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SPRING 2019

THE OFFICIAL MAGAZINE OF THE ASSOCIATION OF BULK TERMINAL OPERATORS

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WHEN THE GOING GETS TOUGH...

BY SANDRA SPEARES

The bulk shipping industry has to steer through some challenging times at the moment – not least since Brazil's Vale dam disaster in January, which aside from the shock at the terrible loss of life, left operators feeding China's demand for iron ore wondering what the knock-on effect will be

It is now two years since the sinking of the *Stellar Daisy* and it is to be hoped that recent work to locate the vessel will result in some questions about the sinking being answered – or, at the very least, offer some closure to the families of the 22 seafarers who lost their lives. If nothing else, the accident resulted in the industry taking a fresh look at the viability of using converted tanker tonnage for bulk ore shipments. As a result, shipping companies specialising in this trade began to place orders for new tonnage that was built for purpose.

Setting aside the safety issues in the aftermath of the Vale dam disaster in Brazil, questions are now being asked about what impact the accident will have on bulk trades, not least because of the iron ore production restrictions placed on Vale following the accident.

These have, in turn, led to questions about where alternative supplies of iron ore will come from and whether this will result in an excess of shipping capacity in this specialised segment, at a time when owners have been investing in new, expensive tonnage.

Another elephant in the room is the global sulphur cap, due to come into force from 2020. Owners and operators in every segment are having to take notice, while the approach to the use of open loop scrubber systems tends to vary according to jurisdictions – this was clear at the recent inaugural meeting of the Clean Shipping Alliance (CSA) in London.

The question is whether an individual government's assent to open loop scrubbers is enough to stop ports doing their own thing. Open loop has already received the thumbs down from various areas, including Singapore and Fujairah.

Meanwhile, the Japanese government has apparently decided against a ban on open loop based on its own research.

That said, the drive towards lower emissions overall has the backing of most within the port sector as ports are often located near places of high population concentration. So if, as was suggested at the CSA conference, some early concerns about scrubbers seem to have been satisfied, there still remains the task to convince sceptics that pumping processed wastewater into the sea is not going to provide another future environmental hazard, while eliminating one elsewhere.

On the reverse side of the coin, those operators who are opting for the low sulphur fuel option will have a new set of challenges come January next year. Will low sulphur be available in large enough quantities? Will the price be prohibitive? Will bunker fuel supplies be on spec and will operators be able to rely on the potential availability of a Fuel Oil Non Availability Report (FONAR) to get themselves off the hook?

As the International Chamber of Shipping has warned, FONARs cannot be used as a free pass for those carrying non-compliant fuels, so watch this space...

Read more about these issues in this latest edition of *Bulk Terminals International* – enjoy the debate.

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UNITED FRONT

IAN ADAMS, CHIEF EXECUTIVE, ABTO

As the global sulphur cap on fuel content draws ever near, the various organisations within the industry are forging stronger links to look at ways of complying with the new regulations

IAN ADAMS

Welcome to the latest edition of *Bulk Terminals International* — I hope that you are continuing to enjoy the content. This month, my column may seem a bit unusual, but I hope if you read it through you will get why I feel it is of interest. It also serves to demonstrate how, although there are many facets to the maritime world, we are truly all linked – even if we do not know it.

ABTO continues to represent the industry in many forums and although we do not have consultative status at the International Maritime Organization (IMO), our co-operation with the International Cargo Handling Co-ordination Association (ICHCA) allows us access to the meetings.

So last week saw ABTO represented at the sub -Committee for Pollution Prevention and Response (PPR,) which was formally known as Bulk Liquids and Gases. Why would that be of interest to ABTO? Ordinarily it would not, but on this occasion, there was an item of interest on the agenda that is likely to become an issue for ships visiting terminals in the future.

At this point, I must declare an interest. Maritime AMC Ltd, which manages ABTO, has recently been engaged to manage another association, the Clean Shipping Alliance 2020 (CSA 2020). CSA 2020 represents a group of leading companies from the commercial shipping and cruise industries that have been leaders in emission control efforts and have made significant investments

in research and analysis, funding and committing resources to comply with 2020 fuel requirements through the development and use of Exhaust Gas Cleaning Systems (EGCS). The Alliance was formed on 27 September 2018, with a mission to provide information and research data to better inform industry, national and international authorities, non-governmental organisations and the public on the environmental performance and benefits of open- and closed-loop Exhaust Gas Cleaning Systems (EGCS) and associated air and water emissions.

In addition to serving as an advocate for companies working to reduce marine exhaust gas emissions, CSA 2020 will support the scheduled implementation and effective enforcement of the IMO's requirement for a 0.5% global sulphur cap on fuel content as of 1 January, 2020.

Many of you will know that my background was in running the International Bunker Industry Association (IBIA) for over a decade. During that time, I managed to get IBIA consultative status at IMO in 2005, which coincided with the revision of MARPOL Annex VI commencing. I was subsequently recruited to the IMO Secretary General's Scientific and Industry Expert Panel. This panel was 24 strong and we developed a report that had an executive summary in excess of 100 pages! The purpose of the report was to try and find the best solution for the revision of Annex VI. The result was that in October 2008, the revised MARPOL Annex VI was passed by the Marine Environment Protection Committee (MEPC).

Why is all this of interest to ABTO members? On 1 January 2020 the shipping industry is going to experience the greatest change to the way it operates imposed on it by legislation that it has ever had, when MARPOL Annex VI requires ships to operate using fuel with a maximum sulphur content of 0.5% m/m.

One of the concerns is that there may be a lack of compliant fuel in certain locations. More concerning from a terminals perspective is that if a vessel is found to be carrying non-compliant fuel, port state control officers (PSCO) can arrest the vessel and force it to not only source new compliant fuel, but also de-bunker the non-compliant fuel. What would you do if the PSCO refused to allow the vessel to move from your jetty until it had complied? De-bunkering is not an activity that ships are designed to do. The vessel could be stuck for several days unable to move.

I am sure ABTO members cannot have missed all the debate in the trade press regarding the use of EGCS as advocated by the CSA 2020. MARPOL Annex VI has always contained a Regulation 4 which is titled "Equivalents". This regulation allows to use of alternative methods of compliance that must at least match the effect of using compliant fuel. Part of the decision-making process at IMO took into consideration that a percentage of the world fleet would use "abatement technology" ie, EGCS.

Bearing in mind that the revised Annex VI enters into force in 10 months' time, the European Commission has submitted a paper to the IMO for consideration at MEPC in May that suggests wash water from EGCS may be harmful to the environment, particularly in ports and harbours. They want to globally harmonise where open loop scrubbers can and cannot be used.

At IMO last week there was a presentation at lunchtime from the Japanese delegation. In its presentation, it examined the effects of wash water discharge around Japan. This included Tokyo bay and other sheltered areas. Taking the worse case scenario (all ships using EGCS), the delegation concluded that there was no scientific basis to restrict the use of open loop EGCS. In fact, it even went as far to say that if you had the choice between a ship burning high sulphur fuel using an EGCS and a ship simply burning compliant fuel, the air quality around the former would be better than the latter.

The whole reason for MARPOL Annex VI existing in the first place is to improve air quality. The Japanese presentation indicated that the use of EGCS is more effective than the use of compliant fuel alone. As people that work alongside ships all day, it is in our interests to ensure that this technology is not banned in our ports.

In other news, *Bulk Terminals 2019* will take place this year in Amsterdam on Tuesday 8 October to Wednesday 9 October 2019. The post-conference survey conducted after *Bulk Terminals 2018* in Hamburg yielded many suggestions, but the overwhelming majority suggested Amsterdam. The call for papers has gone out so if you feel that you have an interesting case study, or know someone who does, please let Simon Gutteridge know at: **events@bulkterminals.org**

WORLD NEWS ROUND-UP

There is good news for some dry bulk ports in the latest BIMCO survey, while the outlook for investment into shipping remains positive

BIMCO's *Dry Bulk Terminals Vetting Report 2018*, has named Szczecin in Poland as the best-performing port. The report collected input from 144 ships covering 381 terminals. A total of 97% of the reports were rated as average or better, which gave an average rating of 3.6 (out of five). The result is marginally better than last year's results.

"I think, in many ways, the report shows an encouraging trend, that bulk terminals generally perform well – only four reports were rated as poor," says Aron Sørensen, Head of Maritime Technology and Regulation at BIMCO.

The reports shows that good communication between ship and terminal is a crucial part of port performance and is a factor acknowledged in the written responses by captains.

The number of reports contributed to BIMCO rose by 52% to 916 in total, increasing the number of ports covered by 102. The report acknowledges, however, that the relatively small number of companies contributing to the report means the geographical spread of results is skewed.

"I think this information is valuable to both the shipowners and the ports, but we are still far from satisfied with

the number of reports submitted to us for this initiative," Sorensen says. Ideally, BIMCO would like to have 1,000 ships participating in the survey.

The top five ports were: Szczecin, Quebec in Canada, Newcastle and Gladstone in Australia and Ciénaga in Colombia. The report indicates improved communication between the terminals and the ships, but adequate language skills remain a problem in some.

The survey also looked into waste handling and the number of ships experiencing a terminal's refusal to collect garbage or exorbitant prices to do so is still too high, according to the report. "We need terminals and ports to live up to their responsibilities and receive waste at a reasonable price," Sorensen says.

Another point of concern was that the setting of gangways was impossible in 11% of all cases, thereby restricting the access to and from the ship. This is clearly unacceptable and must be addressed as a safety matter, the report suggests.

INVESTOR ATTRACTIONS

Leading accountant and shipping adviser Moore Stephens, which recently joined forces with BDO, says shipping will continue to attract investors in 2019 if it fulfils its ESG (environmental, social and governance) responsibilities.

Richard Greiner, a partner in the firm's Shipping & Transport team, says: "Confidence in the shipping industry actually dipped slightly towards the end of last year, but that was against a four-year high recorded in the first-half of 2018. There remains an appetite for investment in shipping from both new and existing players. That is likely to continue in 2019 so long as shipping lives up to its ESG responsibilities.

"Existing and emerging regulations such as those on ballast water management and greenhouse gas emissions show that shipping is becoming more environmentally aware and accountable. New funds will be needed and the environmental investment story should prove attractive to many potential investors. Green doesn't come cheap, or easy, however – more so when viewed in the context of rising interest rates. This year, we will see important decisions made on investments to comply with the new environment-driven regulations that are coming into force and we will have a better idea of whether the dry-docking capacity exists to cope with demand."

Other challenges, he reveals in the company's *Bottom Line* newsletter, include operating costs, which are set to increase, and tonnage imbalances in some trades. In addition, he says, "Brexit may finally mean Brexit, which could mean a number of things, but should prove positive for shipping in the UK." The introduction of new lease accounting standards will change things for some, although not their actual cashflows. Finally, the effect of geopolitical influences will continue to be felt throughout 2019.

"Despite the prospect of new trade negotiations between China and the US, the world remains a volatile stage on which to trade," he says. "There are presidential elections this year in a number of countries, including Argentina, Indonesia, Nigeria and Panama.

"Additionally there are a plethora of parliamentary elections over the coming year in, among others, Greece, India, North Korea, at least a dozen African nations and perhaps even in the United Kingdom. Uncertainty is likely to remain the norm in 2019."

HOPES FOR DRY BULK

According to a recent dry bulk analysis by BIMCO, the New Year brought hopes for the dry bulk sector and for US farmers as soya bean exports seemed to recover. Some easing of tension followed announcements by China and the US that they would delay tariff increases while negotiations were continuing.

"Political promises are beginning to materialise in a trade that has faced huge uncertainty since the start of the trade war," says Peter Sand, BIMCO's chief shipping analyst. "This is good news for the struggling dry bulk market as it generates a much-needed increase in tonne-mile demand. In a politically unstable environment, uncertainty for the future of this trade remains high and US farmers therefore face difficult decisions as to what to plant for next season," he says.

Brazil is the largest exporter of soya beans to China and in 2018 met much of the extra Chinese demand for non-US soya beans. Its total exports to China were 28.4% higher than those in 2017. Much of this came from an increase in exports in Q4 2018.

The past three months of the year are usually peak time for US soya bean exports, with lower exports from Brazil as its exporting season runs from February to August. In Q4 2018, Brazil exported 13.9m tonnes of soya beans to China, over twice as much as the 6.1m tonnes in Q4 2017.

"We expect to see soya beans from Brazil on the market earlier than usual this year, beginning in the second half of February. These soya beans will compete with those from the US, with sellers likely to continue exporting through their off-season," Sand says.

NEWBUILD ADVICE

Regulatory guidance on the use of indicative analysis methods to validate the commissioning of installed ballast water treatment systems on newbuildings has been welcomed by Canada-based biotechnology specialist LuminUltra as a positive development for the global maritime industry.

Until now, there was no requirement to prove that treated waters were compliant with the rules. Only a ballast water treatment plant's electrical and automation systems and physical parameters were checked during the commissioning process. Biological testing of treated water was not a requirement.

The 73rd session of the IMO's Marine Environment Protection Committee, however, agreed that indicative testing methods to analyse all organism size factions defined in the Ballast Water Management Convention's D2 regulation and listed in Circular BWM.2/Circ.42/Rev1 should be used to demonstrate that the treatment system's biological processes are working properly.

It was agreed that all the three size classes of organisms need to be measured and assessed. This is because zooplankton – one of the most difficult organisms to treat during the type approval process – can remain viable in sediments where there is little light, while phytoplankton is more easily treated.

LuminUltra CEO Pat Whalen says: "We fully support this decision by the committee. This new guidance means that a ballast water treatment system can no longer be certified for operation unless compliance has been validated as part of the commissioning process, which is good news for shipowners and the environment.

"Problems can occur during the BWTS commissioning phase, including damage to important components or incorrect installation of the system. This can result in the system not working as it should, resulting in a lack of confidence that it will be compliant with the regulations."

BALLAST SIGNINGS

Goltens' Worldwide Green Technologies Division Asia has announced contracts with NYK Bulk & Projects Carrier and BW LPG for support in retrofitting a total of 37 vessels with ballast water treatment systems

The NBP order is for 25 of its bulk carriers. NBP is one of the world's leading ocean carriers of project cargo, heavy lift cargo, steel products, and bulk cargo. The company is a subsidiary of NYK, Japan's largest shipping company. The scope of the contract with Goltens includes 3D laser scanning and modeling of BWT systems, delivery of detailed design packages, and installation supervision in the shipyard.

With the Ballast Water Convention in effect and emissions regulations coming into force in January 2020, Sandeep Seth, Goltens, vice president for Asia, reports a marked increase in response from owners and operators. "Goltens' clients are feeling the pressure of regulations, and they need solutions," he says. "Demand for fast-track compliance support with Goltens Green Technologies' smart retrofit services is really starting to take off."

EU BOWS TO PRESSURE

Publishing data about the emissions of all ships calling at EU ports, as proposed by the European Commission, will incentivise shipping companies to cut their CO^2 while also providing information for regulations to reduce emissions, green NGO Transport & Environment said recently.

The EU, under pressure from industry and the International Maritime Organisation (IMO) to harmonise its monitoring, reporting and verification (MRV) system with the IMO's system, should still require ships registered outside the EU to report their data, the Commission said.

Publishing data on all ships will allow shipping customers to identify the most efficient ships, make fuel savings and thereby reduce CO^2 emissions. The transparency of the EU system, unlike the IMO's data collection system, will prevent dirty ships from passing themselves off as efficient. The Commission's proposal also maintains other key elements of the EU's MRV, such as reporting data showing ships' air pollution in ports, Transport & Environment believes.

Shipping officer Faig Abbasov says: "Shippers need to be able to identify the most efficient ships to cut their fuel costs and climate impact. The EU's system provides this high-quality data that will also influence the ambition and the effectiveness of climate measures in the shipping sector. Without accurate data collection, the reduction measures won't be worth the paper they are written on."

However, the Commission yielded to pressure to remove the obligation on ships to collect and report cargo data – essential for analysing the real-world performance of ships. The IMO system exempts shipping companies from collecting data about their cargo.

Faig Abbasov adds: "Despite the positive decisions on flag neutrality and transparency, it is regrettable that the Commission caved in to pressure to remove the collection of cargo data within the EU. Without cargo data, the market would not be able to differentiate an empty ship from an efficient one and thus there would be little incentive to improve ships' efficiency, lower emissions and reduce transport costs."

SWITCH BILLS SCHOOLING

International Transport Intermediaries Club (ITIC) has produced an e-learning video for ship agents on the use of "switch bills of lading", a second set of bills used as a substitute for the original bills of lading issued at time of shipment.

ITIC legal advisor Mark Brattman says: "There are a number of valid reasons why a carrier may be asked by the holder of a bill of lading to issue switch bills. For example, the original bill might name a discharge port that is subsequently changed, or perhaps the sellers of goods in a chain of contracts want to protect their commercial position by removing the name of the original shipper that appeared on the bills. Alternatively, the buyer of the goods may require one bill of lading covering items originally shipped in a number of smaller parcels.

"The issuance of a second set of bills of lading, however, is an extremely dangerous practice and the perils of having two sets of bills in circulation for the same cargo are obvious. Great care must be exercised by ship agents who are asked to issue switch bills. They must follow certain rules. It is essential that the second set of bills should only be issued if the complete first set has been surrendered for cancellation. Moreover, the principal must agree in writing to switch bills being issued and must also approve any changes to the content of the original bills."

DUST BUSTER

Global innovator in dust and odour control technology BossTek has updated its family of self-powered dust suppression equipment with Tier IV Final-compliant generators, ensuring compliance in all 50 US states.

The company made the announcement with the debut of the new DustBoss DB-60 FusionT, a field-proven suppression system driven by a high-reliability 25 HP electric motor and paired with a gen set powered by a heavy-duty four-cycle indirect injection diesel engine. The generator features a dual-containment fuel cell, heavy gauge lockable enclosure and oversized brushless alternator for easy starting.

