



# DRY CARGO

*international*

ISSUE NO.185 OCTOBER 2015



## FEATURES

- European Coal Trades
- Stockyard Equipment
- Coal Handling Directory
- Self-Unloaders
- Hamburg–Le Havre Range: Special Report

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OCTOBER 2015 issue

featuring...



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# Contrasting grain and soya trade prospects

**G**lobal seaborne dry bulk trade, during 2015, may see its weakest period of growth since the contraction resulting from the world recession six years ago. Over the past nine months the dry bulk commodity import demand trend has slackened noticeably. A key feature of this change is China's receding impact as a driver of expansion.

Economic output growth is not providing much stimulus for trade. In a mid-September update, the OECD organization commented that global economic growth prospects have weakened slightly in recent months and become less clear. Amid slowing progress in China, world GDP in 2015 is now forecast at only 3.0% after last year's 3.3% increase, although a modest pick up to 3.6% in 2016 is expected.

## GRAIN

Contrasting prospects for grain trade and soya trade are evident. International Grains Council estimates for global movements of wheat plus corn and other coarse grains, in crop year 2015/16 ending June 2016, show a slight reduction. The total is forecast at 314mt (million tonnes), down by 2% from the previous year, reflecting lower imports into some Asian countries, the Middle East area and North Africa.

Soyabean and meal trade, summarized in table 1, seems likely to increase, based on US Dept of Agriculture calculations. In marketing year 2015/16 ending September 2016, a 3% rise could lift the total to 187mt. China's imports and purchases by other Asian countries and elsewhere seem set to continue growing.

## IRON ORE

Expectations of sustained growth in iron ore trade this year have been undermined. During the first eight months of 2015 China's imports were essentially flat, compared with the same period a year earlier, at 613mt. Steel production in China is slightly down, and low prices for imported ore have not led to foreign supplies displacing domestic iron ore output at the rate expected.

Developments in some other iron ore importing countries also have been subdued. In Japan, steel production is slightly

lower this year, affecting raw materials imports adversely. Iron ore imports reportedly were 5% lower in the 2015 first eight months, at 86mt, similar to the percentage reduction in crude steel output recorded. While steel products exports remain buoyant, Japanese domestic steel demand is slack.

## COAL

Expectations for global coal trade have moderated despite some prominent positive changes among importers. China's huge reduction in coal imports this year, following a sizeable fall last year, is the most visible influence. During January-August 2015, overall coal imports into China, including low-quality lignite, fell by a massive 64mt or 31%, down to 139mt. Slowing energy usage, greater emphasis on other energy sources, and tighter regulations governing coal use and imports contributed.

Forecasts of India's coal imports mostly point to further expansion, possibly resulting in an increase of around 25-30mt in the current year, raising the total to a volume approaching 250mt. If that expansion occurs, it could result in India becoming the world's largest importing country. Much of the growth again is likely to be steam coal for power station use.

## MINOR BULKS

Trade in steel products (such as coil, sheet, plate and many other items), the largest element of the 'minor bulk' group, is evolving robustly. After apparently exceeding 300mt in 2014, this year's figure could be higher. China's exports, which comprise a large proportion of the world total, rose by 15mt in January-August 2015, reaching 72mt and the annual volume may be well above last year's 93mt.

## BULK CARRIER FLEET

Fleet growth in the Panamax bulk carrier size group seems likely to decelerate sharply in 2015 (as shown in table 2), to about 3%, broadly in line with the entire bulk carrier fleet's average expansion rate. Panamax newbuilding deliveries could diminish, while demolition sales probably will be substantially higher.

**TABLE 1: WORLD SOYABEANS AND SOYAMEAL IMPORTS (MILLION TONNES)**

	2010/11	2011/12	2012/13	2013/14*	2014/15*	2015/16*
European Union	34.4	32.9	29.5	31.2	33.0	33.8
China	52.6	59.3	59.9	70.4	77.1	79.0
Other Asia	27.2	27.5	27.8	30.3	32.1	33.5
Others	31.5	30.6	32.6	37.3	39.2	41.1
<b>World total</b>	<b>145.7</b>	<b>150.3</b>	<b>149.8</b>	<b>169.2</b>	<b>181.4</b>	<b>187.4</b>
% change from previous year	+3.8	+3.3	-0.5	+12.9	+7.2	+3.4

source: US Dept of Agriculture (11 Sep 15) Oct/Sep marketing years \*forecast

**TABLE 2: PANAMAX (65-99,999 DWT) BULK CARRIER FLEET (MILLION DEADWEIGHT TONNES)**

	2010	2011	2012	2013	2014	2015*
Newbuilding deliveries	14.4	22.2	27.1	20.0	13.2	12.0
Scrapping	0.7	5.2	8.7	5.0	4.8	6.0
Losses	0.0	0.2	0.0	0.0	0.0	0.0
Plus/minus adjustments	0.8	0.3	-0.1	0.0	0.0	0.0
<b>World fleet at end of year</b>	<b>134.7</b>	<b>151.6</b>	<b>169.8</b>	<b>184.9</b>	<b>193.3</b>	<b>199.3</b>
% change from previous year-end	+12.0	+12.5	+12.0	+8.9	+4.5	+3.1

source: Clarksons (historical data) & BSA 2015 forecasts \*forecast

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# European coal trade in 2015



*A Blug clamshell grab handling coal.*

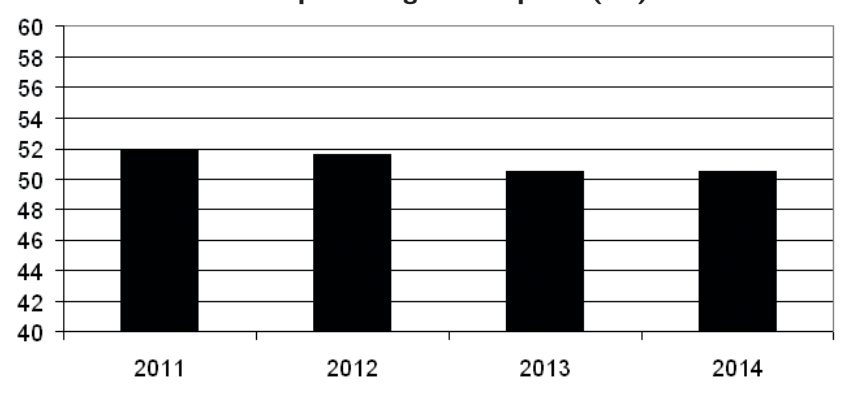
Dr Tim Jones, e-coal.com

European coal consumers continue to enjoy low prices for thermal and coking coal at present. At the time of writing, the price of thermal coal delivered ex-ship at the ARA (Antwerp–Rotterdam–Amsterdam) ports has slumped to the lowest level since the start of 2015. Traders have been very active amid these conditions, but it seems this has contributed

to driving down prices further. Coal stocks on the pads at Rotterdam have been decreasing and demand from inland customers is understood to be largely satisfied. The higher costs of barging on the Rhine have been falling as a consequence of this and some increase in water levels has allowed boats to be filled to a higher tonnage.



**Total Europe coking coal imports (mt)**



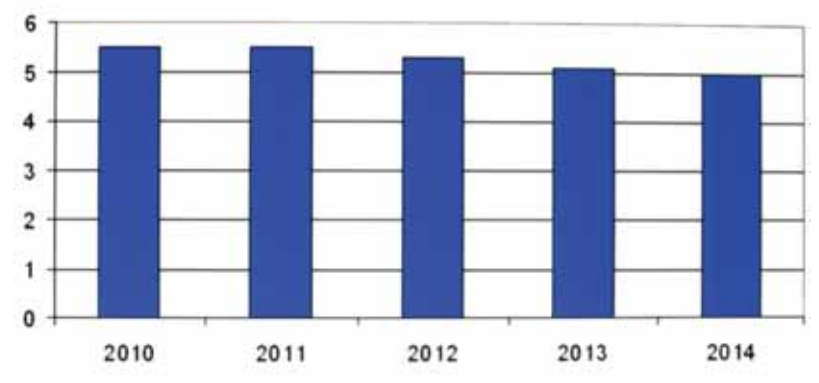
Coal producers have not had a good year to say the least, and this is reflected in various company results published recently. Some aspects of their operations have proved survivable, but a number of the smaller listed operators have gone to the wall amid the slump in world coal markets and an oversupply situation.

Consumers of thermal coal in the United Kingdom were taking less according to data for the month of June when a total of 610kt was recorded. This was the lowest level in recent times. A year earlier, 2.2mt (million tonnes) was imported, but tonnage has been decreasing this year. Only 730kt

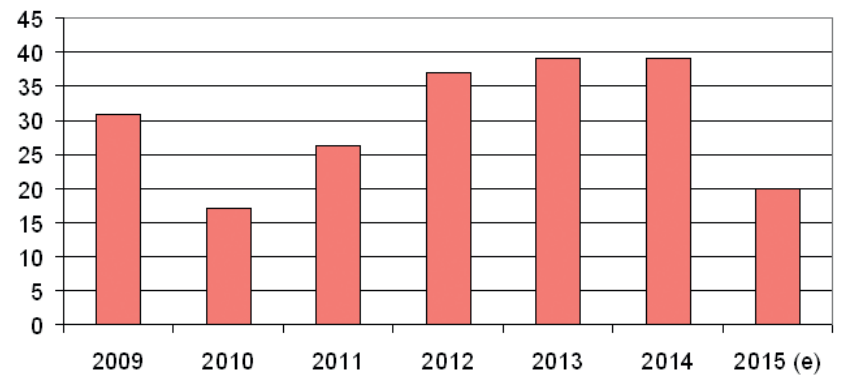
the total Colombian product imported in May.

Regarding the main suppliers to European customers this year, Colombian coal supply increased by 16.5% during the seven months to 31 July compared with the same period last year to reach 46mt. The increase from 39.58mt recorded during that period last year was largely due to the resumption of coal loading by Drummond following the ban imposed at the start of 2014 which took some time to recover from. Production of thermal coal in Colombia decreased by 3.6% in the first half of 2015 compared with the first half of last

**United Kingdom coking coal imports (mt)**



**United Kingdom thermal coal imports (mt)**



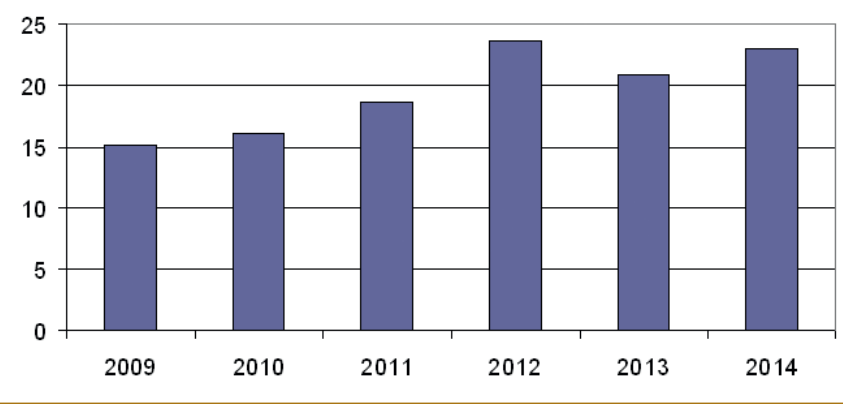
year. Venezuela's coal output has also risen by some 15% in that period, albeit from a low base, but exports have been level during the first seven months of the year.

Central Appalachian coal from the USA is selling at low prices and shippers have little interest in the export market to Europe at these levels. Exports through the Gulf ports have declined during the first half of this year as shippers balk at the low prices being offered in Europe. Meanwhile, amid these tough conditions Patriot Coal recently announced the sale of its remaining assets.

In the east of Europe, coal production in

was imported in May, and in the six months to 30 June 2015, the total reached 10.1mt compared with 18.4mt during the same period last year — a drop of 8.3mt or 45%. The decrease has been mainly due to the closure of older coal-fired power stations in the United Kingdom in order to meet emissions regulations, as well as higher carbon taxes imposed by the government. Less Russian coal was imported in June compared with May, at 240kt after taking 340kt in the previous month. Colombia was the main supplier to the United Kingdom in June, with 260kt shipped. This was an increase of 100kt compared with

**Turkey thermal coal imports (mt)**







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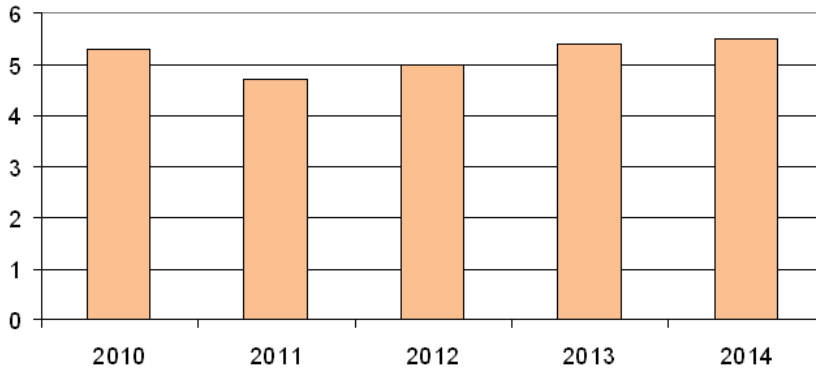
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Turkey coking coal imports (mt)

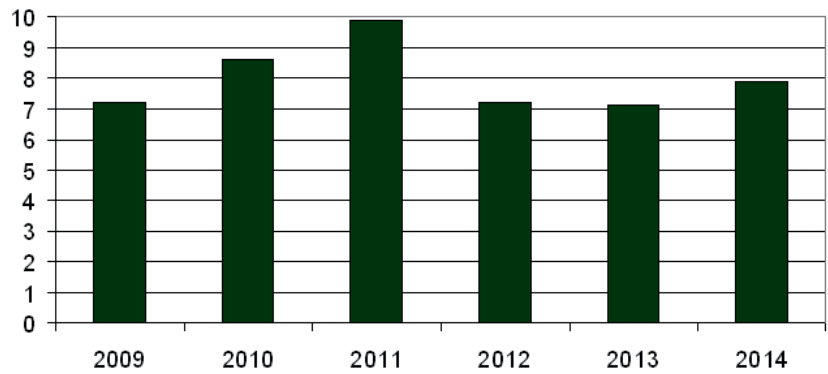


18.12mt during the seven months to July this year. The total coal production of Ukraine has decreased by 51% to 22.81mt during the first seven months of 2015 compared with the same period last year. Mines in Lugansk produced 83% less coal at 2.32mt during the period, while those in Donetsk recorded 8.15mt which was a decrease of 60%.

