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CONSTRUCTION

JULY - AUGUST 2014



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Cambodia builds new integrated resort
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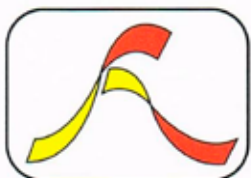
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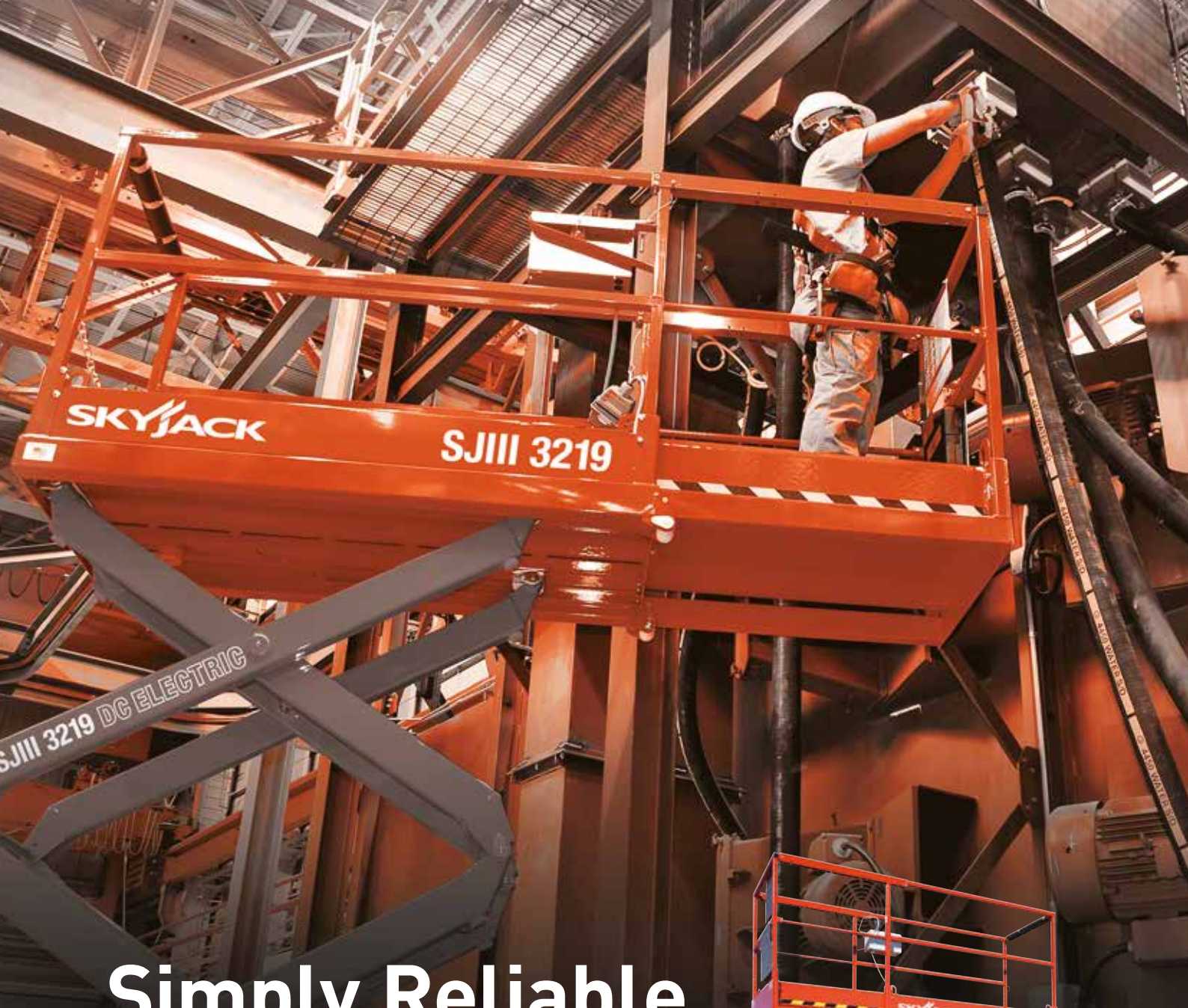
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Jul/aug 2014



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Construction of the Sungai Buloh-Kajang rail line
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**Cover designed by Fawzeeah
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SOUTHEAST ASIA CONSTRUCTION is published six times a year by:

Trade Link Media Pte Ltd. RCB Registration no: 199204277K
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 Website: www.tradelinkmedia.com.sg
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 The company is a member of Association of Equipment Manufacturers (AEM)

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): Europe/USA - S\$150; Japan, Australia and New Zealand - S\$150; Malaysia and Brunei - S\$80; Singapore - S\$40; Rest of Asia - S\$120 (Incl. 7% GST Reg.: M2-0108708-2).

Printed in Singapore by Kim Hup Lee Printing Co Pte Ltd.
 MCI (P) 089/06/2013 • ISSN 2345-7082 (Print) and ISSN 2345-7090 (E-periodical) • KDN No: 1560 (1271)-(6)

Clause: The Editor reserves the right to omit, amend or alter any press release submitted for publication. The publisher and the editor are unable to accept any liability for errors or omissions that may occur, although every effort has been taken to ensure that all information is correct at the time of going to press. No portion of this publication may be reproduced in whole or part without the written permission of the publisher.

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Aurecon expands Asia regional headquarters in Singapore

Global engineering consulting firm Aurecon has expanded its Asia regional headquarters in Singapore with the recent appointment of engineering experts across transport and property segments to lead intensive growth in the Asian region.

The expanded regional headquarters in Singapore will serve as a hub of specialist engineering expertise and knowledge that clients around Asia can leverage, particularly in the transport, property and infrastructure development segments. The regional headquarters will also drive business development efforts within Asia. With on-going projects stretching from China to Myanmar and Mauritius, Aurecon plans to invest and grow its Asian business over the next three years through organic growth and targeted mergers and acquisitions.

“Singapore offers an excellent investment environment – a strong talent pool of quality professionals, business-friendly eco-system, and strong connectivity with the fast-growing regional markets,” said Anthony Barry, Aurecon’s general manager for development & operations in Asia. “We are confident that the Singapore headquarters will offer more localised technical and advisory services as well as customer support. Our increased regional presence demonstrates

our long-term commitment to serving our clients here.” According to Aurecon, the expansion will have a positive impact on the company’s Singapore operations, which is on an accelerated growth track with plans to increase its headcount three times in five years so as to provide clients with a wider and deeper range of engineering advisory services.

“Underpinned by urbanisation and industrialisation, Asia requires continued infrastructural investments to sustain its growth. Singapore is well positioned to be Asia’s leading infrastructure hub, given our vibrant industry ecosystem comprising companies undertaking engineering services, project development and financial services. We welcome Aurecon and other industry leaders to leverage Singapore as a strategic control tower to capture growth opportunities and manage their projects in the region,” said Goh Chee Kiong, executive director of building & infrastructure solutions at Economic Development Board.

Aurecon said that setting up a regional headquarters in Singapore is part of a localisation drive that will see more Asians being placed in key business and support functions so as to better serve the needs of clients here. ■

LiuGong celebrates first dealership in Laos

LiuGong has officially launched its first, 2,000 sq m 4S store in Vientiane. The all-in-one store includes sales, service and parts centres, and a showroom that is aimed to better serve the customers in the area. The company said that it is the first Chinese construction machinery brand to enter Laos market.

The dealership with VK Auto started in December 2012. Since then, the two parties have worked closely to provide tough construction equipment and excellent aftersales services to Laotian customers. The efforts paid off with record-breaking sales in the country last year, said LiuGong, and VK Auto was awarded LiuGong’s ‘Outstanding New Distributor’ in the year of 2013. “LiuGong is excited to witness the fast growing business of VK Auto and congratulate them on the grand opening of the first 4S store in Laos,” said Li Dongchun, chairman of LiuGong Machinery Asia Pte Ltd.

This move is another new milestone for LiuGong’s sales network expansion in Southeast Asia and the Oceania region. The company currently has a total of 21 dealers and close to 80 sales and service outlets in the region. LiuGong is also believed to be the market bellwether for wheel loaders in Vietnam, Malaysia, Thailand, Cambodia and Philippines.



LiuGong has launched its first, 2,000 sq m 4S store in Vientiane.

“As a full line industry leader, LiuGong is committed to bringing world class products, backed by our full support on parts, services, training and comprehensive solutions to Laos for the long-term. We will continue to learn from our customers and respond quickly to their needs,” said Mr Li. ■

Leighton to build Segment 10 of North Luzon Expressway

Leighton Asia, India and Offshore has won a US\$201 million contract from Manila North Tollways Corporation (MNTC) to build Segment 10 of the North Luzon Expressway. The contract requires Leighton to construct 5.6 km of elevated highway in northwest Metro Manila linking the MacArthur Highway in Valenzuela City and C3 Road in Caloocan City near the port area. The project is expected to be completed in May 2016.

The highway link, to be constructed over the land reserved for the existing Philippine National Railways(PNR) rail line, includes the construction of foundations, substructure and superstructure of the elevated highway, together with surfacing and coordination of the construction of the traffic management systems. It also includes the construction of the toll buildings and associated infrastructure. ■

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‘Philippines and Myanmar offer growth potential’

While some of the construction industry has tempered in parts of Asia, construction spending growth in Indonesia and China will remain the strongest in the region but special attention should be made of the growth potential in the Philippines and Myanmar, according to the latest Asia Construction Outlook report published by AECOM and its Davis Langdon KPK group.

Asia Construction Outlook 2014 presents an overview of the construction market in Asia at the beginning of 2014. It reviews industry activity levels in 2013 and provides near- and longer-term forecasts for construction activity by region, country and city. The findings are based on an analysis of sector statistics combined with the results of market sentiment surveys undertaken by 68 AECOM construction experts across nine countries.

The analysis by AECOM and Davis Langdon KPK highlights six key trends: the residential sector in Asia appears to be gathering some momentum; respondents are slightly less optimistic regarding the future prospects for construction in Asia; Indonesia is the top-rated country in terms of potential construction spending growth in the

medium term; the Philippines (near-term) and Myanmar (medium-term) are identified as countries with potential for significant future growth in construction; upcoming parliamentary elections in Indonesia and India are expected to have a negative impact on near-term construction prospects in both countries; and a lack of investor confidence in Thailand is expected to affect construction spending in the near term.

“There is an increasing downside risk shown in our forecasts based on the level of credit availability in the region,” said Dato’ Sri Kandan, chairman of Davis Langdon KPK. It is believed that integrated planning, design and engineering solutions will be the key to advance the value of the project. As market pressures mount on projects’ financial viability due to higher costs and lower margins, innovation in procurement such as the Integrated Project Delivery process should be considered. “This, coupled with the principles of Lean, such as improving quality and productivity, would seek to deliver maximum value to the owner, reduce waste and maximise efficiency through all phases of design and construction.” ■

Sandvik has new distributors in Indonesia and Philippines

Sandvik Construction has appointed PT Kasana Teknindo Gemilang as its new distributor for Rammer and Bretec in Indonesia. PT Kasana Teknindo Gemilang will not only be supplying a comprehensive range of Rammer and Bretec products, but also be providing full aftermarket care, spare parts and customer service.

