WorldCargo news

JULY 2019

ZPMC in port operating JV

This month, China Communications Construction Corporation (CCCC) announced the formation of a new joint venture between three of its subsidiary companies and ZPMC to invest in and operate ports. The new company has a registered capital of US$200M. ZPMC has a 38% stake, China Harbour Engineering Company holds 51%, China Road and Bridge Corporation Company 10%, and CCCC Water Transportation Consultants 1%.

"The joint venture is established to conduct the business of the operation and investment of harbours, which will facilitate the company to build an overseas platform for the harbour operations, enhance its international competitiveness of the whole industry chain, and thus benefit the profitability of the company by better seizing the policy opportunities," stated CCCC.

The new joint venture will effectively be able to offer design services, construction, equipment and now terminal operations from one company. Equipment automation, which ZPMC offers as a turnkey service, is expected to be an important part of the offering.

The new joint venture comes to the market as the number of new concessions and greenfield terminals is diminishing compared to previous years. China's Belt and Road Initiative, however, still offers opportunities that are not open to global port operators and investors from outside China.

While it prepares for a new direction, ZPMC's core container crane market has suffered something of a downturn. This year's annual STS crane market survey shows ZPMC's deliveries have held up in 2019, but this is mainly because a large number of cranes that were scheduled to be delivered in 2018 and 2020 were actually delivered this year, which will push down ZPMC's market share in 2018 and 2020 (see page 14 for full details).

Ironically, forward orders for STS cranes are down, at the same time as ZPMC has booked its second largest order ever, the US$500M deal for 20 STS cranes and 56 ASCs for the Tuas Mega Port in Singapore. According to ZPMC's schedule, the STS cranes are to be delivered in 2022.

Elsewhere, ZPMC has announced an important step in its automation drive with a first RTG order for a customer in Australia. ZPMC has designed what it calls "automatic railway RTGs" for a customer at Port Botany, where the cranes will be used with automated straddle carriers. ZPMC did not name the terminal, but automated straddle carriers are currently operated at Port Botany only by Patrick Stevedores.

Last year, NSW Ports and Patrick announced a major investment into the rail exchange at Patricks' Botany terminal to increase its capacity to 1M TEU per annum, including A$70M from Patrick for new equipment. It was understood this included new RMGs, and earlier this year, Qube Holdings (which owns 50% of Patrick) said the cranes would be "new automated rail-mounted gantries", but it appears that Patrick has changed its plan.

ZPMC said the RTGs would have a span of 23m and a 15m cantilever, stack containers three-high, and be used to handle containers automatically between trains and automated straddle carriers.

ZPMC is starting a joint-venture company with CHEC to invest in and operate ports. Earlier this year, CHEC took a 30% equity stake in Phase 3 Terminal F at Laem Chabang, which will occupy part of the area (pictured) to the left of Terminal D (operated by Hutchison Ports) at the Thai port

Automation in the yard for Rizhao

Chinese crane OEM Qingdao Haixi Heavy-duty Machinery Co Ltd. (HHMC) has completed a project to install eight automated double-cantilever RMGs at Rizhao Port in China.

Rizhao Port Container Development Co Ltd has installed the cranes running parallel to the quay in part of its container yard, where they operate adjacent to conventional RTG blocks.

HHMC said that completing the installation and commissioning in just eight months marks the company's transition "from a hardware product supplier to an integrated intelligent port solution provider". It is understood that the cranes have control and automation systems from ABB.

Remote control room at Rizhao Port

Rizhao Port in Shandong Province is tipped to become part of a new merged grouping of ports in Shandong Province, headed by Qingdao Port. This month, Qingdao Port announced it will become the 100% shareholder of neighbouring Weihai Port. Rizhao and Yantai ports are also slated to become part of the merged port group as China looks to reduce the number of 'major' ports competing for business down from the current 34.

Guatemala reach stacker row

Empornac, the National Port Company of Santo Tomás de Castilla in Guatemala, has awarded Mecatrónica SA a controversial supply contract worth US$20.43M for 20 reach stackers.

Of the four companies that bid, Mecatrónica was the most expensive, and this would be the first time it has sold equipment to the public sector. The contract involves delivering the first reach stacker just 40 days after signing, and the balance by 15 December 2019.

The award has been challenged by Mantenimiento e Instalaciones Mecánicas SA (believed to be representing Konecranes), which offered to supply the 20 units for just US$14.25M, significantly less than the winning bid. Nevertheless, the Qualifying Board said that Mantenimiento's bid failed to meet several requirements, while its delivery dates fell outside the stipulated time period.

The other non-compliant bids were even less expensive – from Corporación General de Tractores SA (US$11.1M), possibly offering Kalmar machines, and from Distribuidora Agrícola SA (US$8.9M), possibly offering Hyster machines. It is hard to understand why there could be such huge price discrepancies, and Empornac has not explained in detail why none of the three losing bids qualified.

However, its general manager, César Meza, did say that the port has two straddle carriers and other handling equipment that have undergone repairs, but have essentially reached the end of their working life. Given the multi-purpose nature of the port, reach stackers will prove more flexible than acquiring more straddle carriers, with the new equipment being able to stack boxes in five high blocks.

Reach stackers already operate with some success at Guatemala's other ports of Puerto Quetzal and Puerto Barrios. Meza suggested that, even if four container ships were in the port, the reach stackers would be able to deal with the flow of boxes to and from the CY. Currently, in order to cope, parts of operations sometimes have to cease while handling equipment is concentrated on one task rather than handling a two-way flow of containers to and from the vessel.

More angst for Anaklia port plans

Just as the Anaklia Development Consortium (ADC) announced it had selected a general contractor for Georgia's future deepwater port, more controversy has arisen.

ADC selected France-based Eiffage SA, one of Europe's largest construction companies, as general contractor for the first stage of the port. The Eiffage-led consortium comprises a number of international and local Georgian companies, in particular ABB and Georgian firm CRP.

Around 1,500 workers, mostly recruited locally, will be employed on the construction works. Eiffage was directly involved in the design of Stage 1, noted ADC.

ADC has already placed orders for STS cranes with Hyundai-Samho Heavy Industries, as well as E-RTGs from ZPMC.

ADC is a joint venture of TBC Holding and Conti International. According to *Georgia Today*, more political problems have arisen, as TBC's owner, Mamuka Khazaradze, has been charged with money laundering by the Prosecutor-General's Office, along with TBC co-founder Badri Japaridze.

Khazaradze and Japaridze, who believe that forces within the government are conspiring against the ADC project, subsequently announced that they would step down from their respective positions of chairman and deputy chairman of the Anaklia Board of Governors, in order to fight the charges, which they strenuously deny, without compromising the Anaklia project. However, the twists and turns for this troubled project look set to continue.

IN THIS ISSUE

Electric vehicles on a roll in the USA

The number of electric terminal tractors and drayage trucks in the US is increasing steadily as operators access grant funding to purchase electric machines.

In May, Firefly Transportation Services used grant funding provided by the America Heart and Lung Association through the US Environmental Protection Agency's Diesel Emissions Reduction Act (DERA) scheme to purchase three electric Orange EV tractors. The machines will be used at a distribution centre for Kraft Foods in Ohio.

A BYD Class 8 drayage truck in operation in Oakland with GSC Logistics

In New Jersey, Best Transportation is testing a Class 8 electric drayage truck from China's BYD, and will soon receive four of BYD's battery-electric terminal tractors. These are being largely funded through a grant from the State of New Jersey Department of Environmental Protection (NJDEP), which is a beneficiary of the Trust established by the national Volkswagen emissions settlement.

The NJDEP is providing grants for up to 75% of the cost of electric forklifts and port cargo handling equipment. Best Transportation received US$1.122M from the VW funds for the four BYD tractors and related equipment.

BYD is gaining traction in the US market, where it launched its second-generation Y8 model terminal tractor in April this year. BYD is scheduled to deliver 14 second-generation Y8 tractors to two BNSF rail yards in Southern California, where some of its first-generation machines have been in service since 2018. BNSF is accessing over US$9M in grant funding through the California Air Resources Board (CARB) for its ongoing "demonstration project".

Mammoet takes ALE

In a global heavy lift sector merger, Dutch-based Mammoet has signed an agreement to acquire the UK's ALE Group. Earlier this month, the two companies advised the market that they were in exclusive negotiations.

The merger is subject to regulatory approvals. This may prove a stumbling block, as this is a highly specialised sector with only three global players – Mammoet, ALE and Sarens. Unlike the global freight logistics industry, it is hardly fractionalised and ripe for consolidation.

Reach stackers at ABP Hams Hall...

The reach stackers are equipped with a sliding counterweight

Cooper Specialised Handling Ltd in the UK has now commissioned two Sany 4540 GC reach stackers at ABP Hams Hall intermodal terminal, which services six train pairs/day carrying deepsea containers and domestic traffic from Scotland.

The two machines bring the terminal's fleet of reach stackers to eight (the others being from Konecranes), all of which are maintained by Cooper's own maintenance division in a partnership with ABP that goes back 10 years.

The 4540 GC has a 7m wheelbase and is powered with a Volvo D11 engine driving through a Dana four-speed transmission to a Kessler D106 drive axle. It is also equipped with a sliding counterweight to enhance residual capacity without having to slow the operation down with jacks, though jacks are also supplied for heavy lifts on/off the second rail.

David Cooper, executive director of Cooper SH, said: "In reach stacker intermodal operations, jacking slows drivers down, and they only use jacks as an absolute last resort. The sliding ballast helps here and could be the difference between lifting and not lifting without jacks, but its deployment is immediate.

"Delays in deploying jacks, whilst only a matter of seconds down and seconds upwards, accumulate over a working week, so time-saving in jack deployment increases productivity."

It is understood that the 4540 GCs provide ABP Hams Hall with its highest rated capacity machine to lift off the second rail to date.

As well as a sliding cab, the machines are fitted with the Elme 817 toplift spreader with the Elme 'soft landing' system that controls the last 150mm of travel to twistlock engagement.

...delivery to Belfast

Belfast Harbour Commissioners has taken delivery, through Cooper SH, of a new Mantsinen 300M mobile hydraulic crane, the first in the UK. The machine was delivered fully assembled from Finland, on board Meri Shipping's flat deck vessel AURORA. Mantsinen has made similar deliveries to customers in Belgium and elsewhere using AURORA and sister ship MERI.

On arrival, the cranes simply travel onto the quay using their own power. The two ships are also frequently chartered by Liebherr, for shipping erect mobile harbour cranes from Rostock to shortsea destinations in the North Sea and Baltic.

The 300M was assembled in Mantsinen's new facility in the Port of Rauma on Finland's west coast. The sub-assemblies were manufactured in Mantsinen's production facility in Ylämylly in eastern Finland, where the company has just announced its biggest ever one-time investment – €12M in new production and office space, milling boring centre and surface treatment line, to meet growing demand for its products.

Final assembly and function testing was completed in Rauma, thus facilitating a direct port-to-port sailing to Belfast that took six days. Actual transfer of the crane over the side of the ship via a short ramp onto the quay took just 30 minutes.

The 300M is generally recognised as the world's largest hydraulic crane, although recently, Sennebogen has claimed that its new 895 E, launched at BAUMA this year, is bigger.

The 300M can reach 460t in unladen weight, although the Belfast Harbour 300M weighs in at 370t without attachments. It has been specified in order that it can lift 30t steel coils from the far side of vessels that visit the port, as well as handling bulk and breakbulk cargo in and out of vessels as large as 36,000 dwt.

It is mounted on six axles with a total of 24 rubber tyres. Weight distribution in operating mode has been reduced by four double-pads each measuring 14 m². The 300M will join another rubber-tyred Mantsinen machine, a 160M, supplied through Cooper SH in 2016. This has become a popular crane, given its speed of operation, reach and capacity.

The 300M was offloaded from Meri Shipping's AURORA using its own power

WorldCargo news

Costs per big truck move

Hyster Europe has reported the results of extensive analysis using data from telematics, to offer insights into ways to reduce the cost per tonne moved. The overall conclusion is that productivity has a greater impact on total cost of operation compared to minimising fuel consumption *per se*.

Hyster Big Trucks is not the first OEM in the container handling industry to make this point. In the past, for example, Konecranes has argued that measuring fuel consumption per operating hour of an RTG is irrelevant, since the real criterion is fuel cost per move.

For example, a less productive diesel-electric RTG with low specific fuel consumption per unit may end up with higher fuel costs and associated emissions per shift, simply because it takes longer to perform the required number of moves.

Of course, Hyster wants to promote its own container handlers, but it will make an important point if it can show that low fuel consumption rates can be achieved without compromising productivity.

"Better productivity has a greater impact on the cost per container moved," said Chris van de Werdt, product strategy manager EMEA, Big Trucks, Hyster Europe. "Fuel savings are good to have when they are not affecting productivity, as they are also a small percentage of the cost of running a machine."

The company estimates that, typically, for the European and US markets (excluding the tyre costs), just 16% of the total cost to run a reach stacker, for example, is the fuel cost. Maintenance costs and depreciation each account for 20%, and 44% is accounted for by operational costs, including the driver.

"Our approach to fuel savings has always been about the best balance to support busy operations," said van de Werdt. "Tests we have conducted show that the Hyster reach stacker can be up to 12% more productive than comparable products.

"Real-life testing shows that 12% more containers can be moved per truck per hour in many operations, which quickly adds up. Excellent power response and productivity is often much better for operations with seasonal peaks and tight timescales when they need to push harder.

"Hyster Europe offers fast, responsive machines that can help keep drivers fresh and productive. Slow machines can lead to complaints, poor staff retention and an inefficient operation, despite marginal savings at the fuel pump."

Flow Drive for Alpherium

Konecranes has reported that CCT Alpherium, the inland waterway container terminal located in Alphen-aan-den-Rijn in the Netherlands, has ordered another Flow Drive reach stacker, its third such machine in two years.

Flow Drive is one of three ECOLIFTING concepts from Konecranes Lift Trucks – the other two being Power Drive and Hybrid Drive. Flow Drive uses a combination of hydrodynamic and hydrostatic technology to improve efficiency at high speed, and precision at low speed, aimed at reducing fuel-consumption, emissions and noise. Feedback from the drivers has been very positive, said terminal manager Ivo Hilhorst.

According to Konecranes, Flow Drive gives drivers a smooth ride, with no issues affecting the transmission. Braking and reversing are simpler, and manoeuvrability is excellent.

"In addition, the Alpherium truck ran at a lower noise level that made operating the vehicle at any time more pleasant, and a better choice during night shifts. They also noticed that fuel-consumption was down by around 25%," stated Konecranes.

Hilhorst said the terminal plans to replace all of its old reach stackers with Konecranes Flow Drive vehicles, and already has an additional order in the pipeline.

The trucks are provided through Peinemann Mobilift Group, together with a service and maintenance package.

