore to introduce the Oxygen 200 ATJ E to the Asian market.



The event, held at the Manitou Centre Singapore on 12 December 2019, marked another milestone in the company's expansion into the AWP market in Asia.

The Oxygen 200 ATJ E is the first fully electric rough-terrain aerial work platform from Manitou, featuring a working height of 20 m, working outreach of 11.57 m and 7.90 m up and over.



Both images © Manitou



FAR LEFT AND LEFT: Manitou is also well known for its forklift trucks (far left) and telehandlers.

BELOW: Various machines on display at Manitou Centre Singapore.

There is a growing trend in electrification worldwide. For example, China is massively pushing for electrification in cars, putting them in a good position to be at the forefront of electrification in other industries such as construction. The European and Japanese markets are ahead in the electrical developments of construction machineries and China will definitely play a major role in influencing the patterns of the region.

Manitou Group has a committed CSR policy in place since 2013. The Group launched a dedicated programme called REDUCE. We were the first manufacturer in our sector to inform users about the consumption of our machines, using a special calculator.

We have been manufacturing electrical machines such as forklift trucks and warehousing equipment for many years. It was a naturally progression for us to extend low emission solutions to our other ranges such as AWP.

Manitou created the Oxygen label for low emission solutions. The first fully electric rough-terrain AWP is the 20-m articulated (200 ATJ E), which will start serial production in 2020.

## 2 How do you see smart machines, or ‘connected machines’ changing the AWP industry?

**BF:** With ‘connected machines’, we can optimise the total cost of ownership of the machines by detecting any potential issue remotely and solving them quickly. It is a more proactive approach because a user will know the running hours in terms of both maintenance and pricing.

For example, if a customer rents the AWP for eight hours and the machine runs overtime; the overtime fees will be charged accordingly. This would allow for a more dynamic pricing depending on the usage of the machine.

By carrying out the right maintenance, the customer could also optimise the machine’s resale value. Every machine has an optimum selling point after which the repair costs for maintenance will increase and compromise profitability. In addition, the connectivity feature also helps in the tracking.

## 3 What are some of the unique AWP features that leverage on Manitou’s experience and expertise in telehandlers?

**BF:** All our rough terrain telehandler machines have axles. Like these telehandlers, our rough terrain AWP typically have two axles, including an oscillating front axle. This axle is an absolute necessity for stability, eliminating risk of toppling and enhancing safety on uneven ground.

Most industry players do not use oscillating axles in their machines or provide it as an optional item. The standard for Manitou AWP is to have oscillating axles as a core safety feature. Heavy duty axles are much more lasting, hence making the machines very robust.



## 4 Could you highlight the advantages of the electric Oxygen 200 ATJ E and the non-electric version of it?

**BF:** The Oxygen label is created for every low emission solution. We recently launched our full range of electric machines, with plans to launch hybrid machines in the next phase.

Conventional rough terrain machines use diesel engines. However, there is a growing trend in our industry to go into electric. We are analysing usage trends before orienting ourselves to a particular energy. In countries where the trend is being driven by the government or municipal regulations, we are ready with the solution.



ABOVE: Manitou team at the company's inaugural showcase event in Singapore.

LEFT: Guests had the opportunity to take a closer look and experience a ride on Manitou machines during the inaugural showcase event.

Electric machines might not be suitable for operation in every location. For example, in some remote locations where there is no option to charge overnight, diesel-driven machines will enable operations to run uninterrupted.

On the other hand, a hybrid machine is something in between. It is designed to give users who are unsure about bringing the machine back in the evening for charging the option of using diesel to charge the battery to continue operating.

Asian countries such as Japan, Korea, and China are moving towards electrification due to the government's push. Together with the growing environmental awareness in other cities such as Singapore, I believe that it will get relatively much easier to adopt electrification.

### 5 How can the Oxygen 200 ATJ E machine help transform the current Asia AWP landscape?

**BF:** The first batch of our Oxygen label machines will be produced for the Australian market, with plans to expand into the Japan and Korean markets.

At this point in time, Europe has gone very far ahead in the direction of electrification and can be viewed as a case study for other countries. In Asia Pacific, Australia is next in line for projects like tunnelling. Strict regulations are implemented in such projects to ventilate the airflow of tunnels and we believe the adoption of electric machines will continue to grow.

The acceptance rates of these machines really depend on project and customer requirements. Tunnelling is one of the applications that seem very suitable for full electric machines.

### 6 Will you continue to expand the electric fleet in Singapore and Asia?

**BF:** We will continue to expand the electric fleet in Asia and are working towards bringing in the electric machines into Singapore and Australia. As a metropolis with wide access to electricity at most jobsites, Singapore has the potential to adopt a wide range of electrical machines.

### 7 How would your customers in Asia benefit from your new AWP factory in Candé, France?

**BF:** As we have reached the limits of production capacity in our current factory, the new factory in Candé, France will increase our capacity to meet the demand of AWP's in the Europe, US, and Asian markets. This will allow us to expand and develop our product range further, such as investing in new boom lifts to support us in enhancing our existing products.

### 8 What do you think are some of the challenges faced by Manitou in bringing the electric machines to Asia?

**BF:** One of the challenges is gaining acceptance from potential users. Awareness of the benefits of electric machines is still low, leading to hesitation to try these new machines.

Manitou will bring these machines to the customers for trial and testing to build customer confidence. Our goal is for users to realise the ease and convenience of charging instead of relying on diesel as more global cities are becoming more conscious about emissions and environmental impacts.

Currently, our machines are designed to last for a full day with an overnight charging. In the future, the capacity of the batteries can be extended to last for multiple days before requiring the next charging.

### 9 Any future plans for Asia?

**BF:** Manitou Group is currently en route to expand our businesses in the US and Asia. In 2019, we have expanded our global footprint in Asia Pacific with a new office in Japan and a new Manitou Centre in Sydney.

Our increased presence in Asia has enabled us to support our dealers and key accounts directly. As providing service support is of utmost importance to us, we have recently expanded our parts warehouse in Singapore to increase parts availability and enable delivery of parts to our customers across Asia Pacific within 24 hours. ■

Website: [www.manitoucenter.com.sg](http://www.manitoucenter.com.sg)



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# PROTECTING CONCRETE

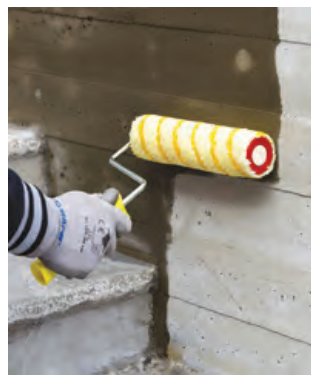
## *With Mapei Systems*



LEFT, BELOW AND BELOW LEFT: **Mapei's Planiseal WR 100** hydrophobising liquid helps to prevent degradation and detachment of concrete. The system can be applied by spray or roller.



LEFT, BELOW AND BELOW LEFT: **Mapei's Planitop Smooth & Repair R4** system is designed for structural repairs. This cementitious mortar can harden without shrinking and features strong adhesion to concrete substrates.



### Preventing degradation and detachment of concrete

Mapei's Planiseal WR 100 is pure silane-based, very low-viscosity hydrophobising liquid with high penetration capacity to be applied directly on concrete surfaces. The system can travel through the capillary pores and penetrate deep down into concrete to form a protective hydrophobic impregnator that, over the years, helps to prevent degradation and detachment of concrete.

With its special formulation, the Planiseal WR 100 may be applied directly on both vertical and horizontal surfaces of porous and compact concrete, on new concrete and on concrete that has already been repaired or with no evident signs of detachment from the reinforcing steel.

Among concrete surfaces that are suitable for this system include: piles and abutments on bridges and viaducts; floor slabs; structures in marine environments such as quaysides and jetties; prefabricated reinforced concrete structures; front edges

of balconies; stringcourses; foundations; prefabricated structures (like buffer panels, beams and columns); and internal and external reinforced concrete structures in general.

The Planiseal WR 100 drastically reduces water and chloride absorption, thus preventing corrosion of the reinforcement steel in concrete. The system also helps to prevent deterioration of new and repaired concrete caused by freeze-thaw cycles and de-icing salts and increases its durability, especially when used as part of a repair and protection cycle on reinforced concrete.