In that region, freight rates for Handysize and Handymax vessels in the Black Sea have been rising and this has been putting pressure on FOB (free on board) prices from Ukrainian and Russian producers over

Ukraine has been decreasing over the past few months as the industry struggles to cope with the recent conflict as well as a weak market. A total of 3.34mt was produced in July which was a decrease of 14% compared with the 3.9mt recorded in the same month last year. The fighting in the region continues to impact mining activities in eastern Ukraine after some 18 months of conflict. Overall, coking coal production was hit the most, with a decrease of 62% recorded in the seven months to July 2015 compared with the same period last year to reach 4.69mt. Thermal coal output decreased by 47% to

Poland thermal coal imports (mt)



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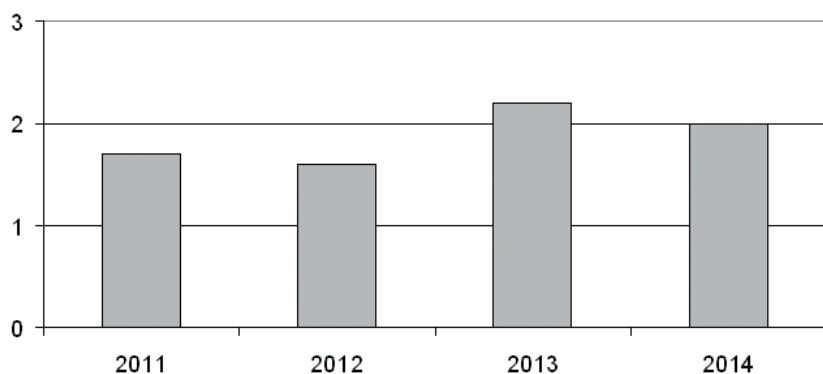
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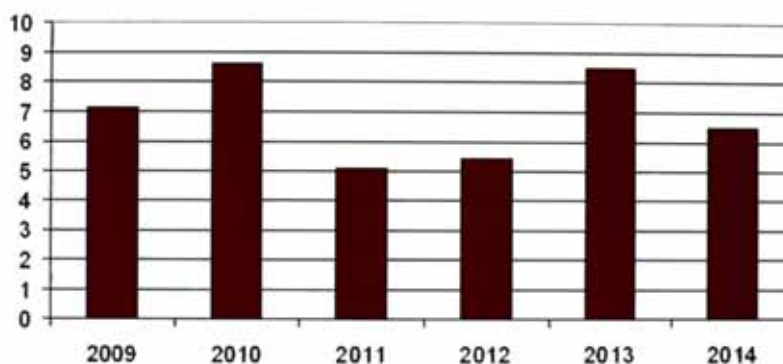
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**Poland coking coal exports (mt)**

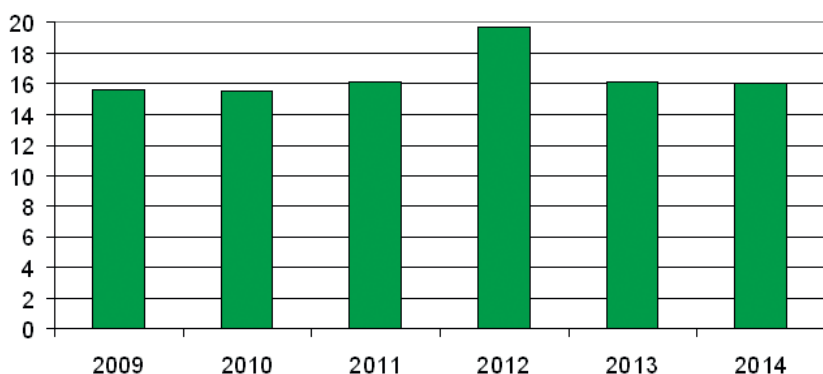
in the domestic heating market rather than award a tender seeking coal in the international market. The price is reported to have been about US\$65/t free on truck for high CV product. Simpler logistics and a competitive price led to the decision amid firmer freight costs in the Black Sea market. It proved more economical for one buyer to book a Panamax cargo of thermal coal in the Baltic market than elsewhere, and paid about US\$52/t FOB basis 6,000kcal/kg NAR. The freight rate was around US\$10/t to Marmara for delivery in early September. The delivered prices have been in the low

the summer. An increase in grain exports from Ukraine has contributed to this increase in rates as demand for smaller vessels picked up. Deals into Turkey have been proving a challenge for Russian shippers at the time of writing, with prices indicated at about US\$66–67/t CIF (cost, insurance, freight) Marmara basis 6,000kcal/kg NAR (net as received) for low sulphur product (0.5%) in a Handysize vessel. Buyers wanting to take tonnage in Handymax vessels are being offered deals at around US\$2.00/t less. Those prices represent a decline of US\$5.00/t since the end of June. Freight rates for the smaller ships have increased by around US\$2.00/t

**Poland thermal coal exports (mt)**

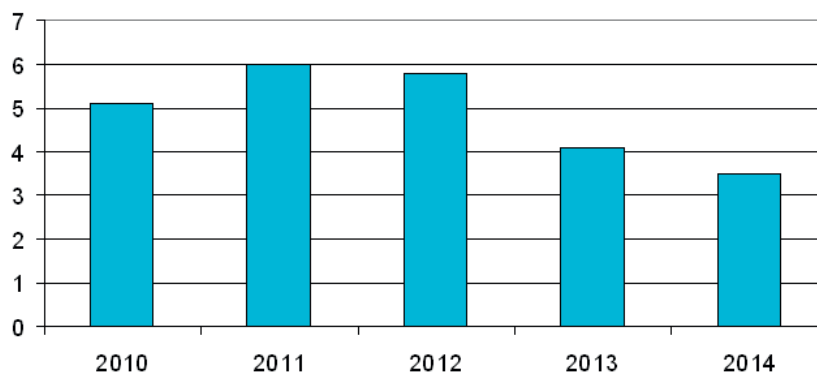
US\$60s per tonne to that port at the time of writing.

In the United Kingdom, Scottish Power has announced that the Longannet power station will close next year. The loss of 2.4GW of coal-fired capacity will impact the Scottish coal sector significantly as it supplies a quarter of the power station's fuel. The power station is due to close in March 2016. The plant has been rendered uneconomical by increasing carbon tax rates and high transmission costs, but the technology is understood to be capable of operating for a number of years under more favourable economic and political conditions. A substantial volume of

**Italy thermal coal imports (mt)**

during August, and indicate rates of about US\$14–15/t for Novorossiysk while Marmara costs about US\$19.00/t at the time of writing in late August. Buyers in Iskenderun are having to pay around US\$24-25/t for Black Sea trade in smaller vessels. In the Baltic market, Russian exporters of thermal coal have been reducing their FOB prices recently as freight rates firmed there. Panamax vessels have seen an increase in rates into the North Sea and Atlantic, as well as the Mediterranean Sea.

Recent market activity includes a Turkish cement maker which purchased coal fines

**Italy coking coal imports (mt)**



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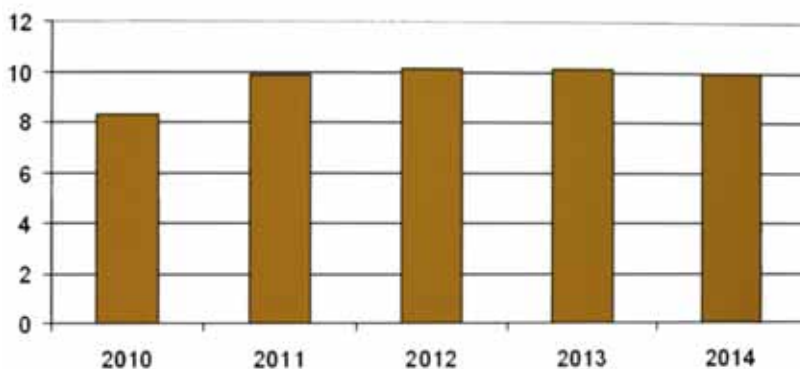
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Germany coking coal imports (mt)



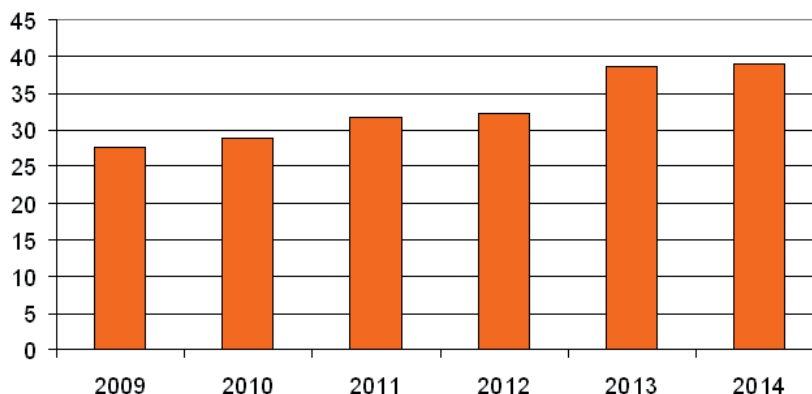
imported coal trade will be lost with a knock-on effect on numerous other players in the United Kingdom and elsewhere. A combined cycle gas turbine project at the Cokenzie power station has also been scrapped by Scottish Power which attributes the decision to unfavourable economic conditions.

Rio Tinto reported robust results from its overall operations for the first half despite what it called a tough operating environment. Underlying earnings of US\$2.9bn were reported with operating cash flows of US\$4.4bn. Dividend payments amounted to US\$2.2bn. Rio Tinto has

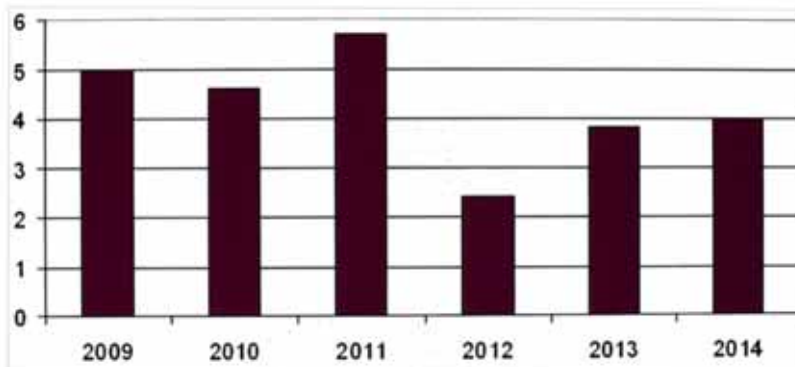
decrease of 1% compared with the 8.967mt recorded for the first half last year. Coal revenue is reported with that from copper now, and showed combined underlying earnings of US\$393m. This was a decrease of 40% from the US\$658m reported for the same period in 2014. Guidance for Rio Tinto's share of coal production in 2015 is expected to be 18-19mt of thermal coal, 3.0-3.4mt of semi-soft coking coal and 7.1-8.1mt of hard coking coal.

BHP Billiton recently reported the prices received for its coal brands during the 2014/15 financial year. All are significantly lower than the previous year.

Germany thermal coal imports (mt)



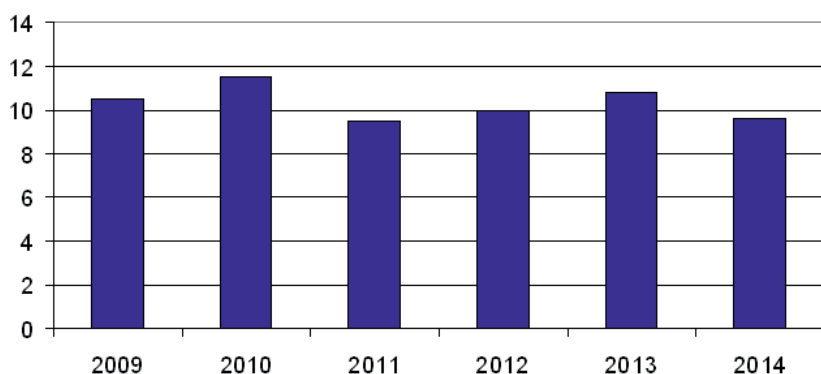
Finland thermal coal imports (mt)



Hard coking coal achieved an average realized price of US\$105/t FOB for the year to 30 June 2015 which was a decrease of US\$26/t or 20% compared with the US\$131/t in the 2013/14 financial year. The average price of weak coking coal was US\$88/t FOB which was a decrease of US\$22/t or 21% compared with the previous financial year's US\$111/t FOB. Thermal coal prices fell by a similar amount for the company, at US\$58/t FOB compared with US\$74/t in the previous financial year (a decrease of 22%). Revenue from coal reached US\$5.885bn this financial year compared with US\$6.563bn last financial