PT Kasana Teknindo Gemilang has offices, workshops and service engineers throughout Indonesia. And if necessary, the company will be able to call on round the clock support from Sandvik Construction’s regional office located in Jakarta.

“We are sure that the combination of Sandvik equipment and global aftermarket support, together with the local knowledge and industry expertise of PT Kasana Teknindo Gemilang, will enable Sandvik

customers throughout the area to benefit from a winning combination,” said Herbert Buder, global distributor manager for Sandvik Construction.

In addition, First Nitro has been appointed as Sandvik Construction’s distributor for surface drilling products in the Philippines. Apart from supplying the machines, the company will also be providing full aftermarket care, spare parts and customer service. ■

Above right: PT Kasana Teknindo Gemilang is now Sandvik Construction’s distributor for Rammer and Bretec in Indonesia.

Right: First Nitro has been appointed as Sandvik Construction’s distributor for surface drilling products in the Philippines.



Sany sales hits new high in Asia Pacific

Sany Asia Pacific recently announced that its annual sales exceeded RMB1.8 billion in 2013. The company said its sales has multiplied by six times in the last five years.

According to Sany, some key markets in Asia Pacific include Thailand, Indonesia, Australia, Myanmar, Vietnam and Singapore. The company said its truck cranes are very popular in the region with high market share.

Sany products have been used in various projects across the region such as airport, infrastructure, power stations and residential developments, in countries including Thailand, Cambodia, Indonesia, Vietnam, Australia, Malaysia and the Philippines. ■





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Volvo CE dealer invests US\$6 mil in new Indonesia facility

Volvo Construction Equipment's regional dealer, PT Indotruck Utama (ITU), has invested US\$6 million in a new sales and aftermarket facility in Palembang, South Sumatra. It is said to be ITU's largest site covering 1.2 ha, which houses a components and parts warehouse, a body works and paint facility as well as improved on-site service support.

The strategically located branch allows customers easy access to benefit from Volvo support seven days a week. It will serve Volvo Group customers in the construction, mining, forestry, cement and industrial sectors across South Sumatra.

The facility will be staffed by 40 highly qualified sales professionals and service technicians, said ITU. The company now anticipates a significant increase in sales by 2015, thanks to the addition of the Palembang branch to its existing branches in Medan, Pekanbaru, Jambi and Bengkulu. ITU became the official dealer for Volvo Construction Equipment in 2011 to serve customers in Sumatra, Java, Nusa Tenggara and Papua.

"The investment ITU has made in this new facility is an excellent example of its commitment to growing the Volvo Construction Equipment and Volvo Trucks business in Sumatra, Java and Papua," said Mark Gabel, managing director of PT Volvo Indonesia. "To



Volvo CE dealer PT Indotruck Utama has opened a new sales and aftermarket facility in Palembang.

support ITU, PT Volvo Indonesia will be deploying one of our own business managers in Palembang to offer on-the-ground support and help with growth activities." ■

Volvo CE introduces safety award in Malaysia

Volvo CE, in cooperation with the Malaysia Quarries Association (MQA), has launched its first safety award programme to recognise companies in the Malaysian quarrying industry that have made a strong contribution towards improving the safety of their employees and work practices.

The inaugural Volvo Safety Award ceremony recently took place during the MQA's annual dinner in Kuala Lumpur. Winner of the first prize was Lafarge Aggregates, which has demonstrated how a remote greasing functionality on its crushers, mixers and conveyers has helped to eliminate dangerous elements in daily operations. Lafarge Aggregates' quarry manager, Srinivasan Kathiresan, was also invited to Sweden to visit Volvo CE's facilities and to find out more about how Volvo CE works with safety issues.

"Each accident is a tragedy and it is extremely frustrating to know that these



Lafarge Aggregates won the first prize at the 2014 Volvo Safety Award.

accidents could be prevented with a more structured workplace and a different mindset," said Brandon Ross, business director at Volvo CE in Malaysia. "We have received a lot of positive feedback from this initiative and we look forward to working with the MQA on this awards programme in the coming years, as it clearly highlights safety as an integral part of a quarry's operations." ■

Philippines' new mall opens



The new Century City Mall in Makati City, the Philippines, recently opened to the public. Broadway Malyan delivered an integrated package of design services covering architecture, interior and landscape design to wayfinding, on the 17,000 sq m retail centre.

The mall is one of several buildings that Broadway Malyan has designed and which are now being built as part of the landmark mixed-use Century City scheme developed by Century Properties in Makati City. ■

ADB and Japan boost public-private partnerships in Philippines

The Asian Development Bank (ADB) and the government of Japan will offer a technical assistance of US\$2 million to help the government of the Philippines strengthen its appraisal process for public-private partnerships (PPPs) as the country's pipeline of projects grows.

The pipeline of PPP projects in the Philippines grew from 11 projects in November 2011 to 51 in January 2014, according to ADB. Projects including four expressways, two classrooms, one light rail,

and one hospital have been awarded, with an estimated investment value of US\$3.4 billion.

In 2013, the government announced its intention to increase public infrastructure investments to 5 percent of GDP in 2016. Six PPP projects, also worth US\$3.4 billion, are currently at the bidding stage, with another four projects worth US\$1.4 billion undergoing government approval. Another 20 projects are under preparation and 13 under conceptualisation. ■



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TY Lin awarded contract for Circle Line (Stage 6) Depot

TY Lin International has been awarded the architectural and engineering consultancy services contract for Singapore's proposed Mass Rapid Transit (MRT) Circle Line (Stage 6) Depot. As the lead consultant, TY Lin will provide the design of the depot as well as construction support for the Land Transport Authority (LTA).

The Circle Line (Stage 6) Depot project involves designing an extension to the existing underground Kim Chuan Depot, which serves both the Circle and Downtown MRT Lines in Singapore. The existing depot is about 1,080,000 sq ft, fully underground with capacity for stabling 77 trains, and provides train maintenance, operational control and administrative facilities.

Upon completion, the overall extended depot footprint will be approximately double its current size and have the capacity for stabling and maintenance of 130 trains. With the extension, Kim Chuan Depot is set to be one of the largest, fully underground MRT depots in the world.

For the Circle Line (Stage 6) Depot project, TY Lin will direct the delivery of an integrated design for the depot facility by coordinating and managing the delivery of the rail system, including all civil, structural, mechanical and electrical engineering, and architectural design requirements. The company's scope of work includes project management; civil, structural, geotechnical, mechanical and electrical services design; contract packaging; and preparation of specifications and documentation for the main civil contract, as well as construction coordination and support and risk management services. The project is scheduled for completion in 2025. ■



TY Lin will provide the architectural and engineering consultancy services for the Singapore MRT Circle Line (Stage 6) Depot.

Terex Cranes strengthens in SE Asia

Terex Cranes has opened a new product support centre in Singapore and appointed Bradley M. Abrahams as its sales and customer support leader for Southeast Asia.

The new centre is led by Mr Abrahams and aimed specifically to support Terex Cranes distributors and key customers in the Southeast Asia region. Mr Abrahams has extensive experience in the construction equipment industry as well as in developing overseas branches. Among other positions, he worked as sales director for Terex Aerial Work Platforms and general manager for Terex Equipment Middle East between 2006 and 2010. "Having had experience in leading customer responsive teams in overseas branches, I am confident that with the team and resources we have in Southeast Asia, we will be able to deliver first class responsiveness," said Mr Abrahams.

Terex said the new centre will employ highly experienced and diverse team of service technicians with the objective of proactively approaching distributors in the region and support them with training, technical support and parts fulfillment for the whole Terex Cranes product range. Located strategically in the southwestern area of Singapore, close to some of the largest lifting contractors in Asia and Singapore's future new port location, Terex Cranes shares the facility with three other Terex business segments: Aerial Work Platforms, Construction, and Material Handling and Port Solutions. This not only allows Terex to be more responsive to customers, but also leverages the capabilities across business segments.

In 2013, Terex Cranes announced a transition towards a regional based organisation, with the objective of becoming easier to do business with and being closer to customers. The new structure gives its customers the opportunity to contact dedicated local team members to assist with both the purchase and the support for all the product lines from Terex Cranes. ■



Terex Cranes has opened a new product support centre in Singapore and appointed Bradley M. Abrahams (third from right) as its sales and customer support leader for Southeast Asia.

IMER ORU joins Thailand MRT project

IMER Group subsidiary IMER ORU has secured a contract for the Thailand MRT project, which is currently under construction in Bangkok. The company will design, automate and supply a complete concrete system from the concrete batching plant to the concrete segment mould and for girder that spans over 35 m in length in the outdoor casting yard. ■



Left and right: A system similar to the IMER ORU system for the Thailand MRT project.

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Hyundai Cummins Engine completes earthmover engine factory

Hyundai Cummins Engine Company, a joint venture between Hyundai Heavy Industries (HHI) and Cummins, has completed its 78,045 sq m engine factory for earthmovers in Daegu, South Korea.

In September 2012, HHI and Cummins closed an agreement to establish the engine factory capable of producing 50,000 diesel engines each year with an investment of KRW100 billion. Hyundai Cummins Engine Company aims to achieve an annual sales of US\$500 million by 2020, and is expected to create about 3,700 direct and indirect jobs in the region by 2020. The establishment of the joint engine factory is expected to give HHI's Construction Equipment Division a stable supply of high-quality engines that are essential for improving the performance and quality of its construction equipment. ■



Aerial view of Hyundai Cummins Engine Company.

BASF and Sinopec to build new production plant for Neopentylglycol in Nanjing

BASF and Sinopec plan to build a new world-scale production plant for Neopentylglycol (NPG) at their Verbund site, BASF-YPC Co Ltd, a joint venture in Nanjing, China. The facility, with a total annual capacity of about 40,000 metric tons is planned to go on stream at the end of 2015. The new NPG plant will benefit from backward integration into the Nanjing Verbund site, allowing high delivery reliability and maximising efficient use of energy and resources, said BASF.

NPG is a unique polyalcohol offering excellent performance in many end-use applications such as construction, coatings and textiles

due to its high chemical and thermal stability. It is mainly used as a building block in polyester resins for coatings, unsaturated polyester and alkyd resins, lubricants and plasticisers. BASF currently has NPG production facilities in Ludwigshafen, Germany; Freeport, USA; and Jilin, China. "With this new plant, we are responding to our customers' growing demand for high quality neopentylglycol, especially in the Asia Pacific region, and at the same time strengthening our position as the global leading supplier of NPG," said Sanjeev Gandhi, president of BASF Intermediates division. ■

Herrenknecht TBMs for Wuhan tunnel



Herrenknecht has signed a contract to deliver two tunnel boring machines (TBMs) for a large multifunctional tunnel in Wuhan, central China. Wuhan's metro network is being extended from three to seven lines, from the current 73 km to 215 km in length.

The two Herrenknecht Mixshields with an excavation diameter of 15.76 m will cross under the Yangtze River in Wuhan and create a twin-bore, double-decker tunnel. A three-lane road will run on the upper deck, with metro line 7 below.