Permanently mounted on a rugged road-worthy trailer, the company's Fusion lineup is proving to be a popular and effective means of delivering versatile, mobile dust suppression technology to sites that lack a readily available power source. The company expects to unveil two other Fusion models this year, giving customers the ability to select the size and coverage range needed to best suit their operations.

Tier 4 refers to the latest emission milestone established by the US Environmental Protection Agency and the California Air Resources Board. The regulations apply to new engines found in off-road equipment, including construction, mining and agricultural equipment, as well as marine vessels, locomotives and stationary engines used in industrial and power generation applications.

Tier IV-compliant engines are designed to significantly reduce emissions of particulate matter and nitrous oxides to near zero levels.

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THE INDUSTRY GAME-CHANGER

COMPANY NEWS

When its modular grinding units Plug&Grind® hit the market back in 2011, Cemengal changed the cement industry forever.

With the entire installation pre-mounted offsite in transportable modules to ensure swift delivery times, Plug&Grind® has been something of a game-changer — and Cemengal has been the originator of this change.

Today, more than 35 Plug&Grind® units have been installed by cement manufacturers worldwide, in North, Central and South America, Africa and Asia. This excellent market response proves that Cemengal's product was indeed the solution that its clients were waiting for.

The success of the Plug&Grind®, in a nutshell, is based on a four key elements that provide competitive advantages to their owners:

1. its modular structure, which eliminates almost all risks of constructing on site. The Plug&Grind® is a "no headache" solution for clients.

2. its simplicity, combined with high-quality, robust manufacture.

3. Plug&Payback, which reduces the overall capex required.

4. Time to market is paramount these days: the Plug&Grind® is delivered FOB in six months and erected and commissioned on site in less than six weeks.

MODULAR EVOLUTION

In order to produce Plug&Grind®, Cemengal had to create efficient internal design processes focused on modularity. For this, the company evolved internally, becoming a "module-orientated" engineering company.

This was possible by integrating all engineering departments in-house (civil, mechanical, process, electrical & automation, logistics and project management), all co-ordinated for modularity.

Modularity begins by re-thinking how installations are engineered: the engineering department is retrofitted by the manufacture facility and the design gets better.

Modularity continues in logistics and procurement, ensuring all sub-contractors are involved and aligned on the adjustment of their equipment to modular requirements. Everything should be aimed at providing easy construction methods and simplifying civil works and assembly.

This modular philosophy enables new ideas and new developments to come to the fore, which means Plug&Grind® has been continuously improving.

Today, Plug&Grind® is available with ball mill and vertical roller mill grinding technologies.

TAILOR-MADE PROJECTS

In 2016, things changed again. Many long-established international cement producers — which already had very good structured facilities networks — started to request customised engineering, procurement and construction (EPC) modular projects. And, once again, Cemengal was the originator of a new idea.

Cemengal looked at its two core businesses — modular and EPC — and decided to integrate them into a new hybrid core. In this way, it could offer customers the advantages of modularity together with the advantages of customised design.

Cemengal has integrated these two core businesses and is now developing hybrid projects, both modular and tailor-made. With the advantages of modularity combined with a flexible approach, this aproach is perfect for brownfield projects.

PLUG&GRIND® ADVANTAGES

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» Delivery is between six to nine months FCA basis, depending on the model.
» First cement production will be nine to 11 months after the contract is signed, depending on the selected model.
» The footprint to allocate the whole equipment infrastructure is the smallest in the cement industry.
» The grinding plant is a Cemengal-patented unit.
» The plant is mobile, very compact, easy to assembly and transferable to other locations.
» The equipment comes pre-assembled inside regular containers and modules from Cemengal's facilities in Spain.
» The plant is fully equipped and ready to produce cement after final assembly.
» It is easy to operate and maintain.
» The system can be used for both green field and brownfield projects.
» It helps logistics by grinding raw materials close to the concrete batching plants and thus avoids the handling of cement directly (dusty, leakages and more expensive). If the business, for whatever reason, requires, it can just pack the containers again and transfer the cement production somewhere else.

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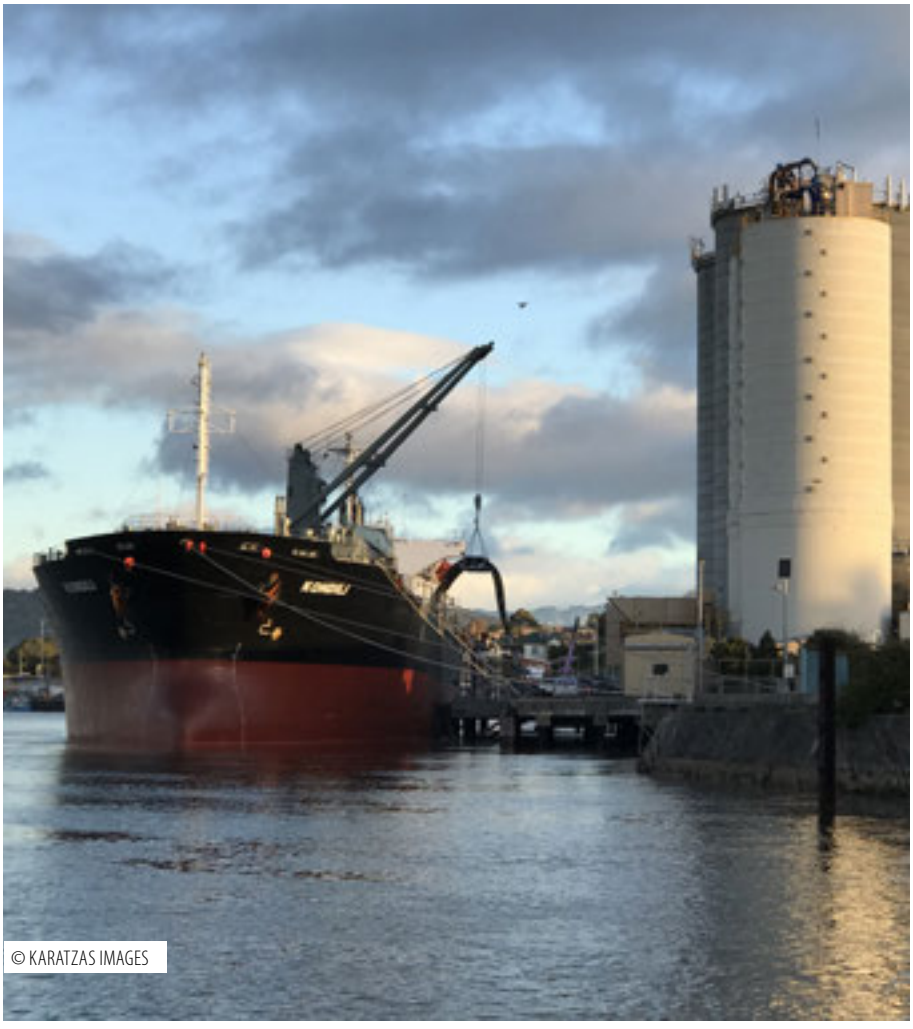
HARD TO BREAK

Cement may be a negligible commodity in terms of transport volumes in the international drybulk trade, but its shipment is a highly specialised industry requiring expertise – but with half of the world's exiting cement carrier fleet owned by strategic shipowners, this niche market is something of a closed shop, as marine advisor Basil M Karatzas explains



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At approximately 115m tons annually, the international seaborne trade of cement is disproportionally small when compared to that of other commodities: approximately 1.55bn tons of iron ore, 1.29bn tons of coal and 498m tons of grains are shipped annually. Cement trade includes clinker, bagged cement and cement in bulk, with the former two transported typically on mainstream dry bulk vessels, while cement in bulk is typically traded with dedicated cement carriers.

Boarding any vessel is always an inspiring experience: the scale of the structure, the humming noise of the engine and the cargo equipment, the people onboard with their disrupted daily routine and their eagerness to reach out to their families. Boarding a cement carrier is an even more memorable experience: first of all, from a world fleet of more than 40,000 commercial vessels there are just 90 dedicated cement carriers worldwide – thus, by itself, the experience is of rather eclectic nature. Then, the operation of the pneumatic pumps during cargo operations requires whole rows of noise dampers to prevent the exorbitant noise of the high-pitched pumps that may cause deafness.

While cement may be a negligible commodity in terms of transport volumes in the international drybulk trade, its shipment is a highly specialised trade. There are the physical qualities of bulk cement (powdery, heavy density, water-absorbent substance) that require special handling throughout the supply chain, including specialised warehouses, terminals and ships. There is expertise required for efficient shipment with ships that effectively have to be dedicated to this trade (read, they cannot do any other trade, more or less, thus very high opportunity cost).

However, unlike other commodities, the cement is often sold or transported based on long-term contracts, usually among bankable end-users, which by itself can facilitate with the financing of the cement carrier vessel. Based on a tender, a shipowner may order a newbuilding vessel or acquire a mainstream drybulk vessel in the secondary market and proceed to convert it to a cement carrier by sealing off the cargo holds and installing pneumatic pumps and other equipment.

In the mainstream drybulk market, shipowners are known to engage in market speculation by ordering or buying ships based on expectations of "asset play" whereby asset prices are expected to appreciate – not easily done with dedicated (niche) assets like cement carriers. There are only eight cement carrier newbuilding vessels on order at present and all eight of these contracts have been placed by strategic owners with captive cargo. Half of the world's existing cement carrier fleet is also owned by strategic shipowners for the transport need of their own cargo or cargo of affiliated companies. The rest of the vessels seem to be employed along contractual trades and routes, either regionally or along exporting trading routes (Asia to Africa, Middle East and North America, and Europe to North America).

Given that the cement trade is a very niche market, only players with captive cargo or shipowners active in industrial shipping would endeavour to invest in and operate this type of vessel; speculation with cement carrier vessels that lack a charter or an employment contract is a risky business.

Demand for cement trade worldwide has been increasing slowly, but in general, it's still below pre-crisis levels in 2008. Demand for cement follows grossly industrial growth with developed countries showing lower rates while developing countries are in higher demand for cement.

The Pacific Rim is responsible for more than half of worldwide cement production with several intra-region trades, but also exports to North America. China has been producing almost one-third of Asia's cement production and, until recently, there has also been the world's largest consumer – to the extent that official Chinese statistics are reliable. However, given widely announced reports of a decelerating Chinese economy and also its pivoting away from heavy industry and towards services, it has been suggested that China will soon be found with excess cement production capacity; unless China follows with its stated target of consolidating and closing older cement plants, there is the definite risk that excess cement capacity will be sold to the international markets, possibly a repeat of China's dumping in the international markets of its excess steel plate capacity.

As already mentioned, exporting and "dumping" a specialised commodity such as bulk cement in the international market will not be as easy as exporting excess steel plates with mainstream supramax vessels, but again, China could easily rev up construction of dedicated cement carriers at its idling shipyards in order to build its own fleet of cement carriers and carry on its own shipment (selling CIF instead FOB for those buyers not capable of handling the logistics of this specialised trade). The likelihood of such a scenario seems low at present, especially since prices of cement are low; on the other hand, the Chinese seem to have the incentive and the means to get aggressive with this business, too.

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SELF SERVICE

Self-unloaders have always been a benefit for areas where a degree of flexibility is required for port operations – ships are able to unload in more remote areas without having to rely on so much shoreside equipment

There have been some repositioning moves in the self-unloading segment recently, with Canadian group Algoma recently acquiring a bigger stake as a result of its purchase of several Oldendorff vessels.

Algoma owns and operates the largest fleet of dry and liquid bulk carriers operating on the Great Lakes and St Lawrence Waterway, including self-unloading and gearless dry-bulk carriers as well as product carriers.

It also owns ocean self-unloading dry-bulk vessels operating in international markets and a 50% interest in NovaAlgoma, which includes a diversified portfolio of dry-bulk fleets operating internationally.

Algoma's deal with Olenorff included the interest held by Oldendorff Carriers in the CSL International pool. As a result of the transaction, Algoma's interest in the pool will increase to approximately 40%. The pool consists of 18 self-unloading vessels ranging from handy-sized to panamax and provides specialised shipping services to a range of customers along the coasts of the Americas and in the Caribbean. Algoma currently owns five vessels in the pool.

As a result of this transaction, Algoma will acquire the handy-sized *Alice Oldendorff*, and the *Harmen Oldendorff* and the *Sophie Oldendorff*, both of which are panamax vessels, for US$100m. The deal is expected to close late in the second quarter of 2019.

Recently completed *Algoma Conveyor*, the third Seawaymax Equinox Class 740 self-unloading drybulk carrier, is set to join Algoma's fleet for the 2019 season. After leaving the Yangzijiang shipyard in February, the vessel should arrive in Canada in early April.

Algoma chief executive Gregg Ruhl says markets are strong at the moment in the run-up to the delivery of Algoma's new ship.

The *Algoma Conveyor* will be the eighth Equinox Class vessel to join Algoma's domestic dry bulk fleet since the first vessel, the *Algoma Equinox*, arrived in 2013.

The *Algoma Conveyor* was the first and only Equinox self-unloader partially built for Algoma by the now-bankrupt Nangtong Mingde shipyard. Algoma acquired the hull at auction in September 2017 and it was then taken to the Yangzijiang shipyard for final construction.

The Equinox Class fleet now includes four gearless bulkers and four self-unloaders. Replacement of ageing ships with modern, fuel- efficient and environmental friendly vessels enables Algoma to better serve the evolving needs of its customers.

Algoma has been involved in ocean self-unloaders since 1998, when the company acquired a 50% interest in Marbulk Canada – then an independent operator of five self-unloaders converted for ocean use. Marbulk joined the current pool in 2000.

Marbulk's original ships have now retired and in the intervening years Algoma's ocean subsidiary, Algoma Shipping, acquired a direct interest in the pool.

One of the fleet, the *Sophie Oldendorff,* was built with a number of innovative features and originally had a moving hole system instead of traditional gates to gravity feed the cargo from the cargo holds on to the conveyor belts. The moving hole turned out to be a failure and was subsequently replaced with hydraulic gates. Other innovative features included an incline belt, and a midship-mounted telescopic boom with a 200° slewing angle.

After the sale, Oldendorff will have 10 self-unloading vessels, with two new vessels on order. The two new vessels are destined for a 25-year contract for NSPC2 in Vietnam, where they will be used to unload coal from Capesize bulk carriers, the company says.

The major commodities carried by ocean-going self-unloaders include coal for power generation, crushed aggregates for construction, gypsum for wallboard manufacturing, iron ore for the steel industry and salt for winter road safety.

Markets are centred in North and South America. However, activities can be worldwide. Service is provided under long-term contracts to leading companies in each sector.

QUBE'S LATEST ARRIVAL

Qube Bulk has recently received delivery of a new, L586 XPower® Wheel Loader. This wheel loader, which was delivered to Port Hedland in Western Australia, will be used at Qube Bulk Port's material handling load-out facility. Qube Bulk is a leading mine-to-market logistics provider in Australia. It now has a nearly 30- strong fleet of Liebherr wheel loaders and excavators.

ONE OF QUBE BULKS FOUR L 576 XPOWER WHEEL LOADERS.

QUBE BULK'S R 920 CRAWLER EXCAVATOR ON SITE.

LOADING TECHNOLOGY

Navis, one of the leading providers of maritime software solutions for cargo and vessel performance and compliance, will be equipping a series of nine new build 82,000dwt bulk carriers with the dedicated bulk version of MACS3 loading computer.

The vessels are currently being built at Yangzijiang shipyard in China, and will be delivered between July 2019 and April 2020 to the Liberia-registered ship owner Lepta Shipping, a subsidiary of Mitsui.

Shanghai-based design experts CS Marine Technology have designed the vessels, which have seven cargo holds to load heavy cargo as per class notification by the Japanese classification society Class NK. The vessels will operate under the Panama flag.

Beside a wide range of calculations related to hydrostatics, intact stability, longitudinal and local strength, the MACS3 bulk carrier version provides dedicated functionalities required to load and unload varying solid-bulk cargoes, with consideration for hatch cover handling and safe transport of cargo. Such solid bulk cargo includes ore, coal, grain, steel coil and logs or cargo falling under the IMSBC code category risk group C, such as nickel ore, iron ore fines or bauxite. In addition, the loading instrument offers guidance on loading sequences and stowage, ballast-water distribution, and grounding scenarios.

"Taking into account that cargo failure and grounding are one of the main sources of bulk carrier incidents, carefully planning and controlling cargo and ballasting operations is vital to ensure seaworthiness and the efficient and safe transport of various types of bulk cargo," says Martin Bardi, head of Navis carrier and vessel solutions. "Since MACS3 is approved by the world's leading classification societies, both ships crews and planners can rely on the instrument to help them adhere to current IMO regulations and obtain regular updates on dangerous goods."

MACS3 loading computer was established in 1984 as Seacos loading computer. It owns a worldwide ship library of more than 4,500 container vessel profiles and more than 1,500 vessel profiles of various vessel types, including bulk carriers, multi-purpose vessels, tankers, roro and offshore vessels.

The MACS3 loading computer for bulk carriers has been approved by classification societies, along with its dangerous goods module for bulk carriers with complete IMSBC code that provides guidance for segregation and handling instructions. Furthermore, the steel coil module supports the load of steel coils in holds by checking bottom strength including dunnage.

AUTONOMOUS CRANES

Other new technology coming onto the market includes MacGregor self-learning cranes, which are part of a joint project between MacGregor and ESL Shipping Oy, part of Aspo, and are the world's first autonomous discharging bulk cranes

ESL 's latest 25,532dwt bulkers are under construction at Jinling Shipyard in Nanjing, China and are on schedule for delivery later in the year. To serve each of their three holds, they feature three specially-developed MacGregor electro-hydraulic cranes, which have a safe working load of 30 tonnes with a grab and an outreach of 30m.