Goldhofer SPMTs in Taiwan

Sea & Land Integrated Corp, based in New Taipei City, has ordered 28 modular PST/SL-E SPMT axle lines from Goldhofer in Germany. The company, which offers integrated services for container and heavy-duty transport by land and sea, alongside warehousing and engineering services for companies worldwide, has been a Goldhofer customer for more than 20 years, and already has 94 Goldhofer PST and THP axle lines in its fleet.

"In view of the continuing high level of demand for construction site logistics services, we decided to order additional vehicles from Goldhofer for handling ultra-heavy loads," said Charlie Chien, vice president of Sea & Land Integrated Corp. The new PST/SL-E axle lines will be used in Taiwan to transport heavy and outsized plant components for the energy industry and oil refineries

Elsewhere in Taiwan, another existing Goldhofer customer, Chi Deh Crane Engineering Co, a heavy haul specialist based in Hsinchu City, has opted for the FTV 550 blade transporter, to service the country's growing wind power logistics services requirements. Delivery to Taiwan is expected to take place in August.

The impressive spectacle of a Goldhofer FTV 550 blade transporter in operation at a project in France

Haifa objections in US Senate

The US Senate is opposing Shanghai International Port Group's (SIPG) role in the construction of Haifa Bay Port in Israel, despite which, both the Israel Ports Development and Assets Company and the planning authorities are going ahead with the work. SIPG will build the port and operate it for 25 years.

It is not only the US Senate that stands in the way of the project's completion. Haifa District Court has issued an injunction to prevent the issuing of the relevant building permits. This follows a petition by the Haifa municipality in respect of the expansion of Haifa Airport.

The US concern is based around the use of the existing Haifa Port by the US Navy's Sixth Fleet, and it could result in a resolution in the Senate calling on Israel to reconsider foreign investments in Haifa Port, and urging the Israeli Government to "consider the security implications of foreign investment in Israel".

Furthermore, since Haifa Port, which reports to Israel Ports Company, will also transfer management of naval traffic to its parent, the US claims that some form of safeguarding will be needed to prevent SIPG learning of anchoring plans close to its operating territory.

As for Haifa municipality, it alleges that the new port will make further expansion of the airport extremely difficult. To date, the municipal authorities have not carried out obligations to pave access roads to the port, which SIPG said must be done if the port, due to open in 2021, is to become operational.

Four terminals planned for Manzanillo

Mexico's Secretariat of Communications and Transportation (SCT), along with API Manzanillo (the port authority) and the State of Colima, is to provide funding for the development of four new cargo handling terminals at the country's largest Pacific coast port of Manzanillo.

The new facilities, which will be located in the Lagoon of Cuyutlán area of the port, will process containers, agricultural commodities, mineral bulk and hydrocarbon (oil and gas) cargoes. Preliminary work for the new terminals has been completed, and a new channel dredged to the development area.

While the actual size of the new facilities has not been made public, *WorldCargo News* understands that the new box terminal will have an annual handling capacity in the 1.7M-2M TEU range.

Manzanillo has a need for new terminals as the port's location in a busy city means that traffic congestion is an issue and cargo movements to/from the port can be very slow. This has led to arguments between freight transport interests and local people as concerns over pollution, noise and safety have increased.

According to SCT, in the first five months of 2019, Manzanillo handled 13.5 Mt of cargo and 1.24 M TEU, up 1.2% and 4.8%, respectively, on the corresponding period of 2018. Currently, Manzanillo has an annual container throughput capacity of 3.5M TEU.

The planned expansion at the port is part of a US$5.2B-plus national infrastructure programme that President Andrés Manuel López Obrador intends spending on the country's ports. He wants to modernise their infrastructure, expand their cargo handling capabilities, and ensure that services and platforms allow them to trade more effectively are in place.

Mexico's SCT is planning a new 1.7M TEU box terminal in the Lagoon of Cuyutlán area of Manzanillo

National dredger for Russia?

Russian deputy prime minister Yury Borisov has instructed the country's industry and transport ministries to work out a public-private partnership model for a national dredging company. They will determine the minimum scope of dredging works and the key production facilities needed for the construction and maintenance of a new dredging fleet.

Beglyar Novruzov, an expert with the Russian federal government's Analytical Center (AC), remarked that the country's current dredging fleet is obsolete and, as a consequence, most of the main projects go to foreign firms.

Thus the federal government misses out on potential revenues and has to expend foreign currency reserves. In the 2010-2018 period, for example, foreign dredging firms were awarded contracts worth around US$800M.

St Petersburg-based company Investments, Engineering & Construction (IEC) has already been in touch with the government and, said Board member Andrey Mushkarev, had been talking with prospective Chinese and European partners. However, IEC has now signed an agreement with Tamear, a Turkish branch of Saudi Arabia's Al Akaria group, for a €10M joint venture.

The new company has reportedly attracted €300M in loans from Russian and Turkish financial institutions to finance a new fleet. The plan is to build 15 state-of-the-art dredgers by 2022, and talks are underway with the Damen and IHC shipyards in the Netherlands.

Looking ahead to 2026, 20 more modern dredgers could be built by Russia's United Shipbuilding Corporation. Russia's ship repair facilities will also need to be modernised and upgraded accordingly.

Hungarians for Port of Trieste

The Port of Trieste has ratified a contract with the Government of Hungary and two private Hungarian firms, Teseco and Seastock, to develop and operate a multipurpose terminal in the port's Noghere zone, formerly occupied by the Aquila oil refinery. The investment, including the real estate, clean-up and new infrastructure, has been costed at €100M.

In the past three years or so, Trieste has become more important as an outlet for Hungarian shippers, particularly the automotive sector, in competition with Koper. Currently, 14 train pairs a week run between Budapest and Trieste.

The property in question occupies 320,000 m² including the back area for open and covered storage. The quay is rail-served and has a depth alongside of 13m. If all goes well with the reclamation works, the terminal should be in operation within two to three years. Next year, a rail connection to Aquilinia station will be opened.

Some of the reach stackers are fitted with jacks, and one has extension legs on the spreader for high loads in open-top containers

Port of Ashdod kits out

Ashdod Port Company has taken delivery of a new STS crane, reach stackers, forklifts and other equipment.

With an outreach of 66m, sufficient for a 23-row vessel, the port claims its new ZPMC STS crane is the largest in Israel. The crane, which arrived last month, cost around €9.5M and features optional semi-automatic operation, an OCR system to capture container numbers, and a chassis positioning system. The port operator said it has an option for a further nine cranes.

In the yard Ashdod Port Company has taken delivery of eight new FLTs and seven Gloria reach stackers from Kalmar. The eight 16t FLTs will replace an existing fleet of 12t machines.

About half of the existing reach stacker fleet is being replaced with the new 45t Kalmar machines. The reach stackers will also have a container weighing system, which will be connected to the port's TOS. The port reported that each reach stacker cost €450,000 and each 16t FLT €200,000.

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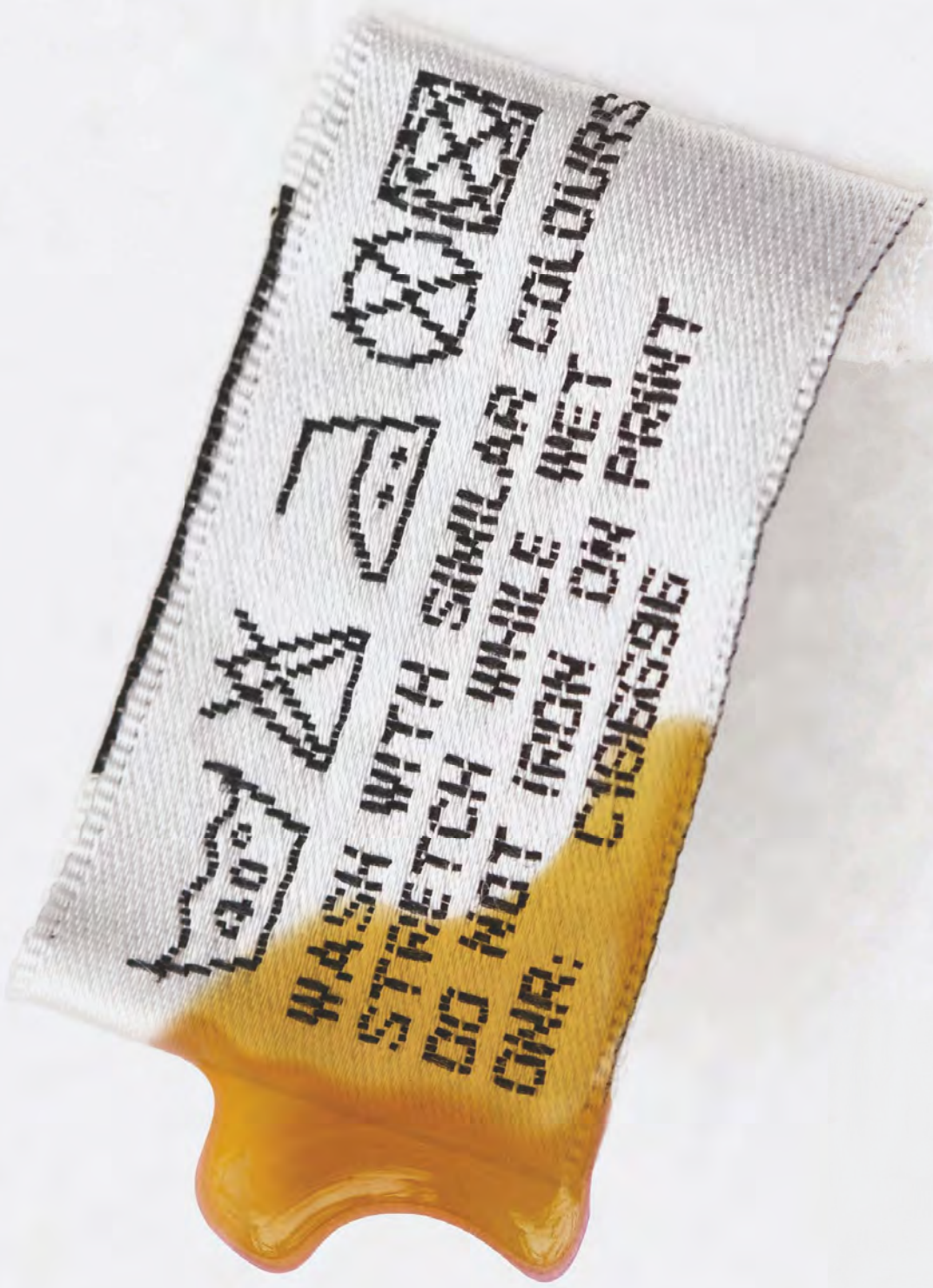

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WorldCargo news

DP World re-enters Indonesian market

Sultan Ahmed Bin Sulayem, group chairman and CEO of DP World, and Dr Alim Markus, president director and CEO of Maspion Group, shake hands after signing the agreement, applauded by Sheikh Mohammed bin Zayed Al Nahyan, Crown Prince of Abu Dhabi, and Indonesian President Joko Widodo

DP World is re-entering the Indonesia market. A deal concluded in the past month will see the world's third largest operator of container terminals invest in a new US$1.2B integrated port and logistics complex at Gresik, East Java.

The move comes less than three months after DP World allowed its operational and development concession at the Surabaya Container Terminal in Surabaya to lapse. The group blamed its decision on Indonesian Government's state port authority (Pelindo III in this case), claiming that the administration's "contract renewal terms did not meet our threshold for continued investment". Gresik is located just a few kilometres from Surabaya.

Arguably, the new Maspion International Container Port (MICP) project is a better fit for DP World's proven business model, as the cargo handling complex is to be fully integrated into an 890-acre logistics/industrial park. The port will have the capacity to handle at least 3M TEU a year.

It is also being backed entirely by private enterprise, with DP World's partner comprising the huge industrial conglomerate Maspion. This group, which, in a partnership with a Singapore-domiciled chemical company, already operates a jetty for handling liquid cargo at the site, will generate some of the cargo for the new terminal. MICP, which will be developed primarily as a gateway for East Java, will also process some intra-island domestic cabotage and transhipment traffic.

Commenting on the arrangement, Sultan Ahmed Bin Sulayem, group chairman and CEO of DP World, said: "This partnership will be a major addition to our global portfolio and a new step in our ongoing expansion. It will also enhance our continuing commitment to Indonesia, one of the most important world economies."

It is hoped that construction work on MICP will start later this year, with cargo handling activities commencing during H1 2022.

DP World is one of the most active international terminal operators in the world at the current time. Within the past three months, it has, in addition to this latest deal, purchased the offshore oil and gas supply businesses of Topaz Energy & Marine for almost US$1.1B, agreed a series of development projects for Russia's North Sea (Arctic) Route, and committed to investing in additional freight transport infrastructure in Kazakhstan.

More for Chancay

A consortium led by Cosco Shipping Ports (CSP), which is building the Peruvian Port of Chancay, wants to increase investment in the initial stage of the project by US$723M, bringing the total project amount to US$3B.Cosco holds a 60% stake in the project and is partnered by local company Volcan.

The change was revealed by Carlos Tejada, deputy general manager of CSP Chancay. "The amount stipulated in the approved contract [for the first phase] is US$447M, and this addendum will allow the investment to be expanded to US$1.17B," he said, speaking at a forum organised by ProInversión.

Originally, the first-stage development was to have encompassed the construction of a single multipurpose terminal, but the amended plans envisage a further three being built.

Tejada also predicted that changes to the environmental impact assessment governing phase one would be approved by the relevant authorities by February 2020. This will now have to take into account a track centre and access tunnel, as well as the aforementioned three additional terminals.

Tejada confirmed that there would be no problems in financing the additional work, and noted that the overall vision is to convert Chancay into a Pacific hub port, bringing cargo directly from Asia, and then distributing it around the region.

If the whole project is completed, the port, which is some 50 km north of Lima, could eventually have an 11-berth container terminal and a further four berths for general cargo and ro-ro.

Cosco Shipping Port has increased its investment at Chancay, Peru

Five-year extensions

Margarida Matos Rosa, president of Portugal's Competition Authority (AdC), believes that "excessively long" terminal concession extensions in the country's ports are "inadvisable". AdC first made this point at the end of 2018, although Matos Rosa conceded she does not know whether the advice has been taken on board by the government. Of the 27 terminal concessions investigated by the AdC, 15 are due to expire by 2025.

She said that, if principles of "competitive sanity" are to be followed, it makes no sense to extend concessions beyond five years at most. Long extensions do not favour the state, while new concessions would involve significant savings and better services thanks to enhanced competition.

The AdC also wants to see the market for towing and pilotage services deregulated, as well as a reform of port governance. In some cases, certain organisations not only manage services, but also regulate them, which leads to a conflict of interests. Therefore, it argues, these functions must be separated.

ICTSI named for Kribi port

Port landlord Port Autonome de Kribi has named ICTSI of the Philippines as the preferred bidder for the 25-year concession to operate the multipurpose terminal at the deepwater port of Kribi in Cameroon.