The Planiseal WR 100 complies with Euronorm EN 1504-9 ('Products and systems for the protection and repair of concrete structures: definitions, requirements, quality control and conformity assessment. General principles for the use of products and systems') and the requirements of EN 1504-2 ('Concrete surface protection systems') according to principles PI, MC and IR for class: H – hydrophobic impregnation: surface protection products.



ABOVE (LEFT AND RIGHT): Mapei's Planiseal WR 100 and Planitop Smooth & Repair R4 systems were recently used to help repair a jetty structure on one of the southern islands in Singapore.

BELOW (LEFT, MIDDLE AND RIGHT): The Planitop Smooth & Repair R4 cementitious mortar has also been chosen for carpark floor repair at the Airbus Training Centre in Singapore.



### Structural repair solution

Mapei's Planitop Smooth & Repair R4 is a rapid-setting, shrinkage-compensated, thixotropic, fibre-reinforced cementitious mortar. It is mainly applied by trowel in a single layer from 3- to 40-mm-thick to repair and smooth over concrete.

The system is suitable for structural repairs and smoothing over internal and external horizontal and vertical concrete surfaces, as well as for repairing structures exposed to the open air and in permanent contact with water. It hardens without shrinking and provides excellent adhesion to concrete substrates.

Once hardened, the Planitop Smooth & Repair R4 features several characteristics including: strong adhesion to both old concrete ( $\geq 2$  MPa), if wetted beforehand with water, and to steel reinforcement, especially when treated with Mapefer or Mapefer 1K anti-corrosion and re-alkalising cementitious mortar, certified EN 1504-7 'Corrosion protection of reinforcement'; high dimensional stability and hence, low risk of cracking and crazing during both the plastic phase and when hardened; thermal compatibility to freeze/thaw cycles, measured as adhesion according to EN 1542; and also high resistance to carbonation and impermeable to water.

The Planitop Smooth & Repair R4 is suitable for various applications, such as rapid repair work on deteriorated concrete beams, pillars, buffer walls, cornices, edges of balconies and structural members and elements that require the use of mortar with high mechanical performance characteristics; repairs and structural strengthening of concrete; repairing precast concrete members and elements; repairing concrete damaged by rusty reinforcing bars due to carbonation; and also for quickly smoothing over surface defects in cast concrete (e.g. deep gravel clusters, spacer holes, second pours, etc) before painting the surface.

The Planitop Smooth & Repair R4 complies with the principles defined in EN 1504-9 ('Products and systems for protecting and repairing concrete structures: definitions, requirements, quality control and conformity assessment. General principles for the use of products and systems') and the minimum requirements of EN 1504-3 ('Structural and non-structural repairs') for structural R4-class mortars, plus the requirements of EN 1504-2 coating (C) according to principles MC and IR ('Concrete surface protection systems'). ■

Website: [www.mapei.com.sg](http://www.mapei.com.sg)



# RISING ABOVE AND BEYOND

**DEEMED THE WORLD'S LARGEST SELF-PROPELLED BOOM LIFT, THE NEW SNORKEL 2100SJ WAS RECENTLY UNVEILED AT CONEXPO 2020 AS A PREVIEW. IT IS EXPECTED TO ENTER PRODUCTION IN EARLY 2021.**

The new Snorkel 2100SJ telescopic boom lift - also called a 'mega boom' - has a maximum platform height of 64.0 m, a horizontal outreach up to 30.4 m, and an unrestricted platform capacity of 300 kg. With a maximum working height of 65.8 m, the lift can reach an equivalent of 22 building stories, making it ideal for high-rise construction and maintenance applications.

Designed in-house by Snorkel's engineering team, the 2100SJ features a number of patent-pending innovations as well as an industry-leading working envelope with an area volume of 155,176 cu m, thanks to a 9.1 m jib boom - with a working arc of -55° to +73° - and 150° platform rotation.

On the heavy-duty chassis, the transformation mechanism offers an innovative design that enables the axles to be extended while the lift is static. The use of the wheel motors, rather than cylinders, to essentially 'drive' the axles into their extended position eliminates the risk of tyre scrub on the ground, extending the life of the tyres and providing a smoother extension experience for the operator. The automatic chassis transformation is activated by a single toggle switch.

For such a large aerial lift, the Snorkel 2100SJ boasts excellent manoeuvrability capabilities, with an inside turning radius (extended) of 2.5 m. There are five steering modes, including front axle; rear axle; crab steer; complementary four-wheel steer; and new lateral steer, which enables the lift to drive side-to-side along a building with the wheels in a 90° position.



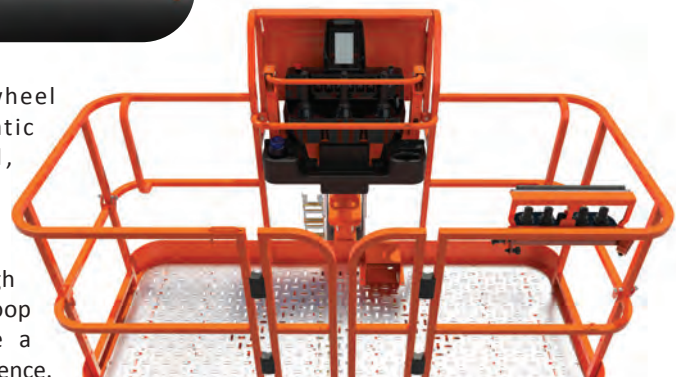
LEFT: The Snorkel 2100SJ telescopic boom lift has a maximum working height of 65.8 m.



LEFT AND BELOW: The machine's platform is equipped with secondary controls for safer operation and increased precision.

Powerful four-wheel drive with automatic traction control, which locks the four wheels together, delivers exceptional performance on rough terrain, and closed loop hydraulics provide a smooth driving experience. The 2100SJ is powered by a

Deutz turbo-charged 2.9-l, 74-hp diesel engine as standard, and an optional 100-hp engine upgrade will be available. Equipped with a 189-l steel fuel tank, the lift has both an electric fuel gauge, similar to automotive vehicles, and a manual gauge.



## Global standards, easy maintenance

Designed to be compliant with all global standards, including ANSI A92.20, the Snorkel 2100SJ measures just 2.5 m wide, which is suitable for all global transport



width requirements, including in Europe and Australia. The jib boom is fitted with a rotator to enable it to be stowed completely alongside the boom to minimise transport length to 14.9 m.

For safer loading and unloading, the Snorkel 2100SJ is fitted with a removable RF-controlled lower control panel designed to be operated remotely, either tethered or wireless. The remote-control panel has all machine functions, including drive, and the panel can be easily stowed inside the turntable where it can be used as conventional fixed lower controls.

Both the lower and upper control panels include a 17-mm colour LCD screen, which displays a brand-new multi-lingual Snorkel user interface featuring clear operator communications, such as the pre-start procedure in a visual checklist format, and service reminders.

Developed with ease of serviceability at its core, the 2100SJ comes with large fibreglass cowling doors maximising access to all key service components. The two hydraulic manifolds are easily accessible via the side cowling doors, and the main valve is designed to be 'inside out', meaning it swings outside of the lift footprint for improved access.

The main slew bearing bolt heads are located on the top of the chassis to eliminate the need for service engineers to lay down underneath the unit. All filters are located together behind a cowling door for efficiency during regular servicing, other than the engine oil filter.

Consistent with most Snorkel lifts, the 2100SJ is fitted with on-board diagnostics, so that no external devices are required to troubleshoot the lift, providing increased familiarity for operators and service technicians alike.

Focused on simplicity, the boom assembly design has 40% less moving parts than the current industry standard, resulting in less complexity and spare parts from a service and maintenance perspective, and increased reliability.

Simplicity is also key in the load management system, which is based on jib boom extension, rather than on the platform load, delivering a simple, single envelope. This means that when the 9.1-m jib boom is retracted, the operator has an unrestricted working envelope of 454 kg; but when the jib boom is extended, the platform capacity is restricted to 300 kg.

While this system leads to a much simpler experience for the operator, Snorkel has also added haptics to its upper controls. This provides the operator with a joystick vibration experience that becomes proportionally stronger to warn the operator as they near the boundaries of the envelope, to avoid sudden stops when working at height.

In the platform, user-friendly, all-proportional controls give a smooth and simple operator experience, with three joysticks – one dedicated to drive functions, one dedicated to all boom functions, and one dedicated to jib boom functions. Flat, heavy duty metal toggle switches have been custom-made to be easier to use and are long-lasting, even in rental applications.