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A FLEXIBLE APPROACH KEEPS CIMBRIA AT THE TOP

COMPANY NEWS

After more than 70 years in the business, it is remarkable that there are almost no two Cimbria plants that are 100% alike – but what they do have in common is that they meet customers' individual requirements. This does not mean that each machine is especially developed every time, however – an obvious comparison could be that of LEGO toys. A large number of different standard components can be combined and put together in countless ways to form a functional whole. And it is the same with a Cimbria plant.

Based on the industry's biggest and broadest product range, the optimum, customised solution is developed in close collaboration between Cimbria and its customers. Indeed, if there is one particular area in which Cimbria really stands firm, then it is full flexibility.

As a member of the AGCO group, Cimbria is part of the world's leading agro-industrial group, boasting brands such as Fendt, Massey Ferguson, Valmet and GSI. The latter operates in several areas with equipment and complete plants for poultry, pig-breeding and grain storage, as well as being the world's biggest producer of round steel silos, which are now incorporated as an integral part of Cimbria's product range. Today, Cimbria and GSI make up the world's largest supplier of equipment, complete solutions and technologies to the industrial grain and seed business.

Developed and optimised over decades by industry experts, the complete product range covers everything from individual machines to finished plants, including automation, project management, installation, supervision and training, as well as subsequent service and continuous optimisation of the plant.

Production of equipment takes place at more than 20 locations all over the world. This requires a sales and service presence that has global reach and enables comprehensive professional insight into the local requirements applicable in each individual market.

One of the latest production locations is in Biatorbagy, an industrial estate outside Budapest in Hungary. In 2014, the first part of the factory opened, before being extended in 2017 so that it now covers more than 25,000m^2. It is at this facility that silos for Europe, the Middle East and Africa are now produced.

Along with a conscious choice of leading sub-suppliers, a new and high-tech production facility ensures the highest quality and uniformity in the physical product. However, when it comes to a product such as silos, correct design and configuration are just as important. Local conditions have to be taken into account, which involves everything from the impact of wind to the frequency of earthquakes. Such calculations are extremely complex – and at GSI are performed in a uniquely developed software application called HiStruct.

HiStruct performs complete optimisation, calculation and design of each individual silo and steel structure and automatically prepares configuration and production drawings, calculation reports, material lists and FEM analyses, as well as generating the 3D models that are used in complete layout drawings.

With the use of the latest technology and production equipment at all locations, Cimbria and GSI will continue to be well equipped in the future to deliver high-quality products to their global customers.

Established in 1947, Cimbria is today an international organisation with 900 employees in 30 companies throughout the world, becoming part of the AGCO group in 2016. It offers storage, equipment and processing plants for the grain and seed industry and transport and conveying equipment for bulk handling. The company has an experienced, highly qualified workforce, its own development and construction department and modern production facilities, which enable it to construct and manufacture all of the solutions in accordance with the individual requirements of each client.

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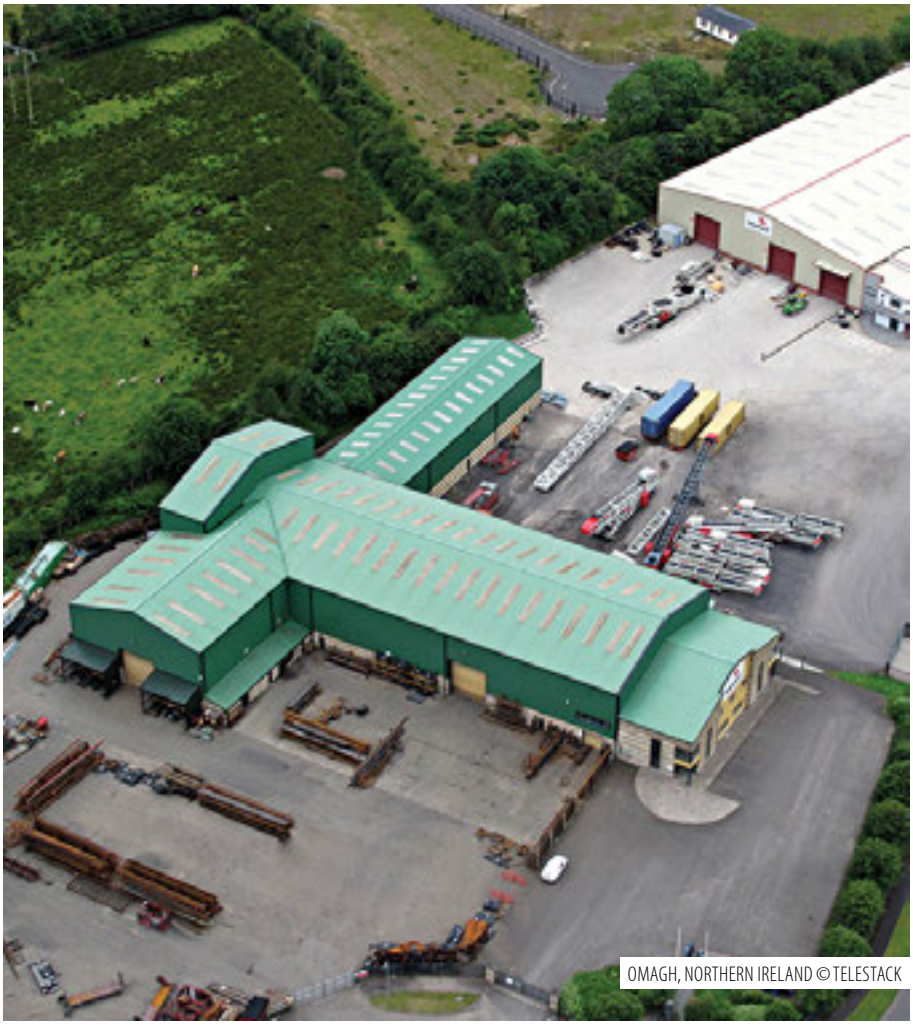
STACKING UP THE BENEFITS

From mobile material handling solutions to innovative reclaim systems for silos, the industry is seeing a wave of flexible, cost-saving schemes in ports across the world



OMAGH, NORTHERN IRELAND © TELESTACK

Telestack has recently announced it will be making additional investment of £5m in a new factory in the Doogary Industrial Estate in Omagh, Northern Ireland, with a view to expanding its ability to supply materials handling equipment on a worldwide basis.

The company plans to extend its manufacturing capacity by initially building a phase one 45,000 sq ft factory on a green field site next to the current Fane Valley factory, which will incorporate state-of-the-art manufacturing premises, a dedicated Research and Innovative Development centre and modern office suite – all of which is central to the company's continued growth strategy.

Telestack has been growing its business in the aggregates and mining arena, as well as in ports and inland terminals, designing and manufacturing equipment to load and unload dry bulk on to vessels up to panamax size.

In the past two years, the company has invested almost £4m in its current Bankmore site within Doogary Industrial Estate, with a state-of-the-art shot-blast, two paint booths and additional manufacturing facilities that have all contributed to its impressive sales and operational performance.

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Managing director Martin Dummigan explains what the local investment means for Telestack and the people that it employs: "Telestack has grown rapidly over the past number of years and we have firm plans to double our revenue again in the next three-and-a-half years. We have outgrown our current facility and we need to extend our manufacturing footprint to meet the international demand for our products. We have made a conscious decision, even in the face of Brexit uncertainty, to invest locally."

Telestack recently designed and manufactured the largest international mobile bulk reception feeder in the world and the unit is currently loading aggregates on to barges for a large US multinational corporations at loading rates in excess of 14,000 tonnes per day

The company is currently completing the installation of a £5m shiploading system in Oman for the Port of Salalah. The four-unit installation comprises of two shiploading systems, each suite comprises of a TB60 All Wheel Travel Shiploader fed by a Titan dual-feed All Wheel Travel 800-6 Bulk Reception Feeder and represents the new generation of mobile shiploading, offering all of the performance of traditional systems but with the added benefits of mobility, flexibility and ultimately a lower cost per tonne achieved by increased production rates, reduced cycle times and reduced labour costs.

The equipment is designed to load limestone, gypsum and cement clinker at average rates up to 1,200tph to handymax, panamax and post-panamax vessels.

Telestack began discussions in 2013 with the Port of Salalah technical and operational teams to design a customised shiploading system as part of an ongoing $15bn infrastructure investment to cater for the export requirements of its local mining, quarrying and cement industries.

GOOD VIBRATION

Another innovative technique for emptying product from storage is Vibrafloor's technology.

Vibrafloor's flexible steel plates utilise vibration to create waves that gently sweep the products towards the outlets for reclaiming. The low energy consumption technology guarantees an easy, risk -free transport process, with no clean-up needed and high reclaim rates.

The Vibrafloor concept is a unique reclaim system for silos and all types of bulk storage vessels. Unlike most traditional reclaim systems for silos, which consume huge amounts of energy to drive heavy duty engineering, the Vibrafloor concept demonstrates the power and effectiveness of multiple low-power modules collaborating to completely empty bulk storage of any size or shape, the company explains.

Once collapsed and aerated, the wave moves the product forward on the plate, assisted by gravity and the slight incline of the floor, until the module is completely clear of material. As a module or zone clears, sensors located adjacent to the module become uncovered, triggering the next module or zone to repeat the process until the bulk storage is completely empty.

The progressive sequence by which Vibrafloor empties a silo or bulk storage is automatic, controlled by a dedicated PLC in the electric panel, once a demand signal has been received.

"The concept includes safety as a central feature, with the ability to completely empty bulk storage of product, without human intervention or personnel entering the silo. In the unlikely event of a motor or sensor failure, the modular construction allows the adjacent modules to clear most of the stored product from the silo, leaving only a small residue to clear by hand.

"While the wave action is a powerful and effective reclaim solution for silos, the wave energy is isolated from the underlying floor and silo walls within the frame of each module, by the springs and flexible membrane used in the construction," the company says.

GOING LARGE

Thyssenkrupp Industrial Solutions, meanwhile, has been awarded a stacker contract – one of the largest fabrication and construction projects the company has ever handled in Western Australia.

Under the contract, Thyssenkrupp will design, supply, construct and commission large-scale stockyard machines for the BHP South Flank iron ore project in the central Pilbara region of Western Australia. The contract is valued at approximately €150m (A$250m).

Torsten Gerlach, CEO of mining technologies at Thyssenkrupp Industrial Solutions says: "South Flank will be one of the largest iron ore operations worldwide. We look forward to contributing to this project by combining long-standing global expertise in the mining business with local experience. Our strong partnership with BHP extends globally, but the Pilbara region is a core area where we have provided material handling solutions for decades. With our field service teams, we are supporting our customer on a daily basis."

Thyssenkrupp will supply two stackers that deposit iron ore into stockyards and a reclaimer for loading the ore on to trains for transport to Port Hedland. The machines will have a capacity of 20,000 tonnes per hour, making them the largest rail-mounted stackers and reclaimers in the world.

The design of the machines incorporates the latest Australian design standard requirements and technology improvements centred on safe construction, operation and maintenance activities.

The BHP iron ore project is targeting first ore extraction in 2021. Generating roughly 80m tonnes of output per year, it will fully replace production from the existing Yandi mine, which is reaching the end of its economic life.

The project is expected to create many opportunities for Western Australian suppliers.

FASTER PROCESSING

TAKRAF Tenova has a wide range of port and commodities handling equipment which has recently been used on a number of projects worldwide, including one to reduce the impact of decreasing ore grades for a copper producer in Chile.

One of the aims of the project is to increase mineral processing capacity by increasing the capacity of the reclaiming system to more than 10,000 tonnes per hour, amongst various other initiatives.

TAKRAF already has a bucket-wheel reclaimer on site needed but this needed to be replaced in order to increase the handling capacity. The decision was made to replace the machine with another TAKRAF machine, model HR 7100. The HR 7100 model had been operated at another of the company's mine sites about 170km away.

The company is involved in a turnkey contract for the entire refurbishment including engineering, supply and site erection of the machine.

Commenting on the new contract Hernan Vega, commercial manager at TAKRAF Chile showed the potential of designing and building robust equipment that, with some updates, is able to start a second life at an entirely different operation. This versatility is becoming a feature of operations to support mining facilities or ports that want to set processes in place to move to a higher capacity model in the future, he says.

A variety of different machine types can be employed to reclaim stacked material from stockpiles. Typical machines range from bridge-type bucket-wheel to boom-type bucket-wheel and drum reclaimers.

TAKRAF bridge-type bucket-wheel reclaimers are primarily employed in applications where bulk material is to be homogenized with high required material flow rates. Typical machines have a reclaiming capacity of 300 t/h to 12,000t/h and a rail gauge of 30m to 60m.

In applications involving smaller flow rates or smaller particle sizes, machines can be configured in such a manner that the bucket-wheel is located below the bridge.

Where higher flow rates or larger particle sizes are required, the company suggests a machine configuration in which the bridge is mounted through the bucket-wheel. In this manner, power transmission between bucket-wheel trolley and bridge is enhanced which has a positive effect on machine life.

A number of further configurations are also able to be specified, ranging from the number of mounted bucket-wheel trolleys to the manner in which they are arranged. "Machines employing two bucket-wheel trolleys are able to achieve a higher reclamation rate, whilst also achieving greater homogenization at lower flow rate fluctuations. When installing two bucket-wheel trolleys, the trolleys can be mechanically linked so that they both share a common trolley drive system," the company suggests.

In applications where very high flow rates are required and where very wide stockpiles are employed, they prefer to install each bucket-wheel trolley with their own drive system. A trolley speed controller is then employed as this increases interaction efficiency between the two bucket-wheel trolleys.

Boom-type bucket wheel reclaimers meanwhile are popular in applications where medium to high flow rates from dumps are being reclaimed. Typically they have a reclaiming capacity of 500 t/h to 20,000 t/h and a boom length of 25m to 60m.

Drum reclaimers are particularly suited to the homogenization and blending of bulk material for sophisticated downstream processes, especially for iron ore or coal processing, the company suggests. "Up to 112 buckets can be arranged in six to eight parallel rows with these symmetrical buckets swivelling automatically in the pre-selected working direction. The buckets continuously remove thin layers of material from the entire cross-section of the stockpile and discharge this onto a belt conveyor located within the drum. As a result, the stockpile is levelled evenly and cleanly with each passage."

BUCKET-WHEEL EXCAVATORS (BWES) © TAKRAF

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ALL WHEEL TRAVEL TECHNOLOGY TRANSFORMS PORT OPERATIONS IN RUSSIA

COMPANY NEWS

Ust-Luga Port is the largest and deepest port of the Baltic Sea and is seamlessly integrated into the northwest transport network and European transport infrastructure. Constructed at a cost of $2.1bn, this important coal and fertiliser terminal is an attractive source of supply of Russian export products due to its proximity to the European Union and Central Russia.

The "Multipurpose Reloading Complex" LLC (MRC) is a cargo terminal at the port, specialising in receiving, storing and shipping general and bulk cargoes (cargo turnover in 2017 was 5.5m tons of mainly power-generating coal). With the terminal handling all types of vessels with capacities ranging from 3,000 tons to 75,000 tons, MRC looked to future proof its business while maximising on its Capex investment. After much research by the purchasing company, the ultimate solution was found in the introduction of the TB58 All Wheel Travel Radial Telescopic Shiploader.

The company already had experience of Telestack equipment, having previously introduced three mobile conveyors into its fleet. In 2009, the company installed a wheel mobile TS1542 radial telescopic stacker that currently has over 60,000 hours on the clock. A TRACK MOBILE CONVEYOR TCL431 was added in 2014 (currently at 16,000 hours) and in 2017, it purchased a TRACK MOBILE CONVEYOR TCL1031 (7,000 hours). Its experience with Telestack's equipment meant that it had confidence in the brand to spec the customised equipment specific to its commodities, quayside conditions and the changing needs of its operation. The result of this cooperation is the TB58 A11 wheel Travel Radial Telescopic Shiploader.

The Ust Luga operation meant coal was transported via the rail network and unloaded. After it was crushed and screened, the coal was moved to the front of the jetty to be stockpiled.

Prior to the Telestack installation, the port used wheel loaders/dumpers to move coal from one location to the next, which was inefficient, costly and resulted in the double handling of material.

Mining Technologies approached Ust Luga Port and presented the benefits that mobile stacking and direct shiploading would bring to its operation — in terms of both speed and efficiency. Ust Luga Port selected Telestack to provide a TB58 All Wheel Travel (AWT) Radial Telescopic Shiploader to stockpile coal at the front of the jetty and then load coal on to a Panamax vessel. The main benefit of the TB58 All Wheel Travel Radial Telescopic is that it can be used for both stockpiling and shiploading.

Through using a Telestack conveyor, Ust Luga Port is capable of creating a larger stockpile, eliminating the need for as many wheel loaders. Instead of loaders being required to continuously move material away from the stockpile, they are only needed to move material once it is ready to be placed into trucks to be taken away for distribution. The elimination of wheel loaders reduces labour, fuel costs, carbon footprint and maintenance costs and with less site traffic movements, the potential for human error is reduced.

The All-Wheel Travel feature offered MRC mobility and flexibility incomparable to any piece of equipment in its operation. With the ability to literally turn 360º with ease, speed and accuracy, the All-Wheel Travel function has enhanced the Ust Luga operation considerably. With the added benefit of no civil or planning requirements, the All-Wheel Travel system is a quick and easy solution suitable for stockpiling applications and any single or multiple cargo berths.

The unit has a reach of 58m and is able to stockpile in radial mode, increasing the stockpile capacity on site within a smaller area. Incorporating a telescopic boom on an all-wheel travel double bogie system, the 58m telescopic boom is rated at 1,200 tph (coal) and can cater for vessels which have a freeboard height of up to 16m and a beam of 43m.