In a statement to the Philippine Stock Exchange, ICTSI said: "Parties will now engage in exclusive concession contract negotiations ahead of final contract signature." The terminal has a 265m berth and 10-ha of backland, with more land available for industrial, manufacturing, processing and logistics projects.

The concession was originally awarded to French firm Necotrans and a consortium of Cameroonian companies called KPMO in 2015, but was cancelled when Necotrans' financial difficulties became apparent. The tender was relaunched, and a list of 10 bidders revealed last July was cut down to a shortlist of five in September. ICTSI beat off competition from South Africa's Coega Development Corporation and Transnet, a joint venture of Marsa Maroc and AIIF3, a consortium of the Port of Antwerp, Comexas Afrique and Sinotrans, and a partnership between Medlog and Wide Resources.

KPMO holds a two-year contract to operate parts of the terminal from 2018 until 2020, but under the current timetable, the new operator is due to be in place by July 2020. China's Exim Bank has provided a US$600M loan to help finance port improvements and the construction of the multipurpose terminal.

The Port of Kribi was originally built to handle oil exports from the Chad-Cameroon pipeline, and the container terminal was completed last year. The port will be connected to neighbouring Chad and the Central African Republic by a new highway, and it is expected that it will become the main port for the two landlocked states.

Mombasa controversy

The Kenyan Government has signed an MoU with MSC and Kenyan National Shipping Line (KNSL) over a concession to operate the new container terminal at Mombasa, but the deal faces opposition from politicians and trades unions.

Kenya's President Uhuru Kenyatta said that the deal would help turn KNSL into a "world-class shipping line" over the next decade. Kenya Ports Authority (KPA) is the main shareholder in the company.

A variety of objectors, including the Dock Workers Union (DWU), which is concerned about job losses, petitioned the Kenyan High Court to declare the MoU illegal. DWU secretary general Simon Sang said that the government had not followed proper procedures, even if it was going to transfer control of the terminal to a private operator.

The petitioners argue that the new container terminal, the second at the port, must be managed by state bodies as a national asset, and so the agreement is unconstitutional, that the government has not consulted the public, and that too little is known about the MoU. The petition also stated that there have been no problems with current terminal management by the KPA.

On 19 July, the High Court suspended the MoU to give a panel of judges sufficient time to consider the future of the terminal, which was built at a cost of KSh30B (US$287M), with funding from the Japan International Cooperation Agency (JICA).

Successive Kenyan administrations have considered transferring control of various parts of the port to private-sector operators over the past 15 years, but opposition to privatisation has seen each attempt abandoned.

- The United States government has financed security improvements at the Port of Mombasa, including 11 radiation portal monitors. KPA claims that the port is now ISPS Code compliant.

SA-TU Vuosaari step up

SA-TU Logistics is stepping up its activities in the Port of Vuosaari (Helsinki), where it already provides forestry product handling, storage and logistics services. It has signed a Letter of Intent with the port for another 4-ha site including a hall of 4,000 m^2, which will be equipped with a 70t OET crane, a hall of 2,500 m^2, and an open storage area including a CY. The new terminal will have access to the port's truck weighing scales.

Niko Plith, CEO of SA-TU, explained that the new facility will be used for handling steel products, various industrial goods and project cargoes. Services on offer will include container stuffing and stripping, forwarding and customs brokerage.

The company has just taken delivery of a new Hyster H.28.00XM-12 lift truck with a short wheelbase for manoeuvrability. It has extra counterweight to increase lift capacity on the forks to 32t.

SA-TU Logistics is already a big player in Vuosaari Harbour

New Tukan 2000 for Kaliningrad exclave

KMTP, the main stevedore in Kaliningrad, has put into operation a new Tukan 2000 double level-luffing crane from Kocks Ardelt Kranbau in Germany. The multipurpose crane can be used to work bulkers up to 85,000 dwt. In hook mode, it can lift 50t at 40m outreach, with a maximum load capacity of 95t at 23m. This has enabled KMTP to attract new business, handling steel slabs weighing up to 80t.

In bulk mode, high productivity is provided through the short rope length and, via the 'kangaroo' hopper on the waterside of the rail portal, the linear load path.

KMTP acquired the crane under a seven-year (November 2018-November 2025), US$9.5M leasing agreement with Siemens Finance. It is KMTP's first crane acquisition since it acquired a double-level luffing crane from Kranunion Eberswalde (now Kocks Ardelt Kranbau GmbH) 17 years ago.

Last year, KMTP handled 3.3 Mt, including around 1 Mt of Russian metal exports, mainly from NLMK Group.

Nanaimo gets funding

Canada's Minister of Transport Marc Garneau has announced that the federal government will invest C$46.2M in the Port of Nanaimo on Vancouver Island to expand its Duke Point Terminal, which is operated by DP World.

Work includes expanding the existing wharf from 182m to 325m, and constructing a new warehouse, administration and maintenance building, and a new truck gate. The yard area will be expanded and the port will get two new STS cranes with a 26m outreach.

DP World originally opened Duke Point as a feeder terminal to its main operation in Vancouver, bringing in a used mobile harbour crane to handle barges. It is not known what will become of the existing STS crane at Duke Point, an ageing Star Porter design unit with a 43ft rail gauge.

The existing STS crane at Nanaimo, which will receive C$46.2M in new investment including two new cranes

China mulls banning open-loop scrubbers

China's Maritime Safety Administration (MSA) is planning to extend its ban on the discharge of waste water from open-loop scrubbers to all of its coastal waters (within 12 nautical miles of its territory) from 1 January 2020. Since January of this year, restrictions on the use of open-loop scrubbers have been in place on the Yangtze River, the Xijiang River and in the Bohai Bay regions of the country.

The MSA's move coincides with the implementation of the IMO's new bunker regulation, which will cut the maximum sulphur content of HFO from 3.5% to 0.5%. Scrubbers allow shipping companies to still use high-sulphur fuel, as they cut out the dangerous emissions. Whereas open-loop scrubbers use water to flush out the chemicals, closed-loop versions keep most of the wash water on board the vessels. This is a more expensive option and can reduce ships' cargo carrying capacities.

In announcing the planned actions, a spokesperson at the MSA said: "This restriction is in line with China's war against pollution and is part of the obligations of the international convention."

Meanwhile, the authority is planning even tougher measures in 2022, with operators/owners of ships trading to/from the Yangtze and Xijiang river systems having to use fuel that has no more than 0.1% sulphur content.

Panama draught levels

Continuing drought conditions have led the Panama Canal Authority (ACP) to maintain draught restrictions of 44ft (13.4m) TFW (tropical fresh water) on neo-Panamax (NPX) vessels.

This is the fifth reduction in allowable draught for NPX vessels since February this year. In addition, in May, the allowable draught in the older Panamax locks was cut to 12.04m.

According to Carlos Vargas, ACP's VP for the environment, water and energy, between December 2018 and June 2019 rainfall was just half of the usual amount. The shortage was especially marked in headwaters that supply Lake Gatún and Lake Alajuela, with the former 1.8m lower than it should be, and the latter 3m lower.

The position could have been worse. In June, ACP announced that it planned to reduce the NPX limit by another 30cm to 13.1m TFW on 3 July. However, it was able to suspend the measure due to an improvement in conditions. Vargas said he was confident that rainfall in July-September will be such that the draught restrictions can be lifted.

In April alone, the lower NPX draught led to a US$15M reduction in canal revenues. Shipping costs have increased as many ships have to offload cargo at the ports at either end of the canal.

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Reachstacker
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Demo unit
Capacity 45T
5 High Telescopic

SMV 4531 TC5

Reachstacker
Year 2006
Capacity 45T
5 High Telescopic

Hyster RS 45-30 CH

Reachstacker
Year 2015
Capacity 45T
5 High Telescopic

Kalmar DRG450-65S5X

Reachstacker
Year 2012
Capacity 45T
5 High Telescopic

Kalmar RT240

Reachstacker
Year 2013
Capacity 45T
5 High Telescopic

SMV 4535 TB5

Empty Container Handler
Year 2014
Capacity 9T
7 High Stacking

Kalmar DRF90-45E7

Empty Container Handler
Year 2010
Capacity 9T
7 High Stacking

Fantuzzi FDC25K7

Empty Container Handler
Year 2010
Capacity 9T
7 High Stacking

Hyster H22.00XM-12EC

Heavy Forklift
Year 2008
Capacity 12T
5000mm Duplex

Kalmar DCE 120-6

Heavy Forklift
Demo Unit
Capacity 16T
4000mm Duplex

Konecranes Liftace F16-600

Heavy Forklift
Demo Unit
Capacity 16T
5000mm Duplex

SMV 16-1200C Triplex

Heavy Forklift
Year 2011
Capacity 20T
4280mm Duplex

SMV 20-1200B

Heavy Forklift
Year 2002
Capacity 32T
4350mm Duplex

SMV SL 32-1200A

Heavy Forklift
Year 2008
Capacity 33T
4000mm Duplex

Kalmar DCF330-12LB

Mobile Harbour Crane
Year 2004
Capacity 16T
Lifting Height:
25000mm

Mantsinen 90 RCT

1 - 10 ton

1 - 10 TON Forklifts

10 - 60 ton

10 - 60 TON Heavy Forklifts

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China looks to waterways

A mix of state-sponsored incentives, commercial enterprise and technological innovation is resulting in more general cargo and containers being shipped on river vessels/barges in China.

Since May, China's National Development and Reform Commission (NDRC) has been granted the authority to subsidise projects that benefit the environment and, specifically, improve infrastructure and connectivity between the river and other transport modes.

WorldCargo News understands that NDRC can award so-called green subsidies up to the value of RMB100M (US$14.5M) to support new projects or projects currently in the planning stages, rather than those nearing completion. Geographically, the Commission will target programmes in the less developed areas of China's interior, including in provinces such as Anhui, Jiangxi, Hubei, Hunan, Chongqing, Sichuan, Guizhou and Yunnan. The subsidy programme extends until end-2020.

Increasingly, private and state-controlled shipping companies are reviewing their operations with a view to cutting costs, reducing transit times and improving schedule reliability. Making progress on all of these fronts on the main corridors is crucial if river services are to attract cargo from the highways. They also meet the central government's objective of promoting more environmentally friendly and sustainable freight transport.

Ports are getting on board. Shanghai International Port Group and Sichuan Yibin Port Group (southwest Sichuan Province) recently collaborated on the launch of a fast ship service between the two ports. A 350 TEU capacity vessel now completes the voyage in 12 days. This compares with a transit time of 20 days previously.

Meanwhile, considerable research is taking place into the use of automated vessels on China's rivers. Zhuhai Yunzhou Intelligence Technology (ZYIT), which owns iCloudnav and is a leader in this field, has joined up with Zhuhai Port Shipping (ZPS), with a view to installing and testing various technologies and systems on that company's vessels.

UK logistics sees the cup only half full

According to the latest Barclays Bank/BDO survey on the UK logistics industry, confidence in the sector has reached a record low, scoring just 49.7 marks. It is the first time the group's *Logistics Confidence Index* has registered less than 50 points. It signifies that participants in the survey are more pessimistic than optimistic about the future. In H2 2018, the index scored 52.6 points.

In particular, the survey reflected growing unease about Brexit and the country's short-term economic prospects. A highly significant 47% of respondents said they were either reducing their investment levels or placing decisions on hold. Encouragingly, though, most companies said they had Brexit plans in place and are ready for a range of outcomes. Only 5% claimed they had no plans in place for Brexit.

Other concerns affecting confidence levels included recruitment, with 43% of companies citing driver and logistics skills shortages as a real problem. When asked about automation, most respondents did not see this as an immediate answer to their labour difficulties. Indeed, over 80% of the companies surveyed expected fewer than 10% of warehouse roles to be replaced by automation or robotic systems in the next five years.

But the results were not all negative. In fact, stockpiling ahead of Brexit and the need to revamp supply chains led most respondents (63%) to forecast a rise in turnover in the next 12 months. Meanwhile, 55% of participants expected their profits to also increase.

Charter market blows hot and cold

There are mixed signs in the container ship charter market at the moment and this is expected to continue. Uncertainties associated with Brexit, future US/China trading relations and the security of cargo and shipping movements in the Middle East region are affecting demand, while on the supply side, the implementation of the IMO's 0.5% sulphur cap on bunkers is having an impact. Primarily, this is because of vessels being taken out of service for scrubbers to be fitted.

Research by Alphaliner confirmed this situation. "The looming IMO 2020 sulphur rule deadline has spurred the demand for larger ships to fill sailing gaps caused by tonnage being removed from the market to undergo scrubber retrofits," said Alphaliner. "In early July, a dozen ships over 7,000 TEU [aggregating over 350,000 TEU] were undergoing scrubber retrofits."

The firm of maritime analysts stressed that the impact on smaller vessels was much lower, and that is why a two-tier pricing regime has emerged. While post-Panamax class vessels, including neo-Panamax units, are enjoying premium daily charter rates, prices for smaller feeder class and intra-regional tonnage are in the doldrums.

A ship can be out of service for up to two months for scrubbers to be fitted, and it costs an average of US$2.5M to US$5M. In most cases sailings have to be covered, and that means chartering in tonnage.

"As demand shows no sign of weakening, the lack of prompt tonnage is forcing liner companies to secure vessels with relatively forward deliveries, sometime into the autumn," explained Alphaliner. The consultant also said that the number of large ships laid up had fallen, with only 13 units (in the 3,000 to 5,100 TEU range) idled in early July. This compared with more than 60 ships in the early part of the year.

According to the *Container Ship Time Charter Assessment Index*, published by the Hamburg and Bremen Shipbrokers' Association, daily charter rates for its 4,250 TEU-class of vessel has soared from US$10,000/day to almost US$13,000/day, as of the end of July.

The supply of box ships is being impacted as vessels are taken out of service to fit scrubbers ready for the IMO's new sulphur cap in 2020 (photo: Yara Marine Technologies)

OmniTRAX adds WW

US transport and rail logistics company OmniTRAX has signed a deal to acquire Class III shortline operator Winchester & Western Railroad (WW) from current owner Covia Holdings for US$105M. The deal is subject to closing conditions, including Surface Transportation Board review.

WW operates two separate divisions – the New Jersey Division and Virginia Division. The 53-mile Virginia Division operates through Maryland (MD), Virginia (VA) and West Virginia, serving the communities and areas around Gore, VA, Winchester, VA and Hagerstown, MD. The New Jersey Division operates over 47 miles in southern New Jersey. Both divisions connect with Norfolk Southern and CSX.

Most of the cargo WW carries is bulk, such as lumber and wood products, minerals, metals, grains, animal products, sand, gravel and chemicals, plus some food products in containers. A spokesperson for OmniTRAX told *WorldCargo News* it wants to expand WW's business to include more container traffic. There are two major consumer products shippers that it expects will start using rail and intermodal containers in the next few years. The cargo would be exported from the ports of Baltimore and Camden. Camden is in southern New Jersey, opposite the Port of Philadelphia.