The 2,590 m long tunnel alignment runs up to 39.5 m below the water surface in extremely complex soil; a high water pressure of 5.3 bar must be dealt with. In addition, the tunnel runs through varying geological formations, partly sand and clay, and partly a mixed geology with mudstone, conglomerates and sand. ■

Dingli AMWP11.5-8100 goes to Turkey

Chinese manufacturer Dingli has delivered the first 11.5 m AMWP11.5-8100 mast boom lift to its Turkish dealer Mak-Ser Makina. The machine is equipped with a standard automatic pothole device and touch screen system. Dingli said the company has also delivered a further 35 units of the AMWP11.5-8100 to customers in Australia, Finland, France, the UK, Netherlands, Russia and New Zealand, as well as to its other dealers.

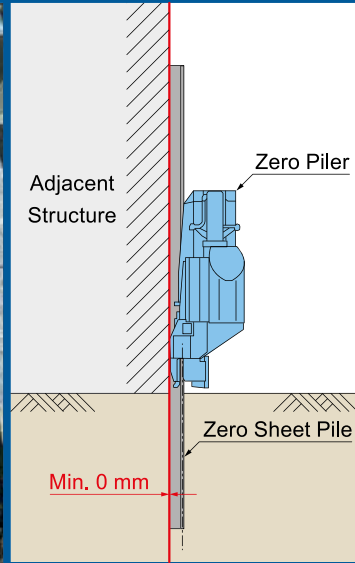
In addition, Dingli has introduced the new AMWP10-8100, which has a working height of 10 m, to meet various customer needs. ■



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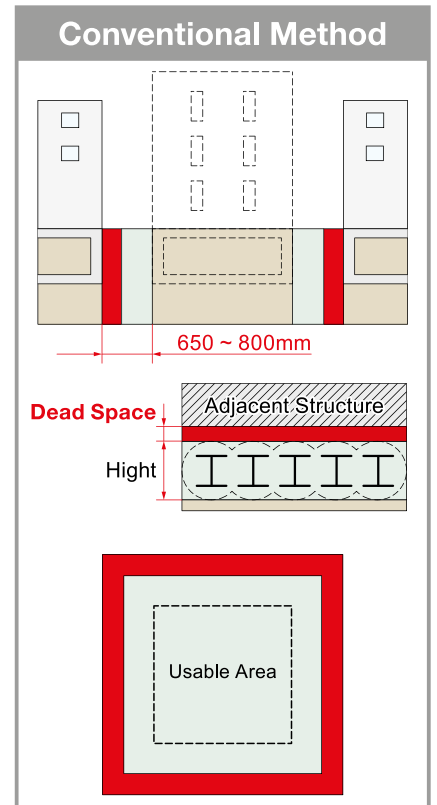
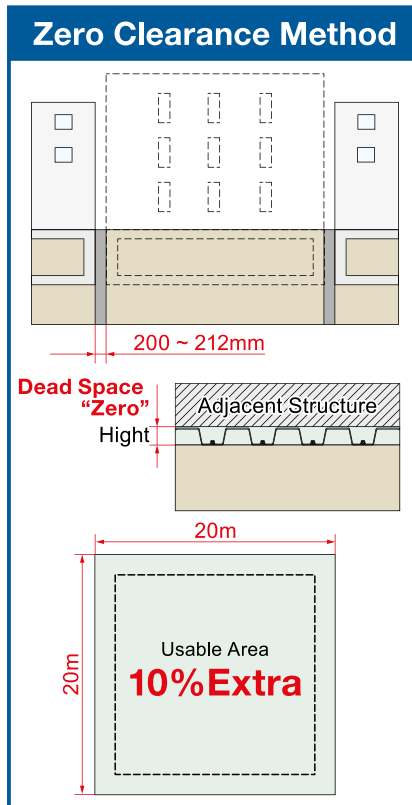


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Atkins strengthens with major contract and strategic collaboration

Atkins has been selected to project manage the implementation of key elements of the West Kowloon Cultural District (WKCD) in Hong Kong. Stretching across 40 ha of reclaimed land, the WKCD will create a vibrant cultural quarter and when completed, it will feature 23 ha of public open space with 2 km of vibrant harbour-front promenade. It will also include a variety of arts and cultural facilities that will produce and host world-class exhibitions, performances and arts and cultural events.

Atkins will provide support to the West Kowloon Cultural District Authority's executive management team in managing and delivering the project and will be responsible for project management of the implementation of M+, Hong Kong's new museum for visual culture, the Conservation and Storage Facility, Lyric Theatre, District Cooling System and Common Basement Phase I. The work was planned to start in April 2014 and is set to take five years to complete.

Strategic cooperation with CCCC and CHEC

Atkins and China Communications Construction Company Ltd (CCCC) have signed a Memorandum of Understanding (MoU) for a global strategic cooperation. Atkins has also signed a global cooperation agreement with China Harbour Engineering Company Ltd (CHEC), a subsidiary of CCCC, to foster their strategic partnership.

"CCCC is committed to further grow our business abroad, according to our mission of 'consolidating foundations and building roads' and the vision of 'unblocking the world'. Having a strategic partner who can bring in world-class consultancy, knowledge and experiences will help us achieve our business growth abroad and bring synergy for both parties to unlock more opportunities," said Sun Ziyu, vice president of CCCC.



© Herzog & de Meuron and West Kowloon Cultural District Authority



Above: The M+ museum at West Kowloon Cultural District.

Left: Atkins has signed agreements with both CCCC and CHEC for a global strategic cooperation.

Mo Wenhe, chairman of CHEC added, "CHEC has over 10,000 domestic and international employees, undertaking US\$10 billion worth of projects and continues to strive for further growth. The cooperation with Atkins is vital for us to maintain our leading position as an international contractor and gain more competitiveness in the global market." According to Atkins, in-depth discussions between the parties about concrete projects have already started. ■

Volvo CE opens test and development centre in South Korea

Volvo Construction Equipment (Volvo CE) has built a new test and development centre in Hapcheon, Korea. The new facility, which doubles the company's excavator testing capacity in Korea, includes an all-weather test dome, reliability and noise test field, workshops, various complete machine performance test areas and a customer clinic. According to Volvo, engineers at the 253,515 sq m site will focus on excavator product development, advanced engineering and product maintenance.

"Over the last few years we have increased the number of excavator projects and it became apparent that we needed to expand our facilities to accommodate our testing requirements," said Anders P. Larsson, executive vice president of Volvo CE's Technology function. "This important investment of approximately SEK 90 million allows us to expand our excavator R&D capability here in Korea, test more machines locally, improve our product development process and reduce lead times."

The new test and development centre in the Gyeongsang province is 92 km from Volvo CE's existing R&D facility in Changwon,



further establishing the area as the company's global R&D excavator hub. "Volvo CE specifically chose to invest in Korea close to our Changwon site," said Mr Larsson. "Excavators are a key product for Volvo CE and our customers have a high regard for the fuel efficiency, performance and reliability of our machines. The opening of this advanced test and development centre underlines Volvo CE's commitment to the Korean construction equipment market, as well as our confidence in Korean engineering."

The new test and development centre is Volvo CE's 12th Technology site. Earlier this year in March, the company officially opened the Jinan Technology Centre in Shangdong province, China. ■



Top: The new Volvo CE Test and Development Centre includes an all-weather test dome, reliability and noise test field, workshops, various complete machine performance test areas and a customer clinic.

Above: Anders P. Larsson, EVP of Volvo CE's Technology function.

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Guangxi Cummins-powered wheel loaders ready for exports

LiuGong is set to deliver its wheel loaders equipped with the new Guangxi Cummins L9.3 engine to the overseas market, marking a new chapter in LiuGong and Cummins' long-term relationship. According to LiuGong, the ZL50CN, 855N, 856 and all other LiuGong Tier II 5 t wheel loaders are the first to be fitted with the L9.3 engine. The company said the machines have been tested and running in the Chinese domestic market for more than a year.

The L9.3 engine is designed for the wheel loader market and optimised for 5 t bucket capacity. It is built at Guangxi Cummins' manufacturing facility to meet the various demands from both Chinese and international markets.

Guangxi Cummins is a joint venture of LiuGong Machinery and Cummins, founded in Liuzhou in 2011. The JV focuses on designing and producing engines that are fully localised for construction equipment in developing and emerging markets. It officially started operations in 2013 and volume is planned to reach 50,000 units with the capability to expand in the future. ■



Above: The LiuGong 856 is one of the first wheel loaders powered by the new L9.3 engine.

Left: The L9.3 engine is designed for the wheel loader market and optimised for 5 t bucket capacity.

LiuGong launches new subsidiary in Hong Kong

LiuGong has also established a new subsidiary in Hong Kong, which is to improve the company's expansion in overseas markets and help with long-term stable growth. It is also an important step for LiuGong to optimise overseas capital management, achieving its commitment of improving business value chain, foreign exchange and financial leasing management.

"Capital operation is critical during the whole process of LiuGong's globalisation," said Zeng Guang'an, chairman of LiuGong Machinery. "We should pay more attention on tax, financing, foreign exchange management for better development of our overseas market. Located at the centre of the Asia Pacific region, Hong Kong has a sound legal system and an excellent free trade market. We believe the establishment of LiuGong Machinery Hong Kong Co Ltd will play an increasingly important role in our overseas expansion."

LiuGong now has 10 subsidiaries, seven spare parts depots and two overseas manufacturing operations around the world. The company also has over 320 overseas dealers across 130 countries and regions with more than 30 percent revenue from the market. ■



LiuGong's new Hong Kong subsidiary is intended to improve the company's expansion in overseas markets and help with long-term stable growth.

Cargotec inaugurates Sinotruk Hiab (Shandong) Equipment

Sinotruk Hiab (Shandong) Equipment Co Ltd, a joint venture of Cargotec's business area Hiab and China National Heavy Duty Truck Group Co Ltd, recently celebrated its opening in TaiAn Shandong province in China. Cargotec's ownership in the joint venture is 50 percent. The joint venture was established in November 2013.

"Sinotruk's leading position in the Chinese truck market, together with Hiab's deep knowledge in load handling equipment forms an excellent product and technology match that will offer unique customer advantages. For the first time ever we will be able to deliver

dedicated chassis that are designed with integrated cranes ready for lifting purposes," said Cargotec's vice chairman of the board, Tapio Hakakari.

Sinotruk's extensive network including dealers and service stations all over in China will be used by the joint venture for the distribution, sales and services of Hiab's cranes and hooklifts. The joint venture is expected to become a significant player in the loader crane complete vehicle and truck crane business in the future, particularly in China. ■

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Herrenknecht teams up with MineARC for Doha metro project

TBM manufacturer Herrenknecht will be working on the third of four sections that will make up Phase 1 of the Doha metro project in Qatar. The company will supply 15 tunnel boring machines (TBMs) for the three sections awarded thus far, of which 11 will be fitted with custom-engineered MineARC emergency refuge chambers, providing an immediate safe-haven for workers requiring shelter in the event of a fire, a fall of ground or similar emergency.

TBM excavation was imperative to the Doha Metro project, thereby minimising any interference to the day-to-day lives of people working and living in Doha. A large percentage of work will be completed underground, with only one point of entry. This fact alone highlighted the importance of having refuge chambers on board the TBMs, offering a second means of safe-egress to personnel in the event of an emergency, said MineARC.

Each of the 11 MineARC refuge chambers can shelter up to 20 people for a minimum of 30 hours and features a number of important life support systems, including; primary and secondary oxygen supplies and a carbon monoxide/carbon dioxide scrubbing system to regenerate the air - removing the harmful chemicals as they build up, thanks to the occupants own breathing activity.