Additionally, at this maximum freeboard, the unit has a reach of 25m into the hold of the vessel. Couple this with the range of steering modes available (including in-line, carousel, radial, parallel and crab mode), the radial and telescopic ability also gives the operator full control, allowing them to easily and quickly trim the hatch and adapt the load in accordance with the differing vessel sizes, application or quayside conditions. With the ability to change hatches in as little as two minutes, the operator can maximise production rates and minimise labour on site.

The advanced and easy to operate hydraulic system enables variable speed when travelling in parallel mode during hatch change, radial mode when stockpiling or trimming the vessel and steering mode when in transport position. The process is further enhanced with the user-friendly radio remote control that permits full and accurate control, particularly whileworking in restrictive quayside conditions. The 1.2m-diameter wheels also give a high ground clearance and have been designed to cater for adverse ground conditions.

Russia experiences extreme temperatures ranging from –30° to +30° and for this reason the Telestack engineering department incorporated many features that enabled the unit to function in either extreme. An operator control cabin was mounted on the conveyor for full control and operation, which included hydraulic levelling, air conditioning and seating. Some further custom features on the unit included anti-condensation heating to drive the motors, LED emergency light within the panel, control panel heaters and several motor and gearbox upgrades.

Russia, like much of the industry sector, is facing pressures to implement environmentally friendly systems to their everyday processes. Another key factor for the Telestack purchase was its ability to offer many dust containment and extraction solutions. Fitted with fully galvanised dust covers on the full length of the outer conveyor, side wind plates on the inner conveyor, a retractable canvas telescopic dust cover on the inner conveyor, a fully enclosed hood at transfer point, dust extraction system on the feed-in and transfer points and an integrated compressor for dust extraction in the under-carriage, the entire rail-to-ship process is virtually dust free and simple to operate using the radio remote control.

Having over three decades of experience in the Ports industry, Telestack boasts one of the most impressive installment portfolios in the industry across a wide range of commodities. Its range of equipment encompasses track conveyors, hopper feeders, link conveyors, radial conveyors and the range is further enhanced with the ability to incorporate the All Wheel Travel feature on most models, thus allowing many operators to truly benefit from the #MovingToMobile concept.

For more information, please visit: telestack.com.

#WeHaveTonnesToTellYouAbout

BUCKETS THAT CANNOT BE BEATEN

COMPANY NEWS

Innovative and state-of-the-art, Negrini's electro-hydraulic buckets are the ideal solution for single-wire, electric-powered machines.

The main features of the equipment are as follows:

- Independent, removable electro-hydraulic unit with "visible" components.
- Independent control unit that works even when disconnected from the bucket.
- Oil filtration up to 3 microns; standard filtrations are approximately 60 microns.
- The bucket can be used either transversally or lengthwise.
- It is possible to change valves to different shapes and sizes.

Available in a range of different models, each bucket has varying characteristics, such as standard, low, with arms and sub-water. Buckets can also be supplied with valves of different shapes: standard valves, or with opening windows to reduce load capacity and dust-proof or containment valves to reduce material loss. Metal or rubber covers can also be applied to reduce dust, which helps to protect the environment.

The valves are composed in such a way that the material can pass through without obstacles and it allows constant evacuation into the drain, without releasing the material too violently. Covers and blades can also be installed to reduce dust dispersion.

By replacing the valves, the characteristics of the bucket can be changed. For example, it is possible to fit large valves for handling lighter materials, or smaller (but heavier and stronger) valves for hard materials. With materials that are more diificult to shift, special long or commercial "rippers" can be fitted.

INNOVATIVE HYDRAULIC DEVICE

The valves are synchronised, if required, via an innovative hydraulic device, which excludes the teeth or connecting rods thereby eliminating wear and tear. This exclusive synchronisation system from Negroni also avoids maintenance and mechanical breakdowns.

Synchronisation is achieved through the equal division of the oil to the jacks. With the innovative hydraulic system, the jacks receive the same quantity of oil both in opening and closing, obtaining the correct movement of the valves without using mechanical parts. All jacks have a slowing device to prevent the impact of limit switches in the valve opening.

Pistons and hydraulic hoses are also protected from impact, with a full cover that protects against accidents.

SIMPLE LUBRICATION SYSTEM

The most sensitive and difficult zone to inspect is the valve connection bushing. Negroni has therefore added a large bushing that can be easily replaced. The bushing is

protected by two commercial "o-ring" type gaskets. These are blocked in place and do not allow any dirt to enter. The pressure on the outside allows the grease to be released, thereby lubricating the walls and removing dirt.

By using an electropump and specific distribution system, all the pins are greased automatically — grease is sent to each pivot independently of the resistance created by dirt, distance, and so on to ensure every pivot is lubricated as programmed. The user is simply required to check the grease level in the tank.

Although the pins are lubricated by the automatic lubrication system, whenever possible they will also maintain the traditional external lubricator in order to allow manual emergency greasing.

EASY-TO-MAINTAIN TANK

The "tower" tank, meanwhile, allows a strong inclination of the bucket without compromising its function and ensures no air can reach the lowest part of the tank.

The complete tank control unit can be easily tested or maintained on the ground. It is not necessary to disconnect electrical or mechanical parts before extraction, but only the hydraulic equipment connected to the bucket.

The operation to remove the control unit from the bucket will take only about one hour.

Negrini has inserted the heart of the hydraulic power station in a single metal block. Simply by removing four screws, it is possible to replace the entire valve unit. This operation can also easily be performed by less experienced personnel.

The buckets can be equipped with standard hydraulic power stations (with solenoid valves) or with a reversing motor, in which the solenoid valves will not control the opening and closing of the bucket, but the reversal rotation of the motor. The bucket will open in one direction and close in the opposite.

In both systems, oil filtration will take place up to 3 microns (standard filtrations are about 60 microns).

Its versatility allows the bucket to accommodate hydraulic power stations with different powers from the standard and, in many cases, the units will be replaceable.

For more information, visit: Negrini.org

MACHINE, REPAIR & SERVICES

COMPANY NEWS

Established in 1977, MRS Greifer GmbH is a leading engineering company providing design, manufacture, supply and after sales services for grab buckets up to 30 m³ capacity. Our commitment to continuous research and development ensures our grabs are world leaders in terms of technology, quality and performance.

With five decades of experience in the design, manufacture, research and development of grabs, plus an extensive after-sales service backed by our team of highly skilled engineers, MRS Grabs has clients from every corner of the world.

We design grabs to fully meet the needs of our clients and the parameters within which they work, producing equipment capable of unloading all kinds of bulk cargo. Our machines include the latest features and are of optimal weight, ensuring an exemplary performance for a longer period of time. When it comes to hydraulics and other outsourced parts, we only use trusted brands so the highest quality is ensured.

Each grab is manufactured under the industry's strict quality controls, according to the QAP approved by our experts. We are only too aware that delays in shipping can result in exorbitant costs so we keep a full stock of spare parts, and our committed after-sales service team is available to see to all our customers' needs in the quickest possible time.

With grabs to handle bulk, logs, scrap, underwater dredging and more, please don't hesitate to contact us to talk through your needs.

MRS GREIFER

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AHEAD OF THE CURVE

While speed and efficiency are the name of the game in modern ports, so too is the ability to handle the largest vessels – and cranes, grabs and grab curves must reflect this

If cranes need to increase in size and capacity to handle larger ships, grabs need to follow suit and grab curves need to ensure the greatest amount of cargo is lifted in the shortest possible time.

Larger grab curves mean greater turnover and higher throughput – for example, the Liebherr LHM 420 has a grab curve of 75 tonnes and Irish port Shannon Foynes was one company to purchase this equipment last year primarily to handle bulk products. Its larger grab curve means larger grabs can be installed, while the crane is also fitted with an air pressure system to prevent dust getting into the machinery room.

EBS has also recently been expanding its harbour crane fleet, installing a new Gottwald crane last year at its Laurenshaven terminal in Rotterdam. This 50-ton crane has a reach of more than 51m.

The closed storage capacity is currently undergoing a major expansion to more than 800,000m^3 by 2020, hence the need for the large Gottwald 6 to be installed to cope with the increased capacity.

SALES SET TO RISE

After the launch of its new CBG 360 last year, Liebherr has been reporting good sales – the company has said it expects good uptake not only in the transshipment market, but also for land-based bulk handling operations.

Two CBG 360 units have been purchased by Aston for use in the Black Sea for bulk material handling. The logistics company Nibulon Agricultural, also based in Russia, will use two CBGs for the handling of grain in the Black Sea, while the German shipping company Oldendorff will use four CBG 360s for coal supplies for the new thermal power plant Nghi Son 2.

The Indonesian coal terminal operator PT Bayan Resources Tbk ordered two CBG 360s for its subsidiary Dermaga Perkasa Pratama. PT. It uses the four rope grab cranes in fixed cargo crane (FCC 360) configuration, meaning the devices are used on a permanently installed pedestal on a jetty pier of the Balikpapan Coal Terminal.

The cranes are designed for high-speed bulk handling and will be installed on 10m platforms in order to increase the maximum outreach up to 36m. The maximum lifting capacity of the high performance CBG 360s is 36 tons.

Larger and additionally strengthened pulleys ensure increased service life of the ropes and a reduction in abrasion. The specially developed high-performance winches are designed for continuous operation and ensure constant and reliable performance with a full load. Meanwhile, the customised extended cabin improves the crane driver's vision and so increases safety during operation.

Litronic, Liebherr's own integrated control system, automatically monitors the crane's heel and trim and responds with the appropriate emergency program in critical situations. Therefore the crane is not only suitable for operation in sheltered waters, but also in open seas.

UNDERWATER INNOVATION

Stemm has been developing new products and techniques for dredging at great marine depths. The systems and techniques used by Stemm are an alternative to traditional orange peel grabs, are innovative and have several registered patents.

The underwater grabs, used for dredging from 100m, have been installed in ships already equipped with Stemm grabs combined with peripheral vision as well as lightning equipment.

Stemm grabs allow a very exact position control system and cause a very limited turbidity, vital to the potential sensitive marine environment,

for example coral. Each grab has an automatic auto-correcting positioning system on the marine seabed.

The equipment is ideal for use in the extraction of gas and oil from isolated fields in deep water, both for preparing the bases to install coastal pipes, or to extract big rocks and breakwaters when constructing new ports.

Stemm's grabs have already been used in deep applications in Australia and Norway, taking care of the excavation of thousands of cubic metres of soil.

Stemm has also been involved in a number of projects, including Maasvlakte 2 in Rotterdam as well as the new Moroccan port of Safi, where a coal terminal is under construction.

HEAVY DUTIES

Kongsberg Maritime has secured a $13m contract to equip a new heavy lift crane vessel for Offshore Heavy Transport with an innovative technology suite. The first ship is currently under construction by China Merchants Heavy Industry and is scheduled to enter service in 2021.

Kongsberg's deliveries will include dynamic positioning, navigation, thruster control and automation systems. The delivery also includes an electrical package that includes battery hybrid power and energy management systems.

"The China Merchants Heavy Industry (CMHI) selection of our solution to enable OHT's expansion into the offshore renewables and installation market is a valued endorsement of our approach to the integration of operational and digital technology," says Egil Haugsdal, president, Kongsberg Maritime.

"We are looking forward to seeing this sophisticated vessel in operation and delivering continued support to ensure that OHT can maximise the potential of the Kongsberg systems on board."

UNLOADING POTENTIAL

The old ship unloaders at the Kooragang 2 berth in Newcastle, Australia, have been a feature of the Walsh Point precinct since 1968. The two rail-mounted ship unloaders were established at what was then known as "Rotten Row" to handle dry bulk products including fertiliser, rock phosphatic, ores and meals.

Kooragang 2 and 3 berths remain the busiest and most diverse common user berths in the port, continuing to handle a diverse range of dry bulk and liquid bulk commodities.

In June 2018, Port of Newcastle announced that it was investing $33m into a new ship unloader, including state-of-the-art crane, conveyor infrastructure and an electrical substation incorporating the latest in safety and environmental compliance features.

Port of Newcastle's executive manager marine & operations Keith Wilks says the replacement of the old ship unloaders was driven by the port's strong commitment to working with its customers and anticipating their future needs.

"Our customers have requested more capacity to grow their cargo volumes and the new unloader will have a capacity of 1,000 tonnes per hour, a significant increase from the current average rates of 230 tonnes per hour," he says.

"We have also implemented a new service model to improve environmental performance and ensure regulatory compliance.

"Our approach is to embed a more consistent, streamlined approach to environmental performance at the Terminal, whilst at the same time driving efficiency and maximising trade growth," Wilks says.

The Port of Newcastle's principle contractor Kerman Contracting will deliver the overall project with design and construction of the new crane unloader by its partner Tenova Takraf. The new crane unloader will be constructed in Vietnam and is due to arrive in the port in early 2020.

BCG'S BIG ORDER

BGC Contracting has welcomed its first Liebherr R 9800 at the Idemitsu Boggabri Coal Project in New South Wales. The R 9800, commissioned in December 2018, joins another R 9800 on site, along with two R 9400 excavators.

BGC Contracting says: "The R 9800 is a significant investment and strong indicator of the health of our business and commitment to partnership across project delivery in mining and construction."

A FIT LIKE A TAILOR-MADE SUIT

COMPANY NEWS

By providing tailor-made support, Beumer Group offers intralogistics solutions adapted to customers' needs, whatever the industry. To achieve this, it has set up a team of experienced specialists to conduct feasibility studies, create and evaluate various concepts, manage projects from engineering and design, through assembly and commissioning to inspection, providing full customer support. The customer therefore receives the optimum solution from just one convenient source.

Effective intralogistics are becoming an increasingly decisive factor for companies from various sectors. More and more, they are relying on automated systems, for example to be able to react to a greater variety of products and packages. But what happens when the standard range or portfolio of an established provider does not meet the customer's special requirements?

"In order to provide our users with maximum support, it is important for us as a system provider to consider a few critical success factors", says Peter Schmidt, Head of Sales - Intralogistic Systems at Beumer Group. The group is an international leader in the manufacture of intralogistics systems for conveying, loading, palletising, packaging, sorting and distribution. Small- and medium-sized companies, in particular, must be able to adapt their production to continuously changing handling and storage requirements. "One reason for this is the increasing variety of options available," says Schmidt. "Or there might be issues, for example, with stackable, non-stackable or geometrically different containers."

Effective investment planning requires a high level of consulting and problem-solving during the concept and offer phase. Schmidt believes it is important to avoid, whenever possible, interfaces along the logistics value chain. Customers also expect scaleable solutions, as well as maximum availability and the highest possible reliability of systems. This requires reliable and robust technology, as well as 24/7 customer support.

MAXIMUM PRODUCTIVITY

In order to meet these success factors and maximise customers' productivity, Beumer Group's tailor-made solutions team now provides customised and highly developed systems for nearly every industry. "We have put together a team of specialists who have extensive experience with tasks related to internal transport and material handling," explains Schmidt.

The team acts largely independently within the group. It takes over all detailed process and data analysis, as well as material flow simulations. It is not unusual that additional engineering and development tasks are added for special solutions and the manufacture of prototypes.

"Compared to off-the-shelf solutions, our systems are customer- and application-specific, requiring greater effort and attention to detail, especially during the concept and offer phase," explains Schmidt.

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SMOOTH OPERATORS

Ensuring materials are transported efficiently from mining facilities to ports is a priority, with mine owners enlisting a variety of solutions to ensure an efficient passage

QUELLAVECO COPPER MINE

Smooth running from mining facilities to ports is a key part of improving operations. Thyssenkrupp has recently won a contract to supply a gearless material handling system for Anglo American's copper production at the Quellaveco copper mine in Peru. Thyssenkrupp will supply a 4,700m long, 1,830mm wide overland conveyor featuring dual 5.5MW gearless drives operating at a design tonnage of nearly 11,000 tons per hour. The scope of supply also includes the complete material handling system for the concentration plant, including eight in-plant conveyors and 11 belt feeders. First production from the new mine is expected in 2022.

Due to their proven track record of high reliability and efficient use of energy, gearless drives were selected to power the new overland conveyor. The elimination of a whole series of mechanical and electrical components increases the reliability and improves the efficiency of the overall system by 3-4%. The maintenance requirements of gearless drives are also substantially lower, compared with other drive systems.

Torsten Gerlach, chief executive of the mining technologies business unit comments: "This order shows how gearless conveyor systems meet today's demand for ever-more efficient mining solutions and increased safety requirements. It is the seventh overland conveyor project of this magnitude utilising gearless drives that has been awarded to us since 2010. Together with our partner Siemens, we have managed to become one of the world leaders in bringing this technology to the market."

The new conveyor system will initially move 127,500 tons of primary crushed ore per day from the pit to the stockpile adjacent to the copper concentrator. Quellaveco contains approximately 7.5m tons of copper in ore reserves – enough to wire 80m homes or to equip 90m electric vehicles.

Vast sections of the overland conveyor will traverse from one valley to another through a 3.2km long tunnel. After exiting the tunnel, the conveyor will pass over hilly terrain before terminating at the stockpile.

The stacker will also feature a structure designed to replace the discharge pulley without the need to clear out the stockpile for crane access. Thyssenkrupp has designed similar systems for both the Antapaccay and Las Bambas mines in Peru.

PIPE WORK

Beumer Group is another company providing technology to improve efficiency. The company's overland conveyors and pipe conveyors can be used by companies in the mining industry to transport various bulk materials, even over long distances and often through rough terrain.

High angles of inclination and tight curve radii enable individual routing adapted to the respective task and topography. The company relies on camera-equipped drones for the planning, projection, implementation and documentation of these systems. Using special software solutions, the aerial photographs can be evaluated photogrammetrically to generate digital terrain models.