G&W sold to Brookfield and GIC

A consortium of Brookfield Infrastructure, Singapore's GIC and Brookfield Infrastructure's institutional partners has agreed to pay around US$8.4B to acquire Genesee & Wyoming Inc (G&W), including its debt.

G&W owns 120 shortline railroads, predominantly in North America, with operations also in Europe (Freightliner) and Australia, where it is both a train operator and track manager in South Australia. Through its subsidiaries, it provides transport infrastructure services over more than 26,000 km of track.

Brookfield Infrastructure owns around 10,300 km of rail track in Australia and Brazil. Its CEO, Sam Pollock, said: "G&W will be a significant addition to our global rail platform and will expand our presence in this sector to four continents."

A key decision facing Brookfield and GIC as the new owners of G&W is whether it is interested in investing in and repairing around 100 miles of line in Nova Scotia operated by the Cape Breton & Central Nova Scotia Railway, which CN sold to G&W in 2012. The railway links the proposed Novaporte container port in Sydney to Truro, where it connects to the CN network, but around 100 miles of the line have been out of services for several years.

G&W actually applied to Canada's Ministry of Transport to formally abandon part of the line, which would be a major blow to Novaporte's ambitions, but a "preservation agreement" was reached with the Cape Breton Municipal Council, which is now paying for security and other operating expenses to keep the line from closing.

This arrangement runs out in 2020, and the Council is expecting to see a definitive commitment to build Novaporte in the near future. Brookfield and GIC may be more willing to work with Novaporte and other investors to see the project move forward.

Italy-China train trials

Xi'an International Port Area Haidebang Logistics Co Ltd and Swiss intermodal operator Hupac have dispatched an intermodal train from Terminal Busto Arsizio-Gallarate in northern Italy, near the Swiss border, to the city of Xi'an in Shaanxi province, north-western China.

The Milano-Xi'an Freight Express has a transit time of 18 days. The goal of Hupac is a weekly frequency in each direction. For the trial period, the train will run on a monthly or bi-monthly frequency.

Hupac has expanded well beyond its traditional north-south Europe axis. With branch offices in Moscow since 2011 and in Shanghai since 2016, and with the procurement of its own rolling stock for Russian broad gauge, it has prepared the ground for new business areas in the East and Far East. The overall aim is to establish a big channel that connects resources, products and markets between west and east. The new service could benefit from Italy's recent signing of BRI agreements with China.

Russia moves on BTK line

The Russian Government has offered to build a new, 76 km-long Russian gauge (1,520mm) rail line from Akhalkalaki in Georgia, close to the border with Turkey, to the city of Kars in eastern Turkey. The new track would be part of the Baku-Tbilisi-Kars (BTK) railway and run alongside the European gauge (1,435mm) section of the BTK, which opened in 2017 and is attracting increasing volumes of freight.

Currently, trains must switch from Russian to European gauge at Akhalkalaki. The Russian proposal would allow Russian Railways (RZD) and its Belarusian and Kazakh associates to run trains as far as Kars, where a new logistics terminal would be constructed.

Earlier this year, RZD, Turkish Railways and Azerbaijani Railways signed a trilateral Memorandum of Cooperation in Ankara. The goal is to "ensure that cargo from Russia passes through the Caucasus and Anatolia on the way to its destination".

Via the Trans-Siberian Railway and BTK, Russia's Pacific harbours would thus be connected with the Mediterranean. RZD's director general, Oleg Belozerov, said the company is prepared to commit 5-6 Mtpa to BTK initially, and up 17 Mtpa in the future.

The potential of this new corridor is obvious and it has clear geopolitical and economic implications. Turkey is a key market for Russia's steel, coal, grain, fertiliser and other exports, traditionally shipped over seaports in the Ukraine. Turkey, meanwhile, would gain a Russian broad gauge connection to the whole of Russia, Georgia, the CARs, Finland, the Baltic Republics, Ukraine, Bulgaria and Iran.

The political drawback is that the trilateral rail deal ignores Georgia, one of the 'founding fathers' of BTK. Mamuka Bakhtadze, prime minister of Georgia, has stated that the involvement of a "fourth party" (i.e. RZD) in BTK requires all the founders' consent. He has denounced Moscow's plans.

WorldCargo news

Calling time on the TOS

In a presentation at TOC Europe last month, Thomas Van Buskirk, VP of Product Engineering at Tideworks Technology, made a big call when he declared: "The application of readily available, proven software architecture to next generation TOS solutions will make your current TOS obsolete within 5 years."

Van Buskirk made the case that the amount and complexity of functionality in TOS today has grown to the point where having it all managed through one application is both inefficient and out of step with important trends in IT.

Legacy TOS systems have become "monolithic" and that is not a good thing for any application. As well as being large and complicated to maintain, a monolithic application actually holds an organisation back from adapting to new demands and requirements because the cost and complexity of integrating with the TOS is too high. Very little or nothing at all can be changed without impacting the TOS, and the cost and complexity of changing the TOS is a huge barrier to innovation.

The problem is not going to get any better. At the same time as terminals are going through their own digitalisation journey, there is a host of new technologies entering the supply chain, including IoT, blockchain, data analytics and 5G communications. What terminal operators need next, said Van Buskirk, is not a better product, but a "platform" that is fit for the wider industry.

Tideworks is not playing all its cards yet, but it is now working on a next-generation platform where functionality is delivered as independent "microservices" rather than as modules to one single application. Microservices are based on much smaller, modular bundles of software that contain all the code and configuration files needed to run a service in one package. They are run and communicate with each other over a lightweight protocol, such as HTTP.

As examples, Van Buskirk listed container or cargo inventory services and gate services. Designed as microservices, each of these could be deployed independently. All the code and functionality would be managed by Tideworks, and the terminal would "use" the application as a service.

For Tideworks, developing microservices enables it to be more responsive to customer requirements, while at the same time avoiding the long-standing problem of trying to develop and maintain multiple versions and integrations of one TOS used across the customer base.

Tideworks' VP Thomas Van Buskirk

Tideworks has stated that moving towards microservices is the direction it wants to go, but making the transition is not simple. Firstly, said Van Buskirk, Tideworks as a company is identifying ways to develop and deliver multiple independent services, rather than working in larger teams based on big products and modules. Microservices also require a different market model than the standard application licensing and maintenance fee that terminals are used to with a TOS installed on site.

Terminals and end-users also need to get on board, and large facilities with a high level of process and equipment automation will be a particular challenge. As one operator explained to *WorldCargo News*, rethinking the way the TOS is constructed is not a priority right now. Some terminals with very complex automation are more focused on integration and optimisation to improve productivity at the moment.

For smaller and mid-sized terminals, however, microservices offer a way to address one of the main issues with TOS today, and that is how the complexity of deployment and maintenance of a full-scale TOS has become too complicated and resource-intensive to sustain. TOS has clearly fallen behind in this regard – terminals are running more and more applications on the cloud, and are looking to their TOS providers to get on board and simplify the whole TOS environment with a more modern infrastructure.

Tideworks plans to launch its first microservices-based products at its tri-annual user conference later this year.

RBS heading for the cloud

Another TOS vendor that believes the TOS market is on the cusp of major change is Australia's Realtime Business Solutions (RBS). Speaking with *WorldCargo News*, managing director Harry Nguyen said RBS is currently working on a project to put 14 terminals, run by one of its customers in Vietnam, in the cloud.

The customer will pay to access TOS services on a "pay-per-use" model, and Nguyen said he believes this will eventually become common to the point where RBS will change its whole business model and "become a service company".

There are always concerns about connectivity and security whenever cloud-based TOS services are discussed, but Nguyen said there really are no problems, even in Vietnam where it is sometimes assumed that connectivity is a problem. Cloud services including Amazon Web Services (AWS) are available to Vietnam from Singapore, Tokyo and other locations, and "the speed is very fast, even with a modem" said Nguyen. With regard to security, RBS believes cloud service providers like AWS and Azure are actually more secure for a container facility than hosting software and data on site. The cloud providers offer full data encryption and multiple security layers that are better than most terminals in this respect.

As well as cloud infrastructure, what is really going to drive hosted TOS services, said Nguyen, is how the cloud and 5G connectivity can combine to support delivering complex TOS functionality over the internet to lightweight hardware like tablets and mobile phones without needing to run large applications on the devices themselves. This will improve the whole way TOS applications are delivered and supported, as well as the way users work with them. When TOS applications are installed and running on site, continued Nguyen, customers have to support the hardware and configure and use the applications. Most of the "support" effort required from RBS for customers that are hosting their own software is correcting mistakes in the IT environment, deployment and configuration. With cloud services and the high-speed bandwidth of 5G, Nguyen believes RBS will be able to do this centrally, and the people using the TOS at terminals will be able to run the functionality they require from any browser, anywhere. Nguyen believes this will change the whole market.

Container crane deliveries edge up

Numbers of STS container gantry cranes are forecast to be up on 2018 by almost 10% to 236 this year, but no return to the heady days of the mid-noughties is likely

The STS container crane market has not been particularly dynamic in the past few years, and annual deliveries have been around the mid-200s range. This year is similar, with the number calculated to be 236.

Overall, the market has recovered if you take a longer perspective. In 2011, around 160 cranes were delivered. Given the lead times involved in STS crane supply, the market in 2011 reflected the slowdown in container traffic after the 2008-09 financial crisis.

This year's results are boosted by significant changes in delivery dates reported by ZPMC, based on the date of the Final Acceptance Certificate. A number of cranes originally referenced for delivery in 2020 have been moved into the 2019 calendar year. At the same time, several orders originally referenced for 2018 delivery were moved into 2019. The details can be seen in Table 2b.

The Chinese company says it is quite common for crane contract terms to be moved forward or back in terms of deliveries. At any rate, the effect of the changes is to boost ZPMC's 2019 numbers at the expense of its 2018 figures and its forward bookings for 2020.

Table 1 shows 175 cranes for delivery in 2020. This compares with our figure last July of 158 cranes for delivery in 2019. However, it does not follow that 2020 will prove a bigger year than this one.

As noted above, in overall terms, the STS crane market has recovered from the 2008-09 financial crisis, but growth is nothing like in the heady days of the noughties – when container handlers were running to stand still. Moreover, the market is unlikely to get back to those levels for the foreseeable future.

This 65t-66m outreach ZPMC crane, with a 30m rail span and 45m lift height above rail, arrived in Ashdod in early July

In its latest five-year forecast for the global container terminal sector, Drewry Shipping Consultants is forecasting global growth of 4.4% per annum on average, lifting world container throughput from 784M TEU in 2018 to 973M TEU in 2023.

As Drewry states: "The latest five-year forecast is a far cry from the heady days of the 2000s when forecasts were around 9% growth per annum, until the global financial crisis brought this to a shuddering halt."

The consultant goes on to forecast that global container port capacity will likely increase at a CAGR of around 2%, based on confirmed additions only. "This is well below the projected demand growth, and reflects the continued easing off from greenfield projects by investors over the last few years. As a consequence, average utilisation at the global level is forecast to increase significantly from 70% in 2018 to 79% by 2023. This remains a comfortable level for operators and customers alike."

In other words, terminal operators will want to sweat their assets more intensively. Of course, there are still greenfield projects around, the biggest of which is PSA's Tuas Mega Port in Singapore. However, only a handful of equipment suppliers have the scale to meet the demand there. A further point is that, as PSA ramps up Tuas and closes existing facilities, large numbers of older but well-maintained serviceable container handling equipment could appear on the second-hand market.

Italian mystery

Looking at this year's count, the most surprising result is that Dalian Huarui Heavy Industries (DHHI) is apparently supplying six STS cranes this year to Medcenter Container Terminal, the now MSC-controlled (TIL) transhipment terminal in southern Italy. These cranes will have a 23-row outreach, bringing the number of such cranes at Medcenter to 12.

Our supposition that DHHI is the supplier is based on remarks reportedly made by the Extraordinary Commissioner of the Port of Gioia Tauro a few weeks ago. Of course, we could turn out to be way off the mark.

However, it is known that the cranes are being built in China, and ZPMC – Medcenter's STS crane supplier for many years – has confirmed to *WorldCargo News* that it is not involved in the

Table 1: STS crane deliveries summary*

	2018	2019	2020
Liebherr	37	15	20
Mitsui	17	30	12
ZPMC	138	167	116
Others	24	24	27
Total	**216**	**236**	**175**
ZPMC market share	64%	71%	66%

**As of 15 July 2019. Source: WorldCargo News crane data based on supplier information*

project.

This is very curious, given that one industry source has told *WorldCargo News* that the cranes "were originally destined for a TIL project in India". TIL's only disclosed partner in India to date is Adani Ports, and ZPMC delivered two STS cranes to Adani Mundra CT4 earlier this year, while a further six cranes have been delivered to Adani Mundra CT2 this year, according to ZPMC.

In January 2018, *WorldCargo News Online* reported that ZPMC had signed a general contracting project with Adani Ports concerning the development of Vizhinjam port. Last year, ZPMC said that it would be supplying eight STS cranes to Adani Vizhinjam in March 2019. However, this delivery has now been put back to March 2021.