It is also vital that each chamber maintains positive internal pressure at all times, effectively sealing the chamber by preventing the ingress of potentially compromised air from the outside. Each refuge chamber therefore features an automatic overpressure system. Special sensors constantly monitor the relative pressure both inside and outside the refuge chamber, and relay this information to the chamber's internal air systems. Based on the readings, a precise amount of air is periodically released into the refuge chamber, ensuring positive internal air pressure of at least 200 pascals above outside air pressure, at all times.

All of these vital safety features ensure the chambers meet the latest industry safety legislation pertaining to refuge chambers. This includes the current British Standard and the 2014 ITA Guidelines for the Provision of Refuge Chambers in Tunnels under Construction.

Phase 1 of the Doha metro project is due for completion in 2018, and consists of four newly constructed sections: the 11 km twin-running underground section of Red Line North, the 16 km twin-running underground section of Green Line, the recently awarded 13.8 km twin-running underground section of Red Line South, and the 13 km twin-



MineARC's renderings of the Doha TBM model (internal).



Inside a MineARC refuge chamber.

running tunnel of the Gold Line, the contract for which is expected to be awarded later this year.

Future scope for the metro project includes the 17.5 km underground section of the semicircular Blue Line that will link Airport City and West Bay Central and the extension of the Green Line, which are both yet to get underway. ■

Mott MacDonald designs Bangalore Metro line extensions

Mott MacDonald has been commissioned to provide detailed engineering and architectural services to Bangalore Metro Rail Corporation Ltd during the second phase of the Bangalore Metro rail project in India.

Mott MacDonald is providing the detailed design of the east-west corridor (Reach 1) extension from Byappanahalli to Whitefield via International Tech Park, connecting the eastern part of the city. It consists of 16 km of viaduct, 13 new elevated stations and a new intermodal transit hub at Baiyappanahalli. The company is also designing the 6.3 km elevated viaduct in the extension of the north-south corridor (Reach 4A) from Puttenahalli Cross to Anjanapura Township, including five elevated stations.

“Our work on the second phase of this prestigious project builds on our phase one role as detailed design consultant for Reaches 3B, 4 and 4A. We’re designing five underground stations, including the Majestic interchange station, as well as providing mechanical, electrical and public health engineering services for a sixth underground station,” said S. Pramod Kumar, Mott MacDonald’s project director. “When the transport system is finished, it will be capable of carrying 1.5 million passengers per day and reduce journey times across the city. It is also expected to cut traffic congestion and fuel use, minimising both carbon emissions and road accidents.”

The Reach 4A extension is set to be completed in 2017, with the Reach 1 extension due to be finished by the end of the same year. ■

Vinci secures Qatar motorway contract

The joint venture comprising lead company QDVC, a 51 percent Qatari Diar, 49 percent Vinci Construction Grands Projets subsidiary, and Qatari Bin Omran Trading & Contracting has been awarded the second phase of a new motorway (New Orbital Highway) on the outskirts of Doha in Qatar.

The €850 million contract covers the design and construction of 47 km of motorway, six viaducts, 17 bridges and underpasses, and a 320-m cut-and-cover tunnel. This motorway section will have a

five-lane dual carriageway for light vehicles and two truck lanes in each direction. Work was planned to commence in May 2014 and is expected to take 36 months to complete.

The new highway, which is nearly 200 km long, will connect the new port of the Qatari capital with Ras Laffan, the gas-producing industrial city in the north of the country. The highway will bypass Doha and relieve current traffic congestion while preparing to accommodate projected road traffic increases. ■

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Bilfinger wins tunnel and power plant projects in Europe

Bilfinger has won a contract in the Norwegian city of Stavanger for the construction of Eiganes Tunnel, which is designed to significantly reduce the volume of traffic in the city core. In the future, the European Route 39, one of the main traffic arteries on Norway's southwest coast, will pass through the new tunnel. The project has a total value of €230 million. It will be carried out by a joint venture in which Bilfinger holds a 60 percent stake and the Norwegian company Stangeland 40 percent.

Work on the approximately 5 km long twin tube tunnel includes construction of several access ramps as well as further connector tunnels. A 2.5-km long new motorway section will also be built, as will bicycle and pedestrian paths. Bilfinger's partner, Stangeland, will assume responsibility for earthworks and road construction.

The project is planned for completion in 2018. In addition to relieving traffic pressure in Stavanger, the Eiganes Tunnel will provide an improved inner city connection to the existing Ryfas Tunnel, an important transport link in southwest Norway.

In Poland, Bilfinger has received an order from plant contractor Rafako for the design of a new power plant unit in Jaworzno. The company assumes responsibility for complete plant design, basic and detail engineering, project management and the tender for plant technology. The order has a volume of approximately €20 million. This new, highly modern plant unit will have an electrical output of 910 MW and a net efficiency of 45.91 percent. The planned coal firing is equipped with modern flue gas desulfurization systems, which help to securely maintain European emission limits for NOx, SO2 and dust emissions.



© Bilfinger

The Eiganes Tunnel in Norway is designed to significantly reduce the volume of traffic in the city core.

Bilfinger has also secured an approximately €60 million order for the modernisation of a thermal power plant in the Polish city of Lodz. With the installation of two steam generators with low-emission firing systems, it will be possible in future to comply with the stipulated EU emission limits. Work started in March 2014 and is expected to last for two years. Besides design and engineering, services also include delivery, assembly and commissioning of the plant components. As a result of the upgrade, plant availability increases and the service life again reaches the level of a newly constructed power plant. ■

Liebherr to invest over CHF200 million at Bulle plant

The Liebherr Group plans to invest more than CHF200 million in its development and production site in Bulle, Switzerland. Significant capacity expansion in the fields of diesel engines and fuel injection systems is expected to make further growth possible for the company Liebherr Machines Bulle SA.

Liebherr develops and produces diesel and gas engines, fuel injection systems, hydraulic components and splitter boxes in Bulle. These are employed partly in machines and equipment manufactured by the Liebherr Group, but are also increasingly in demand by customers outside the Group.

On the one hand, the assembly capacity for diesel engines will be substantially increased. On the other hand, the area used for engine test benches will be made substantially larger and will cover more than 14,000 sq m in the future. This allows for a further strengthening of development activities. New machines in the area of production will not only increase capacity, but also make it possible to expand the range of parts. That is the basis for the further expansion of the engine range at Liebherr Machines Bulle, which currently covers six basic engines from the four-cylinder inline engine to the 12-cylinder V-engine.

Production of common rail fuel injection systems, which have been manufactured in Bulle since 2012, will also be increased to more than 100,000 units per year. Liebherr will thus create the necessary preconditions for increasingly and reliably supplying to external customers. The new factory section for the development and production of fuel injection systems will cover an area of 9,000 sq m and is due to be opened in 2016. The building will be spatially separate from the engine and hydraulics production and will feature highly automated assembly lines and quality assurance systems in line with automotive industry standards. The planned expansion



A completely new building, due for completion in 2016, is planned for the development and production of common rail fuel injection systems.

of the precision parts production facilities will mean a significant increase in the depth of production in the field of common rail systems and bring with it a high degree of availability.

The modernisation of the service and logistics infrastructure with a new warehouse and logistics centre, and the expansion of the training centre will benefit all parts of the site. These measures will also mean a reorganisation of the processes and material flows, which should bring about a substantial increase in productivity with reduced space requirements.

With this investment, Liebherr is securing the long-term existence of the Bulle plant and the creation of new jobs. Most of them will be for qualified skilled workers in production, but many will also be for highly qualified engineers and specialists, for whom additional new offices will be created, said Liebherr. ■

McCloskey appoints new dealer in Mexico

Screening and crushing equipment manufacturer McCloskey International has appointed Maquineria SA (MAQSA) as its dealer in Mexico. According to McCloskey, MAQSA has already finalised deals with customers in the region. "Having MAQSA on board will further strengthen our distribution network globally. Mexico presents some unique and exciting possibilities that we anticipate will contribute to our growth in the marketplace," said John O'Neill, vice president of marketing and sales for McCloskey International. "MAQSA has excellent relationships with customers in the mining and construction industries, and working together will benefit not only our companies but - more importantly - their customers."

Maquineria SA serves a number of private and government customers in the region, across industries including mining, construction and agriculture. "In the next five years, we anticipate growth in the mining and construction sectors. We wanted to add crushers and screeners to our equipment line-up, and chose McCloskey for its quality and reliability," said Rito Ruiz of Maquineria SA. The company has over 60 years of experience in the field of heavy machinery in Mexico. It has branches throughout the state of Chihuahua (Delicias, Parral, Ocampo, Nuevo Casas Grandes, Cuauhtémoc, Juárez and Chihuahua) and the state of Durango (Gómez Palacio and Durango), and also covers the Laguna region and North Zacatecas. ■

Foster + Partners to design First and Mission Towers in US

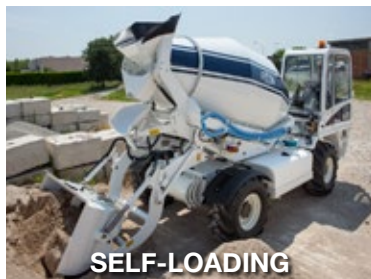
In a joint venture, TMG Partners, one of the San Francisco Bay Area's largest mixed-use property developers, and Northwood Investors LLC, a privately-held global real estate investment firm, have appointed Foster + Partners and Heller Manus Architects as architects for the approximately 2 mil sq ft mixed-use development in San Francisco, USA.

The First and Mission project comprises two towers with 1.35 mil sq ft of office/commercial space and 650,000 sq ft of residential units, and is situated in the Transbay Area. This is the first residential and mixed-use project in San Francisco for Foster + Partners.