The product range includes stackers and bridge reclaimers for storage yards, whether with or without blending bed systems. These stack bulk material and guarantee a maximum blending effect. Users can also efficiently homogenise large quantities of different bulk materials and bulk material qualities and thus ensure the uniformity of the raw materials used.

For efficient loading, ship loaders with fixed booms and extendable telescopic belt conveyors are provided, as well as bulk-loading heads, which are used to load bulk materials into silo vehicles quickly and without dust.

Sichuan Yadong Cement in Pengzhou, China, recently ordered two additional overland conveyors, with an overall length of 13.7km to transport limestone to the one of its cement plants.

SENSITIVE SOLUTION

Transco Industries, meanwhile has implemented Semtech's LoRa into its conveyor belt applications to enable safer monitoring while reducing operating costs.

"Semtech's LoRa technology enables miners to remotely monitor conveyor belts, therefore reducing maintenance costs and helping to prevent belt failure," says Jeff Brown, chief executive at Transco Industries. "Previously, mine operations had to contract specialists to monitor factors such as belt idler temperature and, typically, this could cost hundreds of dollars per hour. With LoRa-based sensors, managers are able to do this themselves in real-time without the risk of human error."

The company says that according to market research, the global conveyor belt industry is expected to reach a value of US$6.4bn in 2022, with smart belt technologies leading this growth. Transco's LoRa-enabled sensors were developed to flexibly fit into existing mining infrastructure including conveyor belts.

The small and durable sensors connect to private networks based on the LoRaWAN protocol, allowing the continued relay of real-time data in the extreme conditions found in a mine. A miles-long conveyor belt is equipped with an end-to-end solution consisting of several sensors embedded in the belt itself to measure stress and prevent potential ripping.

In the event of a belt rip, LoRa-enabled sensors transmit a signal to the belt control, shutting the belt down immediately to halt the hazardous and expensive rip from worsening. Mine operators can then inspect the damage and decide how best to repair the system. Additional sensors are placed

on belt idlers to measure temperature of the idler bearing as sensors report temperature data to allow mine operators to monitor bearing status to prevent overheating and fires.

Transco's LoRa-based conveyer belt application is used in collaboration with Polysense Technologies, an innovative leader in solutions for Internet of Things fibre and wireless sensing.

"Semtech's LoRa Technology creates industrial IoT solutions that are highly scalable by number of sensors and gateways to cover even the largest work site or mine," says Vivek Mohan, director of internet of things, wireless and sensing products take over at Semtech.

"LoRa Technology's easy-to-deploy, flexible capabilities allow mine managers to leverage real-time data to predict maintenance and increase operating efficiency," he says.

ON TRACK TO SUCCESS

Rio Tinto has successfully deployed AutoHaul, establishing the world's largest robot and first automated heavy-haul, long-distance rail network.

The $940m AutoHaul programme is focused on automating trains transporting iron ore to Rio Tinto's port facilities in the Pilbara region of Western Australia. The network is the world's first heavy-haul, long distance autonomous rail operation. Rio Tinto operates about 200 locomotives on more than 1,700km of track in the Pilbara, transporting ore from 16 mines to four port terminals.

Since completing the first loaded run in July, Rio Tinto has increased the number of autonomous journeys across its iron ore operations in Western Australia in a controlled and safe manner, with over 1m km travelled autonomously.

Rio Tinto Iron Ore managing director for rail, port and core services, Ivan Vella, says: "The safe and successful deployment of AutoHaul across our network is a strong reflection of the pioneering spirit inside Rio Tinto.

"It's been a challenging journey to automate a rail network of this size and scale in a remote location such as the Pilbara, but early results indicate significant potential to improve productivity, providing increased flexibility and reducing bottlenecks."

The average return distance of these trains is about 800km with the average journey cycle, including loading and dumping, taking about 40 hours.

Locomotives carrying AutoHaul software are fitted with on-board cameras allowing for constant monitoring from the Operations Centre. All public rail crossings on the network are fitted with CCTV cameras.

GOODBYE TO THE BLACK STUFF

With ports such as Amsterdam saying they are planning to phase out coal throughput, coal terminal operators are coming under increasing pressure as funding, not to mention handling, becomes ever-more unpopular

DELAYS IN COAL HANDLING IN FEBRUARY

Australian coal handling facilities have been feeling the pressure as China announced delays in coal handling in February, amid reports – denied by the authorities – that this was due to government disapproval of Australia's stance on Chinese technology giant Huawai's roll-out of new technology.

Funding for new coal facilities is one issue that needs to be handled. New research from the Australian Institute for Energy Economics and Financial Analysis (IEEFA) reveals that more than 100 major global financial institutions have introduced policies restricting coal funding, with more to come.

"Since 2013, coal exit announcements have occurred at a rate of over one per month from globally significant banks and insurers holding more than US$10bn worth of assets under management," the report says. It found that since the start of 2018, there have been 34 new or significantly improved announcements from global financial institutions restricting coal.

The World Bank announced the first-ever restrictions in 2013, with the 100th announcement in December 2018 coming from the European Bank of Reconstruction and Development, removing three country exceptions to its coal finance ban.

A further five policies have been announced since the beginning of 2019, with moves coming from Nedbank of South Africa, Barclays Bank UK, Export Development Canada, and Varma of Finland. Austria's Vienna Insurance Group said in February it will no longer insure new coal plants and mines.

Report author Tim Buckley, director of energy finance studies at IEEFA, says when globally significant investors act, global momentum increases. "For environmental, reputational and financial reasons, thermal coal is a toxic asset for global investors increasingly announcing new and improved policies responding to climate change," says Buckley.

"The strong leadership of a few globally significant institutions five years ago is increasingly turning into capital flight by the many, with one new announcement every two weeks in recent years.

"The pattern of tightening existing policies combined with new lending restrictions is creating a domino effect within the global financial industry, while resulting in a progressive strangulation of the thermal coal industry. Stranded assets are a clear financial risk for any institutions left funding the coal sector.

"With investors understandably focused on cheaper, sustainable, domestic renewables – which are clearly becoming the backbone technology of choice for energy systems going forward, an emerging theme is coal companies' inability to access capital markets for expansions, mergers or acquisitions. The pace of change is electrifying."

"With the energy transition to cheaper technologies gathering pace, the likelihood of investors having to wear billions of dollars in additional stranded assets is impossible to ignore," said Buckley. "The smart money is jumping ship. The only question now is who's next?"

While financial institutions around the world are moving away from coal to limit exposure to increasing stranded asset risks, another IEEFA report finds global renewable energy champion China is simultaneously funding over one-quarter of coal plants currently under development outside the country.

The report, *China at a Crossroads: Continued Support for Coal Power Erodes China's Clean Energy Leadership*, examines China's expensive subsidisation of largely imported coal plant investments across 27 countries, all while overtaking the US and Germany in becoming the number one exporter of cheaper greener environmental goods and services.

"China is making great progress towards becoming a world leader in renewable clean energy at home, but outdated logic about power system design continues to dominate China's overseas finance habits.

"China's leading financial institutions lag behind their global peers in formally limiting investment in coal plants in international markets, imposing stranded asset risks on countries that will struggle to adapt as coal power becomes obsolete," says report co-author Melissa Brown.

Meanwhile, the institute found that if market price is the benchmark for compensating the early closure of coal assets, then recent deals indicate that Germany's coal and lignite power plants and mines have very low value, and make a mockery of compensation claims by Germany's biggest utility, RWE, under the country's pending coal phaseout plan.

RWE says it wants to be compensated for the premature closure of its coal power plants in line with the most generous pay-outs of the past, a position that ignores the darkening outlook for coal mining and generation, and which pits the company against genuinely affected mining communities for precious taxpayer funds.

CLEARING THE AIR

Dust suppression is a key component in coal handling, as dust can be explosive and many commodities have generate dust within ports.

Martin Engineering is one company that has introduced a customisable dust control system that delivers application-specific components, controls and additives to significantly improve suppression when compared off-the-shelf products, the company says.

"The Martin Surfactant Dust System is a turnkey solution comprised of modular elements that are configured to best suit the individual operating conditions and materials of each custowwmer operation, with a broad array of options that includes customised spray, material sensors, programmable controls, surfactants and even remote monitoring," it says.

The company is also marketing the CleanScrape Belt Cleaner which is equipped with tungsten carbide tips and applies minimal pressure to the belt, it's safe for use on mechanical splices, making it one of the most versatile belt cleaners on the market.

TOP LOADER

Siwertell, meanwhile, has officially launched its new high-capacity loader, and believes that equipment needs to be adapted to the specific needs of the user, not the other way round.

"The cargo handling market demonstrates a range of unique elements," the company says. "No two ports are exactly the same in terms of their cargo mix or volumes, blueprint, or local climate. A founding principle in Siwertell's design philosophy is to create new products to serve its customers' needs, rather than expecting them to adapt their operations to limitations in their equipment."

Using the new high-capacity loader, Siwertell says that in the space of an hour, 12,000 metric tons of iron ore, or 8,000 metric tons of coal can be loaded. The new loader serves some of the largest bulkers in the world – iron ore carriers of up to 300,000 dwt and 230,000 dwt coal carriers.

A number of vessels can be loaded in quick succession, offering minimal berth occupancy, which translates into considerable off-hire and fuel savings, besides emissions.

"We specialise in developing tailor-made solutions for every bulk material handling application," says Juha Huovilainen, sales director at Siwertell. "The design of the new loader is based on multiple interviews with global customers operating at the extreme, the most demanding high-volume export terminals. It also represents the culmination of our vast experience in the coal and iron ore industries.

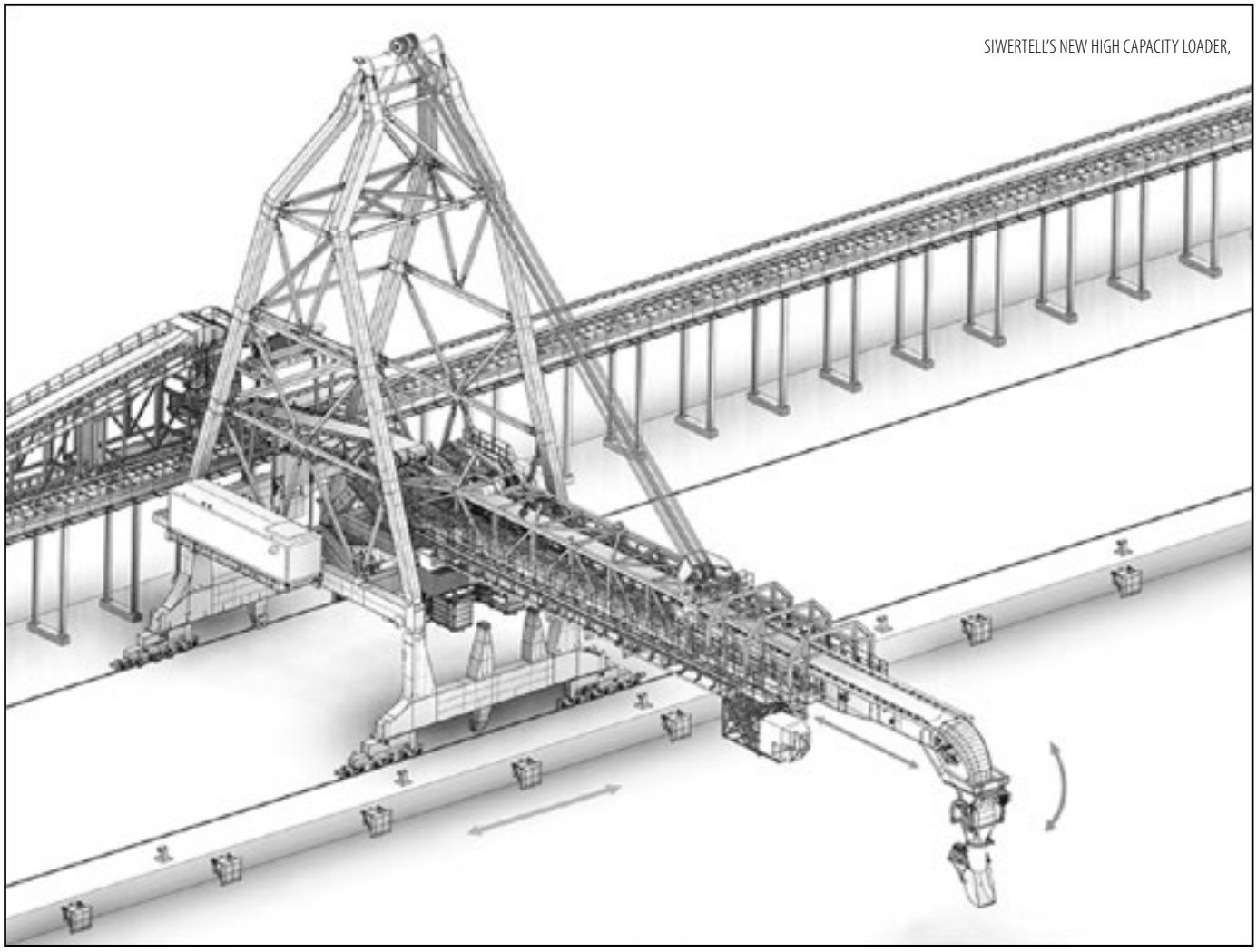
"With this latest introduction to our product portfolio, Siwertell's engineers have worked hard to bring the advantages of its smaller systems to large-scale applications, without making any sacrifices in function. Our system is lightweight and compact for its size, highly robust and provides totally unmatched cargo throughput."

To maximise loading efficiency, Siwertell has developed a new loading spout, which loads coal and other bulk material with similar properties underneath hatch openings and in the corner of hatch openings. For iron ore, a newly designed deflection device also optimises the transfer of bulk cargo into the ship's holds.

Loading spouts can be retracted to the jetty for servicing or repairs. Furthermore, the loader can be locked in position to avoid it becoming damaged during high winds. Meanwhile, a travelling cab, which can telescope up to a distance of 16m along the loader's horizontal arm, gives an optimal view of the operation, as well as allowing the operator to identify any issues in the otherwise fully automated loading process.

The high-capacity loader is also equipped with a monitoring system, known as SIMON; a PC-based human machine interface with rapid, remote monitoring capabilities, able to identify potential issues before they emerge and trouble-shoot them if they do occur.

Siwertell's high-capacity loader features a specially-designed shuttle conveyor system, which has no transfer points between belts. This delivers efficient, long-distance conveying without any cargo losses. An optional dust cover prevents any emission of coal dust to the surrounding environment. "When dealing with such high volumes of cargo, even a small portion of spillage can be extremely costly," Huovilainen says.



SIWERTELL'S NEW HIGH CAPACITY LOADER,

AUTOMATIC RESPONSES

As the race to comply with upcoming rules on sulphur content in 2020 continues to gather pace, a range of measuring equipment is making its way to the market to assist in compliance, as well as provide solutions for a range of shipping needs

THE GLOBAL SULPHUR CAP COMES INTO FORCE IN 2020

With the International Maritime Organisation's 0.50% global sulphur cap on marine fuels set to come into force on 1 January 2020 and discussions on enforcement strategies and potential penalties for non-compliance gathering pace, the ability to perform lab-quality testing in seconds, will soon become an operational necessity for crews and authorities.

Wilhelmsen Ships Service has hooked up with Hitachi High-Tech to supply the company's hand-held XRF analysers to the maritime market, enabling vessel crews to accurately and efficiently test the sulphur content of their fuel, on the spot.

Hitachi High-Tech's XRF spectrometers are already being used in the petroleum industry and require little sample preparation, minimal training and providing almost instantaneous, verifiable results according to the two companies.

Jonas Östlund, product marketing manager at Wilhelmsen Ships Service says: "Partnering with Hitachi High-Tech Analytical Science, one of the leading fuel testing specialist, enables us to provide our customers with what we believe will become an absolutely essential tool ahead of IMO 2020."

Crews will be able to eliminate the risk of accidental non-compliance, he explains. As vessels approach Emission Control Areas (ECAs), with a lower 0.1%, permissible sulphur content limit, the engine room can immediately and accurately test the sulphur content of the fuel flowing to the engines after changeover and ensure it is compliant.

In addition to mitigating the risks of non-compliance during changeovers, fast, reliable, on-board testing equipment lessens the reliance on the traditional Bunker Delivery Note, empowering crews to check the sulphur content of fuel during bunkering, rather than potentially having to deal with potential fuel specification issues after the fact.

Östlund adds: "No-hassle testing, on board and on demand, Hitachi High-Tech's XRF analysers, along with its industry-leading expertise and technical support, will make navigating the new fuel sulphur regulations, while not quite plain sailing, far less of a burden."

Wilhelmsen will be offering the X-MET8000 handheld XRF analyser (above) from Hitachi High-Tech, which complies with ASTM D4294, ISO8754 and IP336 sulphur test methods. Robust enough to be used in a scrapyard, it comes with an embedded GPS to pinpoint exactly where analysis is performed. Hitachi High-Tech's cloud service and data-sharing enable users to store, share and manage analysis data. Customers will also benefit from in-house service and remote diagnostic services for support.

While port state control test methods for fuel compliance vary, for example using drone technology to assess smoke plumes and sniffer units in port to detect sulphur emissions, the two companies believe that their technology will provide a viable alternative.

DRIVE FORWARD

WE Tech's variable frequency drive technology – WE Drive and The Switch direct drive permanent magnet shaft generator – is now being deployed on the 25,600dwt self-discharging handysize bulker *Viikki*, which was delivered to ESL Shipping last year from Jinling Shipyard in China.

The new equipment means the vessel can achieve ice-class 1A propulsion, while still slashing fuel consumption, costs and emissions. With three holds and a cargo capacity of over 33,000m^3, along with three electro-hydraulic cranes, the ship is both state-of-the-art and highly functional, but what's "under the hood" is generating the most attention, according to the company.