This might put Vizhinjam in the frame for the Medcenter cranes, but for ZPMC's denial that it is involved in the project, and the fact that the rail span at Vizhinjam is designated as

Table 2a: Schedule of ship-to-shore container cranes other than ZPMC since July 2018. Copyright *WorldCargo News*

Supplier	Location	Notes	No.	Mode of shipment	Year of delivery	SWL spreader (mt)	SWL Beam (mt)	O/R (m)	Rows across	Rail span (m)	B/R (m)	Inside leg (m)	Width O/V (m)	Portal (m)	Lift (m)	Hoist rated mpm	Hoist empty mpm	Trolley mpm
Newly reported for 2019 delivery																		
Dalian Huarui HI	TIL, Medcenter, Italy	*	3	erect	Aug-19				23									
	TIL, Medcenter, Italy	*	3	erect	Dec-19				23									
Konecranes	Kalpedos Smelte, Klaipeda, Lithuania		2	erect	Q4/2019	65	75	52		20	25	17	27	15		90	180	180
Sany	BCT, Riga, Latvia		1	erect	Q1/2019	45		47		16.8	12.5				34/14	60	120	180
Previously reported for 2019 delivery (all suppliers)			**60**															
TOTAL FOR 2019			**69**															
Newly reported for 2020																		
Doosan Vina	Gemalink, Vung Tau, Vietnam		6	erect	Q2-Q4/2020	65												
HHMC Qingdao	Port of Ningbo, China		1		2020	60		38	13									
	BNCT Busan, Korea		3	erect	Q3/2020	65		70										
	CHCL Mauritius		1	erect	2020	65		65		35								
	QTerminals, Hamad Phase 2, Qatar		3	erect	Q4/2020	80		68										
JFE Engineering	Shizuoka Pref. Shimizu Port, Japan		1	erect	Mar-20	40.6	70	65	23	30	15	17.5	17.2	14		90	180	240
	Kochi Prefecture, Kochi Port, Japan		1	erect	Mar-20	35.6	45.1	36.5	13	16	11	16.5	27.4	14		50	120	150
Kalmar	Curaçao PS, Willemstad, Curaçao	**	2	erect	Q2/2020	41	50	39	13	20	15	17	27	13	32/15	50	100	175
	Undisclosed		2	erect	Q3/2020	45	50	29.5	10	21	12 and 0	17.1	30.7	12	28/13	50	100	175 and 150
Liebherr	Port of Tauranga, New Zealand		1	part-big	Q1/2020	60	71	50.5		30.48	15	16.76	27	14.5	40/	70	180	220
	NTB Bremerhaven, Germany		4	part-big	Q2/2020	90	115	73	25	30.48	25	18	27.8	17	51.2/	90	180	240
	Eurogate Hamburg, Germany		6	erect	Q2/2020	66	77	65.7		18	27	17.3	38.9	12	53.5/	90	180	240
	MINTT Tanger Med, Morocco		6	part-big	Q2/2020	65	75	71		30.48	27	18	27	17	54/	90	180	240
	Sea-Invest, Antwerp, Belgium		1	part-big	Q2/2020	74	85	60		30	25	17	27	16.5	46/	65	170	240
	Undisclosed	**	2	part-big	2020	65	75	50		25	15	16.76	27	17	40/	60	150	180
Mitsui E&S Machinery	Yilport, Puerto Bolivar, Ecuador		2	erect	May-20	61		62		30.48	15				43.5/20	90	180	240
	Yilport, Puerto Bolivar, Ecuador		2	erect	Sep-20	65		67		30.48	15				52/20	90	180	240
	Tokyo PT, Tokyo, Japan		1	erect	Mar-20	35.6		40		16	11				29/12	60	135	180
	Myanmar PA, Thilawa, Myanmar		1	erect	Sep-20	40.6		35		16	11				25/18	60	135	180
	Nagoya PA, Nagoya, Japan		1	erect	Nov-20	61		56		30.5	15				46.5/18	90	180	240
Sub-total for 2020			**47**						13									
Previously reported for 2020																		
JFE Engineering			1															
Konecranes			6															
Mitsui E&S Machinery			5															
TOTAL FOR 2020 as of 15 July 2019			**59**															
Order book for 2021 and beyond as of 15 July 2019																		
Hyundai-Samho HI	ADC, Anaklia, Georgia		4	part-big	Jun-21	65	100	60		30.48	15	18.3	25.9	14	48/17.5	100	180	270
	PSA Singapore, Tuas		4	erect	Oct-22	65	70	73		35	22	18	27	18.8	53/23	90	180	270
JFE Engineering	Niigata Pref. Naoetsu Port, Japan		1	erect	Mar-21	35.6	40	31.5	10	16	11	16	29	14.2		50	120	150
Liebherr	Port of Townsville, Australia		1	part-big	Q1/2021	65	70	48		32.64	20	16.76	27	16	35/	75	120	210
Mitsui E&S Machinery	Yilport, Puerto Bolivar, Ecuador		2	erect	Feb-21	65		67		30.48	15				52/20	90	180	240
	Tokyo PT, Tokyo, Japan		3	erect	Mar-21	61		58		30	15				45.7/17.5	90	180	240
	IBNPA, Port of Ishikari, Japan		1	erect	Feb-21	30.5		31.5		16	10				25.5/11	50	120	150
	KPA, Mombasa, Kenya	***	4	erect	2 years	65	80	50		30.5	15				38/17.5	80	180	240
	Port of Nacala, Mozambique	***	2	erect	2 years	41	50	50		30	0				38/14	80	180	210
Barge-to-shore																		
Kocks Ardelt	Contargo, Hof, Germany	*	2		2019													

*Notes: *No information received from OEM. **Previously reported for delivery in 2019 (client requested postponement). ***Likely 2021*

Table 3: Features of newly reported STS crane orders. Copyright *WorldCargo News*

Supplier	Customer	Drive*	Boom type	S-T-L	Anti-sway	Snag/Catenary	Spreader	Electrical drives	Special features
Hyundai-Samho	PSA Singapore								double trolley, automated
JFE Eng	Shizuoka Prefecture	A	double girder	±5/5/5	mech/elec	yes/yes	twin 20	inverter	energy chain trolley
	Kochi Prefecture	A	double girder	±3/5/5	electronic	yes/no	single 20-40	inverter	energy chain trolley
	Niigata Prefecture	A	double girder	±3/5/5	electronic	no/no	single 20-40	inverter	energy chain trolley
Kalmar	Curaçao PS	B	monogirder	±5/5/5	none	no/no	Stinis single 20-40	Siemens thyristor ac	
	Undisclosed	B	monogirder	±5/5/5	none	no/no	Bromma single	Siemens thyristor ac	energy chain trolley
Konecranes	Klaipedos Smelte	B	monogirder	all yes	electronic	no/no	20-40	Konecranes ac	
Liebherr	Port of Tauranga	B	lattice monogirder	±5/7/5	mechanical	yes/yes		Liebherr	energy chain trolley
	NTB Bremerhaven	B	lattice monogirder	±5/5/5	mechanical	yes/yes		Liebherr	
	Eurogate Hamburg	C	lattice monogirder	±5/5/5	mechanical	yes/yes		Liebherr	
	MINTT Tanger Med	B	lattice monogirder	±5/5/5	mechanical	yes/yes		Liebherr	energy chain trolley
	Sea-Invest Antwerp	A	lattice monogirder	±5/5/5	mechanical	yes/yes		Liebherr	energy chain trolley
	Port of Townsville	B	lattice monogirder	±5/5/5	mechanical	yes/yes		Liebherr	energy chain trolley
Mitsui E&S	All cranes on list	B	monogirder					Mitsui E&S	

** Note re column 3: A = full rope drive; B = semi-rope drive; C = full machinery trolley*

35m, while Medcenter's rail span is 30.48m.

If it is not ZPMC or DHHI, could it be Wuxi Huadong Heavy Machinery Co Ltd (HDHM Wuxi)? This company has built over 40 STS cranes since 2007. Only two of these were exported, but earlier this year, it received an order from PSA Singapore for 28 ASCs for Tuas Mega Port phase 1 (PSA ordered another 56 from ZPMC).

Perhaps both DHHI and HDHM Wuxi are less likely candidates than Qingdao Haixi Heavy Machinery Co Ltd (HHMC Qingdao). Apart from around 20 cranes for Chinese ports, HHMC Qingdao's international reference list includes cranes for Port Louis (in association with OMG), Visakha, Jurong, Busan New Port and, for Gulftainer Group, Tripoli in Lebanon.

As can be seen from Table 2a, HHMC Qingdao has booked more international business, including from Port Louis and Busan, and from a new customer, QTerminals in Qatar.

Perhaps crucially in the Medcenter context, HHMC Qingdao was the fabricator for two extraordinary OMG cranes – 60t SWL and 62m outreach (23 rows) on an 19m rail span – delivered to La Spezia Container Terminal (LSCT) in 2015. The six cranes headed for Medcenter this year must have been ordered last year, when LSCT's operator, Contship Italia, was still involved. However, OMG-Bedeschi has also told *WorldCargo News* that it is not involved in the Medcenter project.

Both Kalmar and Konecranes can fabricate cranes in China. Perhaps it is one of them, and they are forbidden under the terms of the contract to report it, but that seems unlikely.

The only other European possibility would be Kocks Ardelt. In fact, in a former guise, Kocks was the original crane supplier at Medcenter in the 1990s, later supplanted by ZPMC. Kocks Ardelt did not divulge information for this year's survey, so we are unaware of any new STS crane business it may have.

Last year, DHHI opened up new business for itself and Chinese industry, with an order for two STS container cranes from Haina Port Authority in the Dominican Republic. The port has recently installed a stable power supply at the container berth, and DHHI has been able to enter the stage of functional commissioning of the cranes. DHHI set up two work groups, each responsible for the functional commissioning, testing and correction, as required, of one crane.

Korean re-entry

Earlier this year, ZPMC reported that it had received orders for 12 E-RTGs for the new Anaklia port project in Georgia, and now it transpires that the four STS cranes also required for phase 1 will come from Hyundai-Samho in Korea. The cranes will be assembled and pre-commissioned

Table 2b: STS container cranes reported by ZPMC since July 2018 (References as of 12 July 2019)

Customer	Delivery Date	No	Notes	SWL (t)	O/R (m)	Rail Span (m)	Lift height above/below (m)	Hoist rated (mpm)	Hoist empty (mpm)	Trolley (mpm)
2019 Deliveries										
Previously reported for delivery in 2018										
Alexandria CCHC, Egypt		2								
Husky Terminals, Tacoma, USA		4								
Ningo Meishan Terminal, China		4								
NUTEP Novorossiysk, Russia		3								
Northport Klang, Malaysia		4								
Khalifa Port, Abu Dhabi, UAE		4								
Newly reported for 2019										
Rizhao Port, China	May-19	4		70	60	30	40/20	75	150	220
Fujian, Jiangyin, China	Jun-19	1		65 LT	70	30.48	52/	90	180	240
Chittagong PA, Bangladesh	Aug-19	4		40	45	30.1	30/13	50	120	180
Tianjin Port, China	Aug-19	2		40.5	40	16	30/12	60	150	150
Dongguan Humen ICT, China	Sep-19	2		65	50	30.48	38/18	90	180	240
Shanghai Guandong, China	Oct-19	2		65	70	35	49/19.5	90	180	240
APMT, Pier 400, LA, USA	Nov-19	2		65	68	30.48	52/17	90	180	240
Fujairah Port, UAE	Nov-19	2		90	59	35	44/20.5	90	180	240
TCIT Vung Tao, Vietnam	Nov-19	1		65	65	24	46/20	90	180	240
DPW, QICT, Karachi, Pakistan	2019	2	*	70	61	27	43/18	90	180	240
Wan Hai Lines, Taichung, Taiwan	2019	8	*	70	70	30	52/	90	180	240
SCPA, Wando Welch, Charl., USA	2019	3	*	65 LT	60	30.48	51.51/18.3	90	180	240
PSA Singapore	2019	1	*	65	68	30.48	46/23	90	180	270
DPW, ZFM Caucedo, Dom. Rep.	2019	3	*	65	70	30.48	56/21.5	90	180	240
SSA Manzanillo, Mexico	2019	2	*	65	65	30.48	50/17	100	180	240
Port of Zhanggiagang, China	2019	1	*	61	44	16	27/12	50	120	180
United Logistics, Keelung, Taiwan	2019	1	*	50	50.5	15	36/15	90	180	210
Adani Mundra, CT2, India	2019	6	*	65 LT	68	30	50/21	90	180	240
Qingdao Automatic CT, China	2019	9	*	65 & 70	70	17.8	50/22	90	180	240
Abu Dhabi Ports, UAE	2019	5		90	73.4	35	52.5/20.5	90	180	240
Total of above		**82**								
Previously reported for delivery in 2019		**85**	**							
Total deliveries for 2019		**167**								
Disclosed orders booked for 2020										
Abu Dhabi Ports, UAE	2020	5	*	90	73.4	35	52.5/20.5	90	180	240
PSA Noordzee, Antwerp, Belgium	2020	4	* ++	100	70	30	52/	90	180	240
Khalifa Port, Abu Dhabi,UAE	2020	3	*Δ	65	73.5	35	53/21	90	180	240
DPW Yarimca, Turkey	Feb-20	2		65	65	30.48	52/18	90	180	240
Hutchison, Stockholm Norvik, Sweden	Feb-20	2		65	65	30	48/16.5	90	180	240
DPW, NSICT, Nhava Sheva, India	Mar-20	4		60	55	20	40/20	75	150	210
DPW, NSICT, Nhava Sheva, India	Mar-20	2		55	50	20	38/20	75	150	210
Santos Brasil, Santos, Brazil	Mar-20	2		65	70	31	50/17	90	180	210
CMA CGM, Dunkirk, France	Mar-20	2		65	67	32	54/26	90	180	240
Peel Ports, Liverpool2, UK	Apr-20	3		65	70	30.48	53/24	90	180	240
DPW Posorja, Ecuador	Apr-20	1		65	65	30.48	45/18	90	180	240
Tecon Salvador, Brazil	Apr-20	3		65	66	18	51/18	90	180	240
RWG, Rotterdam, Netherlands	May-20	2		72, 100	72	35	56/22	100	200	280
HHLA, CTB Hamburg, Germany	Jul-20	5		65, 125	71.6	35	49.5/21.5	80	180	240
SCPA, Wando Welch, Charl., USA	Feb-20	4		65 LT	64.62	30.48	47.24/19.3	90	180	240
Guangzhou Nansha Port, China	Mar-20	3		41	23	16	20/12	45	80	120
Ningbo Beilun CT, China	Mar-20	4		65	70	35	49/20	90	180	240
Terminal TC3, Casablanca, Morocco	Apr-20	1		65	48	18	35/18	70	175	180
LBCT, Long Beach, USA	May-20	8		65 LT	68.9	36.58	47.2/18.28	90	180	240
DPW Marseilles, France	May-20	2		70	72	30.48	54/18	90	180	240
Halterm CT partner. Halifax, Canada	Jun-20	1		65 LT	66	30.48	52/18	90	180	240
GMP, Le Havre, France	Jun-20	4		65 & 80	72	35	54/22	90	180	240
Jaya CT, Colombo, Sri Lanka	Jun-20	3		65	57	30	45/16	90	180	240
Xiamen Yuanhai CT, China	Jun-20	1		65	73	35	54/	100	200	240
SCPA, HK Leatherman, Charl., USA	Sep, Oct, Nov-20	5		65 LT	69.49	30.48	51.51/18.3	90	180	240
PTP, Tanjung Pelepas, Malaysia	Jul-20	8		65 & 70	72	30.5	55.5/18	90	180	240
DPW Dakar, Senegal	Jul-20	2		65	56	17	37.5/15.5	90	180	210
IGPL, India	16 months after LOA	4		65	50	35	37/18	90	180	210
SSA Oakland, USA	Sep-20	3		50 & 65 LT	68.58	30.48	53/20	90	180	244
Port of New Orleans, USA	Sep-20	2		65 LT	53.34	30.48	39.6/19.81	90	180	210
Ningbo Beilun CT, China	Sep-20	3		65	55	20	39/20	75	160	240
GCT Vanterm, Vancouver, Canada	Oct-20	2		50 & 65 LT	63.5	24.38	48/22	90	180	250
RSGT, Jeddah, Saudi Arabia	Oct-20	2		65	70	30.48	52/20	90	180	240
DPW Caucedo, Dom. Rep.	Oct-20	1		65	70	30.48	56/21.5	90	180	240
VPA, Virginia, USA	Nov-20	2		65 LT	69	30.48	52/17.53	90	180	240
Hutchison, BEST, Barcelona, Spain	Nov-20	2		61	67	35	47/	90	180	240
SIPG, Shanghai, China	Dec-20	8		61	72	35	53/	90	180	240
MultiRio CT, Rio de Janeiro, Brazil	Dec-20	1								
Total for 2020 as of 12 July 2019		**116**								
Further orders as of 12 July 2019										
Conley Terminal, Boston, Mass., USA	Jan-21	3		65 LT	61.6	29.26	49.7/18.9	90	180	245
Adani, Vizhinjam, India	Mar-21	8	***	65	72	35	53/21	90	180	240
SIPG, Shanghai, China	Sep-21	8		61	72	35	53/	90	180	240
PSA Singapore	Mar-22	20		65	73	35	55/23	90	180	270
TIL, Haifa CT, Israel	Jan-23	8		66	70	35	50/20	90	180	240

*Notes: *Month of delivery not disclosed. ZPMC says that FAC (Final Acceptance Certificate) date is 1 January, 2020, so cranes must arrive at customers' terminals before the end of 2019. ++Additional to 2 cranes reported last year for 2019 delivery and included in the figure of 85 above. **Adjusted according to notified postponements of deliveries to 2020 and 2021. Δ Balance of order for 7 cranes previously reported for 2018 delivery. ***Previously reported for delivery in March 2019.*

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in Korea, and then partially dismantled as two-piece shipments into the Black Sea.