Common with Snorkel's family of telescopic boom lifts, the 2100SJ utilises Snorkel's spacious 2.4 m x 0.9 m tri-entry, quick-disconnect platform design, which has been equipped with some additional features. The primary upper control panel is designed to be ultra-robust and is produced from cast aluminium with the LCD screen covered by a protective bonnet to shield it from damage and weather conditions.

### Safety features

The secondary platform controls are designed to enable the operator to face the work area while positioning the platform, for



The Snorkel 2100SJ being previewed at Conexpo 2020 in Las Vegas, USA.



Alcide Leblanc (left) and Louis Leblanc (centre) of Mortier en Trémie ABL have signed the first Snorkel 2100SJ with Snorkel owner, Don Ahern (right).

safer operation and increased precision. The secondary control panel, which provides all machine functions other than drive, is located on the opposite side of the platform to the primary controls and can be 'folded away' into a stowed position when not in use to maximise the platform working area and to protect it from damage. Both the primary and secondary controls include Snorkel Guard anti-entrapment systems.

Weighing 36,287 kg and rated for outdoor use up to 12.5 m/s, the Snorkel 2100SJ comes with an anemometer as standard to measure wind speeds. The lift is equipped with redundant, isolated, emergency power supplies to offer at least three alternative options to rescue an operator up to the maximum platform height of the lift. Upon start-up of the lift in the stowed position, the controller performs a check of both emergency power systems. Voltage in the batteries is checked to ensure they have a proper charge, and then the system automatically powers up the pump motor and looks for pressure.

If either of these tests are not passed for both primary and secondary emergency power unit, the operator is notified on the display screen and advised to have the unit inspected and serviced. This emergency power system check is then performed every three hours during operation, so the operator can have confidence that both emergency power systems are in proper operating condition. For operator reference, Snorkel has published a detailed guide to the emergency descent procedures for the 2100SJ on its website.

Snorkel has further announced that Mortier en Trémie ABL recently placed the first pre-order for a Snorkel 2100SJ. Established in 2002, the company supplies premixed mortar in bulk, plus the sale and rental of work equipment, including telehandlers, and tools for masonry and other contractors in a territory covering the province of Quebec, the Maritimes and part of Ontario in eastern Canada. The deal was signed with Snorkel owner, Don Ahern and Ahern Canada's regional territory manager for eastern Canada, Tom Bell. ■

Website: [www.snorkellifts.com](http://www.snorkellifts.com)

# DIGITALISING *Malaysia's* METRO MEGAPROJECT

The Sungai Buloh-Serdang-Putrajaya (SSP) metro line is part of Malaysia's Klang Valley Mass Rapid Transit (KVMRT) rail network to reduce traffic congestion and improve public transportation in Kuala Lumpur. Running through dense urban areas of the capital city and its southern suburbs, the SSP line will serve approximately two million people with an expected daily ridership of 529,000 passengers. The 52.2-km-long alignment consists of 38.7 km of elevated track, 13.5 km of underground track, and a total of 35 stations.

MMC Gamuda Joint Venture (MMC) is the turnkey contractor, focusing on the underground works that include constructing twin-bored tunnels for the length of the underground track and 17 individual construction sites, the largest exceeding 17,000 sq m.

## The need for reality capture solution

Situated in a congested city environment, the US\$7.5 billion project presented tight site constraints and significant amounts of data. With multiple project participants and stakeholders required to meet Malaysia's strict regulatory requirements, MMC realised the need for a quick, accurate, safe, and accessible reality capture solution. The joint venture relied on surveying using unmanned aerial vehicles (UAVs) and Bentley's interoperable reality modelling and information sharing technologies. Combining these applications enabled the team to capture hyper-realistic visuals, create a digital context for the project, and establish digital workflows to optimise construction.

MMC capitalised on UAV capabilities to acquire large volumes of data at extraordinary speeds and share it through cloud-based platforms for multiple BIM and GIS applications. The team used these capabilities for tasks that included site progress monitoring and reporting. While manual surveys take an average of 200 hours with limits on the amount of data collected, UAVs can collect hundreds of overlapping photos in less than an hour and then process them in just half a day per site using ContextCapture.

Using Bentley's reality modelling application, MMC derived a 3D photogrammetric model of Kuala Lumpur, assembled from the UAV-captured images, to establish a digital context for each construction site within a broader perspective of the city. With predetermined flightpaths at varying elevations and good ground control points (GCPs), UAVs were able to capture accurate georeferenced images along the tunnels' alignment between Chan Sow Lin and Bandar Malaysia North stations. The images were processed using ContextCapture to generate a 3D reality mesh that enabled precise positioning of the tunnel boring machines in relation to aboveground structures.

"Using drones and ContextCapture to generate highly accurate reality models

was not an enhancement to MMC's existing workflows. It was never possible previously," said Nick Morecock, BIM manager at MMC. Bentley's reality capture solution established a new digital workflow that optimised the survey team's ability to assist the construction team. The integrated digital survey method enabled MMC to generate 3D models of the Bandar Malaysia North station from a sequence of photos taken over an 18-month period.

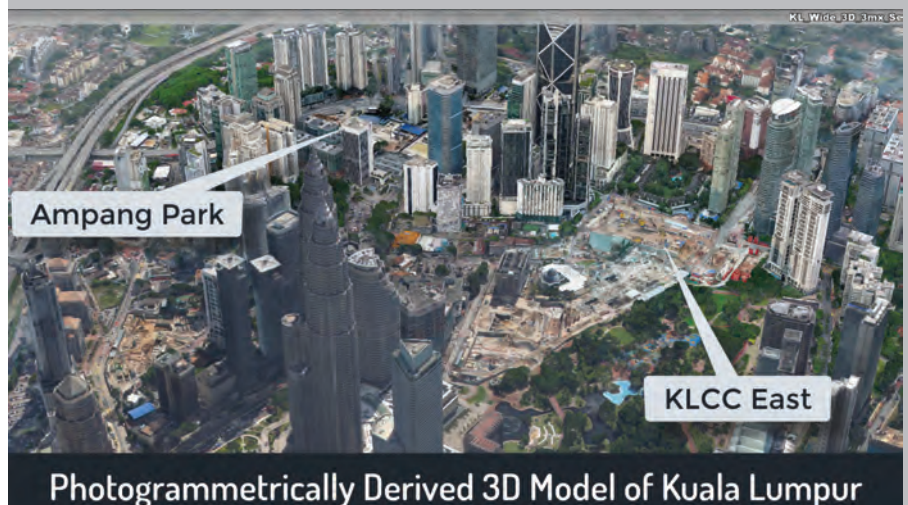
Using 3D reality meshes, the team performed 4D analysis of the construction site to measure on-site progress with different surveys at different points. They shared the construction progress with the client using a 3D visual model. While a traditional time-lapse photo from a fixed camera provides a good visual record, it cannot be used for surveying or measuring, unlike 4D. Accurate reality models provide real-world digital context to digital twins that facilitates 4D construction monitoring, as well as enables visualisation and analysis of excavation, tunnel boring assembly and launch, and permanent structure construction.

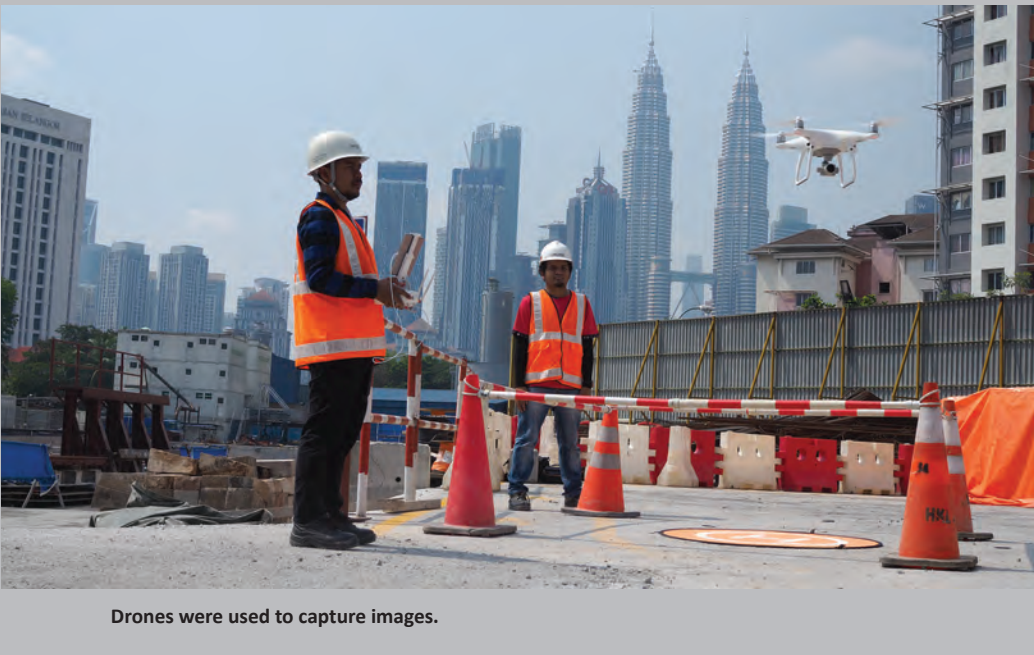
## Extending the application of reality modelling