MS VIIKKI: THE WORLD'S FIRST LNG-FUELLED BULK CARRIER. ©ESL SHIPPING

ESL Shipping is a leading Baltic carrier of dry bulk cargo operating within the sulphur emission control area. Both *Viikki* and sister ship *Haaga*, were designed in accordance with the Energy Efficiency Design Index (EEDI). LNG proved to be the most attractive fuel option, enabling the vessel design to cut CO^2 emissions by more than 50%, compared with traditional heavy fuel alternatives. Ice can cause rapid changes in the main engine load and therefore the propulsion units need to be flexible, responsive and deliver optimal power per unit, while still meeting the most stringent environmental criteria.

The WE Tech solution utilises WE Drive, the variable frequency drive technology, together with The Switch PMM 1000 Direct Drive Permanent Magnet Shaft Generator.

WE Tech Solution Three, which is implemented on both ships, comprises Economical operations (PTO) and Boost mode (PTI). The Solution One, Economical operations (PTO) allows mechanical energy from the propeller shaft to be converted to electrical energy – the most energy-efficient way to generate power in a vessel.

Using the Power Take Out (PTO) mode, WE Drive enables propulsion machinery to operate in combinator/variable speed, while the direct-drive permanent magnet shaft generator produces electrical power up to 700kW for the vessel's electrical network.

This delivers significant savings by drastically decreasing the operating hours of the auxiliary generators – saving fuel and resulting emissions – as well as reducing maintenance requirements, the manufacturers explain.

"For the most demanding conditions, Power Take In (PTI) mode can be selected," Mårten Storbacka, managing director of WE Tech Solutions, notes. "This converts auxiliary generator power to propulsion power by employing the direct-drive permanent magnet shaft generator as an electrical motor. In doing so, an added 1250 kW of mechanical power can be harnessed to boost the propulsion system, ensuring effective operation in Ice Class 1A."

The Ice-boost Solution Three allows vessels to meet the EEDI requirements while still have sufficient power for sailing in icy conditions. The WE Tech Solution Three, Boost mode, is the perfect way to successfully handle the balancing act of meeting both EEDI requirements and high Ice Class, according to the company.

"We aim to achieve the highest levels of energy efficiency in our segment with WE Tech's technical support and co-operation. We are committed to greener technology for the future," says Mikki Koskinen, managing director of ESL Shipping.

"WE Tech's energy efficiency solutions bring a significant positive effect on the vessel's operation and environmental footprint, which considerably improves our profitability and competitiveness."

Ville Parpala, director of product marketing, marine solutions, Yaskawa Environmental Energy/The Switch says he believes there are several reasons for the growing interest in permanent magnet (PM) shaft generators by the bulk segment.

He says: "You can downsize the diesel engines if you have a PM shaft generator that provides boost possibility, saving significant space and money with smaller diesel engine. A PM shaft generator increases safety, redundancy and flexibility. Imagine if you have a failure in the main engine, causing the propulsion to stop. You can run the vessel with the PM shaft generator by utilising the auxiliary gen sets, or even batteries – but not in the case of the bulk segment."

In addition, he says, "Arctic conditions may surprise the seafarer. You can surprise the Arctic conditions by using the extra boost function with our PM shaft generator."

WE Tech Solution's Storbacka adds: "We are proud of our innovative and energy-efficient solutions that were delivered to Viikki and Haaga, the world's most eco-friendly bulk carriers. This will provide a catalyst for other shipping companies to commit to greener technology for the future. Our solutions significantly improve the efficiency of propulsion machinery, electrical power generation and distribution. So, the fuel consumption and harmful emissions can both be reduced."

STELLAR DAISY SEARCH

Meanwhile, Ocean Infinity, the next-generation seabed survey and ocean exploration company, has successfully located the wreck of the lost South Korean tanker, *Stellar Daisy*, at a depth of 3461m in the South Atlantic Ocean, approximately 1800 nautical miles due west of Cape Town.

Stellar Daisy sank on 31 March 2017, transporting iron ore from Brazil to China. Tragically, 22 of the 24 crew were lost. Working from the vessel *Seabed Constructor*, the search operation involved the deployment of four autonomous underwater vehicles (AUVs), which, over 72 search hours, explored approximately 1,300 km^2 of seabed.

Ocean Infinity's AUVs are capable of operating in water depths from five to 6,000m. The AUVs are not attached to the vessel during operations, allowing them to go deeper and collect higher quality data for the search.

They are equipped with a side scan sonar, a multi-beam echo-sounder, a sub-bottom profiler, an HD camera, a conductivity/temperature/depth sensor, a self-compensating magnetometer, a synthetic aperture sonar and a turbidity sensor.

Representatives of both the Government of South Korea, which awarded Ocean Infinity the contract to conduct the search, and the families of *Stellar Daisy*'s crew, were present throughout the operation.

Oliver Plunkett, Ocean Infinity's CEO, says: "We are pleased to report that we have located *Stellar Daisy*, in particular for our client, the South Korean Government, but also for the families of those who lost loved ones in this tragedy. This operation is further testament to Ocean Infinity's leading, technology led, search capability. Through the deployment of multiple state of the art AUVs, we are covering the seabed with unprecedented speed and accuracy."

PEAK PERFORMANCE

StormGeo and DNV GL announced in February that they have signed an agreement to consolidate their fleet performance solutions under one banner. The agreement will combine DNV GL's ECO Insight and Navigator Insight solutions with StormGeo's FleetDSS and ship reporting solutions.

The combination of these solutions will result in a new offering to the global shipping industry that will be able to provide a complete fleet performance portfolio, including route advisory, navigation and planning, and fleet performance management services.

The fleet performance centres, delivery, product development and sales will be managed by StormGeo. The result is a combined fleet of more than 12,000 vessels that will receive a daily service from StormGeo in route advisory, weather intelligence, navigation and planning or fleet performance.

The consolidation creates the largest vessel performance data set and developer team in shipping, providing industry-leading analytics that give customers even better data to enhance their operational decision making.

The existing services will be maintained and strengthened within StormGeo, with all solutions brought together in the back-end, utilising an improved data infrastructure.

DNV GL will retain a strong connection to the new solution through the 26.4% share in StormGeo it has held since 2014, as well as continuing technical support to ECO Insight customers.

Users will also able to share data through DNV GL's open industry platform Veracity.

LESSONING THE LOAD

Training in the correct use of forklifts, as well as being able to operate them in demanding atmospheric conditions, is vital for safety, while the emphasis on environmental issues has been encouraging suppliers to consider greener forms of propulsion

CM Labs Simulations introduced a new port-focused training pack designed to provide forklift drivers in training with the opportunity to learn machine and cargo management skills last year. The new training package aimed to team driving basics with a number of different types of cargo, aiming to improve drivers' skills for even the most complex port operations.

"Forklifts are one of the most common machines found in ports and operators need to learn to respect these powerful machines to provide effective cargo movement," says Lisa Barbieri, vice president of marketing at CM Labs.

"Training in the realistic environment offered by the Vortex Forklift Training Pack safely exposes operators to the behaviour and limitations of the real machine. Drivers learn what it takes to work in a terminal and experience a wide range of port operations."

Specific training scenarios include a slalom driving course, manoeuvring in confined spaces, handling a variety of fragile loads, and stacking cargo inside containers, on trailers, and on warehouse racks. With forklifts prone to tipping when improperly handled, trainees on the training courses are taught best practice.

COLD COMFORT

Handling product in cold environments such as warehouses also presents challenges in ensuring the equipment performs adequately. According to Toyota Material Handling: "One of the main challenges in cold environments is to maintain the right temperature for the products stored inside while keeping cost down. This should be done without compromising the well-functioning of the truck. Other challenges might be optimising battery capacity, minimising waste of space and issues caused by condensation."

Clearly, using the right equipment is very important, as temperatures in cold stores could affect how it operates, so Toyota recommends dedicated cold storage trucks that are fitted for cold temperatures, for example with stainless steel axles. Ensuring that machinery is checked prior to use, so workers do not have to spend too much time checking in the cold is also important, as is making certain that space in cold storage is use most effectively, to improve throughput and enable the number of workers working in the cold to be minimised.

Toyota also recommends lithium ion batteries for use in cold stores as these, it says, have "an energy efficiency that is up to 30% higher than lead-acid. This allows for a longer running time, opportunity charging and, in combination with the ability to charge within the cold store thanks to the battery heater solution, the trucks are able to perform continuously throughout the shift."

The safety and comfort of workers also needs to be considered, of course. They must be fitted with the right clothing and operators should have access to trucks with heated cabins that, although they cost more in terms of heating, will ensure that productivity remains high because operators will be more comfortable.

In addition, Toyota says, "a simple way to reduce the number of workers in the cold areas is to automate certain processes. Introducing automated warehouse trucks for automated pallet transport or storage can be phased in step by step. Employees can then take up alternative tasks where they are not exposed to the harsh working conditions."

ELECTRICITY VERSUS DIESEL

Forklift manufacturer Kalmar is also enthusiastic about the use of lithium batteries as an alternative to diesel-run alternatives. Electric alternatives are becoming more attractive in part because of the demands of new environmental legislation.

"Major companies in big industries, such as the automotive industry, are driving the development in part because of environmental policies and directives they are required to follow," says David Malmström, business development manager at Kalmar Forklift Trucks. "In response, smaller companies are also switching to electric trucks, even though the development is driven by the major players in different industries,"

One industry that needs to take environmental values into consideration is forestry. "There's a major push to switch to electric trucks in both wood and paper industries. All the major players in Europe are doing it – there's no turning back," notes Henrik Johansson, segments solution sales manager, forestry. "In the past five years, our sales of electric forklifts have doubled and the growth is only accelerating."

While environmental drivers come first, for some companies, the savings they make by switching to electric trucks are also a factor. For example, many pulp and paper companies generate electricity themselves, Kalmar says. It has been developing its own litium ion battery

"We've had our lead-acid batteries for decades, but the new Li-ion is going to change everything," says Johansson. "Another important factor is the fact that Kalmar can now offer forklifts up to 18 ton, and not just the 5-9 forklifts we had before."

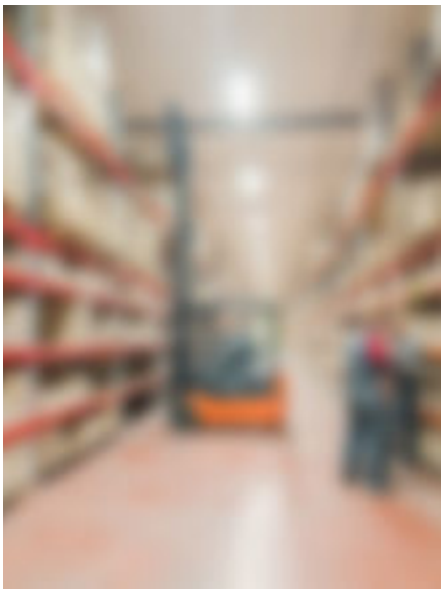
According to Malmström, Kalmar began to offer a Li-ion battery in its trucks about three years ago. "The most obvious benefit is that it doesn't need a specific charging room as you'd need for a lead acid battery and instead, it can be opportunity charged in shorter spurts over the day. That way, you can basically use the trucks all the time and you don't have to plan for breaks for charging the batteries. They can be charged during a 15-minute coffee break," he says.

Compared to the old technology, the new Li-ion battery has several benefits, Kalmar says. First, there is no need to have several batteries in a multi-shift operation; one is enough because it can be recharged during the shift. Also the new battery lasts for up to 4,000 cycles, compared to lead-acid battery's 1,500 cycles.

"The battery efficiency is 95%, compared to 70 with the lead-acid battery. Also, there's minimal maintenance," Malmström continues.

"All in all, compared to diesel trucks, electric machines need less maintenance because there are fewer components that need service or have to be exchanged," adds Johansson.

Although prices are higher for the batteries, Malmström says they will come down as the technologies become more established. Another benefit Kalmar points to is they are quieter to operate and therefore more comfortable to drive.



SAFETY FIRST

Specialist training is key to ensuring safety is top of the list when it comes to working in silos, as Hycontrol managing director Nigel Allen explains

HYCONTROL MANAGING DIRECTOR NIGEL ALLEN

Given the dangers associated with entry into silos and fighting fires within them, safety training is key and, having worked closely with the quarry and aggregates sectors for over 30 years, Hycontrol has become one of the most experienced companies to specify and supply level and pressure equipment in the UK.

The company is now poised to share its accumulated specialist knowledge with the industry, focusing on one of the most pressing and widely-misunderstood issues facing aggregate and cement producers today: silo over-pressurisation and safety during deliveries.

The UK level measurement and silo protection supplier has announced details of its new silo safety training courses, which have been audited and accredited by the Mineral Products Qualifications Council (MPQC).

The courses cover all aspects of silo pressure safety during tanker deliveries and the essential maintenance of safety equipment.

Hycontrol managing director, Nigel Allen says: "Having been involved in the quarry, aggregate and cement sectors for a long time, the lack of quality training around silo pressure and safety during tanker deliveries was pretty clear to us. Maintenance of pressure safety equipment has also been quite poor, historically.

"Therefore, it makes sense that we set up proper training courses to help improve the level of knowledge within the industry and with that, hopefully, improve safety standards as well. We have worked closely with MPQC to create a course programme that is unbiased and informative, and we look forward to welcoming attendees from across the whole industry."

Given that over-pressurisation of silos, safety on delivery and poor maintenance of equipment are three of the challenges he mentions, where are operators are going wrong in this respect?

According to Allen: "There's a fundamental misunderstanding of the application, really. Users don't understand what the key components are, so they don't understand what maintenance they should be doing.

"The pressure relief valve [PRV] is a classic example," he continues. "PRVs are being used all the time, which means that they get clogged up with product. They're not supposed to be used at all. The misunderstanding is, if they're going off people think that their system is working, but in fact, they are only meant to be an emergency relief. So there's a big issue in making sure there's competence and understanding about what the equipment actually does and why it's important."

Enclosed space accidents have, and continue, to result in many casualties. Does he see this as being a particular problem relating to silos or material in storage?

"I know that in certain industries there are a high number of enclosed space accidents, but most of our applications and installations are on top of/external to the silo, so we don't have to go in – we don't really see it in the bulk cement industry, for example, which is a big user of our products. The problems we see, and which our training relates to, is a risk from working at height and over-pressurisation."

So what does he see as the main challenges for materials handling as far as bulk terminal operators are concerned? "The challenges we see in bulk terminals are similar to those in other industries – transferring product from A to B and keeping pressures low enough so they don't damage the silo or the equipment attached to it. It is very easy for pressure to get out of hand, especially when you're dealing with storage vessels that are, in the main, not pressure-rated.

"So it is important that relevant staff know the risks, know what to look out for and what actions they can take to improve site safety".

Another question is whether training programmes have fallen down in the past and if so why? Are operators are cutting corners in this respect? "I don't feel that training programmes for silo pressure safety are falling down – I don't think they've ever been there," says Allen. "I think there's been a total misunderstanding in the concept of silo protection, so there's a lack of information.

"No-one has really looked at the dynamics of the delivery, so the training programmes covering this haven't existed up to this point. However, I think that with a rising awareness that this is an issue, after several serious pressure-related silo incidents over the past few years, we are starting to see the acknowledgement that this is something that needs to be looked at seriously."

How is it possible to measure the effectiveness of the training programmes the company offers? "If the training is effective, we'll see a reduction in the number of incidents being logged on silo protection systems. It's pretty black and white in that respect.

"The message we want participants to take away is simple – understand the equipment that you fit to your silo, understand what it is there for, and understand why it needs to be maintained. If you understand the application, you'll understand why all of this is important."

The in-depth training courses for UK industry representatives will be held at the company's Redditch, Worcestershire headquarters. Recently refurbished training facilities will accommodate groups of 8-14 delegates for a detailed exploration of the causes of silo over-pressurisation, the risks involved, practical solutions and much more, with experienced engineers and trainers providing plenty of hands-on demonstrations.

Hycontrol's training programmes and training providers are fully accredited by the MPQC. A certificate of attendance is provided to each attendee, with the option of an official MPQC certificate.

Two courses are currently offered by Hycontrol: a half-day Basic Silo safety Awareness session, and a full-day Advanced Silo Safety Awareness course. Full details of the training programmes and their contents can be found at: **hycontrol.com/services/training**

ON THE MOVE

Meanwhile, ABP has been investing in a different type of storage, notably storage on the move. The Port of Ipswich has invested £700,000 in the construction of a new, de-mountable warehouse as part of its commitment to continuously improving the port infrastructure it makes available to its customers.

Construction of the new portable warehouse began in 2018 and was completed on schedule to provide extra storage space facilities to accommodate the growing business needs of ABP's customers, Clarksons Port Services.

Andy Rham, managing director of Clarksons Port Services, says it was one of the first companies to benefit from investment in the Port of Ipswich when ABP acquired the port some 21 years ago.

"This additional new facility is further proof of our close working relationship with ABP and will enhance our storage capacity provision, helping us in the continued success and growth of our business in the port."

As part of the order, the port acquired 170 stelcon slabs from local concrete products supplier, Poundfield, based in Suffolk. The company confirmed that this is the largest order they have received in the region in 2018.

Paul Ager, ABP divisional port manager – East Anglia, said: "We are proud to be working with a local company based in Suffolk to complete this new warehouse project.

"Providing extra storage solutions for our customers is key to ensuring that we can continue to accommodate the growth in their businesses and positively contribute to the success of the Suffolk economy."

John Dugmore, chief executive of Suffolk Chamber of Commerce, added: "Both ABP and Poundfield Products are longstanding and much-respected members of Suffolk Chamber and this particular project neatly exemplifies their growth ambitions and successful customer delivery ethos."