Absent from the STS crane market for several years, Hyundai-Samho is back with a bang, as it has also secured part of PSA Singapore's STS crane procurement for the first stage of Tuas Mega Port, although the lion's share of the order (20 cranes) has gone to ZPMC.

It is understood that all 24 cranes are designed for automated operation and they all have a second trolley arrangement. The main hoist and trolley speeds are given in the accompanying tables. Hyundai-Samho states that the second trolley has a lift height of 17.7m. Second trolley speed is 130 mpm, and its hoist speeds are 60 mpm and 130 mpm.

The remote control operator (RCO) takes over from the automated part of the cycle when the container is 3m above the intermediate (lashing) platform where there is buffer space for four 20ft or two 40/45ft containers. For the landside part of the operation, the RCO takes control when the bottom of the container is 1m above the AGV.

35-move target

The horizontal travel distance between the centres of the intermediate platform and the AGV is 26m. The landside area will be covered by an array of crane-mounted cameras for remote control, damage inspection, OCR, container status, etc.

It is understood that all the cranes now on order are intended to be delivered without operator cabs. However, the waterside trolleys must be provided with cab mountings, electrical fittings and all other fixtures required should PSA decide to revert to manned operation within a semi-automated crane cycle.

Simulation is currently showing, repeatedly, that a throughput minimum target of 35 moves per crane hour cannot be achieved by unmanned cranes, so PSA is retaining the option to use crane drivers if necessary.

Revealing Liebherr

Last year, Liebherr reported 18 cranes for delivery in 2019, with the names of the customers for eight of them not revealed at the time. The company has now disclosed that the customer for a 35m outreach crane is Barbados Port, Inc. The customer for two cranes, with an amended outreach of 45m and a SWL of 40t, is the Port of Cork. Another customer for two cranes, originally reported as three, and now with an amended outreach of 38m and SWL of 40t, is the Port of Belfast.

The customer for another two cranes is still a commercial secret, and Liebherr says that the project has been postponed. For these reasons, we have reduced Liebherr's figure for 2019 to 15, and increased its figure for 2020 by two to 20.

The STS crane market in German seaports, for years dominated by ZPMC, has flipped to Liebherr's advantage in the past two to three years. It started with HHLA CTT Tollerort, where Liebherr has now supplied five cranes. Arguably, CTT is a special case, since the cranes are required to have a 65m outreach and a lift height of 51.5m above rail on a rail span of 18m. Perhaps only Liebherr, with its unique lattice monogirder boom design, could meet the weight and wheel load limits.

Subsequently, however, Eurogate affiliate company NTB Bremerhaven ordered three giant 73m outreach cranes, and it has now ordered another four, while Eurogate Hamburg has ordered six large cranes, and a further six have been ordered for MINTT Tanger Med, a joint venture of Marsa Maroc, Eurogate and affiliated Contship Italia.

However, it should be pointed out also that ZPMC has five very large cranes going to HHLA CTB Hamburg next year. These are again believed to be twin hoist cranes. The two large cranes going to RWG Rotterdam next year are again believed to be cranes capable of operating with some kind of tandem spreader arrangement, believed to be the Stinis Split-Headblock. ❑

Cyprus deliveries for OMG gantry cranes

OMG Cranes, part of Bedeschi Group since 2016, recently delivered two 70t SWL, 68.5m outreach (23 rows) STS cranes in fully erect mode to Eurogate Group in Limassol, Cyprus.

All mechanical components were manufactured in-house at Bedeschi's 70,000 m² manufacturing plant in Padova, before being shipped to the port of Chioggia, near Venice, where Bedeschi operates a large plant for erection and commissioning of port cranes and heavy-duty bulk handling equipment.

Erection of the cranes for Cyprus began in Chioggia in January 2018. Work on the cranes included 15,000 hours of mechanical assembly and 7,000 hours of electrical assembly.

With a self-weight of 1,800t, the cranes are 98m tall with the boom in the operating position. With the boom raised, overall height is 141m. To transport the cranes from Chioggia to Limassol, OMG Cranes chartered an Augustea tug (BRODOSPAS ALFA) and flat-top barge.

A spectacular aerial shot of two OMG-Bedeschi cranes arriving in Limassol

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Hyundai-Samho's inductive reasoning

In what is understood to be an industry first, Hyundai-Samho has introduced a wireless power transmission RTG

Following extensive testing at Mokpo New Port, the wireless power transmission RTG (W-RTG) is now commercially available, says Hyundai-Samho. The principle is the same as road-embedded charging for vehicles, or OLEV (online electric vehicles).

There is a precedent in the ports industry. Several years ago, TTS Port Equipment AB teamed up with Swiss company Numexia to provide electrical power, using coils embedded in the runways, to its cassette-AGV (C-AGV) concept. The coils, supplied from underground cable from the grid, would have transmitted electrical energy at set intervals on the travel path to the supercapacitors on the C-AGVs (*WorldCargo News*, October 2008, p54).

Hyundai-Samho describes the W-RTG as the "third generation" RTG, with the cable-powered RTG being "second generation" and diesel-powered RTG being "first generation". The long travel length in the Mokpo test bed, where the RTG is used to handle steel bars rather than containers, is around 200m. As Mokpo – which is conveniently close to Hyundai's crane plant – is a test application, the power feed line is installed above the ground to reduce civil costs, although it would be embedded in normal operations.

Installation details would vary according to the situation of different container yards, but the W-RTG is, in principle, suitable for all container port environments that can rely on the grid. For example, extra cooling or heating could be added in the battery room as required. Lithium-ion batteries are used in the Mokpo RTG, although Lithium-titanate batteries are also available.

The size of the retractable pick-up arms and rectifier can also be varied from the Mokpo installation, according to the footprint of the electromagnetic field, although weight and output capacity are the same at 250 kg and 100 kW, respectively.

Short payback

Hyundai-Samho calculates that the payback period is around three to four years, based on a fleet of eight W-RTGs, and that the operator would save around US$5M over a period of 12 years, compared to using cable-powered E-RTGs, due to around 41% overall lower power consumption, according to its kWh measurements in hoist, trolley, long travel and standby modes.

The system is around 90% efficient compared to a cable reel, due to power loss between the embedded magnets and the pick-up arm.

More specifically, Cho Young-Bin, sales manager for Hyundai-Samho's Industrial Plant and Crane Department, says the energy efficiency of the W-RTG is around 86% compared to around 93% for a cable reel (i.e. 86/93 ≈ 90%).

The claimed savings of 41% arise mainly from the fact that the W-RTG is effectively a hybrid-electric RTG, which uses batteries to store energy generated from lowering the hoist and braking. This is then fed back as power to the motors via the inverters. Energy can also be regenerated from long travel braking, although this is not installed on the W-RTG at Mokpo.

Existing energy recovery technology for RTGs, such as supercaps or flywheels, is aimed exclusively at conventional diesel-electric RTGs. This is simply because the cost per lift of a diesel-electric RTG is much higher than that of an E-RTG. The payback for installing energy recovery on a diesel-electric RTG is just three to four years (more if the RTG has a variable speed genset that slashes idling fuel consumption), whereas for an E-RTG it would be 15-20 years.

Hence, for E-RTGs powered off the grid, energy recovery is not an attractive proposition. However, as pressure on power supplies increases, the grid resilience of hybrid E-RTGs may come more into play (*WorldCargo News*, May 2018, p55-57).

In any event, Cho Young-Bin says the W-RTG also provides savings in standby (idling) mode compared to a cable E-RTG, estimated at 2.5 kWh compared to 6.51 kWh. In the case of the cable reel, the AC/DC converter continues to operate when the RTG is on standby. With the W-RTG the converter is unnecessary because the current supplied from the battery is DC. However, a small capacity DC/AC converter for the utility continues to operate in standby mode.

CAPEX figures?

Hyundai-Samho has not disclosed any CAPEX comparisons it has made between W-RTG and a flexible cable E-RTG. The civil costs are of the same nature – power cables, inverters and other electrical infrastructure in the CY. However, W-RTGs in adjacent lanes can share the same power feed line, the same as with a twin aisle conductor bar. In practice, anti-collision would need to be installed to prevent accidents involving pick-up arms on W-RTGs moving in opposite directions.

It is not clear whether the battery installation weighs less than the cable reel, slip ring assembly, flexible cable, etc, but this could impact OPEX in terms of long travel power requirements. As the W-RTG is new, no data are available on total life costs, which would of course take into account the life of the batteries, as compared with cable life, reel and slip ring maintenance, and so on. As an electric RTG, however, W-RTG should certainly be less expensive to run than a diesel-electric RTG (no engine or generator).

Batteries are commonly fitted in cable E-RTGs for the purpose of changing lanes. In the case of the W-RTG, the battery power is also used for this purpose. A battery management system is fitted to regulate performance and charging. ❑

An illustration showing the contactless pick-up arm on the W-RTG

Railing for smoother solutions

Gantrex and Gantrail are working on ways to smooth the boom hinge transition point for the trolley rails on STS gantry cranes

Ship-to-shore gantry crane downtimes can present serious challenges for ports, terminal operators and their customers. It is a primary reason why most units are fitted with monitoring devices and diagnostic systems that are able to identify and pinpoint problems before they occur. Maintenance and repair work can then be planned and scheduled before a breakdown takes place, thus ensuring more reliable and productive operations prevail.

An area that requires regular attention and where companies are investing significant resources to improve reliability and durability of STS cranes is the trolley rail. Partly, this is because replacing the rails can result in the unit being out of commission for between four and six days, although it can be much longer.

"The biggest problem is the short rail section at the crane's boom hinge joint where the trolley and girder rails separate," explained Steve Nikolayev, project and trolley rail services manager at Gantrex.

"It is a fundamental challenge as the design has to incorporate a break in the trolley rail so the crane's boom can move freely. It means that this section of rail is subjected to every movement the boom makes, and this constant clanking action leads to significant wear and tear. It can mean 'potholes' occurring in the rails either side of the gap and it can also result in the boom and crane girder becoming misaligned. This puts additional pressure on the rails."

Clamps and fixings

"We have been working hard to solve these problems," continued Nikolayev. "We have designed a new clamp and fixing system that strengthens the vertical contact between the clamp and the rail foot, features an anti-vibration system and also an adjustability (+5/-5mm) factor. It means that future rail maintenance programmes, when and if required, can be carried out quicker and more cost-effectively."

Belgium-based Gantrex's most innovative short rail features a vulcanised layer of rubber that is incorporated within the section of rail. This minimises vibration and stress levels as the trolley passes over the joint, and prevents depressions appearing on the rail line so quickly.

UK-based Gantry Railing Ltd (Gantrail) has also been working on solutions, and its approach has been different to that of Gantrex. "It should be noted that the design of the boom rail system needs to be considered as a whole, rather than as individual elements, as how they integrate with one another is important," explained Peter Bygrave, managing director of Gantrail. "Therefore, our research and development has been focused on the complete layout and integration of all elements of the system from the short rail at the boom hinge to the furthermost outreach of the crane.

"Our new design aims to reduce wear and tear by refining existing designs and coupling this with a new rail clamp that we have specifically developed for this application. We are in the process of applying for a patent for this new design of rail clamp and we aim to bring it to market in 2020."

The key aspect of the research is to delay damage, cut maintenance times and reduce crane downtimes. This was also the logic behind Gantrex's hanging scaffolding system, which is used to carry out trolley rail repairs. "Its use saves us considerable amounts of time during the installation process," stressed Nikolayev. "Whereas, it can take 12 to 18 hours to erect traditional scaffolding around an STS crane, our hanging scaffolding can be put in place in just four to six hours. It can be dismantled in less than two hours. These savings can make a significant difference to a terminal operating company's performance."

A worker welding trolley rails atop Gantrex's hanging scaffolding system

A Gantrex trolley rail replacement on an STS crane

The executive said that, in Gantrex's experience, short rail sections needed to be replaced on most STS cranes after seven and before 10 years of operation. Currently, the company inserts new rail and/or sections of rail on 20 to 30 STS cranes each year.

Another manufacturer, Bemo Rail, introduced a similar "trolley rail maintenance platform" for ZPMC cranes in 2016.

On the ground

Data on the replacement of the main gantry rail – the rails along which STS cranes travel – seems mixed, with Nikolayev alluding to slightly higher levels of activity, but Bygrave suggesting there was "little evidence to support this".

"The heaviest cranes in the world tend to be running on rails with around 150mm head width in 900 grade (R260) material, with no reported issues," he said. "We are not using the highest grades available on a regular basis, except in extreme cases, upon individual customer requests, or when severe corrosion can be expected. Corrosion is still one of the biggest determinates of rail life over wear and tear."

Bygrave added: "STS crane wheel loads have certainly increased but they have remained quite consistent over the past five years and they have stayed within the capacity of the supporting materials. When load-bearing issues start to get close, the addition of more wheels on the cranes – up to 10 per bogie – has tended to be the simplest solution to bring things back within acceptable limits."

He stressed that the bigger challenge, and it was an issue also mentioned by Nikolayev, was the increased flexibility and dynamic effects of these larger cranes. Bygrave explained: "It is something that we are still analysing and trying to understand. It is an area that we are directing our efforts towards and focusing our expertise on. Results thus far are influencing the latest designs of crane rail pads from both Gantrail and Gantrex."

Splitting pads

Specifically, research by Gantrex has revealed splitting of the pads on which the crane rails sit and ultimately failure of the track. Nikolayev described Gantrex's latest pads as resembling "double crowns".