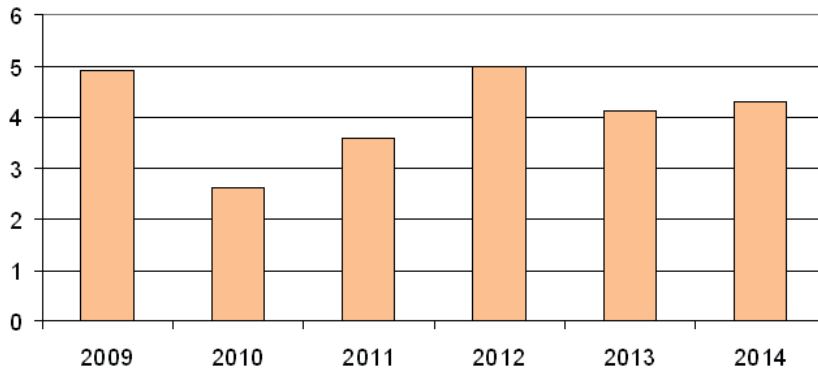
reported that its coal operations earned less due to the low prices being seen in the markets over the past year. Hard coking coal production reached 4.103mt during the first half which was a 13% increase over the same period in 2014 at 3.642mt. This was attributed to the ramp up in production at the Kestrel mine, but a longwall changeover in the second half of 2015 is likely to impact production at that time. Semi-soft coking coal output in the first half was 1.922mt compared with 1,839mt in the 2014 half (an increase of 5%). The total for thermal coal production in the half was 8.837mt which was a

France thermal coal imports (mt)





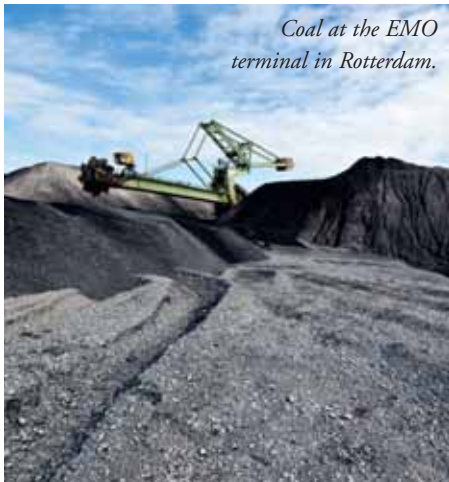
Portugal thermal coal imports (mt)



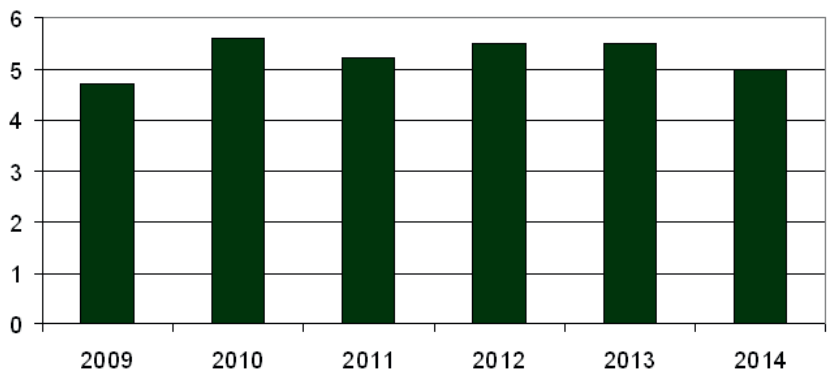
year. Profit from coal operations was US\$348m compared with US\$575m in the previous financial year. The lower prices of coal during the 2014/15 financial year had a net impact on price of US\$1.027bn.

Glencore Xstrata has had its business impacted by the weak market for thermal coal during the first half of 2015. The major problem appears to be lower demand from China affecting

exercise in order to cope with the depressed market in Europe. Nevertheless, production costs remain around US\$50/t as FOB prices for thermal coal hover just above that level in the Baltic market. Coking coal prices are still much better than that. The miner reduced output by 5.9% to 1.9mt during the second half amid the oversupply situation in Poland, and sales reached 1.88mt which was 10.5% lower than in the same quarter in



Belgium thermal coal imports (mt)



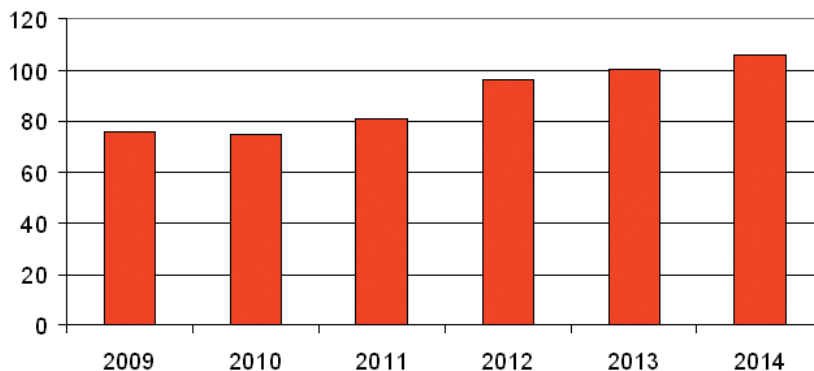
world markets, while supply of thermal coal is too high to influence any firming in the price. The company is aware of the need to reduce supply in order to bring the market more into balance. Coking coal operations have fared better, but remain delicate amid low prices and weak demand. European demand for Rio Tinto's coal has been flat over the course of 2015. The company's thermal coal operations in Australia have been under

2014. The company mainly sells in the domestic market, but reports suggest it is exploring new opportunities in Ukraine. Total sales could reach 8.5mt in 2015 which would be about 1mt below the target set at the end of 2014. The company's cost-cutting exercise, however, resulted in the loss of some 300 jobs this year, with a further 100 expected by the end of 2015.

In Croatia, Plomin has awarded the business following a recent tender seeking 650kt of thermal coal which closed on 30 July. Russian or Colombian material is reported to have been purchased with the price being set at US\$2.50–4.00/t above the API2 index on a delivered Plomin basis. Plomin can accept coal with sulphur content up to 1.4% and 5,731kcal/kg NAR (min). Deliveries are due to begin on 15 September and continue until 17 April 2016.

At the time of writing, thermal coal prices in Europe have been under strong downward pressure. Prices for coal delivered to the ports of Rotterdam, Amsterdam, and Antwerp have reached a seven-month low. Any thermal coal coming

Russia thermal coal exports (mt)



from Richards Bay are currently at an eight-year low, and there are rumours that more coal could be heading to Europe as Indian demand has eased over the past month or so. Coal prices declined by some 10% in the first half of August this year, but speculative trading increased amid lacklustre demand. Supply from the traditional sources including Colombia, and further away is reported to be plentiful while demand has been low. This supply/demand imbalance has squeezed prices down to these levels. It appears that those producers with excess tonnage have been keen to offload their products to the renewed interest from traders. With relatively little influence from coal market factors being exerted on prices, the effect of currency exchange variations and oil prices is relatively greater. Market players are seeing some volatility due to these factors, and volatility encourages traders to increase activity. The impact of Chinese

currency uncertainty was significant in mid-August when their central bank intervened on rates for the yuan and it devalued by 1.9% to a four-year low. This affected coal markets around the world, and Europe was included in that.

In August, European traders showed interest in South African material as the Richards Bay Spot Price decreased below US\$53.00/t FOB basis 6,000kcal/kg NAR. This was the lowest price since May 2007 as the weak global market impacted all suppliers. Little trade was being done at that level, however, so the exporters might be lucky and see some improvement before they are forced to sell at these levels into Europe.

Coal has been facing greater competition from renewable energy and gas over the

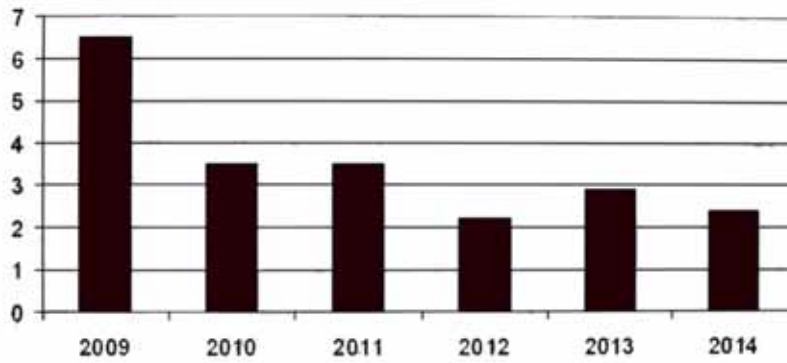
summer in major markets like Germany and the United Kingdom. Carbon taxes have contributed to the squeeze on coal compared with other fuels and energy sources.

High thermal coal stocks on the pads at the ports of Amsterdam, Rotterdam, and Antwerp of some 6.25mt at the end of July have contributed to the limited demand this summer. compared with the same time last year, stock levels were about 1.3mt higher — some 25% above the level of around 5mt in July 2014.

At the time of writing, the petcoke market in Europe is very quiet, and suppliers in the USA confirmed that there was little business being done in the Mediterranean and elsewhere in the north Atlantic. The exporters of high sulphur petcoke out of the US Gulf are lucky to get prices in the mid-US\$40s per tonne FOB at present, and they are hoping the market has reached the



Denmark thermal coal imports (mt)



floor. With higher freight rates, however, the petcoke shippers are under pressure to compete with coal amid a weak market, so there is a chance that they will see even lower priced deals being done in the coming weeks. Winter demand might turn things around a little, or a softening in freight rates after demand from grain has eased.

Back in the shipping market, Capesize freight rates slumped in the early part of August mainly as a result of weak oil prices. There was already a plentiful supply of Capesize vessels in the Atlantic as well, and the rate from Bolivar to Rotterdam was US\$7.20/t in mid-August after starting the month some US\$3/t higher. The Panamax rate was US\$10.95/t after starting the month at around US\$11.20/t.

Coal supply in Europe is also being disrupted by political issues in the east as well as possible shortages of rolling stock. RZD, the Russian rail operator suspended transport of coal and oil to the port of Riga in Latvia in August. Speculation over the reason for the disruption varied from a shortage of coal wagons to the arrest of the Chief Executive of Latvian Railways over alleged corruption. RZD also banned transport of coal to Ukraine last year. About 18mtpa (million tonnes per annum) of Russian thermal coal is loaded at Riga, with big players including Mechel and MIR Trading being affected by the ban, as well as customers in Europe and elsewhere.

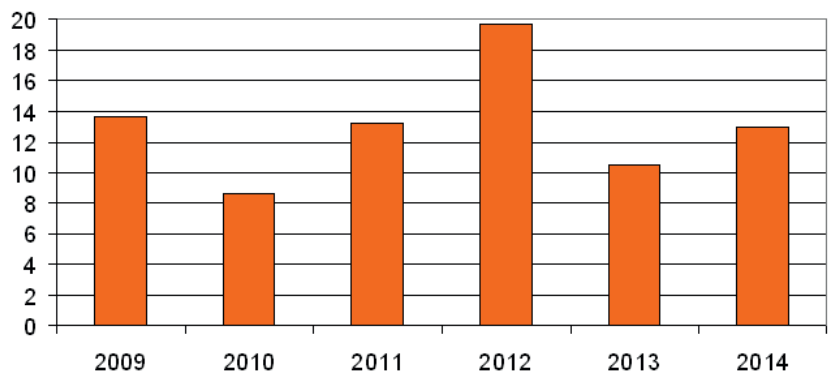
The weakness in thermal coal prices in Europe which developed by May this year is now expected to continue for the

remainder of 2015 amid low demand and plentiful supply. Russian shippers have been able to cope better with lower prices due to favourable currency movements, and that has put pressure on competitors elsewhere who supply European customers. While the exchange rate helps producers with costs in roubles, a similar situation prevails in Colombia where the peso exchange rate with the US dollar has allowed shippers to survive while selling coal at lower prices in the export market. Meanwhile, all producers will be benefiting from lower oil prices which reduces their production costs. Rail and ship transport are also seeing lower fuel costs as a result. In the

financial markets, coal equities make for miserable reading at the moment, with huge declines in the value of most coal share prices compared with a year ago.

The market is now waiting in anticipation of meetings at the world coal leaders event in Barcelona in October to see how trade might develop over the coming months. Some players

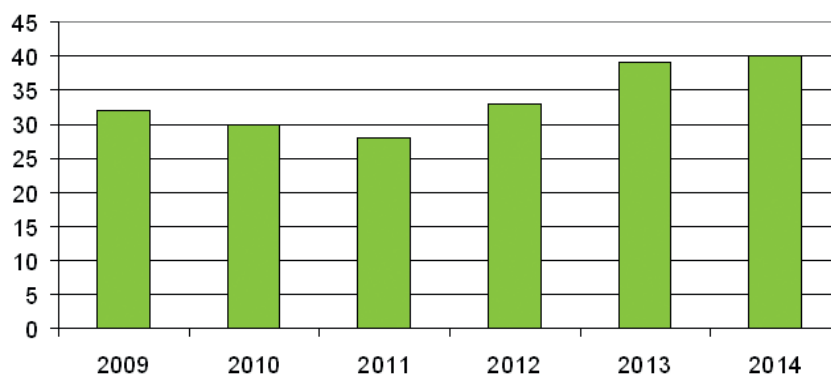
Spain thermal coal imports (mt)



have been anticipating fresh buying ahead of the winter months if coal stocks have decreased significantly at the ARA ports. Any forecasts based on price chart analysis which have been commented on elsewhere are best ignored, as there is no robust method for predicting thermal coal price floors or ceilings on that basis. The coal market remains a murky subject for analysis and forecasts as always, but there will be plenty to keep players occupied over the remainder of 2015 and into next year as

producers face some of the greatest challenges they have ever encountered in the international coal industry. Coal consumers are also facing great challenges as reflected in the early closure of otherwise viable coal-fired power generation in Europe due to environmental costs. DC

Netherlands thermal coal imports (mt)



*Dr Tim Jones is Director of [e-coal.com](http://e-coal.com) Consultancy and Editor of the weekly publication Coal Market Intelligence which covers 11 spot markets worldwide, gives key information on the latest deals and tenders, company news, people and jobs, industrial relations, and ports, shipping, and freight rates.*



# Russian coal industry prospects

## the effects of the 2015 global recession



In the last decade, coal production within Europe has fallen significantly, due to the strict environmental legislation of EU members, as well as the gradual depletion of shallow depth fields, writes Ibragimov Dovronbek, Chairman of Carbo One Limited.