FACING THE CHALLENGES

UK ports are investing in equipment and staff in order to combat the negative effects of Brexit

January saw the launch of the UK Government's Maritime 2050 strategy paper, which outlines plans for the industry over the next 30 years with a series of short-, medium- and long-term proposals covering technology, people and infrastructure, and developing the UK as a hub for technological innovation, including the further development of autonomous ships.

While there has been a lot of negative comment in the run-up to Brexit, there is also backing for a resilient approach. As Andrew Dunn, corporate communications manager at Associated British Ports said recently: "Our job is to make things happen. We are a solutions business."

Resilience – and not negative comment – is therefore coming to the fore and ABP has been investing extensively in a number of areas, in the two years since the Brexit vote. He says that the company is well aware of the need to be flexible. The ability to increase warehousing or storage facilities is likely to be part of the flexibility mix going forward and operators such as ABP have land available to increase storage capacity where needed.

Butterworth MNI, global head of the Maritime & Ship ABP, is going ahead with

£2.2m investment in a new state-of-the-art warehouse at the Port of Ayr. Work on the new 4,000m^2 agribulk terminal began in 2018 to support South West Scotland's growing agricultural sector. The new facility will be located on the west side of Griffin Dock at the port.

Andrew Harston, ABP Short Sea Ports director, comments: "We are committed to an extensive investment plan focusing on the Ports of Ayr and Troon and we would actively encourage Scottish businesses in need of first-class port facilities in the West of Scotland to come and talk to us."

Stuart Cresswell, port manager at Ayr and Troon, says: "Following other recent investments in warehousing, cranes and a new pilot boat, the development of another major agribulk terminal in Ayr is a huge vote of confidence in both our Scottish ports and our local workforce. I strongly believe that the facilities we are developing at Ayr and Troon offer a beacon of hope for the many Scottish voices calling for a renaissance of maritime-related industry and shipping on the Clyde."

ABP also recently announced an additional investment to boost facilities at Hull port, bringing the group's total investment to £250m since the EU referendum in 2016.

"ABP is actively working to support businesses anxious about the event of a no-deal Brexit and the potential severe disruption this may cause at the Port of Dover," the company says.

According to chief executive Henrik Pedersen: "For ABP, keeping Britain trading is a responsibility that we are passionately committed to. We are continuing to invest in our people, equipment and capability, so that we have the flexibility and resilience we need to help UK trade to flow and grow. We have already seen volumes begin to rise at our ports on the Humber as customers look for alternatives to Dover.

"We want to send a strong message that ABP stands ready to keep Britain trading through Brexit and we will continue to invest to drive trade and create jobs over the longer term."

In December, ABP announced plans to build a further 20mw of solar arrays across their sites, making the ports operator one of the biggest corporate solar power producers in the UK.

On the Humber, at the Port of Immingham, the company created one scheme on a 30,260m^2 warehouse, now one of the UK's largest rooftop solar arrays. The site, which went live in April 2018, totals 4.5mw, enough to power almost 750 homes. The electricity that will be generated on site will be used to power port equipment such as cranes, conveyors, lock gates and offices.

FACING THE FUTURE

Brexit may be focusing the minds of many in the industry, but according to Paul Butterworth, head of the maritime and shipping practice at consultants Odgers Berndtson: "In a recent survey of UK port leaders, set against the prospect of Brexit, an overwhelming number of ports said investment in physical infrastructure and technology was their top priority.

"However, the vast majority said finding top people with the right skills and capabilities to lead in the medium- to long-term was also a key concern."

The company found that while UK ports enjoy various different ownership structures and levels of corporate governance, looking to the future leaders of UK ports face a number of challenges – around technology, automation and expansion in a global market.

"It's far from clear, for example, if or whether the industry can continue to grow its future leaders or whether a one-time pilot might still expect to be a future chief executive," Butterworth says.

"Of course, there will still be some pilots who make it to the top of the tree. They will quickly gain commercial experience and exercise different leadership skills to those seen when afloat. But the demands and expectations made of the senior management within the sector are only set to increase. People with extraordinary talent are needed for the future, in what is set to be ever-evolving, challenging times."

The challenge is to attract global talent that is also much sought after in other walks of life and competition is tough, the consultant says. "While Brexit uncertainty is causing overseas candidates to pause and adopt a 'wait and see' approach to potential relocation to the UK, a thriving port sector will always offer an enticing, fast-paced career opportunity, where an entrepreneurial flair, commercial aggression, compassionate and inclusive leadership and genuinely good communication skills are highly prized.

"Whatever the Brexit outcome, the UK will always be a trading nation, affirmed once again in Maritime 2050. We have the second largest port industry in Europe, but we must be flexible, adaptable and inclusive, to attract the very best talent".

RECORD-BREAKING BELFAST

Cargo has been in the increase in Belfast, with volumes last year surpassing 24m tonnes for the first time since records began, according to the port. Trade increased by over 900,000 tonnes during 2018 to 24.6m tonnes, up 3.8% on the previous year.

Imports and exports of industrial coal by local company LCC grew by more than 37% to more than one million tonnes as it scaled up production at its a high-tech coal processing plant. Industrial coal is imported to Belfast for processing and adding value at the facility and is subsequently exported around the world to countries including Australia, Saudi Arabia and Russia for use in the steel and alloy industries.

The animal grains and feeds sector also performed very well with tonnages rising to 2.35m tonnes (up 7.5%), which is a record for the port.

Joe O'Neill, CEO, Belfast Harbour, says: "Growth has been supported by Belfast Harbour's long-term investment programme to improve its competitiveness and efficiency. During 2018, for instance, we invested in the purchase of the largest hydraulic crane in any UK or Irish port, and took significant investment decisions to improve and increase ferry and container handling capacity. We will continue to work with our partners to utilise new technology to make Belfast the greenest, most digitally enhanced regional port in the world.

Michael Robinson, Belfast Harbour's commercial director, adds: "This year's trade performance is very positive, with a number of record performances across our trade sectors, but we have challenges ahead – not least following the completion of Orsted's portfolio of Irish Sea windfarm projects, which has been a source of significant tonnage and revenue for the port in recent years.

"We also recognise the long-term expected declines ahead in some of our more traditional trade sectors, particularly in the importation of fossil fuels as the economy transitions to renewable energy sources and the general consumer trend away from consumption in favour of experience purchases.

"Accordingly, we are making investments in facilities for our longer term sustainable trade sectors and repositioning our business to make full use of the opportunities in the changing economy," he concludes

GREAT YARMOUTH BOOST

Great Yarmouth, meanwhile, has taken delivery of a new state-of-the-art crane, giving it greater capabilities to handle larger cargoes on the east coast.

The new crane has a 84 ton lifting capacity and will allow the port's clients to further utilise its 24-hour deep-water facility, which is able to handle larger volumes of bulk and unitised cargo. The port hopes this will encourage more customers towards east coast ports.

Richard Goffin, port director at Great Yarmouth, says: "The state-of-the-art crane marks our latest investment into the development of the port, which also included the integration of the river port and deep-water harbour, which were acquired in 2015.

"Great Yarmouth handles supplies for a variety of industries handling bulk goods, including the offshore, renewable, decommissioning, agri-bulk and aggregates markets. The new crane allows us to service greater amounts of cargo in a shorter amount of time, providing a more productive and flexible solution to our customers."

The LHM280 crane – purchased from Liebherr – is capable of turning over up to 35 cycles per hour, bringing increased cargo handling capabilities and allowing for mobilisation and demobilisation processes to be shortened.

For the growing number of offshore energy providers using the port at Great Yarmouth, the powerful hydrostatic transmission and advanced electronics ensure short, productive working cycles for companies transporting bulk items, the port says.

CHINESE WHISPERS

As China's appetite for imports of bulk commodities appears to falter and trade sanctions take their toll, there are likely to be some nervous moments for South East Asian bulk terminal operators, particularly while confusion on the effect of environmental legislation remains

BIMCO statistics suggest that both iron ore and soya bean imports to China fell 1% and 7.9% respectively last year ,compared to the previous year's figure. Although imports of coal were up 3.7% last year, this represented slower growth than the 2017 figures.

"Slower growth and outright declines in Chinese bulk imports will harm the shipping industry and the many shipowners who for years have relied on China's growing imports to ensure employment for their ships," says Peter Sand, BIMCO's chief shipping analyst.

Part of the decrease in demand for iron ore reflects China's moves towards more eco-friendly production processes, meaning that while steel production continues apace, more scrap is being used to produce that steel while producers are moving to electric arc furnaces to try and reduce environmental impact, while at the same time cutting back on iron ore imports.

"Iron ore imports may start to drop at an even faster pace than we saw in 2018. Therefore, what is usually a mega-driver for dry bulk shipping demand may start to fade and dry bulk ships will have to look for new cargoes," Sand says. "Chinese coal imports rely heavily on government decisions and policies and therefore remain a swing factor in 2019."

Despite much talk in the US that China had started buying large amounts of US soya beans, data from BullPositions suggests that only 545,000 tonnes were shipped from Pacific ports to mainland China in the first four weeks of January.

That said, Chinese state-run companies such as Cosco remain in the running to obtain tonnage to boost shipping projects already underway. Cosco is in the process of ordering up to 30 newcastlemax bulkers to provide tonnage for its contract with Aluminium Corporation of China to ship bauxite from Guinea under a long-term contract.

According to Drewry Shipping Consultants, "demand for Capesizes in 2019 will be proportional to iron ore inventories at Chinese ports. Even though China's steel production will rise in 2019, a further drawdown in iron ore inventories could adversely affect the demand for dry bulk vessels."

Last year, while China's consumption of imported iron ore was indeed higher in 2018 compared with 2017, imports declined as steel mills preferred to drawdown on port inventories, Drewry says.

As far as the drawdown process will play out in the longer term, Drewry believes two opposing forces are at work. "First, the Chinese government's push for infrastructure and easing in monetary policy will continue to drive up the demand for steel in the country.

"Also, since the government is still committed to the clean air initiative, the country's steel sector will remain under scrutiny for emissions. In turn, this will support the demand for high quality ore, primarily met by imports. This will be positive for the dry bulk sector and will help underpin imports.

"That said, we can also see that the probability of low inventories is very high as trade friction with the US will continue for some time before tensions are fully abated.

"Meanwhile, China's economy grew by 6.6% in 2018, which is the slowest growth in the last 28 years. Furthermore, the IMF projects growth to drop to 6.2% in 2019 and 2020. In this scenario sentiment will remain weak and steel mills will remain cautious on future steel demand, thereby compelling millers to continue drawing down on port inventories."

LEGAL SHOWDOWN

Meanwhile, China Merchants Port Holdings has a legal fight on its hands after a law suit was filed in Hong Kong by DP World over the control of Djibouti Ports. DP World says the Chinese state enterprise has infringed its port agreement with the Djibouti government which gave it an exclusive right to run the country's ports.

China Merchants Port Holdings has been involved in a number of projects relating to China's One Belt One Road initiatives, offering services including port construction and operation. It has actively participated in large-scale port infrastructure projects in a number of countries under One Belt and One Road in recent years.

GREEN PROJECTS

As the open loop scrubber debate continues to gather momentum, South East Asian ports will doubtless continue to adopt different attitudes to the issue of what to do in 2020 when the 0.5% sulphur cap on fuels comes into force.

The Methanol Institute is backing a project at Nanyang Technological University of Singapore that will be the first evaluation of methanol as a marine fuel in Asia.

The project consists of two phases, with the first consisting of desktop and bench-testing the methanol-powered engine employed in the GreenPilot evaluation programme in Gothenburg, Sweden. In the second phase, the engine will be shipped to Singapore for installation on board a harbour craft vessel for service within a fleet for a six-month sea trial, followed by an engine "teardown" to test clearances and material compatibility.

"For maritime players in Singapore, the project will be a useful demonstration of the benefits of methanol as a marine fuel, encouraging them to consider it as an alternative fuel once they gain a better understanding," says Methanol Institute CEO Chris Chatterton. "The GreenPilot project, together with others such as the SUMMETH (Sweden) and Methaship (Germany) projects, have shown that methanol can be easily adopted as a marine fuel at reasonable cost and without the complexity of other low emission alternatives."

The GreenPilot project demonstrated that it is feasible to convert a pilot boat to methanol operation using available

GREENPILOT PROJECT ©CISION

technology. Spark-ignited engines with port-injected methanol were found to have engine efficiency similar to diesel engines. Emissions reductions were substantial compared to conventional fuel oil: there is no sulphur in methanol and NOx emissions were reduced so that the engine could meet Tier III NOx emission standards.

"The maritime industry is looking for more sustainable solutions to help deliver targeted emissions reductions and the prospect of renewable methanol offers a future proof answer," adds Chatterton. "Methanol fuelled ships can already use existing fuel tanks or even ballast water tanks for storage, thereby lowering the investment risks of newbuilding or conversion, and the regulatory landscape is also moving in Methanol's direction."

Guidelines on the use of the fuel are under development at IMO should be ready for formal approval by MSC in the first half of 2020. The guidelines would provide requirements for the arrangement, installation, control and monitoring of machinery, equipment and systems using such fuel.

OPEN LOOP DEBATE

An inaugural meeting of the Clean Shipping Alliance in London in February centred the debate firmly on the acceptability for open loop scrubbers as a solution to the challenge of new 2020 regulations on sulphur content. A presentation by Japan suggested that the country, unlike some other jurisdictions was prepared to tolerate the open loop alternative.

As BIMCO recently pointed out, China has not turned its back fully on the idea of open loop scrubbers being used within its jurisdiction.

Chinese regulators have updated part of its domestic emission control area (DECA) regulations with effect from 1 January 2019, but has not yet placed a full ban on open-loop scrubbers as reported widely, BIMCO said.

Sources familiar with the matter have, however, told BIMCO that according to the updated regulation, the banned areas for discharging wastewater from scrubbers remain within inland ECAs, port waters under coastal DECA and the Bohai Bay waters only. A full ban on open-loop scrubbers could however be adopted soon, sources familiar with the matter also told BIMCO.

PORT CONTRACTS

Portek has recently secured a major contract with Port of Tanjung Pelepas in Malaysia for the refurbishment of a fleet of 35 RTG cranes. Work is set to start in the second quarter of 2019 and is expected to be completed by the about a year later. This refurbishment contract is a multidisciplinary comprehensive refurbishment which includes structural, mechanical, electrical components and electronics, as well as a wide range of safety and operational enhancements. This is the largest refurbishment project to date for Portek.

Meanwhile, China's state-run company CITIC and the Myanmar Government signed a framework agreement in November to build a deep-sea port, part of Kyauk Phyu Special Economic Zone in Rakhine State. The port project is estimated to be worth $7bn in total and the majority of the investment will be handled by CITIC, with further participation by the Myanmar Government and local investors.

Transportation minister Budi Karya Sumadi said that the Patimban Port construction is progressing as targeted. The port project in Subang, West Java has obtained all required permits and licenses. Other works, which include reclamation, pier construction, trestles, and a sea wall, are expected to be completed on time. The port will be ready for use by the end of 2019.

TAKING PRIORITY

India's Ministry of Shipping has announced revised guidelines for ship chartering as part of steps to promote the Make in India initiative and incentivise ship-building activity in the country.

In future, charterers seeking tonnage will have to give ships built in India priority, which it hopes will increase demand for such vessels, providing them with additional market access and business support.

The existing licensing conditions have been reviewed in line with the Government of India's policy of promoting Make in India. The review is also in line with the need to give a long-term strategic boost to the domestic shipbuilding industry, the need to encourage the domestic shipping industry to support the domestic shipbuilding industry, and the need to develop self- reliance and a strong synergy between these vital industries for the overall long term development and economic growth of the country, the ministry said in a statement.

The major ports in India have recorded a growth of 3.77% and together handled 518.6mt of cargo during the period April to December, 2018, as against 499.7mt handled during the corresponding period during the previous year.

PORT OF MUMBAI, INDIA

CLEAN THINKING

After carrying out a major study, the Clean Shipping Alliance 2020 has come out in favour of scrubbers, as delegates heard at its first technical conference

The shipping industry has struggled for many years to decide which way to tackle the issue of how to handle new sulphur controls due to come into force next year and shipping companies are now considering using exhaust gas cleaning systems or scrubbers offers one of the best solutions – although that approach is far from being without its critics.

The use of open loop scrubbers, for example, have already been banned by some ports and there are many concerns on the potential impact of washwater from scrubbers if pumped into the water.

The recently formed Clean Shipping Alliance (CSA) 2020 held its first technical conference in February and presented findings of its scrubber washwater study in the same week as the sixth session of the International Maritime Organization (IMO) Sub-Committee on Pollution Prevention and Response was held in London .

The survey process was initiated in 2016 and then updated in 2018. The aim of the survey, as Captain Michael Kaczmarek, senior vice president of marine technology at CSA 2020 member Carnival pointed out to conference delegates, was to assess washwater quality, which he described as a "long missing piece of the discussion" on which "nobody seems to have any evidence on which to base speculations". The topic is not well understood, he said, and the survey offered an opportunity to provide data that would tackle "unqualified assumptions" around the wastewater issue. The advantages of scrubbers tended not to be talked about, he said.

Using scrubbers would also provide a solution to the issue of whether or not enough low sulphur fuel will be available next year to ensure that shipping companies can comply with the new regulations. In addition, as Niels Bjørn Mortensen of Niels Bjørn Consult pointed out, provided a solution in the absence of any other, to how to comply with new international rules.

The three-year, Carnival-led study collected 281 washwater samples from 53 EGCS-equipped cruise ships, the largest washwater data set in the marine industry, which were then assessed against 54 different test parameters by ISO accredited independent laboratories.

The resulting laboratory analysis reports were then evaluated by Classification Society DNV GL's Maritime Advisory Services and the data compared against various water quality standards, after first confirming that the samples analysed were consistently well within the allowable IMO criteria and regulatory limits.