Using 3D reality meshes facilitated construction planning and progress monitoring. Given the accuracy, interoperability, and reliability of models generated with ContextCapture, MMC expanded the scope of reality modelling to include design review verification, measurement, and safety enhancement. As part of its new reality capture workflow, the team integrated the photorealistic models into MMC's federated BIM design models to enhance constructability.

At the Chan Sow Lin station, the team used the ContextCapture survey model to verify that the concrete slabs were located correctly on site. "We took the ContextCapture model and overlaid it with the BIM model to see that the geometry of the actual structure matched the design," explained Ronan Collins, head of project information management at MMC. The interoperable ContextCapture models facilitated integration

The 3D photogrammetric model of KL was derived using Bentley's reality modelling application.





Drones were used to capture images.

**“We successfully developed a workflow that integrates ContextCapture photorealistic meshes into our federated BIM design models, greatly enhancing constructability and design review processes.”**

**Nick Morecock, BIM manager at MMC Gamuda**

with the BIM models that were created with third-party software, significantly enhancing designers’ understanding of site constraints and context.

When driving tunnels, it is extremely important to know what existing structures need to be accommodated. The flexibility of Bentley’s reality capture solution allowed the team to overlay the orthoimages of the Conlei Station site with printed records, revealing a discrepancy. Where printed records showed that there was an empty pathway, reality models of the site revealed that a substantial and undocumented structure existed. Using reality modelling provided MMC with an accurate digital representation of where to plot the tunnel that otherwise would not have been known until the on-site tunnel works began.

The 3D reality models were also used extensively for measuring and quantification to save considerable time. By surveying and modelling the piling works at the Chan Sow Lin station, MMC could quickly and accurately measure the length of a secant pile wall. The team also used ContextCapture to determine precise cut-and-fill volumes. By marking a boundary in the 3D model to represent a 28-m-long platform for the station, the team was able to digitally set a measurement plane and density points to more accurately determine the exact volume – which, in this case, had the effect of reducing the amount of cut-and-fill from 11,300 cu m to 9,800 cu m – to form a platform at this location.

Lastly, safety is paramount at MMC, and the organisation used its newly implemented reality capture workflow to mitigate risks for on-site personnel. After a landslide occurred at one of the construction sites, the survey team sent in UAVs to inspect the area. Using ContextCapture to take measurements from the captured images of the area enabled MMC to determine the amount of concrete material that required removal, and where temporary works needed to be installed for remediation. The reality capture solution eliminated the need to send personnel on site and, therefore, any risk of injury.

### **CDE democratises data and 3D models**

“There’s no point in having all these models if no one knows they exist,” said Mr Collins. Democratisation of the models and information was crucial to the workflow. MMC established an open, connected data environment (CDE) using ProjectWise, recognising the software’s interoperability to grant all project members quick and convenient access to the 3D survey models. MMC created a portal that provides direct access to ProjectWise, allowing users to

launch a web browser and view any 3D model of interest. Integrating ProjectWise with cloud-based applications to share and distribute the models with all project members simplified access and review of the most current site conditions.

With so many active sites distributed across such a wide area, it is impossible for senior staff and decision makers to visit each location on a regular basis. Working in a connected data environment and delivering the models online democratised access to site survey models and data, providing regular visibility of the sites at any time without the need for extensive site visits. Having all reality models and information available via ProjectWise allows decision makers to remotely see what is happening on site. Bentley’s connected data environment and reality capture solution saved over 1,000 resource hours for MMC surveyors, engineers, and project managers.

### **Keeping a bird’s-eye view on the future**

While an exact return on investment is impossible to measure, it is estimated that MMC’s reality capture workflow has improved productivity 30 to 50 times compared to traditional survey methods. The successful use of UAVs, ContextCapture, and ProjectWise on the SSP metro line project has inspired MMC to explore new and exciting ways to use the survey-captured data and 3D reality models. The survey team has already initiated reality capture for public relations. Streaming a UAV video of the first tunnel boring machine breakthrough and major project milestone on MMC’s social media channel provided the public with a bird’s-eye view of the tunnelling works, live online.

Using transformative technology that will be invaluable for the remainder of this project and all MMC future projects, the organisation is committed to using Bentley’s reality capture solution to continuously improve site safety, construction, surveying, and productivity. MMC is already mapping out new initiatives to extend the scope of UAVs, keeping an eye on future applications for reality modelling. The company’s innovative digital survey workflow is “becoming business as usual for MMC Gamuda, and that’s a real testament to both the ease of use and value that ContextCapture provides,” said Mr Collins.

“We successfully developed a workflow that integrates ContextCapture photorealistic meshes into our federated BIM design models, greatly enhancing constructability and design review processes,” concluded Mr Morecock. ■

Website: [www.bentley.com](http://www.bentley.com)

# VIETNAM CALLING

**W**ith an immense total length of 2,236 km, Vietnam’s National Route 1A is a heavily congested motorway along the section between kilometre 16 (Lang Son) and kilometre 170 (Hanoi). The road, which is narrow, steep and winding in some areas, is used by lorries, cars, countless motorbikes and even pedestrians.

To ensure its accessibility in the long run, the National Route 1A is being expanded for better performance and safety. Licogi 16 JSC – one of Vietnam’s largest construction companies with 20,000 employees – won the contract for an approximately 100-km section of the 154-km-long project.

### Processing basalt for surface course mix

Licogi 16’s civil engineering division is carrying out a number of road and bridge construction jobs on the project. To help with the work, the company opted for a track-mounted interlinked plant combination from Kleemann, a company of the Wirtgen Group. The machines were supplied by Vitrac, Wirtgen’s dealer in Vietnam.

The interlinked plant combination comprises five units. Listed in the order of connection, they include an MC 110 Z Evo jaw crusher, an MCO 9 Evo cone crusher, an MS 703 Evo screening plant, an MCO 9 S Evo cone crusher and an MS 19 D screening plant.

In the quarry 40-km south of Lang Son, the Licogi 16 team found itself facing two challenges. Firstly, they needed to crush the hard and abrasive basalt and to classify it into clean aggregate fractions. Secondly, they had to fulfil very high-quality requirements.

Armed with the new Kleemann crushing and screening plants, the Licogi 16 team was able to meet the required criteria easily. The automated continuous feed system (CFS) played a key role in making the work easier.

The crushing plant in the first crushing stage – in this case, a Kleemann MC 110 Z Evo jaw crusher – only draws as much feed material into its crushing chamber as the entire line-coupled plant combination can process. This prevents overloads and, to the greatest possible extent, material blockages too.

Basalt is a vulcanite – an extremely hard and durable volcanic rock. The density of the hard rock comes to 3 t/cu m and is thus higher than that of granite, making it an excellent material for road construction. Kleemann’s mobile jaw crushing plants in the Mobicat series are particularly suitable for processing hard rock such as basalt in the first crushing stage, while those in the Mobicone series are ideal for the second crushing stage. ■

*Website: [www.wirtgen-group.com](http://www.wirtgen-group.com)*



Licogi 16 JSC is carrying out a number of road and bridge construction jobs on the National Route 1A project. To help with the work, the company opted for a track-mounted interlinked plant combination from Kleemann.



The basalt grain fractions from Kleemann plants feature sharp edges and a cubic shape. These properties allow them to interlock excellently in the asphalt course and sail through every quality test.



ABOVE (LEFT AND RIGHT): The interlinked Kleemann plant combination, consisting of three crushing and two screening plants, were used to process the basalt for the surface course.