Europe therefore decided to purchase cheap American coal. However, it is not by chance that American coal is cheap. According to the new environmental rules, the American power industry has to reduce the use of coal by 27% by the year 2030, and to increase the use of gas by up to 33%. Unclaimed high-sulphur American coal depreciates. Finding higher demand on EU markets means that, in its turn, a paradox of environmental degradation is created.

Also, as the result of an initiative from the German government, there is a dynamic propaganda of anti-recessionary policy aimed to save money that has stopped the development of gas production. Major industrial companies are now seeking

to get rid of gas-built power plants which operate at a loss under the state support for renewable energy resources, and to roll back to cheap coal.

In an effort to find a balance between the low price for resources and compliance with environmental rules, European companies have come around to purchasing Russian coal. This has higher calorific capacity than its substitutes which are of a lower grade (including the American coal), which means it can produce more energy per tonne of fuel, thus creating fewer GHG (greenhouse gases) and sulphur. It reduces depreciation and emissions into the atmosphere of pollutants and other substances. It is about shallow coal deposits that mean coal can be sourced by open-pit mining as well as relatively cheap electric power.

Therefore, the 2014 slowdown in the exports of Russian coking and steam coals — due to a wide range of factors



including a surplus on Asian markets, and increased global market competition relative to new large-scale field development (in Australia, Columbia, Mongolia and Mozambique) — in the first half of 2015, Russian coal demand on European coal markets has grown by 2.9%.

“Europe can replace Russian coal volumes buying coal in Columbia, South Africa, USA, Australia and Indonesia, but it will mean price appreciation,” said Diana Basila, ‘Nena AS’ analyst (Bloomberg).

Whereas coal production and export is important to the Russian economy, export recovery is essential. According to analysts’ expectations, the next few years will not be easy for the Russian coal industry. The planned gasification of several regions in Russia (e.g. Primorye) will cause domestic coal to decrease. In this context, the only way forward for coal companies will be to increase production and export it abroad.

Alternatively, the growth of domestic consumption of coal can only be shown by the expansion of coal complex conversion.

But this topic must be discussed, not for the first time, in Russia. However, potential deep conversion of coal in the foreseeable future is very limited: coke-chemicals and by-products of coke production — benzene, toluene, resin. The deeper development of coal chemistry within existing technologies appears unacceptably expensive for Russia in the face of comparatively low prices of oil and gas stocks, despite the fact that there is plenty of coal in the country. Coal chemistry is actively engaged in China, which has very limited reserves of oil and gas resources, but enormous (about 3.7 billion tonnes per year) coal production. However, e.g. ethylene production unit from coal with capacity of 0.6 million tonnes per year in China costs about \$4 billion. The Chinese talk about the theoretical possibility of reducing the initial cost for this technology by half due to the new types of reactors, but for now this is only a pilot project.

In Russia, such a unit would cost even more because all the components for it would be supplied by using foreign currency. And the growth of foreign exchange rates at 2015, more than controversially, affected the Russian coal industry.

Deputy Director of the Department of Coal and Peat Industry in the Ministry of Energy of the Russian Federation, Sergei Shumako spoke at the ‘Results of the development of the coal industry in Kemerovo at 2014’ meeting. He stated that, due

to the economic downturn in the country and the increased risks of implementation, Russian companies are blocking projects: this has increased the number of requests to preserve recently obtained fields to develop. Also, coal companies have begun to apply for changes in licence agreements through already developing fields. The key point here is the imported equipment value increase due to the increase in foreign exchange rates and banks’ lending rates.

Because 80% of the equipment used by Russian companies are supplied by foreign manufacturers, as well as constituent parts, the purchase of new equipment and renovation of old equipment has become harder with the rise in foreign exchange rates.

On the other hand, the fall in world coal prices causes coal companies in Australia, South Africa and even the United States to lose money and forces them into reducing exports, while opening opportunities for the exporters from Russia. As has been noticed by Raffael Miskoriya, analyst at Italian coal trader ‘CC Colerici’, “Devaluation of the rouble made it possible to gain additional profit by exporting enterprises, as a matter of fact their currency profits in ruble counter value increased for almost twice. In Russia they currently have a competitive advantage for export”.

Despite increased European demand, the Russian coal industry faces hard times in the next few years. The key problem for Russian coal mining companies is extremely expensive logistics. In 2014, the average export price for a tonne of Kuzbass coal was \$76. The companies had to spend half of this sum in transporting the coal to Far East ports to supply the Asia-Pacific region. Kuzbass is 4,500–5,000km from the ports of the Baltic and the Black Seas. From Pacific ports, it is 6,000km away. According to the Fuel and Energy Department of the Kemerovo Regional Administration, transport charges are up to 35–40% of the final price.

At the Russian Federation, the coal industry development plan for the years up to 2030 — to be adopted by the Government of the Russian Federation — clearly outlined the importance of the development of the domestic coal market. It also stressed the need for Russia to consolidate on the world coal market, and to increase sales in Europe and Asia. However, taking into account all the consequences of the recession, the most likely scenario is for Russian coal miners to maintain the rate of production, rather than increase export sales.



# India poised to take over from China?



*Liebherr cranes handling coal at the Indian Krishnapattanam Port in Andhra Pradesh.*

Kunal Bose

## Driving out corruption is key to China's recovery and India's future success

The rapid-fire growth of China in a decade and a half to become a \$10.3 trillion economy, next only to the US, and emerge during this period as the world's biggest trading nation and the largest consumer of energy and a whole range of commodities used in making steel to aluminium to copper took every other country by surprise. In a seismic shift in global energy flows, China earlier this year overtook the US as the biggest importer of oil. By turning itself into a manufacturing powerhouse, the country has transformed the global economic landscape in many ways. So when the world's second-largest economy wobbles, the impact is naturally felt in the rest of the world, more severely in countries with strong trade links with China.

The direct impact of growth slowing in China is likely to be minimal for the UK since that country makes up for a small portion of its exports. But the indirect impact on the British economy may not be insignificant if the knock-on effect for broader global economic growth is considered. Around 20% of US and European Union trade is with China, and any downshifting in that trade volume will have a bearing on the UK. Mines-oriented Western Australian economy has started bearing the brunt as China, which for a long time now has been the engine for global growth, has started sputtering. For the rest of the world, the question then is will President Xi Jinping be up to the task to shore up the Chinese economy and ensure its safe landing?

Lord Swraj Paul, chairman of multinational Caparo Group and a keen China watcher, tells *DCI* that he does not believe that "Beijing will be out of policy moves to make course corrections. Remember we haven't seen the bottom of China problem; it's still unravelling. No country however resourceful it may be can

keep going up and up. As China went on recording eye-popping growth over many years to become the world's dominant player in many sectors, it confronted issues like growing non-performing assets of banks, a result of a post-2008 investment binge, rising manpower costs shaving off competitiveness in some sectors, an ageing population and corruption. But all the negatives were overshadowed by phenomenal growth.

"One has to appreciate that in the course of the country transitioning from an investment led to a more market-based growth is a complex and bumpy process. I'm not surprised by growth slowing of an economy of China's size as it seeks to adjust to a new economic model. I'm fully in agreement with IMF managing director Christine Lagarde that the Chinese leadership has the policy tools and financial buffers such as forex reserves of \$3.9 trillion to manage the transition to a consumer-led economy. Earlier, China surprised the world with its spectacular growth and I have no doubt President Xi Jinping will be able to resolve the economy's problems," says Lord Paul.

What, however, has not helped an otherwise powerful China is the prevalence of widespread corruption seeping into high echelons of bureaucracy and communist party. "I'm very happy for Xi that one of the first things he did on becoming the leader is his declaring corruption as the greatest threat to the survival of the party and China remaining a great power. More importantly, in an unprecedented campaign rightly claiming global admiration, Xi has come down hard on very large numbers of corrupt officials and businessmen. Nothing surprising as the drive to rid the system of corruption is widely acclaimed by citizens, it has put many in the government and business on the edge," says Lord Paul.



But is there a possibility of Xi facing a political backlash. “Anything is possible. Take India where prime minister Narendra Modi and his very astute finance minister Arun Jaitley want to make a religion of ‘no favours taken, no favours given.’ But then they are let down by a senior member of the government. I have been a relentless campaigner against corruption and distribution of favours by the government. During the United Progressive Alliance (UPA) regime preceding Modi’s coming to power, there were many cases of wrongful allocation of frequencies to telephony companies and natural resources like coal and iron ore to producers of power and steel. Some favoured companies made huge wrongful gains. Indian people took their revenge by voting UPA out of power in 2014 May elections. A triumph for democracy that was. A cosy relationship between some business houses and the government eats into the vitals of the economy denying the masses the chance to benefit from growth. It will be good to remember what Nobel laureate Indian national poet Rabindranath Tagore wrote over a century ago, that he who does the wrong and he who allows that to happen are partners in crime deserve to be burnt like weeds,” says Lord Paul. His observation in 1983 that “companies are poor but their owners are rich” has become part of Indian business folklore.

It is commonly believed that India has potential to grow at a much higher rate than 7.3% in 2014/15 or 7% as forecast by Moody’s Investors Services for the current year because of deficit monsoon. Lord Paul has no doubt that “India has the capacity to grow at double-digit rate, provided corruption is fought with energy, an environment is created for the genius of all entrepreneurs and not just a small coterie of businessmen to come into play and banks with perilously growing NPAs stop playing footsie. But if growth fails to lift the poor, then it will be something I shall not be proud of. Indian leaders need to introspect why growth benefits are not trickling down to the bottom of population pyramid,” says Lord Paul.

In the past decade and a half, he has built a string of automotive components factories in a number of Indian states in sync with the country’s growing automobile industry (2014/15 Indian vehicles production was nearly 2.34m). How does productivity in Caparo’s Indian factories compare with units in the UK or the US? “Oh, there is much scope for improvement in India,” he says. How did some IT companies in India manage to make a mark on the world stage when the environment was not supportive of new entrepreneurs? “What helped these companies to prosper was the absence of government controls on the IT sector. Moreover, they were not in need of much bank finance. Their capital was brains and creative minds,” says Lord Paul.

Not very long ago when big mining groups swore by “never-ending China growth,” the likes of BHP Billiton, Rio Tinto and Anglo American invested many extra billions of dollar in mines capacity expansion. Now they are finding their margins coming under increasing pressure due to prices of iron ore, bauxite and copper ore collapsing on oversupply and poor demand growth. So Rio without Alcan and Anglo American without iron ore assets of Minas Rios, all bought at market highs would have done better now. Wisdom has finally dawned on miners to cut capital and exploration expenditure. “What you are saying is not an industrialist’s point of view. You have to see an acquisition, a takeover in the context of the time it happened. A takeover is based on due diligence and the best commercial decision of the day. Leave it to history to do the post-mortem.” But what about a few big-ticket purchases ahead of the 2008 financial



Lord Swraj Paul, chairman of multinational Caparo Group.

crisis when claimants of trophies egged on by ‘egos’ were engaged in rounds of ferocious bidding? “In a free market, people are prone to making mistakes. That’s the law of the market,” he says. Having experienced now fewer than ten business cycles in his long, eventful career, his mantra is “when the chips are down, you keep your nerves up and when the going is good you cut costs.”

Lord Paul is globally admired for his engineering and metals business. But he had a distinguished 40-year association with the shipping industry from the founding of Apeejay Shipping in India to making it a thriving entity. So what does he think of the recession in the shipping business which refuses to go away and world seaborne trade not growing sufficiently strongly to take care of surplus shipping capacity? Some industry leaders saying dry bulk freight market could take three years to hit the road to recovery is disconcerting for ship owners and shipbuilders. “You have more ups and downs in shipping business than in other sectors, it being so closely tied up with movements in world trade. The challenge in shipping, as I have experienced is how quickly you adjust to changes. The shipping business that I ran must have made money more often than otherwise.”

Many in India have started thinking that China’s woes will create the right conditions for rises in flow of foreign direct investment in their country. “Make rules for foreign investment which should apply uniformly to all without anyone being required to knock at the government door for clearances. You know how successful a large number of non-resident Indian [NRI] businessmen are. Treat them on a par with resident Indian businessmen. You will see how enthusiastically NRIs will respond to the move,” says Lord Paul.

For over two millennia, society has remained suspicious and on occasions angry with business. Society bears grudges particularly against resource groups, which are manifest when oil is spilt in the seas or rivers and streams are polluted due to discharges from mines or displacement of local people happens to facilitate opening of new mines. All this has to end for good of society. But how does business go about it? “The answer is education. People need to appreciate that for society’s progress harnessing of resources is essential. At the same time, oil companies and miners must care for environment and rehabilitation of displaced people. I think awareness on all these counts is growing,” says Lord Paul.

# End of commodity super cycle spells higher prices

The end of commodity super cycle and metals and minerals now likely condemned to long periods of low prices will mean many high-cost operations, where cash flows are not paying for operational costs and debt servicing, will fall by the wayside. Such assets will come cheap in the market, ripe for takeover. But wiser by their bitter experiences of high-cost acquisitions in the two years preceding the 2008 global financial crisis, the still resilient groups will be exercising a lot of discretion in any future attempts at mergers and acquisitions (M&As). Under pressure from shrinking margins and tepid demand growth, industry in general has lost the appetite for big bang M&As. In a presentation at a recent conference, chief executive of copper and coal of Rio Tinto Jean-Sebastian has explained why companies will look at acquisition opportunities with caution to avoid value destruction. He says, "we will not see significant consolidation. This is because there is now greater scrutiny of real value creation of big bang M&As and the potential value destructive premium needed to secure tier one asset."