He explained: "The pads are thicker on the side than they are in the middle and they have been designed specifically for STS cranes' dynamic loading and unloading activities. Our pads ensure that an even load is spread across the rail from the weight of the machinery, that vibration and noise levels are reduced, and stress damage related to fatigue cut. It adds up to crane downtimes due

Adding Protolon iQ to crane cables

Leading cable supplier Prysmian Group is moving forward with Protolon iQ, a line of 'intelligent' medium and high-voltage cables for reeling applications with embedded sensors that was first launched in 2009. The ultimate aim of Prysmian's iQ development is to improve the service life of the cable, which has become much more challenging in recent years.

In an interview with *World-Cargo News* at TOC Europe last month, Jana Blechschmidt, Prysmian's sales director, Cranes, and Brian Swan, who heads Prysmian's Singapore agency, Bellmond Technologies, said monitoring is more important today than ever because of the demands of crane applications and the way cables (and other components) are being specified.

The drive power and long travel requirements of the latest cranes are such that higher voltage cables with a smaller cross section are needed, while data requirements (both volume and quality) have increased. Cables must not only carry a higher load, but do it with a physically smaller cable.

When it comes to the reeling system, the speed and mounting height of the reel are the key considerations. With smaller cable cross sections, the demands of the application can get very close to the tensile limits of the cable, and in some cases, Prysmian has added an extra support element to allow some increase to the allowable tensile load.

On ASCs, the market has seen a trend towards a reduction from very high long travel speeds of 300m/min, for a variety of reasons including reducing the size and cost of drives, energy consumption, and reducing the wear on components like cables, brakes, etc. Swan said this is a positive move for the cable, but improvements in automation software and yard management mean that the cranes are working constantly.

Smaller cable and non-stop operation have effectively reduced the life of a cable from 15 years to 8-10 years, although when measured in crane cycles or operating hours, the actual lifetime may not have changed much if at all. What is clear, however, is that if there is a situation that places excessive stress or wear on the cable, the more intensive duty cycle exacerbates the problem and the cable is more likely to fail.

The whole environment really creates the need to monitor cables remotely, stressed Blechschmidt and Swan. "By monitoring, in our case cable, we ensure the product works at its optimal state for longer, hopefully allowing us to correct any errors or issues as they arise, that can then help us extend lifetime back to the 'old days' where ~15 years was common," said Swan.

Developing a smart cable has been a long journey for Prysmian. The original design, which included passive RFID tags and a reader to measure torsion, or twisting of the cable, has been modified, and Protolon iQ now uses a single sensor fibre installed in the middle of the cable.

With this sensor Protolon iQ is able to detect and measure mechanical stresses including strain and torsion on the cable. This is particularly important during the commissioning process when the cable reeling system is configured and tested.

Prysmian believes monitoring will be a future trend, but to really make IoT technology work for the end user, stressed Blechschmidt, suppliers have to invest a lot of money in developing software tools that can analyse vast amounts of data in a way that adds value for the end user.

Prysmian has developed software that can process data from Protolon iQ, both on site and remotely. This includes the PryCam application that Prysmian has developed for measuring partial discharge in a wide range of industrial applications.

Work is underway now on how to integrate some aspects of this software into the main crane monitoring system (CMS). Blechschmidt said Prysmian acknowledges that end users do not want a different application for every component on a crane, and is willing to work on ways to consolidate different data in the CMS. The goal remains to provide data on the condition of the cable and any operating parameters that exceed the cable specifications and could shorten the cable life.

Today, there are several tests running with Protolon iQ on cranes in Singapore, Australia and Germany. All the applications so far are on the main medium voltage cable reel, but in the future, an iQ cable could be developed for spreader cables, which is a much more demanding application.

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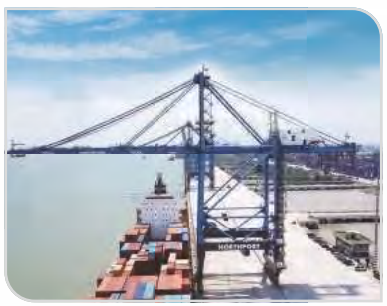






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A curved rail application supplied by Gantrail for the widespan RMGs at Long Beach Container Terminal

Detail of Gantrail mounting hardware and pad for widespan RMG rails

to unnecessary repairs being avoided."

The increased movement of modern STS cranes at ground level has also meant that traditional cement grouting used for terminals' paving and clips used to hold the rails in place have proved less effective. Of course, there have also been moves by designers/manufacturers to cut down on the amount of steel used in making clips. The latest Gantrex-designed units feature a third wedge for extra stability.

Gantrail's Bygrave alluded to the importance of continuing research and innovation in the sector. He told *WorldCargo News:* "The design of rails has not really changed in many years, and for the moment they are quite capable of handling the loads being imparted on them by the latest generation of container cranes.

"In recent years, we have spent a lot of time redesigning and optimising our rail clips to provide greater performance by offering both increased load capacity, reduced installation time, and longer time to first maintenance, and that will continue."

Durability

In terms of durability, both executives claimed that it was perfectly feasible to build and install crane rails that could have a serviceable life of 20 years.

"It largely depends on customers' budgets and the experience and expertise of suppliers and installers in coming up with the most appropriate materials and corrosion protection systems," stressed Bygrave.

"It is really hard to give precise figures on rail wear, even averages, as every application presents a different set of challenges. The geographical location can be a huge factor on the resulting service life and, as mentioned before, it is often corrosion that presents the biggest challenge."

The marine crane rail market is buoyant and will remain so given the amount of development taking place in building new terminals and refurbishing older facilities. The expected increase in semi and fully-automated terminals is also affecting demand. "These types of facility come with immense challenges," said Nikolayev, who referred to the civil works associated with ASC operations as being considerable.

Bygrave agreed. "One way in which the desire to improve efficiency is impacting upon crane rails is the increased speed of ASC cranes," he said. "There is still a lot of work to be done to understand these dynamic forces and how they affect the crane rail system. This is an area of focus for us in the coming years and it will, hopefully, result in the development of new products."

The same is true at Gantrex, with Nikolayev saying: "The pressure from ports/terminals on us [crane rail suppliers and installers] is to come up with solutions that maximise the use of systems that we already have, and minimise expenditure when it comes to installation and maintenance." ❑

On separate tracks

Gantry Railing (Gantrail) and Gantrex have been owned by the same holding company – HF Holding, which is backed by Argos-Wityu, a pan-European private equity fund – since June 2017. However, when it comes to products, operations and strategy, it is clear that they are separate companies.

"This [separation] is extremely important as we both have extremely long-standing and respected pedigrees in the design, manufacture and installation of crane rail systems, and we have many loyal customers," Peter Bygrave, managing director of UK-based Gantry Railing, told *WorldCargo News*.

"The Gantrail set-up is also different to Gantrex in that our historical business model focused on developing a network of agents and distributors to expand our reach, whereas Gantrex went down the direct sales route, setting up their own offices in targeted regions. Retaining these two routes to market is important, but is not without its challenges."

He explained that a further differentiation was in progress as Gantrail pulled back from direct installation work to focus on design, manufacture and supply, leaving customers to choose who they use for installation.

"We also continue to have entirely separate product lines as it was felt that it would not be beneficial to combine these, due to customer preferences, and it could halt innovation. Our separate research and development departments continue to develop our own unique solutions to industry problems, but where we do agree to communicate is to define, discuss and agree on these problems. With that in mind, we have both been working on our own solutions to the boom hinge joint problems."

WorldCargo news

Moving forwards from the side

The market for sidelifters is said to be growing on a global basis

The key selling point of sidelifters has always been the ability for a truck driver to deliver a container without the need for extra equipment or infrastructure. Only the container is left behind not the trailer, so equipment can be fully utilised, while the shipper or importer does not need to have a loading dock or dock leveller.

Steelbro, which has been part of Australia-based Howard Porter Pty Ltd since 2015, says it is "going from strength to strength" with its long-established sidelifter business. Last year – the company's 140th anniversary – it developed some new partnerships, broke into new markets, and came up with some new products.

In Thailand, Samut Sakorn-based Thai Reefer Group was appointed as distributor, and the first Steelbro sidelifter sale in that country has been made. The company also took advantage of growing opportunities in parts of North and Central America, and its distributor network was expanded to include Kestrel Liner Agencies LLP, handling the Caribbean Basin, and TransCargoPlus LLC, responsible for Midwest USA, Mexico and Panama. This year has seen the first Steelbro sidelifter sale to the Azores islands, with a logistics group that handles over 400,000 40ft and 20ft containers a year.

Russian presence

Last year also saw Steelbro dip its toe into the Russian/CIS market for the first time, teaming up with Mora Trading Ltd in St Petersburg. The first unit has been assembled by Russo-German firm Meusburger-Novtrak, based in Veliky Novgorod near St Petersburg, under the supervision of engineers from New Zealand. The cranes and automation kit were produced at Steelbro's China factory. The sidelifter will be used by management service company AGI-CDCS Kazakhstan JV, to handle containers at Tengiz, one of the largest post-Soviet oil and gas fields in Kazakhstan, which produces 27 Mtpa of oil.

The sidelifter will handle containers up to 45t and transport them more efficiently than other equipment. Mora Trading has been actively promoting these units throughout its territories – the Russian Federation, Kazakhstan, Belarus, Kyrgyzstan and Armenia – and is reporting growing interest from the chemicals market.

Steelbro recognises that technology must be adapted to meet the needs of the particular market and different customer requirements. "Our product offering is a balance between standard and customised products," said Peter Dobbs, Steelbro's general manager. "Continuing innovation calls for heavy investment, and the team is willing to make that commitment to stay ahead of the game. New product development at Steelbro is focused on delivering reduced tare weights, increased speed of operation and low manufacturing costs."

Whilst variations across the markets may differ, there is still increased competition in the transport market which means customers still need to maximise payloads and improve overall efficiencies. This drives demand for a durable and weight-optimised unit.

Dobbs continued: "Throughout the past year, Steelbro has continued to innovate. This helped the organisation deliver strong growth across its markets in 2018, and this growth has continued into the first half of 2019."

Steelbro successfully launched its 36t lift capacity sidelifter optimised for rail to the Russian market. This modified sidelifter has a leg design that positions the stabiliser under the railway wagon, allowing payloads to be optimised, as the leg can extend close to the centre line of the wagon.

The sidelifter can be fitted with an optional top lift frame, ideal for use when containers are stacked closely together where bottom pockets of the container are inaccessible. The top lift frame lifts the container from above, with twistlocks automatically activating remotely at the press of a button.

A new 36t sidelifter (SB362) variant has been launched into the Malaysian market, where the established SB450 model is already popular. "We set out to produce a sidelifter that met the optimum needs of low tare weight, while at the same time delivering proven strength and durability," said Steelbro.

Strong presence

The SB362 enjoys a strong presence in the commercial road transport market in New Zealand, Australia and in parts of Europe, as it lifts up to 36t, yet meets the gross vehicle weight challenge. Although based on this design, the SB362 in Malaysia has been carefully modified for the local market.

This customised unit has a heavy-duty chassis to cater for the Malaysian environment and conditions, and uses similar running gear to the SB450 for seamless integration with other units in the fleet. The unit is also JPJ and Dosh-compliant.

Earlier this year, Steelbro supplied a sidelifter to the Russian market for the first time, through local partner Meusburger-Novtrak

Hammar's drum loaders can now cater for a big range of cable drum sizes

The new Malaysia model is not expected to replace the SB450 unit, but will offer an alternative choice, and in some cases supplement the existing fleet.

Rolling the drum

Innovation is high on the agenda of the other sidelifter manufacturer with global reach, Sweden-based Hammar Maskin AB. A new spreader has been devised for the Hammar Drum Loader (pictured above), able to handle drums of 3.5m-4.5m in diameter and 2.5-4.0m in width. Previously, only one size could be handled. On the regular container Hammarlifts, it is now easier to handle palletwide containers and the crane arms now have even more protection against paint wear.

Hammar's marketing manager, Samuel Gottfridsson, remarked that record sales were achieved last year in Australia, largely thanks to the Hammar 110 with the Step-Over support leg (*WorldCargo News*, July 2018, p22). This has also been very successful in New Zealand, and has now also been introduced to Europe, where the market has traditionally been more cautious.

However, sales to transport companies – globally Hammar's biggest customer base – have been really strong, and in just one year, as many Hammar 110s have been sold as the previous 155 model in the past eight years. A big selling point is the low tare weight, and many are being used in intermodal applications, lifting containers directly on/off rail cars.

Production generally has picked up, and the company sees considerable potential in the US market. Delivering and collecting containers for speciality crops from farms is one opportunity, but Hammar does not see a need for its all-terrain variant (as used in the mining industry) in the agricultural segment. Sidelifters in general have specific advantages, such as low ground pressure and the relatively small space needed for handling containers or flats.

Ice bucket

Traditionally one of Hammar's biggest markets has been Iceland, with a population of 40-50 machines. Eimskip and Samskip have been key customers. Eimskip received three new Hammarlifts earlier this year, one of which can lift fully laden 20fts and 40fts even though tare weight is just 7.9t.

In the past, Hammar worked with a number of local workshops in Iceland, but last November, it appointed Veltir as its main service partner. Veltir opened a new 4,000 m² service centre in Brimborg, has trained Hammar personnel, and has readily available spare parts, as well as a number of service offers, such as yearly crane inspections. Veltir also services all Volvo trucks on the island.

Home thoughts

Gottfridsson explained that design of sideloader cranes, support legs and trailers is all based at Hammar's manufacturing facility in Olsfors (near Gothenburg), and all cranes and support legs are built there. In the past 1-2 years, Hammar has invested significantly to expand production at Olsfors, which accounts for delivery of complete units to most of the world – Europe, Africa and parts of Asia, North and South America. For the important Australia, NZ and Malaysia markets, trailers are built using prefabricated steel shipped from Sweden, with parts bought and mounted locally.

The sideloaders can be powered either by the truck's hydraulics or a separate power unit, which is also designed in Olsfors, although the engine is a bought component. Generally, Hammar recommends using the truck, as it saves on tare weight and is more cost-effective. The downside is a loss of flexibility, since it limits the transport operator's choice of truck. ❑

Do-it-yourself box handling on jacks

Bison's range of applications continues to expand, and the company can adapt its product to meet specific needs where required. For example, it recently adapted a mobile C-Lift into a fixed hoist system for a major fruit exporter. This allows them to ground, stuff and dispatch 20 x 30,000 kg reefer loads of apples each day, without relying on sidelifters or on-site container handlers

Bison Group first launched its lightweight jacking system for lifting containers in 2014. Consisting of four independent jacks, the portable system could lift a 40t container and featured electric-over-hydraulic lifting, to raise a container from the bottom corner castings. Bison was then quick to spot the potential of adding load cells in the hydraulic system to weigh a container and produce a Verified Gross Mass (VGM) when this became required under a SOLAS amendment, and it continues to offer a weighing option.

Flexibility

Discussing how the market has evolved over the last five years, Greg Fahey, Bison's CEO, said that being flexible is the key. "We have found that everyone has different logistics operations and budgets to manage. There is no 'one-size-fits-all' solution. With this in mind, we've built a range of C-Lift models, each with a different combination of speed, automation, portability, lift capacity and price."