Then the results were compared to selected national and international water quality standards and land-based wastewater discharge limits, including the German Waste Water Ordinance, the EU Industrial Emissions Directive 2010/75/EU, and the EU Surface Water Standards Directive 2013/39/EU. While these comparisons are not directly applicable to exhaust gas cleaning systems (EGCS), as well-established and representative water quality standards that are protective of the environment, they were appropriate to serve as study benchmark standards.

The EGCS results compared favourably with all of these standards, according to the Alliance.

Kaczmarek said: "Comparing scrubber washwater to various other major water standards is useful to provide perspective and to illustrate EGCS washwater quality in a way that is easy to understand. These comparisons also provide relatable criteria for a number of specific EGCS parameters of interest, such as PAH concentrations, which also have limits within these standards.

"Although these are all recognised standards that are designed to regulate other waters, they do provide confirmation of the quality of water that operators of this technology are returning to the sea, and they provide strong support to the IMO's decision to approve these systems as acceptable means of compliance throughout

the world's regional and 2020 global emission control areas (ECAs)."

Ian Adams, executive director of CSA 2020 and chief executive of ABTO, said: "We want to emphasise that this major study was intended to provide an objective assessment of the quality of scrubber washwater through a rigorous comparison to other world water quality standards, and it now represents the largest, most credible and verifiable data set available. And, importantly, the results reaffirm that exhaust gas cleaning systems are effective and safe for the ocean environment."

In recent weeks, the CSA has expressed concern about a proposal submitted by the European Commission which urges the International Maritime Organization (IMO) to change its scrubber guidelines.

The proposal, which the Commission has submitted to IMO calls for "evaluation and harmonisation" of scrubber discharges across all ports, world-wide. The proposal is intended for consideration by the 74th session of the IMO's Marine Environment Protection Committee, which meets in London in May.

"This proposal is an attempt by the European Commission to push forward restrictions on scrubbers, which are accepted globally by the IMO, EU and others as acceptable means of improving air emissions quality in controlled areas" said Adams.

"Within two weeks of a draft surfacing, the Commission had taken the proposal to a one-day Working Party review and then submitted it to IMO," he said. "Clearly, this was planned to avoid the open discussion and deliberation that a proposal with such far-reaching impact requires. In the absence of credible evidence to justify such a major departure from the existing rules, the proposal is instead based mostly on speculation.

"CSA 2020 members, who represent over 30 leading commercial and passenger shipping companies, have been investing for years to prepare their ships in time to meet emissions abatement targets in accordance with existing IMO and EU rules, which endorse the use of open and closed-loop scrubbers in all waters," said Adams. "To see the Commission take this step within months of the entry-into-force of the Global ECA is beyond disappointing."

Noting the broader issues facing the industry, Adams added: "The EC initiative is needlessly creating baseless concerns at a time when there are already very real issues in the maritime industry regarding the future availability, suitability and cost of fuels and the effects on global trade and shipping that this will have. There could also be safety implications should ships be required to change fuels in high traffic areas close to ports.

"I am sure Brussels is very aware that existing scientific data shows significant air emissions improvement from scrubbers, with no likely impact on the ocean environment, but it appears the submission to IMO was prepared with speed rather than accuracy."

In a letter to its membership seen by CSA 2020, a European national shipowners' association says: "The EC submission does not identify any scientific evidence of potential risks, but is lost in assumptions and speculation about possible contaminant levels and claimed risk potentials."

In its proposal, the Commission refers to the interim result of a study to be completed in May 2019 by the Federal Maritime and Hydrographic Agency (BSH) for the investigation of scrubber wash water from closed loop and open loop systems. But as the preliminary conclusions of the BSH study do not appear to align with the Commission's proposal, it is far from clear whether it will contain any suggestion of new restrictions on scrubber wash water, CSA 2020 says.

The main findings of the DNVGL Carnival study into washwater was that average washwater concentrations are below the emission limits for comparable land-based industrial point source waste water standards.

The survey has also found there is little to no contribution from the EGCS process to concentrations of a number of trace metal parameters, including arsenic, cadmium, lead, mercury, selenium and thallium.

Average washwater concentrations also compare favourably to stricter water quality standards, such as the EU surface water standards for inland waters, according to the study.

The survey acknowledges that the current sample size (11) is too small to reach definitive conclusions, but says that washwater quality appears further improved by enhanced system filtration.

It also adds that the average net post-EGCS concentrations were calculated for ease of comparison, so values shown may not be representative of an individual vessel.

"The study provides an objective evaluation of washwater quality as the basis for more informed debate," Simon Mockler, head of section for maritime advisory services Americas at DNV GL told the conference. "It does not attempt to assess the cumulative effect of washwater parameters entering seawater or the potential environmental impact."

CONCLUSIONS

As with the 2016 study, the 2018 samples are below the criteria for the German Wastewater Ordinance on all tested parameters.

A new comparison to the stricter EU incinerator waste water standard similarly shows parameter concentrations well below reference point source emission limits.

When comparing to the EU Surface Water Standard, the 2018 sample set is below the criteria when a three-sigma deviation and trimmed mean statistical methods is used to exclude statistical outliers.

When outliers are not excluded, an unweighted average of sample parameters exceeds the EU surface water criteria for Anthracene and Dissolved Nickel.

The distribution of PAH compounds in the water column is recommended as a subject of further investigation to determine whether sub-surface seawater inlet samples provide accurate background PAH levels.

STEPS TO SAFETY

From testing for cargo safety to steel coil stowage, training is essential if crews are to avoid workplace casualties

With cargo liquefaction continuing to be a major danger for the bulk shipping industry, North P&I Club has recently issued new training on the topic as part of a series of advice to seafarers. The aim of the bite-sized training packs is to help seafarers avoid the contributing factors to workplace casualties, as well as unplanned events that did not result in injury, illness, or damage, but had the potential to do so.

112 seafarers' lives have been lost since 2007 as a result of suspected bulk cargo liquefaction, therefore the first in North's series of bite-sized training packs focuses on the Can Test, the International Maritime Solid Bulk Cargo Code's complementary test for bulk cargoes. The Can Test provides ships' crews with an indication of whether the cargo being loaded is potentially unsafe to carry.

Simon MacLeod, deputy director (loss prevention) at North P&I Club, comments: "This simple test has the potential to highlight issues long before they become fatal risks, but interpreting the results of the can test is not straightforward.

"The training pack includes a short video, a delivery guide aimed at the person leading the training and a workbook for those being trained," he continues. "On completion, the crew should know how to carry out the test, how to interpret the results and what to do if they suspect a failed test. The training should take no more than 20-30 minutes to deliver."

The Can Test is the method listed in the IMSBC code and while MacLeod says that other methods of testing are being explored at the moment, the code is a statutory document and that is what the crew has to comply with. "Ideally, for testing bulk cargo it should be done in a lab rather than on board. However the crew don't have access to lab equipment so they need a simple on-site test that they can do to determine whether cargo is unsafe or not, and that is the Can Test."

The test cannot confirm that the cargo is safe to carry, but it can indicate that it is unsafe to carry. "The idea of the training pack is to clarify what is actually required when conducting can testing and how to interpret the results. A lot of crews involved in the trade of bulk materials do not have English as their first language or are not familiar with the detail of the code so this breaks down the requirements of the Can Test and explains how it should be done. The intention is to make the process as clear as possible for ships' crews at the time of loading.

"In the absence of an alternative, crews need to make the most of the can test and any guidance the club can provide to help them conduct the tests and interpret the results is beneficial," MacLeod says.

"The crew are better placed to interpret the results they see from the test. It is a pretty quick test, but the main point is interpreting the results. Sampling and testing the cargo as it is coming on board, combined with documentation from lab analysis and looking at the condition of the cargo will give an indication of whether the cargo is safe for carriage or not."

Because this is a safety related issue, the material is available to anyone who wishes to download it from the North P&I website. "This is a safety related topic that is of benefit to all seafarers and we would encourage anyone, whether a member or not, to access it. Our intention is not to replace training on board, but to supplement it and provide the officers and shore staff conducting training with an additional tool they can use to get their message across," MacLeod says.

North P&I will be rolling out a number of training packs over the coming months and years. The next one will be looking at manual handling and it will also be looking at the use of gas detectors and VDR, to name a few. "We have tried to pick an area where we see incidents and problems arising and address a part of that, whether it be the can test or manual handling," says MacLeod.

The Can Test training material can be viewed and downloaded at: nepia.com/our-services/loss-prevention/education-and-training/bite-size-training-packages

CONFLICT RESOLUTION

International maritime charity Sailors' Society is calling on ship owners to embrace conflict resolution as a matter of urgency, following three recent knife attacks at sea.

Sailors' Society's CEO Stuart Rivers said, "The tragic news, that two people were killed on board a vessel in the Indian Ocean and six people are missing, is the latest in a spate of stabbings at sea and our thoughts are with those affected.

"We are urging ship owners to embrace conflict resolution training to make sure needless tragedies like this don't happen again."

On 28 January, three seafarers were injured in an altercation off Guyana and in February a seafarer was stabbed on board a tanker, 300 nautical miles from the French island of Réunion.

The seafarer hospitalised in Réunion was visited by Alain Djeutang, one of Sailors' Society's port chaplains. Stuart said, "Our chaplains reach out to 1,000 seafarers every day in ports around the world, they know just how hard life at sea can be for these men and women and support them through a variety of crises."

Alongside its chaplaincy work, Sailors' Society runs a Wellness at Sea programme, which aims to help seafarers improve their on board well-being and includes training on crisis resolution.

The charity also has a global Crisis Response Network, which provides trauma care and counselling to survivors of piracy attacks, natural disasters and crises at sea.

Sailors' Society, which runs a Wellness at Sea programme and a global Crisis Response Network, conducted a survey into seafarers' mental health with Yale University recently. The results highlighted that more than a quarter (26%) of seafarers show signs of depression.

Seafarers said that isolation from their families and length of their contracts can have a big impact on their mental health.

A previous study from the International Maritime Health journal showed that 5.9% of deaths at sea are attributable to suicide – and this increases dramatically if suspicious cases of probable suicides – seafarers who went missing at sea – are taken into account.

SAFE STOWAGE

Meanwhile, class society DNV GL has warned about the dangers of incorrect steel coil stowage. "Cargo planners preparing the stowage of steel coils in the cargo hold of a general dry cargo ship or bulk carrier often lack adequate cargo-type-specific information, which they need to determine the permissible cargo load and avoid damage to the ship structure," the society says in its Maritime Impact bulletin.

"Steel coils come in many sizes that differ in weight, diameter and length. They can be arranged in a variety of ways with regards to the placement of the locking coil, the number of tiers, and the dunnage. The cargo planner needs reliable information to determine quickly whether a given type of steel coil can be transported by the vessel at all and, if so, how the cargo should be stowed to ensure safe carriage. The planner must establish the maximum cargo capacity and the minimum requirements for safe stowage without overestimating the required number of dunnage elements."

According to DNV GL, to optimise the coil-carrying capacity it prepares a table for each hold to factor in cargo locations subject to lower acceleration. "The calculations can be carried out for general dry cargo ships according to DNV GL's rules, or for bulk carriers based on Common Structural Rules. Allowable steel coil loading tables can be prepared for newbuilds or vessels in service."

DASHBOARD DELIVERY

Security specialist Naval Dome has come up with an innovative approach to combating cyber crime involving the use of a dashboard to pinpoint areas of potential weakness in a ship's systems.

The innovation is based on Naval Dome's Endpoint cyber protection system, which is installed in critical systems on board the vessel and through an entire fleet.

The dashboard acquires all data from the endpoint system and can be used in different places, either at the company HQ – where personnel can access data from shipboard equipment – or on board the vessel itself, allowing the master or chief engineer a complete picture of the ship's systems.

Naval Dome chief executive Itai Sela says the system is particularly applicable to ships with a high level of complex systems on board.

WHAT'S ON

The not-to-be-missed events for all those in the industry

19-21 MARCH 2019
INTERMODAL SOUTH AMERICA
SAO PAULO
https://10times.com/intermodal-south-america

09-10 APRIL 2019
TOC ASIA
SINGAPORE
www.tocevents-asia.com/en/Home.html

09-11 APRIL 2019
AFRICAN SUGAR CONFERENCE
NAIROBI
www.ibc-asia.com/event/africa-sugar/

15-17 APRIL 2019
GLOBAL GRAIN MENA
DUBAI
www.globalgrainevents.com/mena/details.html

01-02 MAY 2019
DESIGN OF EQUIPMENT FOR STORING AND DISCHARGING BULK MATERIALS
CHATHAM
www2.gre.ac.uk/about/faculty/engsci/research/groups/wolfsoncentre/coupro/sc

7-9 MAY 2019
ANTWERP XL
ANTWERP
www.easyfairs.com/antwerp-xl-2019/antwerp-xl-2019/

21-23 MAY 2019
BREAKBULK, EUROPE
BREMEN
www.breakbulk.com/bbeu2019-interest/

22-23 MAY 2019
NUMERICAL MODELLING OF SOLIDS HANDLING AND PROCESSING
CHATHAM
www2.gre.ac.uk/about/faculty/engsci/research/groups/wolfsoncentre/coupro/sc

8-9 OCTOBER 2019
BULK TERMINALS 2019
AMSTERDAM
www.bulkterminals.org/events.html

4-6 JUNE/2019
PNEUMATIC CONVEYING OF BULK MATERIALS
CHATHAM
www2.gre.ac.uk/about/faculty/engsci/research/groups/wolfsoncentre/coupro/sc

12-13 JUNE 2019
ACI, EUROPEAN ENVIRONMENTAL PORTS CONFERENCE
ANTWERP
www.wplgroup.com/aci/event/environmental-ports-conference/

18-20 JUNE 2019
TOC EUROPE 2019
ROTTERDAM
www.tocevents-europe.com/en/Home.html

2-3 JULY 2019
POWDER HANDLING AND FLOW FOR ADDITIVE MANUFACTURING
WIDNES
www2.gre.ac.uk/about/faculty/engsci/research/groups/wolfsoncentre/coupro/sc

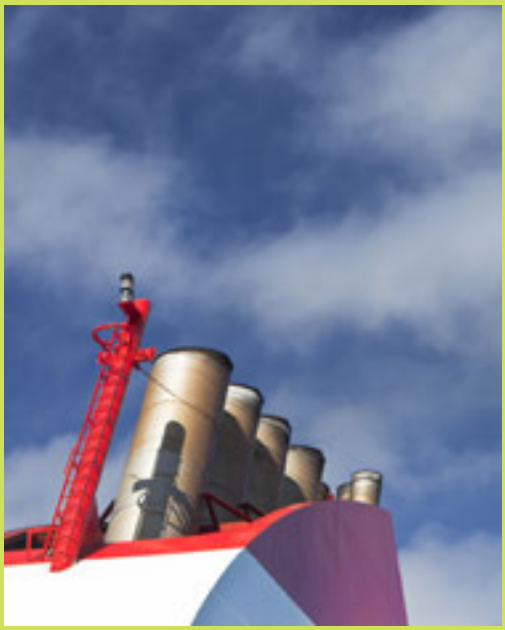
SEPTEMBER 2019
GLOBAL GRAIN SOUTH AMERICA
SAO PAULO
www.globalgrainevents.com/south-america/details.html

TERMINAL TALES

A GOOD SCRUB

Scrubbers and the open loop debate has featured big time during the past few months as everyone begins to panic about what exactly is going to happen on 1 January 2020, when the global cap on sulphur emissions comes into play. Open loop is good news these days for many, although the recent Clean Shipping Alliance meeting in London, with an excellent presentation by Martyn Lazek, editor of *Ship & Bunker,* showed just how many times the attitudes to the scrubber versus low sulphur fuel debate had changed over the years.

Whether individual ports will play ball in complying with their governments in accepting or banning open loop seems to be somewhat unclear. However, presentation, according to Lazek's presentation the one message that seemed to be touted with amazing regularity in the press was "scrubbers will save you money". Guess it's now a waiting game to see which of the raft of predictions about what the future holds on 1 January are anywhere near the mark.



WOMEN IN SAR

The IMO is highlighting the role of women in shipping this year and the International Maritime Rescue Federation, for its part, has been celebrating the role played in shipping by women working in maritime search and rescue. As ceo Theresa Crossley recently pointed out there are plenty of women in the segment, whether in lifeboat crews, search and rescue organisations or working on developing safety devices.

To celebrate and highlight the opportunities available to women in maritime SAR, the IMRF will be hosting a Women in SAR networking lunch at the IMRF World Maritime Rescue Congress 2019, which will be held in Vancouver, Canada in June this year.

As part of its work to build global maritime SAR capability, the IMRF is also planning to hold training sessions to teach and help women involved in maritime SAR increase their expertise and qualifications, enabling them to then share their knowledge and skills with others. "We want to support the International Maritime Organization in empowering women in the maritime community," explained Crossley.

Dave Jardine Smith, the IMRF's expert on SAR operations, sums it up: "In SAR we speak of 'casualties', 'persons in the water', 'survivors'. We are not gender-specific about the people we save: it doesn't matter if they are men or women. Nor should it matter if the rescuers are men or women. It's what they do that matters, not who they are."

That said, one maritime observer remembers a trip to the helicopter search and rescue facility at Lossiemouth many years ago where women were deployed as pilots and in other roles when going out on a shout. The only job reserved for males at that point was to act as winch men in the event of having to lift a casualty from the water. The reason for this, our person on the spot was told, was because a bloke would have a better chance of subduing a casualty in the water who was panicking. Fair enough.

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The Annual Association of Bulk Terminal Operators (ABTO) Conference

8-9 October 2019, Amsterdam

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Dr Penelope Cooke
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Captain Richard Brough
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