So instead of headline-grabbing consolidation moves of the kind of Rio buying Alcan, Tata Steel buying Corus and Glencore acquiring Xstrata, groups, according to Jean-Sebastian, are to seek partnerships for projects for risk sharing. Big metal producers and miners are coming under shareholder scrutiny more than ever before as their profits keep on tumbling. BHP Billiton found its attributable profit (excluding exceptional) for the year ended June 2015 down 47% to \$7.1bn from a year earlier. Rio's first half of the year to June profit at \$806m was down by as much as 82% year-on-year due to low copper, aluminium and iron ore prices and asset impairments. As for Anglo American, the first half earnings before interest, taxes, depreciation and amortization were lower by 24% to \$3.2bn from a year earlier. These are the companies with some excellent assets, particularly iron ore and strong balance sheets with low leverage. They, therefore, are not to be scathed as much by the present crisis unlike hundreds of companies with many weaknesses, including their quality of assets. The universe of metals and minerals has come to depend so very heavily on China that the world's second largest economy's growth slowing down is having a negative impact on the fortunes of all companies engaged in production and trading of iron ore to coal and steel to copper.

But not only are opinions among the world's big miners divided over the future growth in demand for steel and its principal ingredient iron ore in China, the country's own trade bodies don't have a consensus on the subject. For example, the China Iron and Steel Association (CISA) believes the country has arrived at a tipping point. Not all China agencies, however, agree. CISA has forecast a 2% fall in Chinese steel production in 2015, the first contraction since 1990. Unarguably China's economic woes contributing to the fall in local demand for all metals is leading to a piling up of negative factors for global steel. The World Steel Association (WSA) says Chinese steel demand, which for the first time since 1995 saw a negative growth in 2014, will see further demand fall of "0.5% in both 2015 and 2016." WSA's 'short-range outlook for steel' was released in third week of April and if anything China has found itself in greater difficulties

since. Chinese imports falling 13.8% in August from a year earlier and exports down 5.5% are seen as pointers to the world's second largest economy growing at a lesser speed than earlier thought.

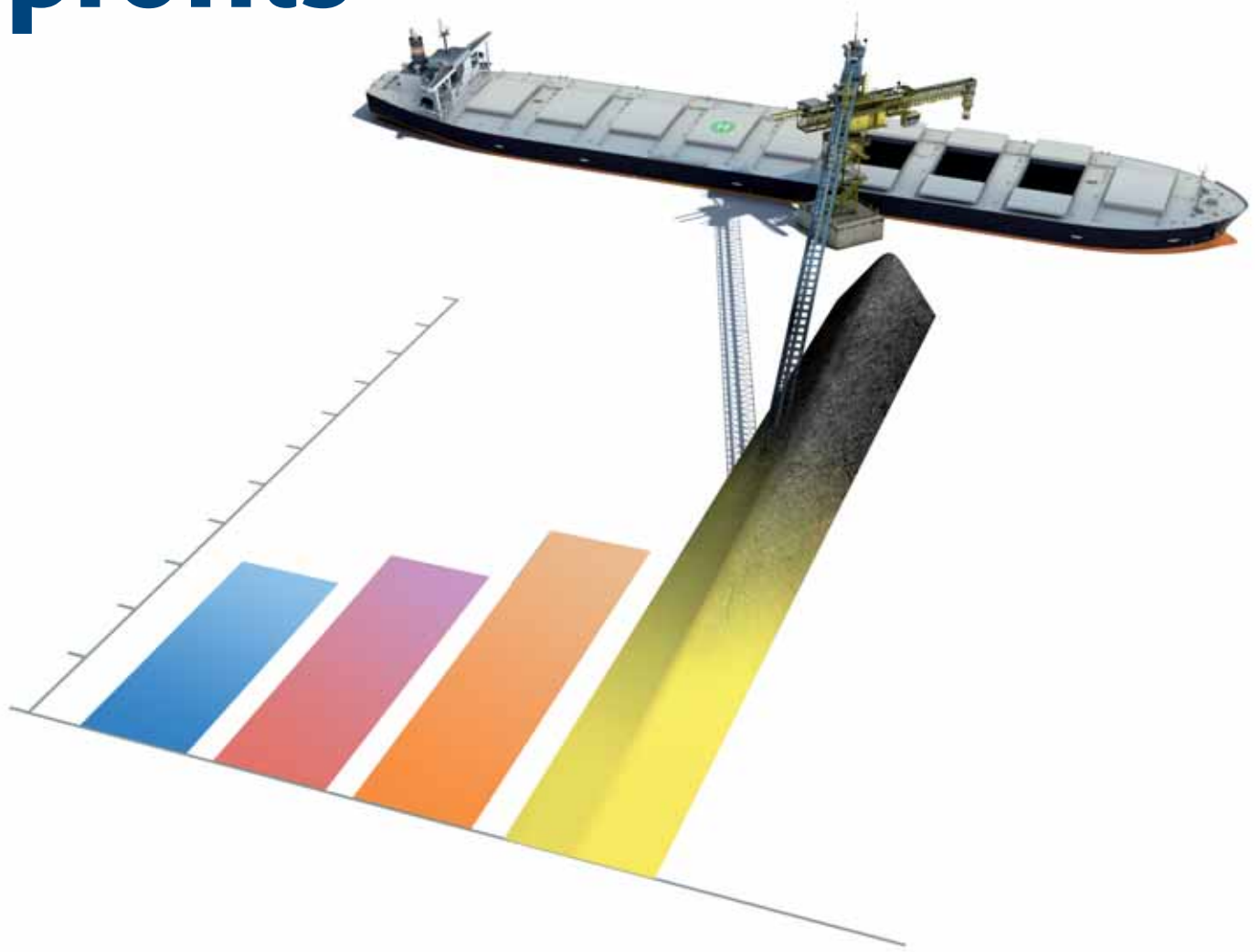
Concern for the European Union, the US and India is that pressure will be further mounting on China to sell growing quantities of its surplus steel in the world market. In the first seven months of 2015, China exported 62.13mt (million tonnes), which is more than Japanese production of 61.438mt in the same period. Slowing local demand will prompt China to export over a record 100 mt in the current year. Such volumes of steel leaving Chinese shores for overseas destinations will keep a lid on prices to the dismay of struggling mills in all continents. Such high exports will heighten China's trade tensions with India, the US and the European Union. When every stakeholder in steel is braced for a struggle not to end too soon, Rio's iron ore chief Andrew Harding believes China's steel production will rise to 1 billion tonnes (bt) by 2030 from 822.7mt in 2014. This will be driven by exports of steel-based higher value added finished goods resulting from more and more Chinese factories moving up the value chain. Another demand booster will be the construction of new homes that are taller and more steel intensive in place of nearly 25% of the present stock to be pulled down by 2030. Steel demand in China will also get a leg up from the building of infrastructure, particularly as urbanization gets a push and car ownership rises.

But Harding's thinking about Chinese steel and iron ore has expectedly left no impact on the market. Caixin's China general manufacturing purchasing managers' index (PMI) for August was down to a near six-and-a-half year low of 47.1. This is a pointer to persistent sluggishness in Chinese manufacturing as the economy remains in the process of bottoming out. To be fair to Harding, he is saying that Chinese steel production will be rising only "modestly" to 1bt by 2030 while emerging nations will henceforward figure more prominently in annual global steel demand growth of 2.5% in the next 15 years. The "ongoing volatility" in commodities has not stopped Rio saying that high quality ore will still meet with "growing demand." An average 2% rise in demand will expand global ore consumption to 3 bt by 2030, says Rio whose investments in the past few years will lift ore production in Western Australia's Pilbara region to 335 mt next year and then to 350 mt in 2017.

What, however, must have given Rio and the world's other three leading ore producers a shock was fall in the mineral price to \$44.59 a tonne on July 4 from the record just above \$190 a tonne in early 2011. Ore with 62% iron content has since recovered to \$57.42 a tonne for delivery at Qingdao in China. But the outlook remains dispiriting since China, which accounts for over 70% of seaborne trade in the mineral, received 14% less ore in August at 74.12mt. Quite a few agencies believe that prices at the current level will not be held. Goldman Sachs sees possibility of prices drifting 30% over the next 18 months. Rio's response to price collapse is by way of bringing down ore cash costs to \$16.20 a tonne in this year's first half from \$20.40 a tonne in same period last year.

*Kunal Bose*

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# Vroon Group implements <sup>TM</sup>Seanique

Vroon Group, an international shipping company, has announced on-target progress in the implementation of <sup>TM</sup>Seanique, SOFTImpact's Maritime Software Solution based on Microsoft Dynamics AX, catering for the Vroon Group's operations in crewing and payroll across the entire fleet.

The move contributes to Vroon's aim for one 'future-proof' global system to be used by all group companies, manning and recruitment agencies, vessels and related stakeholder. <sup>TM</sup>Seanique was selected as the ideal product because of its comprehensive functionality and perfect fit to Vroon's pre-existing ERP platform, Microsoft Dynamics AX, in use for Finance, Procurement, CRM and HRM purposes.

<sup>TM</sup>Seanique has already been successfully implemented at Vroon's management companies in Aberdeen (UK), Den Helder (Netherlands), Singapore (Singapore) and Terneuzen (Netherlands). Since early July the management companies in Genoa (Italy) and Stokesley (UK) have been on production use, and Manila (Philippines) is scheduled to join towards the end of 2015.

<sup>TM</sup>Seanique replaces several independent systems formerly used by the different group companies in various countries. At the same time, the implementation project has been used as an opportunity to streamline and standardize particular crewing related processes across the Group.

In the new environment, the <sup>TM</sup>Seanique implementation

covers the unified crew and payroll process of Vroon management companies in a single installation. Vroon's management companies have already started to benefit from more efficiency in work-flows, up-to-date information, and thus (in-direct) cost savings.

Rob Frenks, Group ICT Manager, observed that the implementation of <sup>TM</sup>Seanique is bringing Vroon an important step closer to an integrated ICT platform, with Dynamics AX as a cornerstone. Graeme Sheach, finance manager, Vroon Offshore Services Ltd, Aberdeen, UK commented simply "Seanique Payroll runs very well here — I am a big fan!"

Diederik van Keulen, Group Head Crewing, commented that crew management information is now available at various levels throughout the organization, which is beneficial for the organization in respect of transparency, alignment and setting policies.

The Vroon and SOFTImpact project teams would like to thank all colleagues, key and end users who have contributed to the success of this huge undertaking and confirm their commitment for continued support and improvements.

Vroon Group is a diversified, international shipping company with headquarters in the Netherlands and various management companies. With more than a century's experience, it delivers reliable, high-quality and cost-effective services, based on traditional values and a proven track record.

## New GAC–Clearvac partnership

### BRINGING ONBOARD AIR HYGIENE, FIRE RISK REMOVAL AND WASTE WATER MANAGEMENT SERVICES TO VESSELS IN THE UAE

Global shipping, marine and logistics services provider GAC has boosted its range of integrated services to shipping in the Middle East by forming a joint venture with the Clearvac Group to provide air hygiene and waste water management solutions in the UAE. The newly formed Dubai-based GAC–Clearvac operation will serve offshore platforms, cruise ships, superyachts, commercial cargo ships and other vessels operating regionally.

Clearvac specializes in air hygiene, HVAC (heating, ventilation, and air conditioning) services, duct work cleaning and maintenance, fire risk removal and compliance, waste water management solutions, descaling of onboard vacuum toilet systems and marine wastewater installations — serving the oil and gas, offshore, cruise and yacht sectors. Its non-hazardous products and non-intrusive techniques effectively remove hard scale deposits and return pipework to as new condition with no disruption to passengers or crew. Clients benefit from greater operational efficiency as a result of reduced downtime for the maintenance of onboard systems. Its air quality, hygiene and fire risk removal systems also help deliver health and safety compliance and certification, particularly for older vessels using gravity-based systems instead of vacuum technology.

The formation of GAC–Clearvac extends the company's reach into the Middle East regional market through GAC's well-established regional network. GAC in turn adds further value to its portfolio of support services for vessels at the UAE's busy ports — bringing the best in global practices to regional ship-

owners and setting new benchmarks for service provision.

GAC–Clearvac offers clients a wide variety of air hygiene services for ventilation systems, covering the bridge, accommodation, galley, laundry room, hospital, control room and staff areas, an integral part of compliance with HSE standards, industry regulations and insurance guidelines. It can also clean extraction systems and offer a certificate of maintenance for insurance purposes. Further, its service portfolio includes innovative black water services to clear pipes of hard scale deposits in a non-hazardous, non-intrusive procedure, which has no impact on operations or sailing conditions, enabling the vessel to remain fully operational throughout.

"This represents the next step in the evolution of our service portfolio of turnkey solutions for clients in the region, helping them minimize potential downtime for vessels operating in Middle Eastern waters," says Goran Eriksson, General Manager – Shipping Services at GAC Dubai. "All GAC–Clearvac services meet the same high standards GAC sets for all its activities, and are built on Clearvac's expertise in European and American markets. All cleaning operations are non-hazardous, and the chemicals used are environmentally friendly."

The Clearvac Group's Managing Director, David Salter, adds: "Through this strategic partnership with GAC, an established name in the Middle East, we are now offering our vast expertise in onboard air hygiene and waste water management to a region which plays a key role in global vessel traffic and trade. We look forward to extending GAC–Clearvac's services to a dynamic and growing customer base in the region."



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# The award-winning Cygnus ultrasonic thickness gauge

The new MK5 Cygnus ultrasonic thickness gauge has been awarded an 'Honourable Mention' by Red Dot Award for its design excellence in the most important competition for product design.

Earlier this year, Cygnus Instruments Ltd launched its new range of ultrasonic thickness gauges that were designed and manufactured using a twin shot injection moulded enclosure which has a soft but durable TPE outer skin, making them both comfortable and extremely durable, while the inner shell is strong, keeping the electronics totally sealed from the outside environments.

A panel of 38-member jury, from the Red Dot Award: Product Design 2015, awarded Cygnus Instruments with an 'Honourable Mention' for its excellent design of these new gauges and particularly well-executed aspect of design work. Products that convinced the jury with a well thought-out design solution are recognized with this distinction. The international experts discussed and assessed each of the 4,928 entries from 56 countries but only the designs that displayed high quality and innovative power were given an award.