Under the Transbay Plan, a rezoning that was put in place to encourage density around the Transbay Terminal, the seven parcels at First and Mission are now zoned for an 850-ft tower and a 605-ft tower. The project will include a large floor plate office tower with frontage on First Street and a world class condominium portion that is planned to be taller than any residential project on the West Coast. ■



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Date	Events in Asia	Organiser & Contact
16 to 19 Jul 2014	OneBuild 2014 Putra World Trade Centre Kuala Lumpur Malaysia	One International Exhibition Sdn Bhd Tel: +603 8943 7488, Fax: +603 8943 7599 Email: info@oneinternational.com.my Website: www.oneinternational.com.my
10 to 12 Sept 2014	Cambuild 2014 Diamond Island Exhibition & Convention Centre Phnom Penh Cambodia	AMB Events Sdn Bhd Tel: +603 4041 9889, Fax: +603 2770 5301 Email: richard@ambexpo.com Website: www.expocambodia.com
11 to 14 Sept 2014	OneBuild@JB 2014 Danga City Mall, Johor Bahru Johor Malaysia	One International Exhibition Sdn Bhd Tel: +603 8943 7488, Fax: +603 8943 7599 Email: info@oneinternational.com.my Website: www.oneinternational.com.my
11 to 13 Sept 2014	The Big 5 Construct India 2014 Bombay Exhibition Centre Mumbai India	FICCI Tel: +91 9818 724323 Email: info@thebig5constructindia.com Website: www.thebig5constructindia.com
18 to 20 Sept 2014	Concrete Expo Asia 2014 Impact Exhibition & Convention Centre Bangkok Thailand	Impact Exhibition Management Co Ltd Tel: +66 2833 5208, Fax: +66 2833 5127-9 Email: pasinc@impact.co.th Website: www.concrete-asia.com
8 to 11 Oct 2014	Buildtech Malaysia 2014 Putra World Trade Centre Kuala Lumpur Malaysia	Trade Link ITE Sdn Bhd Tel: +603 7842 9863, Fax: +603 7842 7863 Email: info@tradelink.com.my Website: tradelink.com.my/buildtech
15 to 17 Oct 2014	BuildTechAsia 2014 Singapore Expo Singapore	Sphere Exhibits Pte Ltd Tel: +65 6319 4021, Fax: +65 6319 6140 Email: buildtechasia@sph.com.sg Website: www.buildtechasia.com
15 to 17 Oct 2014	Concrete Show Southeast Asia 2014 Jakarta International Expo Jakarta Indonesia	UBM Tel: +62 21 729 2662, Fax: +62 21 729 3539 Email: niekke.budiman@ubm.com Website: www.concreteshowseasia.com
5 to 8 Nov 2014	Philconstruct 2014 SMX Convention Centre & World Trade Centre Manila The Philippines	Global-Link Exhibition Specialist Tel: +632 750 8588, Fax: +632 750 8585 Email: info@globalinkmp.com Website: www.globalinkmp.com
25 to 28 Nov 2014	bauma China 2014 Shanghai New International Expo Centre Shanghai China	Messe München International Tel: +49 89 949 20251, Fax: +49 89 949 20259 Email: info@bauma-china.com Website: www.bauma-china.com
9 to 11 Dec 2014	Myanbuild 2014 Tatmadaw Exhibition Hall Yangon Myanmar	AMB Events Sdn Bhd Tel: +603 4041 9889, Fax: +603 2770 5301 Email: nadia@ambexpo.com Website: www.myanbuild.net
15 to 18 Dec 2014	bC India 2014 India Expo Centre Greater Noida, Delhi India	Messe München International Tel: +49 89 949 20255, Fax: +49 89 949 20259 Website: www.bcindia.com
27 to 29 Mar 2015	Constech 2015 Impact Exhibition & Convention Centre Bangkok Thailand	Impact Exhibition Management Co Ltd Tel: +66 2 833 5208, Fax: +66 2833 5127-9 Email: pasinc@impact.co.th Website: www.thailandconstech.com

Date	Events outside Asia	Organiser & Contact
17 to 20 Nov 2014	PMV Live at The Big 5 2014 Dubai World Trade Centre Dubai UAE	DMG Events Tel: +9714 438 0355, Fax: +9714 438 0356 Email: pmv@dmgeventsme.com Website: www.pmvlive.com
11 to 14 Dec 2014	MS Africa & Middle East 2014 Cairo International Convention Centre Cairo Egypt	Veronafiore – Art Line – ExpoLink Tel: +39 045 8298800/8428, Fax: +39 045 8297800 Email: vfi@veronafiore.it Website: www.msafrika.net
3 to 6 Feb 2015	World of Concrete 2015 Las Vegas Convention Centre Las Vegas, Nevada USA	Hanley Wood Exhibitions Tel: +1 972 536 6300, Fax: +1 972 536 6301 Email: contactus@worldofconcrete.com Website: www.worldofconcrete.com
20 to 25 Apr 2015	Intermat 2015 Paris-Nord Villepinte Paris France	Intermat Construction Email: contact@intermatconstruction.com Website: www.intermatconstruction.com
21 to 24 Oct 2015	ConExpo Latin America 2014 Espacio Riesco Convention Centre Santiago Chile	Association of Equipment Manufacturers Tel: +1 414 298 4138 Email: sales@aem.org Website: www.conexpolatinamerica.com
11 to 17 Apr 2016	Bauma 2016 Munich Trade Fair Centre Munich Germany	Messe München GmbH Tel: +49 89 949 11348, Fax: +49 89 949 11349 Email: info@bauma.de Website: www.bauma.de



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Kuala Lumpur to welcome OneBuild in July 2014

The next edition of OneBuild - Malaysia's international building, construction and infrastructure technology exhibition - will take place from 16 to 19 July 2014 at the Putra World Trade Centre in Kuala Lumpur.

In 2013, the show successfully attracted 7,500 visitors from 32 countries and 350 exhibitors from Malaysia, Singapore, Thailand, Taiwan, Turkey, China, Korea, Italy and Germany. This year, the show is expected to attract more international exhibitors coming from Malaysia, Singapore, China, Taiwan, Korea, Japan, Pakistan, Italy, Germany, Austria and USA, as well as 10,000 trade delegates.

OneBuild is organised by One International Exhibition Sdn Bhd. The show is endorsed by Construction Industry Development Board (CIDB), Malaysian Public Works Department (JKR) and Malaysia External Trade Development Corporation (MATRADE). According to the organiser, it is the only privately held exhibition approved by CIDB, and contractors registered with CIDB will be able to collect 5 CCD (Contractor Continuous Development) points by visiting OneBuild.

OneBuild is working together with the IBS Centre to push for the adoption of IBS (Industrialised Building System) in the construction industry. The system is aimed to increase construction productivity and quality, which is highly promoted by CIDB Malaysia through IBS Centre.

Concrete technology is another feature of OneBuild, supported by the National Ready-Mixed Concrete Association of Malaysia (NRMCA). The show is collaborating with Concrete Floor Asia (CFA), a consortium of companies specialising in various aspects of concrete flooring, to organise educational activities. There will also be an



Top and above: This year's OneBuild show will be held from 16 to 19 July at the Putra World Trade Centre in Kuala Lumpur.



Top and above: OneBuild will take place in conjunction with AseanMach, the ASEAN heavy machinery and equipment exhibition.

outdoor live demonstration area where visitors can see the practical use of products and operation of the cutting-edge equipment under real jobsite conditions. In addition, a seminar on concrete flooring solutions will be held.

OneBuild is also supported by numerous trade and industry associations such as Master Builders Association Malaysia (MBAM), Malay Contractor Association of Malaysia (PKMM), Building Materials Distributors Association of Malaysia (BMDAM) and REAM (Road Engineering Association of Malaysia), as well as group participation from Contractor Services Centre (PKK).

OneBuild will be held in conjunction with AseanMach, the ASEAN heavy machinery and equipment exhibition. This combination is to provide an opportunity for heavy machinery industry players to expose themselves to different groups of potential customers in the building, construction and infrastructure industries.

AseanMach will serve as a platform where manufacturers, sole distributors and specialised service providers from local and overseas can promote their machinery or services to targetted customers who are sourcing for total solutions. The show is supported by Malaysia Heavy Construction Equipment Owners' Association (PAJPBM) and Malaysia Mobile Crane Owners Association.

Visitors to AseanMach will also be able to see a live demonstration of safe and effective use of powered access, and join a seminar conducted by the International Powered Access Federation (IPAF). The Federation has played a key role in promoting many of the design, safety and testing procedures that are now established in the powered access industry. ■

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MS Africa and Middle East to be held in Egypt

The inaugural MS Africa and Middle East will be held from 11 to 14 December 2014 at the Cairo International Convention & Exhibition Centre (CICC) in Egypt. The show is organised by Veronafiere with its Egyptian partners Art Line and ExpoLink; the aim is to penetrate markets associated with the building industry in North Africa and the Middle East. This initiative exploits the experience of Veronafiere's best-known brands in the construction industry, Marmomacc and Samoter.

The MS Africa and Middle East is expected to attract more than 100 Italian, Egyptian and international exhibitors. There will also be international buyers programme and pre-arranged B2B meetings, as well as educational seminars and workshops targeted at architects, specifiers, professionals and technicians. According to Veronafiere, Egypt's strategic location positions the country as the main trading hub for Africa and the Middle East.

Samoter will focus on earthmoving equipment - excavators and mini-excavators, loaders, bulldozers and graders, dredgers, attachments and accessories; quarrying and processing plants,

recycling plants for building materials, crushing and screening equipment; road building machinery and equipment; hoisting and handling equipment; vehicles and special purpose vehicles (site vehicles, dumpers etc); components, equipment, site tools, engines and services; rental of construction equipment machinery; services, institution, media and communication, information technologies; and used machinery for construction and building (the used machinery sector will be displayed in a separate area of the show).

Marmomacc will focus on machinery and technologies for marble, stone and granite; dealers and sales of stone processing technologies and machinery; rental of stone processing machinery and plant; natural stone processing consumables; producers of marble, stone, granite and surfaces materials; sales of marble, stone and agglomerates; services, institution, media and communication, information technologies; and used machinery and tools for marble and stone working, cutting etc (the used machinery sector will be displayed in a separate area of the show). ■

Website: www.msafrika.net

Intermat getting ready for 2015 edition

The next edition of Intermat will take place from 20 to 25 April 2015 at the Paris-Nord Villepinte Exhibition Centre in France. It is expected to gather around 1,500 exhibitors, including 70 percent from outside France, as well as 200,000 visitors, of which 34 percent are estimated to be international. The show is planned to occupy 375,000 sq m of exhibition space.

A highlight of Intermat 2015 will be World of Concrete Europe (WOC Europe). Alongside materials and machinery for the production, laying and transport of concrete, WOC Europe will showcase a comprehensive range of concrete and stone-laying services for the construction industry: mixing plants; machinery for making, laying and handling concrete; equipment for the pre-fabrication of concrete elements; OEM; innovative tools; software; engineering; tools and materials for horizontal and decorative concrete surfaces; masonry equipment etc, and all associated equipment.

A programme of educational seminars, training workshops and demonstrations will round out the World of Concrete event. WOC Europe is an integral part of Intermat under the signature 'Be Concrete'.

The Intermat Innovation Awards, chaired by the FNTF, will be divided into five new categories that mirror the lifecycle of a project. These include extraction of raw materials and recycling; construction equipment and machinery, components and accessories; engineering; services; and



Intermat will return to the Paris-Nord Villepinte Exhibition Centre in April 2015.

digital applications for different construction cycles. Two special awards will also be presented: the special World of Concrete Europe award, and the special Sustainable Development award.

In addition, Intermat 2015 will have various activities to strengthen its business relationships with markets from African countries, Turkey, the Middle East and GCC regions. There will be national pavilions; conferences and growth opportunities; delegations and official visits; and one-to-one business meetings.

The show will also feature a new segmentation to promote equipment for

all phases in the construction cycle. They comprise mines and quarries, production and use of construction materials; concrete industry (WOC Europe); buildings and work sites; lifting and handling; drilling, boring and special foundations; earthmoving and civil engineering; construction and maintenance of road infrastructure; vehicles and transportation for materials, equipment and people; components, equipment and accessories; environment, demolition and recycling; topography, engineering, automatic systems and new technology; and services and communication. ■

Website: www.intermatconstruction.com



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Photo: 7250S in Singapore
Foundation works to make a bridge pier in pedestrian walkway.