The Licogi 16 team worked with Kleemann plants in a quarry 40 km south of Lang Son.



Line coupling enables the Kleemann crushing and screening plants to control their optimum performance automatically, and also minimise the downtimes associated with material blockages including the manual work involved in removing them.

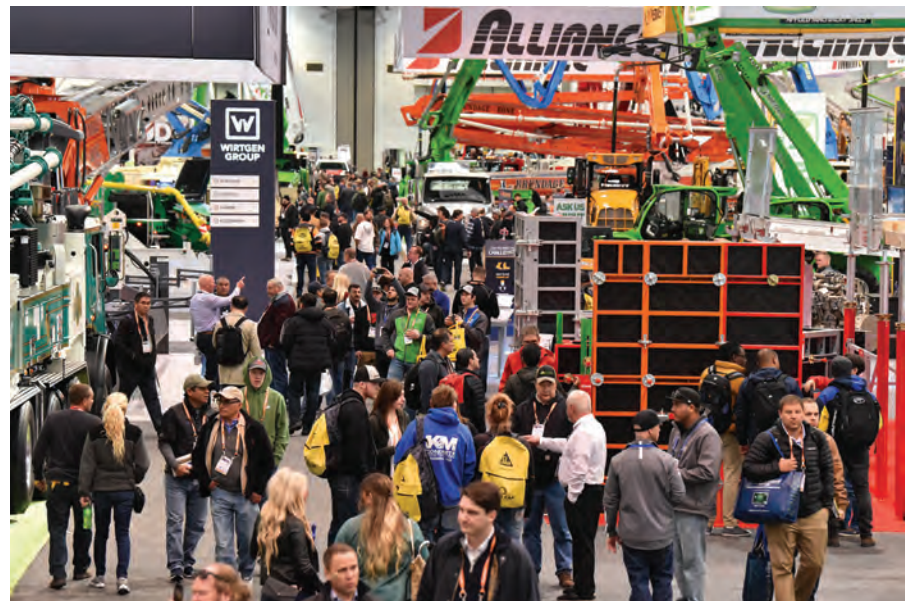


# CONCRETE AND MASONRY INDUSTRIES GET TOGETHER IN LAS VEGAS

**W**orld of Concrete (WOC) 2020 concluded its 45th edition successfully, drawing approximately 54,000 registered professionals and 1,310 companies - including 255 brand new companies. The show, which was held from 4 to 7 February 2020, covered more than 700,000 net sq ft (about 65,000 sq m) of exhibit space at the Las Vegas Convention Centre in Nevada, the US. International presence was also robust, with 237 companies from 29 countries outside the US.

According to the show organiser, exhibit space booked onsite for next year's WOC resulted in just over 530,000 net sq ft (about 49,240 sq m), nearly 77% of this year's show floor, consisting of 485 companies - projecting next year's edition to be one of the largest events in over a decade.

The Concrete Industry Management (CIM) programme held its 15th annual unreserved silent and live auctions at WOC 2020. These auctions reportedly broke all previous records bringing in



more than US\$1,217,000, with a total of over US\$12 million to the CIM programme in the past 15 years.

The CIM programme is a business programme that has been developed specifically for the concrete industry to provide students with a four-year Bachelor of Science degree in Concrete Industry Management. This programme gives students entering the concrete workforce industry experience early in their careers.

Jackie James, group director of World of Concrete said, "This year has been a very successful event - the industry continues to evolve and grow stronger as we enter a new decade. The construction industry remains strong along with the economy and we cannot wait until WOC 2021, with





the new expansion of the Las Vegas Convention Centre West Hall to showcase our leading industry suppliers in this state-of-the-art facility.”

Thousands of spectators gathered in the Bronze Lot area, and thousands more watched live online as the 18th annual Spec Mix Bricklayer 500 World Championship took centre stage at WOC 2020. It was a battle of skill, speed and stamina as masons and tenders from across North America put their reputations on the line for a chance to win exciting prizes.

Mason Fred Campbell and mason tender Tony Shelton of Creative Masonry in Greeneville, Tennessee took home top honours, claiming the title ‘World’s Best Bricklayer,’ with a brick count of 756. Mr Campbell is now the owner of a new Ford F-250 XLT 4x4 truck, an Essick Pro 12 mortar mixer plus an additional US\$10,000 in cash and prizes. This marks the third time Mr Campbell has won the World Championship title, the first mason to claim that honour. He said, “It’s great to be back on the podium. We put in a lot of work this year to make sure we came out on top.”

Mason Darian Douthit of Providence Masonry in Miami, Oklahoma took home the title ‘Spec Mix Top Craftsman’, which goes to the mason whose wall was voted ‘most sellable’ by a 30-judge panel. For this honour, Mr Douthit is taking home a Roxor Off-Road side-by-side sport utility vehicle.



**ALL IMAGES: Scenes from this year’s World of Concrete, which was held from 4 to 7 February 2020.**

Next year, World of Concrete will return from 19 to 22 January 2021 (education: 18 to 22 January) at the Las Vegas Convention Centre. ■

*Website: [www.worldofconcrete.com](http://www.worldofconcrete.com)*

## POWER CURBERS

Power Curbers showcased the latest in the 5700 series, the 5700-D – which replaces the 5700-C as the ‘one machine solution’ for concrete slipform applications. The new 5700-D excels in curbing, sidewalk, barrier, ditches, paving, tunnel, agricultural and specialised applications. It features a compact size, simple design, easy operation, high productivity and versatility.

The new Power Curber SlipSmart control solution makes the 5700-D highly responsive. The system’s simplicity and accuracy provide contractors with a new level of precision. The SlipSmart controls come ready to interface with Topcon, Leica, and Trimble 3-D/Stringless systems.

Other new features that enhance the versatility of the 5700-D include: ‘All up’ jog switch that raises or lowers all crawler posts simultaneously; improved cross-slope control; auto-calibration for the radius steer sensor; fine scaling of speed controls; engine display replacing individual gauges; easy-pivot conveyor; wires that are etched with descriptive label text matching machine schematics; cold air dam between engine and console to keep the console and operator cooler;



improved wand-activated high-pressure water system; redesigned door latches, including a single, lower latch to access the engine compartment; as well as toolbox end doors and shovel holders at conveyor.

The 5700-D is also equipped with a new vibrator master scaling knob, which allows the operator to increase

or decrease vibration across all vibrators while individual vibrator adjustments remain relative to each other. Furthermore, there are improvements and additions to optional equipment such as a new canopy, enhanced low-pressure water system, and improved barrier lift kit with the reach doubled up to 1,220 mm. ■

Website: [www.powercurbers.com](http://www.powercurbers.com)



TOP AND ABOVE: Power Curber 5700-D curb and gutter machine is designed as a ‘one machine solution’ for concrete slipform applications.

ABOVE RIGHT: The 5700-D on display at World of Concrete.

# CHEMGROUT

The ChemGrout CG-460/2X8 HP colloidal series is specially designed for the grouting of hollow bars, tiebacks and ground anchors. The plant has two high-shear colloidal 265-l mixing tanks, and a double acting, high-pressure 2X8 plunger grout pump. This pump is fitted with fasteners that can significantly reduce disassembly time for quick cleaning and maintenance.

The dual colloidal mixing tanks allow for independent mixing of flushing and structural grouts. Each mixer is equipped with variable-speed, high-efficiency, high-shear disks rotating at speeds of up to 3,000 rpm for rapid and thorough mixing. The tank outlet valves feature a large 4-in butterfly type that assures full material flow into pump suction. The 2X8 plunger grout pump delivers 57 l/min and 138 bar, and an optional 3X8 pump delivers 76 l/min and 69 bar.

The CG-460 series is available in a variety of power options, including air, hydraulic, electric/hydraulic (25 hp electric motor), and diesel/hydraulic (33 hp Kubota engine). Both electric and diesel models require a separate skid-mounted power pack.

The ChemGrout CG-680 high-pressure (HP) series is a high-pressure, high-capacity, skid-mounted colloidal grout plant for mixing and pumping slurries of cement, fly ash, bentonite and lime flour. It is designed to provide a continuous mixing and pumping operation, with a 0.5 cu m homogenising colloidal mixer, 0.5 cu m agitated storage tank and 120 l/min grout pump. The CG-680 HP is commonly used in tunnelling, dam foundations, soil compaction and encasements, among others.