Following extensive customer engagement and working within industry standards, Cygnus Instruments developed the new range of ultrasonic thickness gauges which still use the well established multiple-echo technique for error-checked readings through coatings but also incorporates single-echo and echo-echo measuring modes for obtaining measurements in areas of extreme corrosion or back wall pitting. The range has achieved the toughest American Military Standard MIL SPEC 810G for environmental protection and consists of five new models offering an array of new features including:

- ❖ large colour A-scan and B-scan display;
- ❖ two types of data logging options:
  - ❑ simple sequential data logging or;
  - ❑ comprehensive data logging with features including Grid Format, offering 16 directional formats. Users can also add defined text comments, create templates and add radial measurements around a last logged measurement point;
- ❖ manual gain control;
- ❖ Bluetooth data transfer capability;
- ❖ vibrate alert to warn the operator when the measurement is out of tolerance; and
- ❖ MSI™ (Measurement Stability Indicator) which is used in single-echo and echo-echo modes. This clever and simple



*Award-winning UT gauge design.*

technique samples returning echoes to ensure they are all identical, if the returning echoes are identical the display changes colour or format which indicates the reading is stable and reliable.

While the new range from Cygnus Instruments offers many new features, the simple to use menu structure means that these gauges are quick to learn and simple to use.

## ABOUT CYGNUS INSTRUMENTS LTD:

Cygnus Instruments was founded in 1983 by George Edes who pioneered the digital multiple-echo technique used for measuring remaining metal thickness without the need to remove protective coatings.

Now the leading manufacturer of multiple-echo ultrasonic thickness gauges, the multiple-echo technique has long since been the industry standard and has been approved by the major classification societies.

Driven by the need for an instrument range to fulfill a wider range of applications, Cygnus has recently extended its range of thickness gauges to include Echo-Echo and Single-Echo measuring modes to expand even further the usability of Cygnus gauges.

## ABOUT THE RED DOT AWARD:

In order to appraise the diversity in the field of design in a professional manner, the Red Dot Design Award breaks down into the three disciplines of Red Dot Award: Product Design, Red Dot Award: Communication Design and Red Dot Award: Design Concept.

The Red Dot Award was created by Design Zentrum Nordrhein Westfalen and with around 17,000 entries each year is one of the best-respected design competitions in the world. In 2015, it is celebrating its 60th anniversary: it was in 1955 that a jury convened for the first time to assess the best designs of the day. The sought-after award, the 'Red Dot', is the revered international seal of outstanding design quality.

Award-winning designers, manufacturers and agencies use the Red Dot winner label and receive numerous other winners' privileges, such as the presentation of the award-winning product on Red Dot Online, in the Red Dot Design Yearbook, the Red Dot App and on Red Dot 21. Additionally, the winning products are communicated in the international PR activities of Red Dot and exhibited in the Red Dot Design Museum Essen for a whole year.



*Twin-shot injection-moulded enclosure with soft, but durable, TPE outer skin.*





## Built to deliver more Global Logistic Solutions

Rocktree is a young and dynamic logistics and shipping company offering its clients logistics solutions to enhance their operations worldwide. Rocktree specializes in providing services to companies in the natural and mineral resources sectors, specifically dry bulk commodity producers, end users and international trading companies in emerging markets. Rocktree's fleet of highly specialised offshore floating terminals (OFTs) provides its clients with unique, customized logistics solutions for their operational needs, including transshipment, storage, cargo blending and ship management.

# Rocktree expands transshipment fleet with 'Apollo'

The Singapore-based shipping and logistics company Rocktree offers logistics solutions to dry bulk commodity producers, end users and international trading companies in the natural and mineral resources sectors. Through its fleet of offshore floating terminals (OFTs), Rocktree is able to provide transshipment services, storage, cargo blending and ship management services to clients in emerging markets, greatly simplifying the supply chain process.

## FLEET AND OPERATIONS

In commodity-producing regions around the world, the need for sophisticated and reliable supply chain solutions is essential. For

Rocktree, the company's goal is to offer modern, highly customized logistics solutions for their clients dealing in the transport of dry

bulk commodities, specifically coal. Rocktree's fleet supports coal companies throughout the supply chain, offering solutions to producers, end-users, and logistics providers.

Rocktree's OFT vessels provide the standard transshipment services that many service providers offer clients in such markets; it also provides storage, which is not standard. However, according to Pratolongo, Rocktree offers another key differentiating service.

"How we add value is by undertaking our clients' commodity blending operations at sea, directly on board Rocktree's vessels, rather than in port," said Daniele Pratolongo, who established the shipping and logistics provider in 2011. "This simplifies the supply chain process a great deal. For example, if a client operates in a country where ports and infrastructure are inadequate, they can undertake blending and other conventional port operations directly on board one of our vessels, which will save significant time and resources in the coal transshipment process."

This specific service is the centrepiece of Rocktree's strategy to offer unconventional solutions to players in the coal industry.

Rocktree has three assets for such operations, *Zeus*, *Mara* and *Apollo*. The *Apollo* has recently been commissioned, and started operations in July this year. She is designed in order to achieve loading rates over 40,000 metric tonnes/day with latest technologies available for homogeneous blending and automatic mechanical sampling services. *Apollo* also has a buffer storage of about 3,000 metric tonnes.

*Apollo* was built according to stringent environmental requirements and has been awarded with the Green Star 3 Design additional Class notation, the first time such a recognition has been granted to this type of floating terminals, highlighting Rocktree's commitment to the environment.

Designed to withstand higher loading volumes, these vessels enable clients to load greater quantities of cargo on board in a time-effective manner, significantly reducing daily operating costs and time spent at sea.



## Rocktree fleet

### Mara

- ❖ high-speed loading (average net loading rate over 60,000 metric tonnes a day);
- ❖ blending capability with ability to adjust to desired ratio;
- ❖ significant storage capacity — up to 60,000 metric tonnes;
- ❖ advanced safety and environmental protection systems; and
- ❖ capable of handling over 10 million metric tonnes a year.

### Zeus

- ❖ high-speed loading (average net loading rate over 40,000 metric tonnes a day);
- ❖ blending capability with ability to adjust for desired ratio;
- ❖ buffer storage — up to 9,000 metric tonnes for return cargo or pre-loading and continuous operations automatic sampling equipment;
- ❖ advanced safety and environmental protection systems; and
- ❖ capable of handling over 7 million metric tonnes a year.

### Apollo

- ❖ high-speed loading (designed for average net loading rate over 40,000 metric tonnes a day);
- ❖ blending capability with ability to adjust for desired ratio;
- ❖ buffer storage — up to 3,000 metric tonnes.





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# Self-Unloading Vessels



*The 826-foot Tregurtha will be equipped with a single-inlet, closed-loop DuPont™ Marine Scrubbers from Belco Technologies Corp. (BELCO).*

## getting the lowdown



Jay Venter

## The Interlake Steamship Company proves Phase 1 of pioneering emission-reduction technology on Great Lakes

### TWO ADDITIONAL SHIPS TO BE OUTFITTED WITH EXHAUST GAS SCRUBBER TECHNOLOGY IN 2016

Building on the successful implementation of exhaust gas scrubbers on its self-unloading bulk carrier *Hon. James L. Oberstar*, the Interlake Steamship Company announces its plans to expand its emission-reduction efforts to one-third of its fleet by installing similar scrubber systems on the *Lee A. Tregurtha* and *James R. Barker* early next year.

In April 2015, Interlake became the first US-flag fleet to test freshwater scrubbers on the Great Lakes when the system became operational on the 806-foot *Oberstar*. The 826-foot *Tregurtha* and 1,003-foot *Barker* will be equipped with the same single-inlet, closed-loop DuPont™ Marine Scrubbers from Belco

Technologies Corp. (BELCO), a division of DuPont Sustainable Solutions.

“This technology allows us to achieve our goal of continually shrinking our fleet’s environmental footprint while dependably, safely and efficiently delivering raw materials to our steel, construction and power generation customers throughout the Great Lakes,” says Interlake president Mark Barker. “We have proven the technology on our 800-foot traditional Laker and now we’re ready to scale up to our 1,000-foot class ships with our first installation on the *James R. Barker*.”

A total of five Interlake vessels — including two additional 1,000-footers: the *Paul R. Tregurtha* and *Mesabi Miner* — will be outfitted with these types of scrubbers by 2017.



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“The Great Lakes is a shared community. Many of the men and women on our ships not only work on our ships, they live in the Great Lakes region,” Barker says. “This important effort benefits the environment that we all live, work and play in, and has a positive impact on the health of the Great Lakes for the long term.”

The scrubber units, which are attached to the exhaust system of each of the ship’s two engines, effectively strip the majority of sulphur from its stack emissions. Here’s how the systems work: exhaust gas from the engine is sent through a series of absorption sprays that ‘wash’ and remove impurities, specifically sulphur and particulate matter. That washed gas then travels through a droplet separator before a clean plume of white steam is discharged into the atmosphere.

“The sulphur reductions have exceeded our expectations,” Barker says, adding that the additional reductions make an even stronger case for marine transportation — the most environmentally friendly way to deliver raw materials. “DuPont/BELCO has been an incredible partner in working with us on this effort of implementing freshwater closed-loop scrubbers on a retrofit basis. We are pleased with the performance of not only the scrubber units but DuPont/BELCO’s level of service, expertise and dedication to these important projects. We look forward to working with them further as we continue to supply our fleet with these scrubber systems.”

At the end of the 2015 navigation season, the *Tregurtha* and *Barker* will sail to Bay Shipbuilding in Sturgeon Bay, Wis., to have the scrubbers and associated equipment installed during winter

layup, in early 2016. Bay Shipbuilding is where the first successful installation on the *Oberstar* was completed earlier this year.

As the operator of first US-flag fleet to implement the scrubber technology, the company was not only tasked with proving its emission-reduction capability but also taking the lead in developing a sustainable supply-and-delivery infrastructure to support its widespread use on the Great Lakes.

Specifically, the scrubber system relies on an injection of sodium hydroxide — to neutralize and remove sulphur from the exhaust gas – and that chemical has to be delivered to the vessel about twice a month.

Working with partners, Hawkins Inc., PVS Chemicals Inc., Garrow Oil & Propane and OSI Environmental, the company has established waterfront supply capability at Sturgeon Bay, Wis., and Detroit, Mich., and expects to develop a similar capability in Duluth, Minn., hopefully within the next month. From there, the supply-and-delivery infrastructure will be built out at ports located near East Chicago, Ill., and Burns Harbor, Ind.

The scrubber expansion announcement comes only weeks after the Company announced its plans to repower its last steamship — the *Herbert C. Jackson* — in the final phase of a ten-year, \$100 million modernization effort.

Headquartered in Middleburg Heights, Ohio, the Interlake Steamship Company was launched in 1913. For more than a century, the company has led the Great Lakes shipping industry through its commitment to flawless service, environmental stewardship and continuous innovation. ISO 9002 certified, Interlake’s fleet of nine vessels deliver raw materials to ports throughout the Great Lakes region.

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## CSL's state-of-the art self-unloading technology instrumental in first phase of new bridge construction



Photo: Mario Faubert

On August 11, 2015, CSL's *Trillium*-class self-unloading Laker *Baie St. Paul* began discharging the first of 269,000 metric tonnes of aggregates in the opening phase of the construction of Montreal's new Champlain Bridge. Less than 30 days later, the discharge operation was complete.

The complex, ten-trip operation necessary for the construction of a laydown in the St. Lawrence River proved a technical challenge that made the most of standard *Trillium*-class features including dynamic positioning (DP) features and remote-controlled self-unloading systems. The laydown area would eventually serve to position the equipment necessary to build the new Bridge and provide the base for the soaring twin pillars that are central the bridge's design.

*Baie St. Paul* was required to discharge the aggregates while moored to three temporary barges in a restricted stretch of the St. Lawrence Seaway. Situated on a bend, the discharge location left *Baie St. Paul* occupying almost half of the busy shipping channel and resulted in regular ship-to-ship interaction including some slight movement of the CSL ship. With traffic passing at seven to eight knots within meters of the ship, the operation relied heavily on the vessel's state-of-the-art capabilities.

*Baie St. Paul's* dynamic positioning features integrates the main propulsion system, steering nozzle, and bow and stern thrusters, all of which can be controlled independently or together using a joystick. Rated at 1,000kW at 1,190rpm and 800kW at 1,185rpm respectively, and powered by electric motors equipped with variable frequency drives (VFD), *Baie St. Paul's* bow and stern thrusters were kept online along with the 8,750kW main

engine as other ships passed, ready for use in the event of excessive movement. The thrusters also had the critical role of keeping the vessel in position next to the barges during mooring and when the lines were being removed prior to departure.

"High manoeuvrability is a huge advantage, especially in restricted waters. The advanced position-keeping technology makes *Baie St. Paul* the safest option for this kind of operation," noted Allister Paterson, president of Canada Steamship Lines.

Operational safety was also enhanced by other standard *Trillium* Class features such as an ergonomic bridge equipped with NAVI notation and IBS notation-compliant monitoring and alarm systems.

The technology that's built into *Trillium*-class ships to control the unloading rate — like the VFD-equipped belts and feeder gates — gives them the flexibility and capability to meet any requirement. While capable of unloading 5,000tph (metric tonnes per hour), the ability to customize the discharge rate as requested by the shore foreman kept the cargo flow to a manageable level for the excavators, bulldozers and trucks.

Advanced *Trillium*-class environmental features also proved invaluable to the operation, including the enclosed, noise-reducing discharge boom and oil-free propulsion train. Both helped ensure that CSL's operation had minimal risk of impact on the surrounding communities and marine ecosystem.

CSL's nine latest-generation *Trillium*-class Laker and Panamax self-unloading vessels and gearless bulkers have been operating in the Great Lakes and St. Lawrence Seaway, and along the continental coasts of the Americas, since late 2012.