CKE1350G in UK
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	<p>Multi-purpose lattice boom crawler cranes</p> <p>lifting capacity</p> <p>CKE-G series (European model) 60~250t</p> <p>CK-G series (American model) 85~275t</p> <p>CKS series (Standard model) 60~250t</p> <p>7000S series (Standard model) 120~250t</p>		<p>Large-sized crawler cranes</p> <p>lifting capacity</p> <p>SL-G series (European and American model) ... 300~550t</p> <p>SL-S series (Standard model) 300~550t</p>
	<p>Duty cycle lattice boom crawler cranes</p> <p>lifting capacity</p> <p>BME-G series (European model) 80t</p> <p>BMS series (Standard model) 80~100t</p> <p>BMS1200HD (Standard model) 120t</p>		<p>Telescopic boom crawler cranes</p> <p>lifting capacity</p> <p>TK series 55~75t</p>

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SMOPYC 2014 'in transition to world market'

The 16th edition of SMOPYC - Spain's international trade fair for public works construction and mining machinery - attracted 720 exhibitors from 28 countries and 48,000 trade visitors. About 41.5 percent of the exhibitors were Spanish and the rest from other countries - Italy (18.38 percent), Germany (10.31 percent), the UK (5.60 percent), France (3.58 percent), Netherlands and the US (3.36 percent each), as well as Austria, Belgium, Ireland, Slovenia, Luxembourg, Portugal, Czech Republic, Finland, Sweden, Denmark, Turkey, Ukraine, Australia, Canada, China, Japan, South Korea, India, Taiwan and New Zealand. The show covered 55,000 sq m of exhibition area.

According to the organiser, SMOPYC 2014 was a transitional edition strategically aimed at foreign markets, featuring 50 trade missions from 28 countries. Many of industry associations joined the show as well, some of which form part of the Builders Federation while others belong to Confalq, in addition to IPAF, ANAGRUAL, AEXAR, SEOPAN and ANMOPYC. These associations also organised various activities during the show.

SMOPYC focuses on a strategy of boosting export sales as the only way to grow or survive. This effort looks set to continue over time, said the organiser, as export sales currently account for about 80 percent of the turnover of Spanish companies that operate in the public works and construction machinery industry. This percentage is expected to remain unchanged in the next few years. SMOPYC 2014 has been described as a 'transition' to the world market, which



SMOPYC 2014 attracted 720 exhibitors from 28 countries and 48,000 trade visitors.



The SMOPYC opening ceremony.



Top and above: SMOPYC 2014 was aimed at foreign markets, featuring 50 trade missions from 28 countries.

put an emphasis on accompanying and supporting the exhibitors in their process of going global and penetrating new markets.

By organising trade missions, hand in hand with the Spanish Association of Manufacturers of Construction, Public Works and Mining Machinery (ANMOPYC), SMOPYC has enabled the exhibitors to build trade links with foreign countries at the show. The reverse trade missions organised by SMOPYC 2014 included representatives from Mexico, Chile, Colombia, Peru, Panama, Uruguay, Guatemala, Saudi Arabia, Qatar, the United Arab Emirates, Lebanon, Jordan, Oman, Ecuador, Indonesia, Russia, Belarus, Kuwait, Sudan, South Africa, Paraguay, Costa Rica, Bolivia, Vietnam, Nigeria, Tanzania, Namibia and Ethiopia.

One of the new features of SMOPYC 2014, held jointly with the sixth edition of Logis, was the first Construction and Logistics PILOT Conference, organised by the regional development agency Instituto Aragonés de Fomento y Feria de Zaragoza. During the conference, experts from both industries took part in different round tables to discuss the current picture in the fields of building, logistics and transport, and to exchange views and knowledge from their different standpoints. The subjects of these round tables included 'the outlook for the industry: the economic picture in the medium- and long-term', 'worldwide prospects and opportunities in the building industry', 'reflecting on the current picture in the infrastructure and public works construction industry' and 'prospects for the industry: assessment of the current situation and the future of logistics'.

The next SMOPYC is planned to take place in 2017. ■

Website: www.smopyc.es

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US AWP rental market rebounds, new data on China

There are now 1,020,000 mobile elevating work platforms (MEWPs), also known as aerial work platforms (AWPs), in the worldwide rental fleet. This is up 6 percent from the previous year, mainly driven by growth in Asia and Latin America, reveals new research commissioned by IPAF.

The US AWP rental market rebounded with strong growth of 9 percent in 2013 to reach approximately US\$7.2 billion, according to the IPAF US Powered Access Rental Market Report 2014. The US AWP rental fleet expanded by 6 percent in 2013. US rental companies used all levers to improve revenue in 2013: expanding fleets and improving rental rates, while enhancing utilisation rates.

For the first time, IPAF has conducted research on China, which registered 20 percent growth. The trend is set to continue in this market where there are approximately 6,000 MEWPs, and scissor lifts make up an estimated 65 percent of the fleet.

The European MEWP rental market in the 10 countries surveyed remained stable in 2013 (+0 percent) and is estimated at approximately €2.3 billion, according to the IPAF European Powered Access Rental Market Report 2014. The 10 European countries

surveyed included Denmark, Finland, France, Germany, Italy, the Netherlands, Norway, Spain, Sweden and the UK.

The European rental market shows mixed results and is marked by three groups: those who struggled in 2013 (Spain, the Netherlands, Italy, Finland, and to a lesser extent Denmark and France), those who slightly increased rental revenues (Sweden and the UK), and those who experienced significant growth (Germany and Norway).

The IPAF rental market reports highlight key facts and figures for senior management, such as fleet size, utilisation rate and retention period. They include an estimate of the size of the MEWP/AWP rental fleet worldwide, with a breakdown by region and machine type. New for 2014 is an introduction into the rental market in China, which is covered in both reports. The US report includes Canada. The European report includes seven individual country/regional sections: France, Germany, Italy, the Netherlands, Nordic/Scandinavian countries (covering Denmark, Finland, Norway and Sweden), Spain and the UK.

The IPAF US and European Powered Access Rental Market Reports 2014 are available in English and can be purchased at www.ipaf.org/reports. ■

Access industry hears about challenges of big booms, how to attract big money

The aerial industry provides safer alternatives for working at height, but the work is going higher under challenging conditions, and the new 180-ft booms offer new opportunities, said Matt Fearon, president of Terex Aerial Work Platforms, at the IPAF Summit held in early April in Windsor, the UK.

Mr Fearon said that bigger booms are being used in new applications such as oil refineries, power plants, steel structures, stadiums, bridge access, high-rise buildings and harbour cranes. He discussed the tradeoff between the capabilities and limitations of bigger booms, for example transport conditions and the need for the use of outriggers, and questioned if it would be necessary to drive big booms. The industry is seeing the beginnings of a new boom category, he said.

The IPAF Summit attendees were also given a clear and compelling presentation on how to communicate and demonstrate their company potential and value to investors by US-based United Rentals, one of the world's largest equipment rental companies. Sharing tips of the trade were Bill Plummer, executive vice president and CFO, and Fred Bratman, head of investor relations.

In response to questions on United Rentals' plans for international expansion, Mr Plummer revealed that Latin America, Europe and Asia will be in focus and that the company would move in line with



United Rentals' Bill Plummer, EVP and CFO (centre), and Fred Bratman, head of investor relations (left), at the IPAF Summit.

objectives it has set: "The only certain commitment is that at some point we will be a global company," he said.

The next IPAF Summit will be held with the International Awards for Powered Access (IAPAs) on 26 March 2015 in Washington, DC, USA. Details are at www.iapa-summit.info ■

IPAF Manufacturers' Technical Committee elects new chairmen

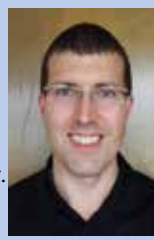
The IPAF Manufacturers' Technical Committee has appointed Phillip Godding, JLG's senior product safety and reliability engineer as chairman, and Ian McGregor, Skyjack's product safety manager as vice chairman.

Mr Godding is based in the UK and has been responsible at JLG for safety-



Left: Phillip Godding.

Right: Ian McGregor.



related matters in the EAME region for the last six years. Mr McGregor is based in Canada and has been product safety manager at Skyjack for the past two years. During his 8.5 years with Skyjack, he has held positions related to design, testing and validation, standards compliance and product safety. ■

New guidance on major inspections of access platforms

IPAF has released new technical guidance on major inspections of MEWPs aimed at keeping equipment safe beyond the manufacturer's design life. The guidance document outlines a major inspection scheme to validate structural integrity and functionality of critical components of a MEWP. Such a scheme may be undertaken to determine if a machine is within safe design and use criteria beyond the manufacturer's design life. Design life is defined as the duration determined by the manufacturer for which a structure or a structural component may be used for its intended purpose with recommended maintenance.

"MEWPs are safe by design and constructed to set criteria as defined by national and international standards dependent on which country/continent they are intended to be first put into service," explained Chris Wraith, IPAF technical and safety executive. "The growing demand around the world for second-hand machines and the retention of machines in some rental fleets has led to the use of MEWPs beyond the original design life. We need to recognise that there are machines in use which: i) have been in service for 10 years or more, yet may not have reached their design life with regard to usage, and ii) have reached their design life prior to 10 years because of intensive usage or use in a severe operating environment. This is where the new guidance comes in."

The document reiterates that equipment owners should fulfil their legal obligations and ensure that MEWPs are maintained in good repair and safe working order by implementing regular inspection and

maintenance programmes in accordance with local, state or federal regulations, legislation, directives, standards and manufacturer's requirements. These may include pre-use inspection; interim, frequent or periodic inspections; and six-monthly or annual inspection/examination by a competent person.

"The harsher the operating environment, the more frequent the inspection should be," said Mr Wraith. "Depending on the frequency of use and severity of the operating environment, planned inspections should be carried out at a frequency to enable the MEWP to be kept in a safe and satisfactory condition."

The document thus proposes that a MEWP should undergo a major inspection within 10 years after having been originally put into service and subsequently every five years after that (e.g. 10, 15, 20 years old).

The major inspection scheme can also be used to assist owners in determining if a MEWP is within safe design and use criteria when they: i) acquire a machine with insufficient service, maintenance history and inspection records, or ii) suspect a MEWP to have been exposed to exceptional circumstances which may have affected the structural integrity of critical components, thus jeopardising the safe use.

IPAF's new guidance on major inspections is available at www.ipaf.org/inspections and at the publications/technical guidance section of www.ipaf.org ■



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Haulotte introduces new HA16 RTJ range

Haulotte's new HA16 RTJ range consists of three models, namely HA16 RTJ, HA16 RTJ O and HA16 RTJ PRO. They are designed to reach the most difficult working areas, thanks to the excellent working envelope with a maximum outreach of 8.30 m and an up and over clearance of 7.65 m.

The HA16 RTJ has four wheel-drive, two-wheel steer and 355° turret rotation. The HA16 RTJ O has four wheel-drive, two-wheel steer, 355° turret rotation and an oscillating axle. The HA16 RTJ PRO has four wheel-drive, four-wheel steer, 360° continuous turret rotation, an oscillating axle and ActivShield Bar (for Europe only). The four-wheel steer on the HA16 RTJ PRO allows three steering configurations: four-wheel steer, two-wheel steer and crab steer.

The 16 m HA16 RTJ range can perform the following movements simultaneously: driving, steering and turret rotation; as well as turret rotation, arm/boom elevation and telescope out + jib. The range also has an excellent rough terrain capability, thanks to its ground clearance of 38 cm, 40 percent gradeability and four wheel-drive.