The CG-680's high-capacity, double-acting plunger grout pump is connected directly to the agitated storage tank to provide a continuous pumping operation. The colloidal mixer is equipped with a 2X3X12 high-shear centrifugal diffuser-type pump that disperses the cementitious material down to its finest particle size to achieve complete particle wetness.

The CG-680's mixing tank is also equipped with a bridge breaker to break apart the material before entering the colloidal mixer. The agitated storage tank has a variable-speed, high-efficiency paddle mixer that maintains a thoroughly mixed grout while waiting to be pumped.

In addition, the skid-mounted ChemGrout CG-050M manual hand pump is easy to use, designed for smaller jobs using high viscosity slurries and most pre-packaged grouts. The unit's rugged, lightweight aluminium construction offers mobility in areas where no air or electric power sources are available.

The CG-050M features a large 19-l holding hopper and durable 2-in piston pump that produces discharge head exceeding 45 m (ideal for vertical lifting). The manually powered, positive displacement piston pump can disassemble quickly without tools for simple cleaning and maintenance.

The CG-050M provides more than 14 bar of injection pressure, and an output capacity of 7-11 l/min. The unit weighs only 24 kg, measuring 44-in long, 11-in wide and 31-in high. ■

Website: [www.chemgrout.com](http://www.chemgrout.com)



LEFT: The CG-680 high-pressure (HP) series.

BELOW LEFT: The CG-460/2X8 HP colloidal series.

RIGHT: The CG-050M manual hand pump.

BELOW RIGHT: A wide range of ChemGrout grouting equipment at World of Concrete.



## BROKK

Brokk offers its BCP planer attachment for controlled material removal on walls, floors and ceilings for cleaning, renovation and restoration applications. The three models in the BCP series are specially designed to work with Brokk remote-control demolition machines, and feature up to seven times the speed of handheld options while providing better precision and safety for grinding, brushing or removing concrete, glue, carpet, tile and other materials. Hood and vacuum connections are also available, enabling operation in contaminated environments such as asbestos and nuclear applications.

The high-efficiency BCP planer offers contractors a new option for quickly and precisely removing deteriorated or contaminated concrete, adhesives or other materials in a number of applications including industrial cleaning, abatement, bridge repair and many more. With a maximum cutting depth of 0.64 cm per pass - 1.3 cm combined - and automatic levelling in all directions, the BCP planer provides high-quality, even removal across a wide area, unlike handheld options which often give uneven results. For hazardous material removal, this creates significant savings by removing only the contaminated material and reducing waste handling costs.

The BCP planer features 360-degree rotation, which allows contractors to work at any angle - including overhead - for maximum efficiency. A selection of cutting drums for different operations enhances versatility. And with drum replacement taking less than five minutes, contractors can quickly switch from removing concrete to removing plaster, glue and asbestos.

The BCP planer is fully remote controlled from the Brokk control box, increasing operator safety and comfort over handheld options. In overhead applications, the BCP planer and Brokk's remote-controlled technology offers greater safety by moving crew members outside the danger zone, eliminating the risk of falling concrete and scaffolding missteps. An integrated dust suction feature that works with the contractor's pre-existing vacuum system boosts safety further by capturing harmful dust particles.

The BCP planer comes in three sizes designed for specific Brokk models. The BCP 215 pairs with the Brokk 110 or 120D. The attachment has a 25.4-cm drum and



Brokk BCP planer attachment.

Brokk G32 grapple (left) is specially designed for Brokk 70 demolition robot (right).

a stroke length of 129.5 cm. The BCP 250 pairs with the Brokk 200 and has the same drum width as the 215 but offers a slightly larger working area with a travel length of 152.4 cm. The largest in the series is the BCP 350, designed for the Brokk 300, 500 and 520D. This model has a drum width of 33.2 cm and a stroke length of 139.7 cm.

In addition, the compact Brokk G32 grapple is specially designed for the Brokk 70, the company's most compact machine, increasing versatility and efficiency for interior and top-down demolition applications.

The Brokk 70 demolition robot boasts 9.8 kW of power with a hydraulic output of 5.5 kW. At just 880 mm high and 597 mm wide, the machine fits through narrow doorways and into tight spaces, making it excellent for interior demolition applications. And with a base weight of just 560 kg, it can be transported on an ordinary passenger elevator, making it ideal for top-down demolition projects in urban areas.

When paired with the Brokk 70, the G32 can provide significant time and cost savings over manual methods for soft demolition applications in tight, confined spaces. The grapple features a 32.5-cm jaw opening. One fixed and one movable jaw means the G32 firmly grasp structural elements such as drywall, ceiling sections, piping and HVAC ducts, while a 360-degree hydraulic rotation circuit allows for fast and accurate positioning. Using the Brokk machine in these situations eliminates the need for harnessed workers on ladders or scaffolding manually cutting or pulling down structural elements.

Moreover, the precision and flexibility of the remote-controlled demolition machine with the grapple attachment makes it easy to pick up and sort even small debris. Boltable grip plates facilitate picking and sorting, allowing operators to complete those tasks without switching attachments. ■

Website: [www.brokk.com](http://www.brokk.com)

## GOMACO

Gomaco has enhanced its bridge deck and flat slab finishing technology with the introduction of a new, high-production truss-mounted screed for paving bridge decks, flat slabs and floors. It allows contractors to economically finish city streets, concrete floors, bridge decks, tunnels and canals at widths up to 31.7 m. This new high-production screed can advance up to 1.2 m in a single pass, significantly reducing finishing time and providing savings on concrete delivery costs and total project labour. The screed features a 1.7-m-long leading auger with a high-production strike-off action that reduces the number of puddlers needed out front.

A 1.5-m-long finishing cylinder, directly behind the auger, compacts and finishes the concrete in a single pass. A 1.8 m trailing screed delivers the final finish to the surface of the concrete with a Gomaco designed vibratory system. The new screed with a patent-pending design for tilt and skew is mounted to the Gomaco C-450 truss system. The new mount is instrumental for the optional 3D package to finish to a 3D design model.

Gomaco's Xtreme line of concrete curb and gutter machines feature Xtreme steering capabilities with rotary-sensored slew drives on each track, Xtreme intelligence with smart hydraulic cylinders combined with G+ control, Xtreme hydraulic packages with independent hydraulic travel circuits to each track with G+ control on each individual track's



speed and smooth travel around radii, and Xtreme radius capabilities when paving with 3D guidance or stringline.

Two of the Xtreme models on display at Gomaco's booth were Xtreme GT-3600 and Commander IIIx. Capable of slipforming tight radii, they are curb and gutter machines contractors rely on for high-production, maximum quality curb and gutter, barrier, parapet, sidewalk, recreational path, small canal, water channel, and more, multi-application slipform machines.

Both the Xtreme GT-3600 and Commander IIIx can slipform a 610 mm radius. Rotary-sensored slew drives and smart hydraulic cylinders allow the G+ control system to know the position of

all three tracks of the curb and gutter machines to make as needed steering adjustments. Independent hydraulic travel circuits to each track allow G+ to control each track's speed through the radius. These machines are also equipped with the Gomaco three-sensor radius system when paving on stringline. The radius system allows the lead steering wand to leave the stringline and switch reference to the second sensor for travelling around the tight radius. The Xtreme turning capabilities also make them ideal for navigating around jobsite obstacles, getting on and off stringline and paving passes, and loading and unloading the machine for transport. ■

Website: [www.gomaco.com](http://www.gomaco.com)



TOP: Gomaco's new high-production, truss-mounted screed.

ABOVE AND LEFT: Gomaco Xtreme GT-3600 and Commander IIIx curb and gutter machines being showcased at World of Concrete.



# SOUTHEAST • ASIA CONSTRUCTION

Southeast Asia Construction (SEAC) is a trade magazine based in Singapore, published bi-monthly since 1994 and distributed to a qualified readership all over Asia. The magazine features various construction projects in the region and globally. It also covers the latest on construction equipment, materials, technology and management, as well as major regional and international trade shows.



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## SNORKEL

Designed to be robust and heavy duty, Snorkel's rough terrain models have a durable all-steel construction and are intended to be remanufactured. This is advantageous for contractors who purchase their lifts, rather than rent, as they can benefit from an extended working life.