## EMS-Tech Inc. – self-unloader update



EMS-Tech Inc. first became involved with self-unloaders in 1995. With a rich history of experience and industry knowledge dating back to the mid 1970s, EMS-Tech was able to quickly climb the ladder of success, firmly establishing its name within the industry. EMS-Tech started with smaller, but important, mid-life refurbishing projects for two of Canada's pre-eminent ship-owners, notably Algoma Central Corporation and Canada Steamship Lines. Thanks to the energetic and innovative teams in Canada, the Netherlands and China, EMS-Tech was able to grow its client list to the who's who of ship-owners, operators and shipyards around the world. Even with this growth EMS-Tech never lost sight of its beginnings, the importance of being innovative, and the desire to deliver a quality project while working closely with its customers. Since EMS-Tech's start with marine self-unloaders, the company has delivered no fewer than 75 self-unloading systems, many of them incorporating patented Feeder Gates and high capacity 'C' Loop sandwich belt elevators, with discharge rates ranging from 1,000tph (metric tonnes per hour) to 10,000tph. To date, EMS-Tech has over 2,500 Feeder Gates in operation. In addition to serving the gravity self-unloader market, the company's footprint now extends to include deck-mounted hybrid self-unloaders as well as transshipment platforms. With leading fabrication and equipment partners in China, Europe and North America, EMS-Tech is able to respond to project needs around the world. As a pre-eminent provider and developer of self-unloading technology, EMS-Tech's research and continuous improvement efforts are driven to create even better and more efficient systems.

Following successful delivery of nine self-unloading systems for CSL and Klaveness, four Laker class self-unloaders and five Panamax self-unloaders, EMS-Tech focused its attention on the material handling systems installed on two 94,000dwt transshippers constructed by Yangzijiang Shipyard, in China, for EOL and Oldendorff Carriers. In addition to these two transshippers, a fourth self-unloading barge, the *Osprey*, was ordered by Oldendorff. This self-propelled barge is currently en-route to Abu Dhabi where it will go into service with three other barges that deliver iron ore to the Emirates Steel plant located there.

### WHAT'S NEXT FOR EMS-TECH INC.?

In addition to its work for CSL, Klaveness, Oldendorff and EOL, EMS-Tech was engaged by Chengxi Shipyard in China to design and supply the unloading system for *Manitoulin*, a self-unloader being constructed at their shipyard for Lower Lakes Towing, a

subsidiary of the Rand Logistics Inc.; this, in addition to a pair of Panamax self-unloaders, being built in Nantong, for Vulica Shipping, a subsidiary of the Vulcan Materials Company. The *Manitoulin* will be leaving China for her maiden voyage to the Great Lakes in September of this year whilst the two Vulica vessels are scheduled for completion in 2017. More recently EMS-Tech has been awarded a contract to design and supply self-unloading systems to be installed on two river-class (198m long) *EQUINOX*-class self-unloaders being constructed by the 3Maj Shipyard in Rijeka, Croatia for Algoma Central Corporation. These ships are scheduled to be delivered to Algoma in 2017.

These new projects can be summarized as follows:

### 'Alfred' & 'Antonie Oldendorff' transshippers:



The Post Panamax size sister ships *Alfred Oldendorff*, and the *Antonie Oldendorff*, the latest additions to the Oldendorff fleet, were successfully delivered to their owners by New Yangzijiang Shipyard in March and April of this year. They are now on station transshipping iron ore for use in steel mills in UAE and other Middle East countries.

The new Oldendorff vessels are eco-type 94,000dwt Post-Panamax self-unloading bulk carriers that feature innovative EMS-Tech self-unloading systems. The EMS-Tech self-unloading system is rated for discharge of iron ore at 3,500tph, and features five stationary receiving hoppers with EMS-Tech patented Feeder Gates, a deck mounted conveyor system, and 2 specialized boom conveyors.

### 'Osprey' barge (Oldendorff Carriers)

The 'Osprey', a 13,400dwt self-propelled barge constructed by Jiangsu Nantong Tongshun Shipbuilding for Oldendorff Carriers, follows the design of three other barges that feature the same EMS-Tech unloading system rated for discharge of iron ore at a





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*EOL Osprey barge leaving Nantong Tongshun Shipbuilding in July 2015*



rate of 2,500tph. The *Osprey* is currently en-route to her work station off the coast of Abu Dhabi where she will join her sister barges, the *Eagle*, *Falcon* and *Hawk* later this month to transfer increased volumes of iron ore from Capesize vessels to the Emirates Steel plant located there. The *Osprey*, like her sister barges, is arranged with a gravity discharge system comprising patented EMS-Tech Feeder gates, tunnel conveyor, an in-line 'S' Loop sandwich belt elevator and an aft mounted telescoping boom for transfer of material to the shore receiving hopper.

#### **'Manitoulin' (Lower Lakes Towing Ltd.)**

The '*Manitoulin*' is completing her final commissioning checks at Chengxi Shipyard, is departing from China at the end of September 2015. Following the success of similar programmes completed by CSL, Algoma and Klaveness, a new forebody has been affixed to the refurbished aft section of the acquired Danish-flagged vessel *Lalandia Swan*. When the *Manitoulin* arrives in the Great Lakes later this year, she will become the first new Canadian-flagged river class self-unloader introduced into service on the Great Lakes in over 40 years. When it arrives, she will have the largest lift capacity of any existing Canadian-flagged river class self-unloader.

The new 25,000dwt vessel is fitted with an EMS-Tech Inc. engineered self-unloading system rated for 5,500tph. The self-unloading equipment is comprised of two tunnel conveyors fitted with EMS-Tech patented Feeder Gates, two transfer conveyors, a 19-metre-lift 'C' Loop conveyor, and an 80-metre-long discharge boom.

#### **Vulica Shipping, two 68,000dwt Panamax self-unloaders**

EMS-Tech secured an order with Chinese shipyard Jiangsu Hantong Ship Heavy Industry in February of this year for the design and supply of two high capacity gravity self-unloading systems. Vessel owner, Vulica Shipping, is renewing its Panamax fleet and expects to take delivery of its newbuild vessels in 2017. The self-unloading system will be designed to discharge aggregate at 4,500tph and will be comprised of two tunnel conveyors fitted with EMS-

Tech patented feeder gates, a 27-metre lift 'C' Loop conveyor, and an 80-metre-long discharge boom.

#### **Algoma Central Corp. two 'EQUINOX'-class 650 self-unloaders**

On 26 May this year EMS-Tech signed a contract with 3 MAJ Brodogradiliste d.d. of Rijeka, Croatia, a subsidiary of the Uljanik d.d. Group, for the design and supply of two high-capacity gravity self-unloading systems. Vessel owner, Algoma Central Corporation, is expanding its existing fleet and expects to take delivery of its *EQUINOX 650* newbuild vessels in 2017. The self-unloading system will be designed to discharge aggregate and salt at a rate of 5,450tph and will be comprised of two tunnel conveyors fitted with EMS-Tech patented Feeder Gates, two transfer conveyors, a 21-metre-lift 'C' Loop conveyor, and an 80-metre-long discharge boom. This work for Algoma follows upwards of ten-gate conversion projects for this company as well as more recent delivery of the systems for its vessels *Radcliffe R. Latimer* and *Algoma Mariner*.

DCi

*Manitoulin in final commissioning stages at Chengxi Shipyard.*



## Port of Sept-Îles hosts 'Hermel' exhibition

In mid-August this year, the Port of Sept-Îles, in partnership with Destination Sept-Îles Nakauinanu, officially opened the *Hermel* exhibition site in the Port of Sept-Îles Marina building.

As part of the strategy promoting Sept-Îles as an international cruise destination, the Port and Destination Sept-Îles Nakauinanu wanted to make the *Hermel* accessible to cruise passengers as well as tourists and locals. To do so, they renovated the Marina building to refurbish existing facilities and create a space dedicated to this remarkable transatlantic watercraft. An interactive console sits next to the *Hermel*, allowing visitors to learn about the famous rowboat and its 129-day voyage across the Atlantic.

In addition to being the new home port for Mylène Paquette's legendary boat, the Marina building now houses a Tourisme Sept-Îles kiosk and an interpretive display about the Bay of Sept-Îles itself. Until Labour Day, Tourisme Sept-Îles staff will be on-site to bring the exhibits to life and answer visitor questions.

"Thanks to our generous partners, the *Hermel* exhibition is now a part of the Port of Sept-Îles. We're grateful to Destination Sept-Îles Nakauinanu, and to Tourisme Sept-Îles and the Club nautique de Sept-Îles, who helped make it possible to bring the *Hermel* to her new home port in our marina," said Pierre D. Gagnon, the port's president & CEO.

"The *Hermel* is a symbol of the maritime community. She travelled the same route as most ore tankers that pass through our port and her courageous captain is a force of nature. This little yellow boat will be a major attraction for locals, school groups, visitors, tourists and cruise passengers," added Manon Langlois, chair of the Destination Sept-Îles Nakauinanu board.

In April 2014 the Port of Sept-Îles won the bid to acquire this symbol of courage, determination, and achievement that embodies the Port's values and will now be displayed there permanently.

Boasting diverse, state-of-the-art facilities, the Port of Sept-Îles is one of the largest ore-handling ports in North America. The port's infrastructure plays a vital and strategic role in the economy of Eastern Canada, with annual economic impact estimated at nearly \$1 billion and nearly 4,000 direct and indirect jobs.



## Three new port projects in Rio Grande do Norte

Brazil's Rio Grande do Norte is to back three new ports within the state, one of which is a new port on the Potengi River and another the construction of a dry bulk terminal at Porto do Mangue on the northern coast. These could be included in the Logistics Investment Programme, announced by the government. No other details of the projects has yet been made public.

BC

## Silo complex to open at Quequén port

In Argentina, work continues on the third grain silo complex at the Port of Quequén, which is being built on a six-hectare site adjacent to the turning basin. In total, four storage silos are to be built, with the initial phase of the terminal to open for traffic in early January, 2015.

Berth O will initially be used to load vessels, while Berth I is to be served directly by two of the silos, which will have a boom that can be used to load grain and cereal products into alongside vessels.

Each of the concrete silos is some 24 metres in height and has sufficient capacity to accommodate up to 12,000 tonnes of cereals and oil seeds. A separate storage cell, divided by a series of partitions, will also be put in place to allow various types of product to be individually stored. This will be able to hold up to 36,000 tonnes.

Berth 0, which is also the reception area for trucks, will have dust suppression systems in place. Similarly, the loading booms used over the ships will also feature similar systems to make the working environment as clean as possible. In fact, all trucks will undertake loading and discharge of grain in an enclosed environment, thereby stopping as much dust as possible escaping into the atmosphere.

At Berth 0, up to 30 trucks per hour can be discharged, with three unloading points to be provided during the initial phase. BC



## Portsur adds mobile harbour crane

Portsur, which handles dry bulk at the Spanish Port of Castellón, has taken delivery of a new Gottwald mobile harbour crane. This is its fourth such unit, costing €3 million. It is now operational at the northern end of the terminal, being identical to two other units deployed in the south. The fourth crane was built by Fantuzzi.

The new unit can handle up to 2,000 tonnes an hour of dry bulk commodities and will therefore significantly increase the productivity that Portsur is able to offer.

BC

## New steel products warehouse for Bilbao

Inbisa has begun construction of a new warehouse in the port of Bilbao in behalf of Progeco. In its initial phase, this will have a 5,000m<sup>2</sup> capacity, which will be used to warehouse iron and steel products. The new building should become operational within eight weeks. According to Progeco, it will help consolidate the company's presence in the port.

BC

## Mandatory use of MHCs at Chennai suspended

Chennai Port Trust in India has decided to suspend for a period of about a month the mandatory use of newly installed mobile harbour cranes (MHCs). This is because the Chennai Stevedores Association has protested that the loading and unloading of bulk vessels can only be done using these cranes and that this is the case even if the vessel is geared. The Association says that, by using shore-based cranes in these situations, handling costs will rise. It wants the vessel owner or the stevedore to make the final decision on what equipment is used.

The port has two 100-tonne MHCs available.

BC

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## Second port mooted for Natal

Two studies have been put forward in respect of a new port on the Potengi River close to the city of Natal, in Brazil. Each would have a cost of around \$300 million.

That put forward by the port authority, Codern, would have a quay some 1,000 metres long, while that favoured by the Strategic Centre of Natural Resources and Energy (Cerne) envisages 2,500 metres of berthing line.

The need for a new port is twofold: it will be located outside the city and will therefore have more space into which to expand than does the existing port and will also offer better access to both road and rail companies. Above all, it will allow large bulk carriers to call at the port. The thinking is to develop installations with a horizon of traffic development over the next 40–50 years.

*Barry Cross*

## Brazilian port concessions to favour up-front payments

The Brazilian government has decided to change the way it awards port concessions. Previously, those bidding with the most competitive tariffs to be charged to customers were favoured. Under a new round of bidding, the emphasis has been put on how much the concessionaire is prepared to stump up for the concession. According to the government, the change in emphasis has come from the private sector.

A new block of concessions worth \$2.36 billion is scheduled to be offered to the market in the first half of next year, encompassing some 21 terminals across various ports. These will be located in Rio de Janeiro, Paranaguá, Itaquí, Santana, Manuas, Suape, Sao Sebastiao, Santos, Sao Francisco do Sul and Aratu.

*BC*



*Port of Paranaguá.*



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## New evaluation to be made of Sukhodol project

In Russia, a second state expert evaluation is to be made of the coal terminal project at Sukhodol, in the country's Primorsky region. An initial evaluation had to be rejected because of inadequate documentation, especially that relating to environmental issues.

The terminal plans to export coal to China, India, Japan and South Korea. An initial phase, which is due to open in July 2017, will have a capacity of 6,000,000 tonnes annually. Two further phases should become operational in 2019–2021. *BC*

## India wants more bulk goods move by water

The Indian government is aiming to promote the increasing use of coastal shipping and inland waterways to transport coal, iron ore and edible grains. This would form part of the so-called Sagarmala initiative, which aims to promote a port led development. *BC*

## Maharashtra wants ports every 100km

The government of the Indian state of Maharashtra has adopted a policy of building a major port every 100km along its 720km-long coastline. The aim is to increase the use of coastal shipping to move goods and also to incentivise import-export trade. At present, only 6% of the state's total freight traffic is moved by water.