The permanent anti-slipping differential evenly distributes the power to the wheels. The hydraulic differential lock can be activated manually for maximum efficiency on a more difficult rough terrain. Also, the cured-on solid tyres are believed to be more durable and environment-friendly than foam filled tyres. In addition, the new Kubota engine has a variable motor speed that significantly decreases the noise level and reduces the fuel consumption by 15 percent, according to Haulotte. Ergonomics of the upper control box make it easier for the operator to use the controls of the machine.

The HA16 RTJ range is designed to be highly durable, equipped with an anticorrosion treatment; fully protected load management system; steering cylinders that are fully protected mounted inside chassis; and high quality components. The series also has extremely strong tilting cover to protect the control box; reinforced hood; and a fully modular platform.

The HA16RTJ range is easy to maintain as there is direct access to all components such as oil and fuel filter, oil gauge, radiator water tank and alternator. With direct access to the remote pods, the operator can also easily recharge the battery. In addition, the new LCD display integrated in the lower control box allows a pre-diagnosis; for complete and immediate diagnosis, the technicians will use the new Haulotte Diagnostic Tool, Haulotte Diag.

Haulotte has recently launched a unique secondary guarding device, Haulotte ACTIVShield Bar, which is designed to reduce the crushing risk while maintaining excellent productivity. This device is standard on the HA16 RTJ PRO (in Europe) and available as an option on the RTJ and RTJ O.

The HA16 RTJ range is very safe to drive, said Haulotte, as it can be driven at maximum speed with the jib raised giving excellent visibility of the working area. It is suitable for various applications such as building works (steel erection, cladding, curtain wall, painting etc), finishing works (plumbing, electricians, air conditioning, heating, insulation etc), maintenance works and demolition works, to name a few. ■

Enquiry: haulotteasia@haulotte.com



The HA16 RTJ (above) and HA16 RTJ PRO.

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Mustang R-series skid steer loaders come to Asia

The new Mustang R-series full-sized radial-lift skid steer loaders from Manitou comprise three models – 1900R, 2200R and 2600R. They feature a new operator's station with an integrated digital display, improved 360-degree visibility, pressurised cab option, powerful Yanmar engines and an enhanced hydraulic system.

The R-series radial-lift skid steer loaders fall into the large-frame category. When equipped with optional counterweights, the rated operating capacities range from 957 kg on the 1900R to 1,261 kg on the 2600R. Lift heights reach up to 3,061 mm on the 1900R and 3,124 mm on the 2200R and 2600R. With maximum torque ratings from 235 Nm on the 1900R to 279.3 Nm on the 2600R, the machines are suitable for demanding jobs.

The R-series skid steer loaders have high-powered auxiliary hydraulics with excellent flow ratings and precision controllability, said Manitou. Achieve flow rates from 119 l/min on the 1900R to 132.5 l/min on the 2200R and 2600R with the high-flow configuration. Impressive breakout forces deliver optimal digging and lifting performance, while quicker cycle times further enhance productivity on the jobsite.

Inside the operator's cab, a new side-folding restraint bar and armrests with multiple adjustments enhance comfort and safety. Control towers are fully adjustable and the mechanical or air-ride suspension seat options also deliver great comfort. A cab-forward design and lowered rear towers offer excellent visibility to the bucket edge and rear of the machine. The optional pressurised sealed cab enclosure, with sound reduction material and a rear-mounted air filter, provides a cleaner, quieter, climate-controlled working environment.

Controllability and ease of use are also part of the package on the new R-series skid steer loaders. The machines have two control options: joystick and hand/foot. Auxiliary hydraulic controls are located on the joystick in both configurations for easy access. A fully customisable digital display provides coolant, fuel, battery, environmental and engine regeneration information in real time.

Furthermore, the R-series is designed with many time-saving features that enhance versatility on the jobsite. These include pressure-relieving hydraulic couplers, which make attachment changes simple and safe. Thumb-controlled proportionate auxiliary hydraulics and an augmented hydraulic flow enhance attachment controllability for precision movements and ease of use.



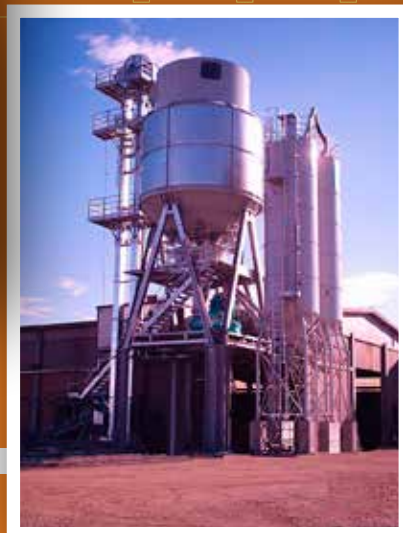
Top and above: The Mustang 2600R full-sized radial lift skid steer loader.

Easy service access is achieved on the R-series models through the extra-wide rear door and engine hood. The ROPS/FOPS structure tilts back with the aid of hydraulic lift cylinders, exposing hydraulic components. In addition, all high-rotation pins have grease points for ease of maintenance.

After Canada and North America, the Mustang R-series skid steer loaders are now

available in Asia. According to Manitou, these new large-frame skid steer loaders are popular among contractors, landscapers, and excavation companies due to their excellent ground engaging capabilities and high capacity strength. The company added that rental businesses will also benefit from the versatile nature of the new R-series skid steer loaders. ■

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Caterpillar's tandem vibratory rollers for multiple applications

The new Cat B-series tandem vibratory rollers feature more drum options, increased operator comfort and enhanced technology to help operators and machines perform at higher levels. The new models available in Australia and Southeast Asia are the CB44B and CB54B.

Many of the technological enhancements are provided through the optional Cat compaction control. The system combines infrared temperature sensors with mapping to keep the operator informed of current mat temperatures, machine position and coverage completion. This intuitive system greatly enhances night-time performance, and also records information for future process analysis and quality control documentation.

When combined with drum edge and drum surface lighting, Cat compaction control helps extend the workday and increase daily production by optimising jobsite awareness in low-light conditions. The intuitive interface makes the technology easy for operators to apply.

The CB44B tandem vibratory roller competes in the 7 to 10 t size class, while the CB54B competes in the 8 to 11.3 t class. The Cat engines powering both machine classes meet US Environmental Protection Agency Tier 4 Interim and European Union Stage IIIB engine emissions standards.

The rollers are well suited to all types of mix designs and applications. They provide high variation of amplitudes for breakdown and intermediate work, while their high static linear loads deliver excellent results for finishing work. Typical applications include highways, city streets, county roads, lane additions, industrial sites, overlays, airport runways, and other production-sized paving jobs.

Working in unfavourable conditions is typical in the paving business, but the cab and operating station help keep operators comfortable and therefore productive. Full floor-to-ceiling glass enables good sight lines to the drum edges, drum surfaces and both sides of the machine.

Visibility and comfort are enhanced by the standard 180° seating and optional 360° positioning. New hand wheel steering technology eliminated the front steering console, enabling the operator to easily monitor water spray performance. An LCD display and push-button controls simplify operation for an all-around comfortable operating environment.

The CB44B and CB54B models feature a newly designed centre-articulating hitch with 6 degrees of oscillation that ensures mat contact and a smoother ride over uneven surfaces. An offset option of up to 170 mm extends coverage and simplifies control next to obstacles.

The CB44B is equipped with 1.5 m drums and utilises the Cat C3.4B engine rated at 75 kW. The CB54B utilises 1.7 m drums and features a larger C4.4 engine rated at 98 kW. The smooth operating powertrain comes standard with Eco Mode and automatic speed control, saving fuel, reducing sound levels and lowering operating costs.

The B-series tandem rollers offer a variety of vibratory options including dual amplitude, dual frequency, Versa Vibe and five amplitude systems. Dual amplitude and dual frequency can be tailored to thick and thin lift applications. A single switch automatically matches amplitude and frequency to keep pace with the paver.

The Versa Vibe system creates a 2-in-1 machine with four amplitudes and two frequencies. This versatile system provides two settings for lighter hitting and higher working speeds on thin lifts; and two settings for heavier hitting, and slower speeds, on thick lifts or those with challenging mixes. The five-amplitude system offers



The CB44B.



The CB54B.

the widest range of amplitudes with a single frequency. This system is a heavy hitter, with more options that help fine-tune compaction performance on thick lifts. The system also works well on tough-to-compact mix designs that consist of large aggregate and low levels of filler and binder.

Reliable water spray systems are needed to keep rollers on the mat and on pace with the paver. The high-capacity Cat systems are designed with dual pumps, triple filtration, adjustable intermittent operation and an optional freeze protection kit.

The dual pumps provide back-up capability and alternate with the direction of travel to maximise service life. Clogging is prevented through filters at the fill point, water pumps and spray nozzles. The adjustable intermittent mode conserves water and minimises refills for optimal efficiency. The optional freeze protection kit helps ensure the roller is ready when you need it.

The new Eco Mode feature conserves fuel and reduces sound levels for a more comfortable operating environment. These rollers also utilise oil-bath lubrication of the eccentric weight bearings that lengthen service intervals. The standard 500-hour engine oil service interval and large capacity hydraulic system, maximise uptime and minimise lifetime operating costs. ■

Enquiry: fonseca_theresa@cat.com

FAR 250 and FAR 250 MR hydraulic bore pile rigs

Among the FAR-series hydraulic bore pile rigs from Foundation Associates Engineering (FAE) is the medium-sized FAR 250, which has a drilling capacity of 1,700 mm in diameter, maximum torque of up to 245 kNW and an operating weight of approximately 65 t. The FAR 250 MR is an improved version of the FAR 250, with a higher torque of 250 kNW and heavier operating weight of 80 t. This enables the FAR 250 MR to hoist up a longer mast. The FAR 250 MR's drilling capacity has also been increased to 1,800 mm. The machine is able to perform deep soil mixing, continuous flight, DTH, boring and casing rotating.

According to FAE, the FAR hydraulic bore pile rig is normally used with a European Kelly bar, unless it is specified otherwise by the customer. Extra cushions have been installed in the rotary head to absorb the impact from the Kelly bar.

The mast of the rig features high-tensile reinforced structure to ensure the quality of the product. The undercarriage is built to be rugged and versatile. The rig is also equipped with a touch-ground sensor to prevent the winch from over dispensing the wire upon hitting the desirable depth. This will prevent the rope on the winch to get loose and cut itself during the retraction of the Kelly bar. ■

Enquiry: fnapl@singnet.com.sg



Above: A FAR 250 at a jobsite in Kuala Lumpur constructing bore pile foundation for a commercial building.

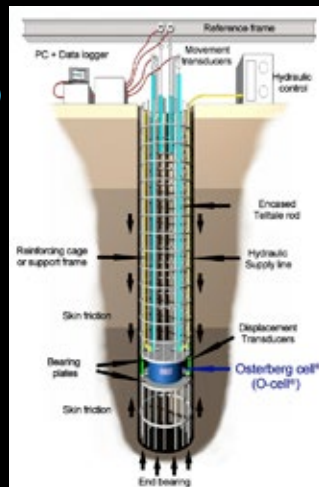


Left: A FAR 250 MR performing bore pile construction for an industrial area in Penang.