Snorkel rough terrain telehandlers, including the SR5719, SR9244 and SR1054, feature full-time four-wheel drive for tackling rough terrain, and are equipped with power assisted steering for ease of manoeuvrability around the jobsite. Delivering high levels of operator comfort, the fully enclosed cab includes an adjustable suspension seat as standard, along with heat and air conditioning and proportional joystick controls.

The Snorkel S2755RT is an ultra-narrow compact rough terrain scissor lift that delivers excellent four-wheel drive performance yet can fit between buildings and in confined spaces with ease. Measuring just 1.45 m wide, the S2755RT can reach a working height of 10.1 m, has a platform capacity of 300 kg and weighs just 3,100 kg.

The Kubota diesel engine powered S2755RT is also available as a S2255RT with a working height of 8.5 m, and both models can be equipped with Snorkel's bi-energy system, that enables the lift to be operated on either the diesel engine or on zero emission battery power. The bi-energy system was on display at World of

Concrete on the 1.8-m-wide Snorkel S3970BE, which is the largest compact rough terrain scissor lift in the Snorkel family, reaching a working height of up to 13.8 m.

Alongside rough terrain telehandlers and scissor lifts, Snorkel displayed several rough terrain boom lifts. One of them was the 460SJ telescopic boom, which offers unrivalled rough terrain performance thanks to a traction manifold that delivers oil to all four wheels at all times, providing constant four-wheel drive. It can also tackle gradients of up to 50%, and features an oscillating axle as standard. Powered by a Deutz 2.9L 49hp Tier 4 Final diesel engine, the 460SJ can reach a working height of 16.0 m, a forward reach of up to 12.8 m and can lift a platform capacity of up to 272 kg.

Built for the toughest environments, the Snorkel AB60J articulated boom lift is able to withstand all types of jobsite conditions and deliver a long working life. Featuring a single riser boom design and a 1.8 m jib boom with a 75° working arc, the AB60J is highly manoeuvrable yet designed to be simple to operate and maintain. Equipped with powerful four-wheel drive, foam filled lug tyres and a Kubota V2403 65 hp diesel engine, the AB60J can reach a working height of up to 20.11 m and lift a platform capacity of up to 227 kg. ■

Website: [www.snorkellifts.com](http://www.snorkellifts.com)



Snorkel showcases its various machines at World of Concrete, including rough terrain telehandlers (above), the 460SJ telescopic boom lift (left), and rough terrain scissor lifts such as the compact S2755RT (below).



# LIEBHERR

Liebherr showcased its new 42 M5 XXT truck-mounted concrete pump at this year's World of Concrete. The machine features a compact design, making it suitable for use in restricted job sites. Equipped with a five piece multi-folding mast, it has an unfolding height of under 8.6 m and a vertical reach of 41.2 m.

The XXT outrigger support system offers high versatility in setting up the pump. It is safe and stable in any position, thanks to the direct load transfer. A redesigned rear end enables easy access to the pump for operation and maintenance. The 42 M5 XXT made its world debut last year at the bauma 2019 in Munich, Germany.

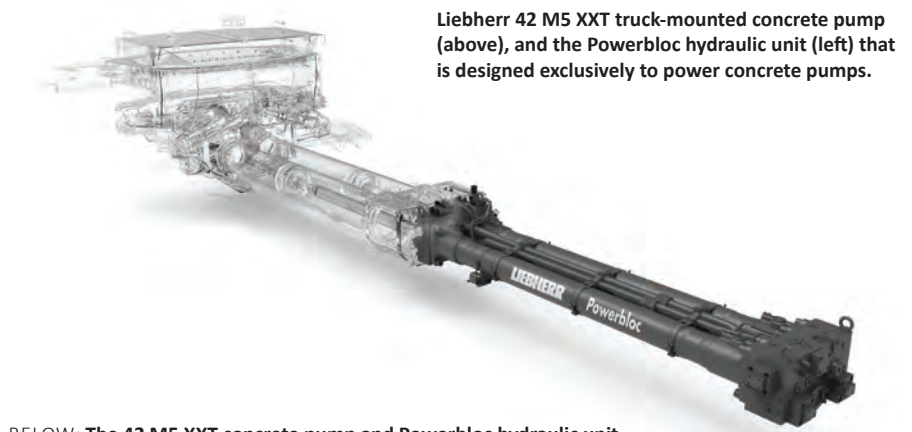
Liebherr also displayed its Powerbloc hydraulic unit at the World of Concrete, designed exclusively to power concrete pumps.

Most concrete pumps use alternating pistons that drive cups to move concrete through a boom and are used to pour the concrete in the desired location. The pistons, in turn, are connected to hydraulic cylinders that are powered with high pressure oil, which provides the energy to pump concrete.

Typical hydraulic systems are comprised of many components. Essentially, systems are either of an open or closed circuit design. Liebherr has typically used an open design on its concrete pumps, as this configuration is simple, reliable and powerful. However, this design takes up more space, requires more oil and weighs more. A closed circuit setup addresses these concerns but incorporates more components and is therefore more complex.

The Liebherr Powerbloc is a new drive unit for the pump system. With this new design, all hydraulic switching and measuring elements are completely integrated, which eliminates numerous hydraulic hoses and other parts. According to Liebherr, this is a unique drive unit in the concrete pump sector, as the Powerbloc is powered by a semi-closed hydraulic circuit, which supplies all drives with hydraulic energy. As a result of this new design, the oil volume is significantly reduced – but performance is not compromised. Although the system weighs less, it is smoother, more efficient, quiet and safe, meaning less wear and tear and longer equipment service life. ■

Website: [www.liebherr.com](http://www.liebherr.com)



Liebherr 42 M5 XXT truck-mounted concrete pump (above), and the Powerbloc hydraulic unit (left) that is designed exclusively to power concrete pumps.

BELOW: The 42 M5 XXT concrete pump and Powerbloc hydraulic unit being exhibited at World of Concrete.



## AQUAJET

Aquajet offers its farthest-reaching unit, the Aqua Cutter 710V hydrodemolition robot. It features an exceptional horizontal, vertical and overhead reach - as high as 7 m. The unit comes equipped with Aquajet's hallmark ceramic nozzles that last as much as 79% longer than standard steel versions. Its design makes it suitable for a wide variety of concrete removal tasks, such as renovation and bridge and road repair.

"We designed the Aqua Cutter 710V to give customers the ability to accomplish more work, even in hard to reach areas," said Roger Simonsson, Aquajet's managing director. "The robot's extended reach allows contractors to get at and remove concrete in areas other robots simply cannot." Operators can control the 710V from a safe distance using the unit's radio remote control, either wirelessly or with a hard wire. The remote communicates with the robot's wheeled power control module.

The 2,300-kg Aqua Cutter 710V uses 14,500- to 40,000-psi water jets to remove as much as 1 cu m/hr of concrete. Contractors adjust the robot's stroke to control the depth of cuts and vary the pressure of the water jet depending on whether they are removing loose, deteriorated concrete or lowering the sound concrete to a pre-determined depth. A valuable feature of hydrodemolition is that rebar is cleaned and descaled during the process, whereas alternative methods, such as pneumatic tools or milling machines, may damage the rebar or produce microfracturing in the remaining concrete.

Contractors use Aquajet's cutting head, extended reach and its multi-axis 3D positioning system to efficiently operate on all horizontal, vertical and overhead areas that would be difficult to get at with other equipment. This includes straight up and down work, such as renovating walls, shafts and furnaces. In addition, the 710V easily removes concrete in corners that would be difficult to access with hand tools. Aquajet constructs the 710V's steel mast in sections - an innovative design that gives the operator freedom to raise the front power head as high as 7 m - 3 m higher than the Aqua Cutter 410V - without additional support.

The 710V features an 18-kW diesel engine. Contractors can add an Aquajet Hybrid Kit, which easily attaches to a diesel-powered Aqua Cutter robot for electric operation in applications where diesel engines are not allowed, such as parking garages, inside buildings or in other urban environments. The kit uses an intelligent system to automatically disengage the onboard diesel engine.

Aqua Cutter robots' ceramic nozzles are specifically designed for demanding hydrodemolition applications. These highly efficient nozzles last 300-350 hours, depending on the water quality. Standard steel nozzles on competitive equipment typically have a lifetime of 20-40 hours.

All Aqua Cutter robots are equipped with Aquajet's Equal Distance System (EDS) - which keeps a preset distance from the nozzle to the concrete surface, regardless of the angle of the water jet, thus allowing for maximum efficiency and productivity. According to Aquajet, systems without EDS lose as much as 20% of the power before the water hits the concrete, greatly reducing productivity and increasing waste.