The product range includes competitively priced options, according to the customer's budget and lifting requirements. The premium Bison A-Series is an automated system with independent jacking units that can be operated by one person. The semi-automated P-Series uses a central hydraulic system shared by all four jacks. The M-series has no electronics or hydraulic components, instead using manual chain hoists to raise the container.

Both the P-Series and the M-Series require a minimum of two operators. All three variants can lift a container a maximum of 1.65m from ground level. The A and P Series have a maximum lifting capacity of 32t, and the M Series a maximum of 20t.

With regard to safety, as well as providing training manuals, Bison offers options to help mitigate risk. These will soon include a new Smart Bollard, a portable bollard with sensors that can be placed alongside the lifting legs and give the truck driver and his spotter an audible warning if the chassis gets too close to any of the legs.

An interesting point about low throughput handling is how handling frequency and equipment availability influence the choice of handling system. Self-loading trailers (also called swinglifters, sideloaders and sidelifters) are very common in New Zealand and other markets that Bison serves, and the firm is now taking market share from them.

"Our main customers are importers and exporters, who want to place containers on the ground for stuffing or stripping," said Fahey. "They're motivated to ground the containers for a variety of reasons – for example, avoiding chassis demurrage, safely (un)loading bulky cargo, or working from sites without a loading dock. Some companies are paying alarming amounts of money for transloading, crane hire or swinglifter services, so they value the cost-savings they can achieve by having their own affordable lift equipment on site."

Another growth area is the market for modified containers for storage, pop-up businesses, housing and the like. These businesses, continued Fahey, need to lift containers in production, often in confined spaces, as well as offering lifting services for their customers. Bison is also doing business with the military and project contractors. "They really like the combination of high lift capacity and portability we've managed to achieve with our manual and semi-automated models," added Fahey.

In the air

While Bison Jacks were designed to put containers on the ground for (de)stuffing, this does not suit facilities that are built with raised loading docks for this purpose. Fahey said it is possible to leave a container elevated for loading and unloading "provided the operation doesn't jolt the container."

This could include loading bulk powders or liquids into a flexitank, and Bison is working with a rubber recycling exporter in Europe that is considering this. In general, however, "for safety and stability, we'd recommend the container is grounded or placed on suitable stands if a forklift is running in and out of it," concluded Fahey.

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China eyeing a multimodal future

Faced with rising costs and market challenges, China is focusing on multimodal initiatives to lower its inland logistics costs

There are growing concerns that the trade row between China and the US is having a negative impact on economic output in the wider Asia region and the world as a whole. Imports and exports in several countries are falling, with June figures recently released by Indonesia, Singapore and South Korea showing declines of 9%, 17% and 13.5%, respectively, compared with June 2018.

These countries sell a wide range of goods, but mainly raw materials and semi-assembled products, into China, and so are heavily reliant on that country's exports of finished products to the US and Europe. But manufacturing in China is struggling and this is also having an impact on consumption and consumer confidence levels as personal disposable incomes come under pressure.

Take the sale of automobiles, for instance. According to data recently published by the German Association of the Automotive Industry (VDA), new car sales in China slid by 14% in H1 2019 to 9.9M units. It was the second year in succession of declining sales. The trend is highly significant, as China accounts for at least a third of global car sales, and so a slowdown here affects the whole industry.

In June, China's year-on-year GDP rose 6.2% which, while high by most countries' standards, was also its lowest in more than 30 years.

Therefore, it comes as something of a surprise that most of China's container handling facilities have posted relatively strong growth in their throughput volumes so far this year. In H1 2019, the total number of containers handled in Chinese ports increased by 4.9% (see table, p27). But it should be noted that this was considerably lower than the 5.4% rise posted between H1 2017 and H1 2018.

Shippers planned

Primarily, the rise was attributable to shippers/consignees moving cargo ahead of normal schedules and before the likely imposition of further sanctions, as well as to overall bullishness in the domestic/feeder cabotage sectors. In H1 2019, containers handled at the country's river ports rose 6.4% to 14.4M TEU. This was well ahead of the 4.2% rise registered between the corresponding periods of 2017 and 2018.

The ongoing difficulties associated with the current trading environment mean that China has to do everything in its power to lower the price of manufacturing/processing and distributing its goods, especially those that are destined for overseas markets. This includes cutting its logistics costs, which, as a percentage of economic output, vastly exceed that of many western countries.

A major reason for this is that well over 75% of freight in China is moved by truck, a transport mode that is significantly more expensive than either rail or inland waterway vessel/barge. Trucks are also more damaging to the environment, and cutting pollution is an issue that the Chinese Government is also eager to address.

Consequently, in relative terms, the use of highway services for distributing cargo, including containers, is expected to decrease over the next five years. An ambitious plan exists for the rail sector, with the government hoping that 4.8 Bt of cargo will be moved by this mode in 2020. In 2018, 4 Bt of cargo was transported by rail, up just over 9% on the previous year.

The government has put in place a number of measures to encourage more cargo to move by rail. These include:

- Phasing in additional heavy-haul train configurations for the movement of coal and iron ore. Last year, China Railway commenced operations with these units on lines between Tangshan and Hohhot, and Watang and Rizhao. It led to cargo volumes increasing by 492% and 76%, respectively.
- Encouraging general cargo and containerised traffic to shift to combined transport services, and specifically to trailer-on-train (piggyback) and container block trains for the long-haul leg of their journeys.

Logistics firms act

Overseas shipping and logistics companies are actively improving their combined freight transport services in the country. In addition, the giant e-retailer Alibaba is constantly reshaping its distribution networks, and local Chinese companies that traditionally offered only 'single-stream' freight services, such as shipping, trucking and/or forwarding activities, are branching out (see box story, p27).

The past six months have seen Alibaba sign agreements with several entities, with the most important one comprising the municipal government of Yiwu (Zhejiang province), and Tmall Global, a Hong Kong based e-commerce and cross-border platform that focuses on encouraging imports to China.

The deal with Yiwu involves the launch of an eWTP (Electronic World Trade Platform) hub in Yiwu that will digitalise the city's trade infrastructure and use technology to support innovative trade financing arrangements. A smart logistics hub will also be established.

"We and Yiwu both have a long history of enabling small businesses to participate in global trade," explained Daniel Zhang, CEO of Alibaba Group, at the launch ceremony for the Yiwu eWTP pilot Area. "While Yiwu brings together buyers from around the world, Alibaba's platforms also bring together millions of merchants and hundreds of millions of consumers. The synergy of the two ecosystems will create value for our communities of users."

Yiwu, which is located in central Zhejiang province, is the world's largest wholesale market for daily commodities. The city attracts over 500,000 buyers from around the world every year.

The deal with Tmall Global is also designed to boost trading volumes, with Alibaba plugging into the group's Centralized Import Procurement (CIP) and Tmall Overseas Fulfillment (TOF) systems. These assist international companies to sell products in China by facilitating the opening of stores and dealing with import procedures.

According to Zhang, Alibaba's plan is to import US$200B worth of goods to China within the next five years, and to help businesses of all sizes enter the market.

To support these various initiatives, Alibaba is expanding its in-house logistics arm Cainiao. It plans to build new bonded warehouses across China and to expand the network's storage capacity from a current level of just over 1M m^2 to 3M m^2.

At a country level, there is an increasing momentum to develop integrated freight hubs and cargo transfer centres, and expand the scope of intermodal rail services and multimodal transport networks. These concepts are being promoted aggressively by central and provincial authorities, and the initiatives are being supported by various international funding institutions, including the World Bank and Asia Development Bank.

The World Bank has financed several programmes over the past 10-15 years, with its most recent projects focused on sustainability and developing combined transport programmes.

Of particular significance is the bank's Key National Elements programme, the core objective of which is to improve the operational efficiency and environmental sustainability of freight transport across China.

It comprises:

- Establishing a national strategy for expanding existing corridors and developing a new low-carbon intermodal freight transport system across the country.
- Developing a comprehensive intermodal freight strategy for the Yangtze River Economic Belt.
- Putting in place an action plan for the development of efficient and green freight transport corridors.

The study involves a review of existing infrastructure, including identifying any bottlenecks at major national and international freight corridors, key intermodal nodes and hubs, and land border posts.

It also addresses links with the 'One Belt, One Road' system. Recommendations will be made on how freight carrying/handling capacity can be increased, network efficiency improved, service levels enhanced, and an integrated and sustainable freight transport corridor network established.

Moving to rail

Various companies are responding and investing in infrastructure and services that meet the above criteria. In June, SITC International Holdings Co, which is one of the largest operators of container ships between China and its Asian neighbours, signed a strategic agreement with China Railway Container Transport Corp (CRCTC), which is an expert in the nation's intermodal rail sector.

The deal encourages SITC to move more of its boxes to/from the ports it serves by rail. It is a highly significant move, as a large proportion of the carrier's liftings comprise perishable products moved in reefer containers. Consequently, fast transit times and high levels of service reliability are critical. These are service traits that the country's rail system has not been renowned for up to now.

In ports/terminals, customers are being encouraged to move more of their cargo by rail and inland waterway services. In particular, this is leading to the development of bigger intermodal container transfer centres, while contracts are being signed with train operators to extend their hinterlands. Dedicated barge and inland waterway terminals are also being developed to ensure cargo movements are seamless.

At the Zhejiang province port of Ningbo-Zhoushan, nine sea-rail transport corridors were opened in 2018. Many smaller regional ports, including Jiaxing, Wenzhou, Taizhou and Yiwu, are regularly connected to Ningbo-Zhoushan, as are 48 prefecture-level cities in 15 provinces. Between 60,000 and 70,000 containers a month are moving by rail to/from the port, with approximately 386,000 boxes moved this way in H1 2019. This

was up 46.7% on the corresponding period of 2018.

Niche ports

In other moves, Zhejiang Seaport Investment & Operation Group, which owns Ningbo-Zhoushan, is working jointly with the Shanghai International Port Group (SIPG) to develop the northern part of the Xiao Yangshan port complex. "The northern side of Xiao Yangshan, though not as deep as the southern side, could well be developed into an international transportation hub for the transition of cargo between rivers across the region," said Fang Huaijin, vice president of SIPG.

The initial phase of the project will result in the construction of a 1,200m quay, creation of back-up land for storage, and the purchase of equipment that will allow 3.5M to 4M TEU a year to be processed.

In addition, smart port concepts and a commitment to use greener forms of energy and electrically driven cargo handling equipment are on the rise as port authorities and terminal operators pursue more sustainable business models.

Consolidation

Meanwhile, the consolidation and integration of neighbouring port authorities continues. This is driven by the need to raise productivity, achieve better economies of scale, cut costs, and offer a broader range of cargo handling and value-added freight processing services to their customers.

In June, Cosco Shipping Ports (CSP), which is China's largest container terminal operating company, announced that it was merging assets controlled by its subsidiaries, comprising Cosco Ports (Tianjin) Limited and China Shipping Terminal Development Co Ltd, with those controlled by Tianjin Port Holdings Co, China Merchants International Terminals Limited, Tianjin Port Container Terminal Co (TCT), Tianjin Five Continents International Container Terminal Co (FICT) and Tianjin Orient Container Terminals Co (TOCT). Effectively, it means that TCT takes over the business, liabilities and staff of FICT and TOCT.

Commenting on the move, a CSP spokesperson said: "Upon completion of the merger, TCT, as the surviving entity, will benefit and strengthen each party, optimise the allocation of resources in the port, enhance the unified management of the relevant terminals, lower operational costs, and improve TCT's overall competitiveness."

Elsewhere, in eastern China's Shandong province, the regional governor Gong Zheng has set up Shandong Bohai Bay Port Group as a holding company for three ports in Bohai. Handling mainly general cargo, the ports comprise Binzhou Port, Dongying Port and Weifang Port. Meanwhile, China's state-controlled Assets Supervision and Administration Commission (SASAC) is in the process of merging the state's main ports, Qingdao and Weihai.

In a statement, SASAC said: "Both ports have similar principal businesses and their integration will enable the two entities to attract more services and avoid regional competition."

Both ports handle significant volumes of containers, but, whereas Weihai handles mainly feeder/intra-regional ships, Qingdao has emerged as a mainline port with some transhipment potential. In H1 2019, Qingdao handled 10.3M TEU and it was one of the fastest growing ports in China over this period (see table).

China's freight transport system is evolving, and as imports, internet retailing and e-commerce become profoundly more important to the economy, new multimodal transport and logistics options need to be developed. This is happening and the next five years will see this scaled-up further. ❑

Containers handled at China's leading ports in H1 2019

Port	H1 2018	H1 2019	Change
Shanghai	20.504M	21.54M	5.1%
Ningbo-Zhoushan	13.312M	13.91M	4.5%
Shenzhen	12.126M	12.41M	2.3%
Guangzhou	10.464M	10.94M	4.5%
Qingdao	9.381M	10.3M	9.8%
Tianjin	7.806M	8.33M	6.7%
Xiamen	5.166M	5.55M	7.4%
Dalian	4.815M	5.36M	11.3%
Yingkou	3.12M	2.81M	-9.9%
Lianyungang	2.378M	2.41M	1.3%
Leading 10 ports total	**89.072M**	**93.56M**	**-**
Total seaports	**107.5M**	**112.58M**	**4.7%**
% share of leading ports	82.9%	83.1%	0.2%
River ports	**13.544M**	**14.41M**	**6.4%**
Total traffic	**121.044M**	**126.99M**	**4.9%**
% share of river ports	11.2%	11.3%	0.9%

Notes: All figures in TEU, unless specified. Source: China's Ministry of Transport

Antong signs logistics deal with trio from Quanzhou

Quanzhou (Fujian province)-headquartered Antong Holdings, the parent company of Ansheng Shipping which offers domestic container shipping services, and Antong Logistics, has signed a strategic alliance with Quanzhou Financial Holding Group (QFHG), Quanzhou Transportation Group (QTG) and Quanzhou Fengze Investment Group (QFIG).

Antong will work with the three companies, all of which are state controlled, on a number of supply chain-driven initiatives. In particular, investments in logistics parks, distribution services and port/terminal operations are planned. It is understood that QFHG, QTG and QFIG will invest at least RMB2B (US$284M) into the venture. The commitment from Antong has not been revealed.

The group is, though, in the midst of a significant capital expenditure programme. In late 2018, over US$470M was raised to support the development of intermodal rail and logistics centres in the cities of Tangshan and Quanzhou, and the purchase of up to 12 x 644 TEU capacity Feedermax-class container ships. Currently, four units are under construction at Fujian Southeast Shipbuilding.

But Antong has significant debt problems to resolve, and this raises some doubts over its future direction. Moreover, alleged improper behaviour, including illegal fiscal guarantees made against loans, by Guo Dongze, one of the group's controlling shareholders, has resulted in the Shanghai Stock Exchange imposing a special tag on the shares. This limits daily trading to 5% of the company's shares in circulation.

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