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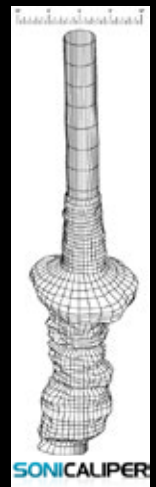
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- Pile Dynamic Test (PDA)
- Sonicaliper® (3D profiling of drilled shaft)
- Plate Bearing Test
- A9 Extensometer (Strain gauge)



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Innovative production plant

Origami 5 is a production plant manufactured by Personal Factory in Italy. It produces various chemicals for the construction industry, including adhesives, grouts, repair mortars, thick plasters, coloured finish plasters, thermal plasters, ecological plasters, self-levelling flooring, waterproofing and cement sheaths, screed, and products for printed concrete, among others.

In only 6 sq m, the plant saves raw materials, doses them, mixes them with the chemical compound, bags it all, tracks the entire production down to a single bag, makes sure there are no errors in the production and keeps the platform product certification. Up to date, the Origami 5 plant is believed to be the most flexible production system in the world. In less than 10 minutes one operator can change raw materials and colours, said Personal Factory.

In addition to its plant, Personal Factory offers a wide range of services thanks to intelFAB. The intelFAB division is a global technology supplier composed of four business units: the chemical compound production for building, the laboratory service, the integrated hardware and software creation and selling and the instruments unit. IntelFAB offers the exclusive production system fully integrated based on a cloud platform, iNephos 2.0. ■

Enquiry: david.batten@isolmix.com

Origami 5 production plant.



Brokk 400 upgraded

Brokk has upgraded its electric Brokk 400 remote-controlled demolition machine to include a larger undercarriage for heavy-tracking applications like tunnelling and mining and for enhanced stability when operating with heavier attachments like metal shears and scabblers. Brokk also has improved the hydraulic system; it now provides more efficient fluid flow when the machine is operating a drill attachment so there is more consistent power.

The new 400 model machine features a bigger drive axis, rollers and sidetracks. It also has a larger undercarriage with new tracks that are 10 percent longer than its predecessor. This improves wear life for machines used in applications that require a lot of tracking and provides up to 60 percent greater stability when operating with heavier attachments. In addition, the machine's outriggers provide a wide base that evenly distributes weight and provides even more stability. Its high chassis setup and heavy-duty rubber tracks make it easy to manoeuvre over rubble piles and obstacles.

The new Brokk 400 can handle attachments up to 1,420 lbs, and its hydraulic quick-hitch system eliminates the need for hard pinning, so operators can change attachments more quickly and easily. The machine weighs 11,240 lbs and is 63 in wide and nearly 81 in tall. It is powered by a 30 kW electric motor for emissions-free operation in confined areas.

The robust, three-part boom can operate at angles of up to 30 degrees and reach 22 ft horizontally and 24 ft vertically. The boom also features a box-weld design that provides additional protection for cylinders and hoses. ■

Enquiry: eva.skinner@brokk.com

The new Brokk 400.



Junttan hammer

Junttan hammer is now available from JP Nelson Equipment Pte Ltd. The product features a low emission engine based on the latest Euromot and EPA standards, less noise and less smoke. It uses biodegradable oils and is designed for easy maintenance. According to JP Nelson, the hammer allows production rate to increase by 10 to 15 percent daily and results in less labour requirements at the jobsite. Established in 1992, JP Nelson provides leasing, sales and services of equipment for the engineering, construction, shipyard/shipbuilding, oil and gas, and offshore industries. ■

Enquiry: enquiry@jpnelson.com.sg



Husqvarna 'PRIME' products

The PRIME range from Husqvarna consists of light yet powerful electric equipment for handheld cutting, drilling and wall sawing. They are powered by a unique power supply, Husqvarna PP 65 or PP 220, which converts regular AC power into a high frequency current that drives the cutting equipment. With PRIME, digital electronics replace hydraulics and mechanics in all areas of concrete cutting, said Husqvarna.

PRIME - powerful, revolutionary, intelligent, modular and electric - comprises Husqvarna DM 650, K 6500, K 6500 Ring, WS 220 as well as the power packs PP 65 and PP 220. Users can combine a system of products from the PRIME product range to suit their requirements. They can also expand the system if need be. ■

Enquiry: sales.asia@husqvarna.cn

Husqvarna's PRIME range consists of light yet powerful electric equipment for handheld cutting, drilling and wall sawing.



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Liebherr LR 11350 moves giant ring liner in India

A Liebherr LR 11350 crawler crane has erected a complete pre-formed ring liner during the construction of reactor block 3 at the Kakrapar Nuclear Power Plant in the state of Gujarat, India. The crane is owned by NPCIL (Nuclear Power Corporation of India Ltd), the government owned company for nuclear energy and nuclear power plants in India.

With a diameter of around 50 m, a height of 5 m and a total weight of approximately 170 t including the weight of the ring, the spider type lifting tackle fitted with evener beam, the ring was probably the dimensionally largest single structure ever to have been hoisted by a crane in India.

According to Liebherr, initial plans called for the 16 ring segments to be hoisted individually on to the inner containment structure at a height of 50 m where they would be assembled and welded. This procedure is considered complicated and becomes even more difficult as the height increases.

Since a LR 11350 was already in use on the site, NPCIL decided to change its plans. The ring was assembled on the ground and then simply lifted into position with



A Liebherr LR 11350 lifts a complete pre-formed ring liner during the construction of reactor block 3 at the Kakrapar Nuclear Power Plant.

a single hoist. This procedure meant the quality of welding was improved, which in turn enhanced the safety of the power plant and saved a good deal of material and time, explained Liebherr.

The LR 11350 has a maximum load capacity of 1,350 t and was fitted with an S main boom, a luffing jib, derrick system and

a ballast trailer. The heaviest load moved by the LR 11350 on the site is said to be the generator weighing 400 t at a radius of 44 m. Lifting it through the openings whilst maintaining a safe distance from the surrounding walls was particularly challenging, said Liebherr. ■

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Bauer at Hong Kong-Zhuhai-Macao Bridge construction

Bauer is currently involved in the Hong Kong-Zhuhai-Macao Bridge project, which is under construction on the Pearl River Delta. The 50 km link connecting Hong Kong, Macao and Zhuhai forms the southern ring closure of a massive infrastructure project. It consists of a multitude of individual structures, such as cable-stayed bridges and a 6.7 km long tunnel, allowing uninterrupted passage of large vessels. Artificial islands form the end points and landing points. All structures are connected by a viaduct.

The joint venture Dragages-China Harbour-VSL commissioned Bauer Hong Kong with the installation of offshore bored piles for the Hong Kong Link Road (HKLR) – a 10 km long section from the border between China and Hong Kong to the Hong Kong international airport. Piles with 2,300 and 2,500 mm in diameter are up to 115 m long and will be installed in rock at depth of 2 to 5 m.

All the work on this project must be performed from the water. Five BG 40 rotary drilling rigs will be used – four of them are custom-built, with longer masts



Bauer is involved in the HK-Zhuhai-Macao Bridge project, currently under construction on the Pearl River Delta.

and larger main winches. The rigs were transported by ships to the steel platforms, each accommodating only one machine. Further, there are pontoons for four bentonite plants and for 300-t heavy cycle cranes and

accessories. Over 100 drilling tools were assembled at the construction site. Actual construction work began in April 2013 and is expected to last until December 2014. ■

Enquiry: bma@bauer.de



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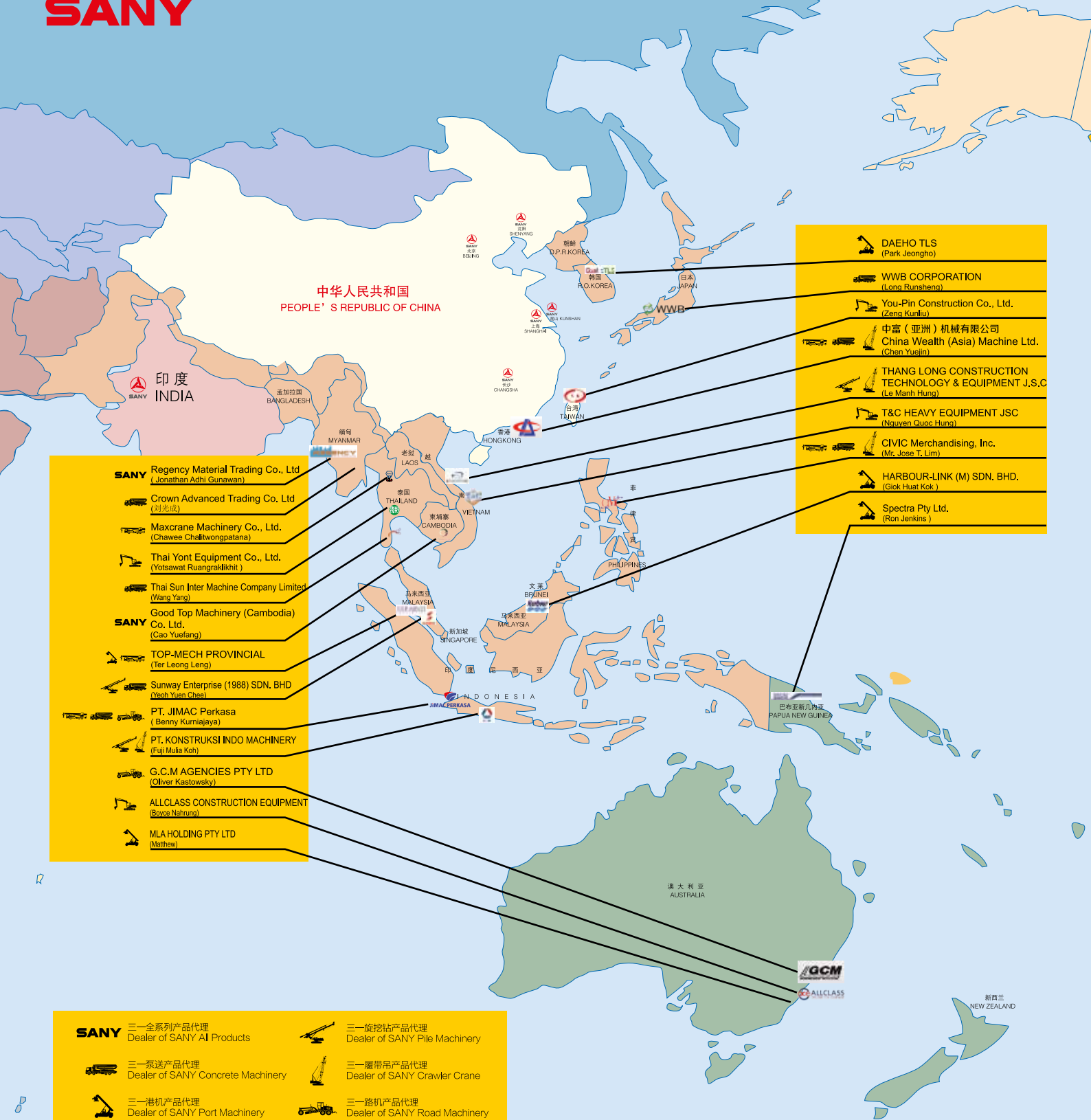
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三一集团亚太大区代理商分布图

Dealers Layout Map of SANY Group Asia-Pacific Region



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