The 710V robot fits into Aquajet's 7-m Power Packs. The large metal containers include a high-pressure pump, large capacity diesel engine and control system, with a convenient storage area for the robot.



ABOVE: Aqua Cutter 710V hydrodemolition robot from Aquajet.

BELOW: The 710V on display at World of Concrete.



The hydrodemolition robot features ease of access for all maintenance, allowing for minimal downtime. The gullwing hood and foldable back cover of the Aqua Cutter robot provides total access for both daily maintenance, such as checking oil levels, as well as periodic service jobs, such as oil and filter changes.

The robot also comes in a larger version, the Aqua Cutter 710V XL. This 2,430-kg unit is 23% larger than the 710V, allowing for lower overall ground pressure and the ability to handle more reaction force.

The 710V and 710V XL are both compatible with Aquajet's line of accessories, such as rotolances and circular power heads, as well as spines and frames. ■

Website: [www.aquajet.com](http://www.aquajet.com)

## CURB ROLLER

Curb Roller Manufacturing introduced its Batt Screed 6000, a battery-powered roller screed. This lightweight and versatile unit operates with no cords, hoses or fumes, offering unparalleled mobility, precision and efficiency to contractors of all sizes.

The Batt Screed eliminates the hassle of working around a cord and the added weight of an engine mounted on the screed. The unit gets its power from a removable and rechargeable 60-V lithium ion DeWalt Flexvolt battery. One fully charged battery is estimated to screed off 167 - 232 sq m, depending on the slump and pipe length. By eliminating an auxiliary power source, the Batt Screed 6000 can be operated almost anywhere.

Unlike gas, electric and hydraulic roller screeds, the Batt Screed eliminates exhaust fumes, power cords and the need for hydraulic power sources, making it ideal for indoor operation or use in tight spaces. The Batt Screed is highly versatile, capable of performing jobs from 0.91- to 6.7-m with expandable tube inserts. This flexibility allows the unit to be used for both small and large jobs including bike trails, golf cart paths, garage pads, shed floors, grain bin pads and parking lots.

“Our Curb Roller team is continuously looking to lead the industry with products that make customers more profitable,” said Seth Ulmer, sales manager of Curb Roller Manufacturing. “We don’t design ‘me too’ products. We provide the tools that contractors want, with the features that allow them to get more jobs done.”

According to Curb Roller, the Batt Screed provides a consistently higher-quality finished product than vibrating screeds or screed boards. It eliminates the need for back-breaking work, providing an ideal solution for contractors who want to get more flatwork done in less time — all with a better, flatter finished product.

Because roller screeds spin the concrete into shape versus vibrating the concrete, larger aggregate, and more of it, remains near the surface of the slab, providing increased structural integrity. Conversely, vibrating screeds use vibration to form the concrete which often causes the aggregate to fall to the bottom of the slab, leaving the concrete more open to spalling.

With a lightweight design and a folding handle, the Batt Screed 6000 is easy to operate and transport. The smart and simple design includes an adjustable right- or left-hand speed control, variable speed in both high and low ranges, and a three-position handle that allows for a more ergonomic operation for operators. The multi-position handle gives operators more versatility when it comes to obstacles or limiting factors during a pour. For example, if a contractor is pouring a driveway, they can position the handle outward to allow them to walk outside of the forms.

The Batt Screed design includes a heavy-duty kickstand that enables the operator to leave the screed free-standing during a pour. Other screeds that don’t have this feature risk being set in wet concrete or dust, which can be detrimental to the operation of the machine. The kickstand increases the cleanliness and longevity of the unit.

The Batt Screed’s kickstand and handle fold and lock away for compact and lightweight transport without removing the battery, reducing the risk of broken parts during transport. The Batt Screed features strong connection points that help prevent unnecessary wear or breakage.

The single pin connection on both ends allows the operator to remove the pipe from the handles in less than 60 seconds.



ALL IMAGES: **The Batt Screed 6000 roller screed in action.**

The quick assembly and break down of the Batt Screed enhance productivity enabling contractors to complete more projects each day.

The Batt Screed’s premier all-steel housing protects the motor and electrical components inside from moisture, concrete and accidental impact, and an access door protects the battery from dirt and debris. ■

Website: [www.curbroller.com](http://www.curbroller.com)

## MB CRUSHER

Celebrating its eighth anniversary at World of Concrete, MB Crusher participated with a 223 sq m booth and hosted live demonstrations at the show - crushing down concrete slabs with its flagship attachment, the jaw crusher bucket.

MB Crusher displayed two of its attachments during the live demo, which are built to reduce, reuse, and recycle concrete products. They were mounted on a skid steer, reducing concrete blocks. The live demo showed how to easily create usable by-products from waste concrete, directly on site.

MB Crusher is one of the global leaders in the attachment industry. Striving to adapt to all circumstances faced in any job site, regardless of the segment, the company's attachments bring innovative solutions to workers in demolition, recycling, excavation, quarries and mines. The vast array of MB attachments include grapples, crusher buckets, screeners and drum cutters, giving its customer base a wide range of selections for any job. With a network that spreads over 150 countries through dealers and distribution systems, MB Crusher provides substantial availability to its attachments. ■

Website: [www.mbcruiser.com](http://www.mbcruiser.com)

BOTH IMAGES: **MB drum cutter (top right) and MB crusher bucket mounted on earthmoving machines. Both attachments are suitable for various applications, including demolition, recycling, excavation, quarrying and mining.**



## DEWALT

Dewalt's new 60V MAX 1-3/4-in SDS MAX combination hammer, the DCH614, features 10.5 joules and 380 rpm for fast and efficient drilling even in some of the hardest concrete. It has an optimised drilling range between 5/8-in and 1-1/4-in.

The DCH614 is part of the Dewalt Perform & Protect line of power tools, designed to provide a high level of one or more of the following: control, dust containment, or low vibration, without sacrificing performance. It includes Shocks Active Vibration Control system that reduces vibration felt by the user at the handles compared to rotary hammers without this feature.

An additional feature of this tool is constant speed control, which allows the tool to maintain rpm regardless of bit size or depth for speed of application. It also provides a variable speed dial for accurate hole starting and controlled chipping and demolition work. The DCH614 is Tool Connect tag-ready (tool tag sold separately). This hammer weighs 6.8 kg (tool only), is 52.578 cm in length, and offers 1,450 to 2,900 bpm (beats per minute).

The DCH614 incorporates wireless tool control, a feature found on some Dewalt dust extractors such as the Flexvolt 60V MAX dust extractor kit (DCV585). This allows the user to pair the extractor with the tool for remote activation. Such dust control solutions are designed to reduce silica dust exposure without compromising the performance. ■

Website: [www.dewalt.com](http://www.dewalt.com)



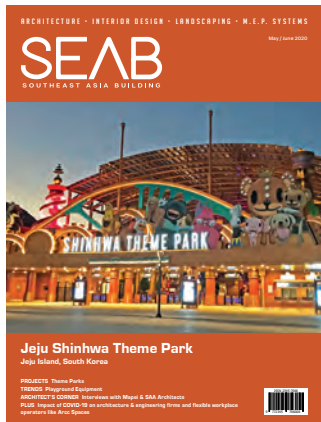
LEFT AND BELOW: **Dewalt's new hammer, the DCH614, features 10.5 joules and 380 rpm for fast and efficient drilling.**



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# ALLEN

Allen Engineering unveiled its new RP235 and RP245 polishing riders, designed with the high volume concrete polisher in mind. These new riding trowels are equipped with high rotor speeds to achieve high torque while polishing, and they also come with special dolly jacks that ensure transportation indoors can be done with ease, as well as allowing for quick change of polishing pads. Such designs are also built on Allen's popular edging riding trowel frame to allow contractors to get extremely close to the wall while polishing.

Standard features on both the RP235 and RP245 include: 180 rpm for high-speed burnishing or polishing; 18-kg propane bottle for longer lasting operating hours; 25-hp Kohler PCH740 propane engine; 26.5-l retardant tank to allow for more water application to the polishing process; two-point, top-mount lifting system; and four-point tie downs. The RP245 also has a power steering option for operator comfort. ■

Website: [www.alleneng.com](http://www.alleneng.com)



Allen RP235 riding trowel.

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