Its most recent project is the development of a port at Wadhwan, while Nandgaon has been identified as the location for another facility. All new ports will be developed as private-public partnerships. *BC*

## Ipswich opens cereals warehouse

In the UK, the port of Ipswich, which belongs to Associated British Ports, has opened a new £2.2 million dry bulk warehouse. Known as the Orwell Bulk Terminal, it is a replacement for the previous Number 3 warehouse at Cliff Quay and has been designed to house commodities such as grain and barley, as well as other agribulks.

The building is powered by solar panels, making it energy sustainable.

In 2014, the port of Ipswich handled more than 1.5 million tonnes of dry bulk cargo. *BC*

## Largest ever coal carrier arrives at Vysotsk

In Russia, the Port of Vysotsk's coal terminal has accommodated its first 93,000dwt bulk carrier. Formerly, the largest vessel to use the port had been 229m in length and of 87,052dwt.

The port, which serves Russia's Leningrad region, is also building a new general cargo terminal. This will be able to handle three million tonnes annually.

Its main traffic will remain export coal, bound for Western Europe. *BC*

## Vizag handles fully laden Capesize coal carrier

Visakhapatnam Port in India has played host to its largest ever bulk carrier, which brought in a consignment of coal from Richards Bay in South Africa. On board was steam coal bound for Jindal Steel and Power Ltd.

The 291-metre long Capesize vessel tied up at the Vedanta berth.

Fully laden Capesize vessels began using the facility as of 9 March 2014. Previously, fully laden bulk carriers of this size had to be lightened. *BC*



## India to help Bangladesh built third port?

The Indian Prime Minister has visited Bangladesh, where he announced his intention to help build a deep sea port at Payra. This is in the Patuakhali district on the Bay of Bengal.

In addition to India, the United Kingdom, the Netherlands and China have also indicated an interest in the project, which might be bankrolled by an international consortium.

Bangladesh needs a third port, given that all existing overseas trade is routed either by Chittagong (90%) and Mongla (10%).

India's interest in the project is that commodities bound for its north-eastern states often come ashore at Chittagong, where they are then transported by road.

Feasibility studies have shown that up to \$2 billion will have to be invested in Payra port, which will take almost a decade to complete. The new facility will have a draught of 14m, although ongoing dredging may well be required to maintain this. *BC*

## Cochin wants grain switched to containers

The Indian Port of Cochin's policy towards encouraging grain consignments to switch from bulk carriers to containers is causing alarm among stevedoring companies. Trade unions believe that this could result in bulk vessels having to seek alternative ports. However, the port trust has adopted this policy given a recent labour shortage when handling a recent wheat consignment from Australia. *BC*

## Soufflet invests in Illichivsk

The French agricultural company Soufflet has signed an agreement with the Ukrainian port of Illichivsk to build a 1.2 million tonne-capacity cereals terminal. Overall, investment of between \$70 million and \$100 million is planned. *BC*

## Louis Dreyfus in Russian investment

Louis Dreyfus Commodities and the government of the Rostov region of Russia signed an agreement which will result in construction by the end of this year of a cereals terminal at Kagalnitskaya, which is in the Azov district. The company expects to invest around €24 million.

Initially, the terminal will be able to accommodate 500,000 tonnes of cereals, eventually rising to 1.2mt (million tonnes). Within Russia, Louis Dreyfus Commodities East annually exports around 1.5–3mt of cereals annually. *BC*

## Kamarajar Port to boost coal capacity

Ennore Port Limited, which is now trading as Kamarajar Port Limited, is seeking investment totalling \$1.467 billion for a variety of projects. Of this amount, the private sector will inject \$1.219 billion. Should all the planned investment take place then capacity would rise fourfold within the next three years. Current capacity is just 30mt (million tonnes).

The port, which handles significant quantities of coal, would spend part of the money on dredging and other amounts on increasing terminal space, including that for coal. In total, it is seeking to build two additional coal berths, with a combined 9mt capacity. Each would cost \$40 million. *BC*

## Georgia to build major new port

The government of Georgia has selected two consortia to enter the final phase of a tender to build a new deepwater port at Anaklia, on the Black Sea. Those involved are Anaklia Industrial Europe Park/Port and the Power China Consortium, which also incorporates the local Teimuraz company and also the UK's British Eco Power and China's Hubei Hongyuan Power Engineering Company, and the Anaklia Development Consortium, which encompasses the TBC bank and the US investment Conti group.

Construction of the port is scheduled to begin in the summer of next year. It will be built in seven distinct phases, the first of which will be ready within three years, giving the port capacity to handle 7,000,000 tonnes. *BC*



## INTER BALT, Poland – ships' agent covering all Polish ports



*Gdansk North Port coal storage yard — INTER BALT supervising.*

**Locations:** ports of Gdansk, Gdynia Szczecin Swinoujscie.

**History:** second decade of activity.

INTER BALT with its offices provides comprehensive services to principals at any Polish seaports and shipyards. It represents a ship owner's interests from the moment a ship enters the port/shipyard until the moment it leaves to meet all needs including:

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- ❖ concluding shipping agreements and collisions on behalf of the ship owner; and
- ❖ shipping consultancy.

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Officer of INTER BALT / Poland.

INTER BALT is an active member of BIMCO, the Baltic and International Maritime Council as well as the Polish



*Gdansk North Port, coal loading.*

Shipbrokers' Association.

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## Italiana Coke wracked by financial problems

In Italy, the financial crisis afflicting Italiana Coke has impacted negatively on the activities of the company's bulk terminal at the Port of Genova. As a result, two potential new shareholders — Aldo Spinelli and Luigi Negri, which were willing to each take a 20% stake — are not progressing their initial interest. Spinelli says that he is unaware of the company's true financial results and will not invest without this information. Nevertheless, he insists that he intends to find a solution, but this will require an agreement among all three parties involved.

Italiana Coke, which runs Terminal Rinfuse Genova, has successfully applied for bankruptcy protection. However, in 2014, the facility handled 851,000 tonnes of dry bulk, which is an increase of 3.4%. In the first four months of the current year, traffic amounted to 303,000 tonnes, an improvement of 14.8%. Nevertheless, ten years ago, the terminal was handling in the region of 2.5 million tonnes of dry bulk annually.

The terminal is to receive investment of €30 million over the next three years, part of which will help in dust suppression. In 2014, a pellet bagging plant was also opened, which it was hoped would provide an alternative to the handling of coal.

While TFG has lost traffic, the neighbouring Reborra terminal operated by Aldo Spinelli has seen its dry bulk traffic increase. Furthermore, its owner has never made a secret of the fact of wanting to expand, having already increased his own bulk handling area by 20,000m<sup>2</sup> and also sub-contracting a further berth. *BC*

## Kochi receiving Australian wheat for the first time in a decade

The Indian port of Kochi has begun receiving wheat shipments from Australia for the first time in over a decade. Its arrival coincided with the unseasonal rains in several parts of northern India, which have damaged large areas of local production, hence the need to encourage imports.

The wheat is being bagged before being moved out of the port by both road and rail. Port unions are particularly keen on moving consignments efficiently out of the port to ensure that there are repeat consignments. *BC*

## Paradip develops new iron ore berth

JSW Paradip Terminal Private Limited has signed a 30-year concession agreement with Paradip Port Trust to develop a new iron ore berth to handle export consignments. The terminal will be totally mechanized and have a capacity of 10 million tonnes per annum.

Its implementation will cost an estimated \$116 million. Of this, JSW will provide \$95 million, with the remainder being provided by the port trust. *BC*

## Taman to have secure rail link

The Russian government has recently amended the project to build a dry bulk port at Taman on the Black Sea. This now includes construction of a rail link to the dry bulk cargo area, which will be built on the Taman peninsular in the Krasnodar region.

Work is being implemented as part of a public-private partnership scheme, with the port to be integrated into the North-South international transport corridor. Facilities are being funded through a Federal Target Programme.

The port will have terminals for the handling of coal, grain, iron ore, fertilizer, sulphur, containers and steel. By 2025, it should have an engineered capacity of 94 million tonnes. *BC*

## Ust-Luga coal exports on the rise

At the Rosterminalugol facility at the Russian Baltic port of Ust-Luga, coal traffic in the first half of this year rose 17% to more than 8,000,000 tonnes. The number of vessels, at 135, is also 6% higher than the previous year.

June was also a record month for the number of rail wagons unloaded at the terminal. A total of 21,185 wagons, up 19% over the same period of 2014, passed through the terminal. For the first six months alone, 116,181 wagons, carrying 8.1 million tonnes of coal, made use of the terminal's hopper system. *BC*



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Blyth operate a number of terminals handling a diverse range of cargoes including bulks such as alumina, coal, grain and stone. Bulk imports and exports are largely handled at Battleship Wharf, a rapidly developing deep water terminal with large scale open storage and mobile port cranes for rapid grab loading. Battleship Wharf is rail linked allowing the terminal to handle a wide variety of commodities.

In the last few years Blyth has implemented a major expansion programme providing purpose built bulk warehousing and ongoing investments to provide additional cranes and quays to satisfy the growing demand. Through this expansion the Port now has a wealth of experience in handling some of the more delicate and restricted cargoes including biomass, animal feeds, and fertilisers and consciously monitors quality issues.



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## UK birthplace of modern commercial shipping turns 300

The world's oldest enclosed commercial wet dock in Liverpool, North-west England is celebrating its 300th anniversary. Known locally as the 'old dock', it opened for business on 31 August 1715, providing a blueprint for the development of other trading ports.

For the first time in history, the design of the dock allowed ships to load and unload whatever the state of the tide. It helped Liverpool to become one of the globe's most important ports, with ships being able to turn around in under two days, rather than the two weeks needed previously. Thanks to the 'old dock', by the end of the 19th century 9% of the world's trade went through Liverpool.

Able to accommodate up to 100 ships at a time within its 3.5 acres, the dock took five years to construct at a cost of £12,000 (\$19,000) at a time when the average labourer would have earned £20 per year (\$30). The undertaking was a high risk commission for Liverpool as it would have led to bankruptcy for the city if unsuccessful.

Mark Whitworth, chief executive of Peel Ports, said: "Liverpool is undoubtedly one of the leading ports of modern maritime history and we're excited to be celebrating this important milestone in the city's contribution to shipping. The anniversary comes at a significant time as we progress with the construction of our new container terminal Liverpool2, which will help



Plan of Liverpool docks



create a new chapter in our story by establishing a new international gateway between the UK and international trading communities."

Peel Ports, operators of the Port of Liverpool, is celebrating the anniversary by calling on local residents to share their images and memories of the city's rich maritime history, with the contributions and images from the company's own archives being turned into a book and online exhibition.

The dock was filled in in 1826, having been superseded by larger and deeper ports built into the river Mersey, on which Liverpool sits. It was rediscovered during excavations in 2001 and the remains of the dock have been preserved as part of Mersey Maritime Museum.

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# Hamburg–Le Havre range

## Improved cereals boost southern half



HAROPA - Port du HAVRE

Barry Cross

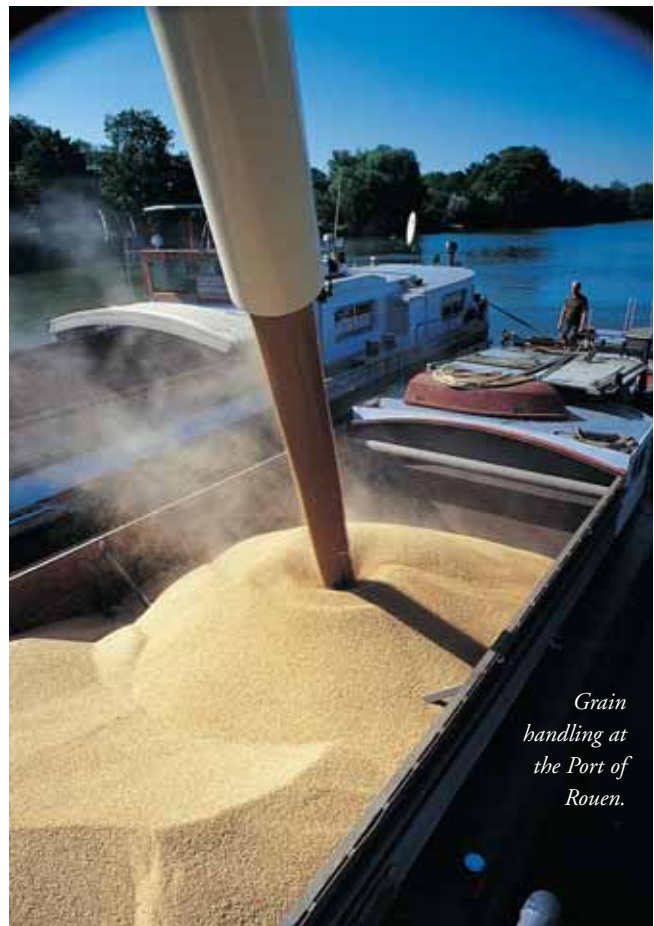
For the first five months of the current year, HAROPA Ports, which manages traffic on the River Seine from Le Havre to Paris, encompassing the port of Rouen, handled 5.4mt (million tonnes) of import-export dry bulk. This represented a decrease of 6%, which the organization attributes to a lower than normal demand for coal and building materials.

However, for the same five months, cereals traffic rose by 11%, despite the fact that wheat exports were down, due to the specific nature of that crop. Nevertheless, other cereals — wheat for food and barley — more than compensated for this.

The Port of Rouen continues to perform well, being the main generator of grain traffic for the HAROPA group. In the 2014/15 season, exports amounted to 7.61mt, up 2.4% compared with 2013/2014 and 14% compared with 2012/2013, giving the port its best two volume totals for exports over the past 15 years.

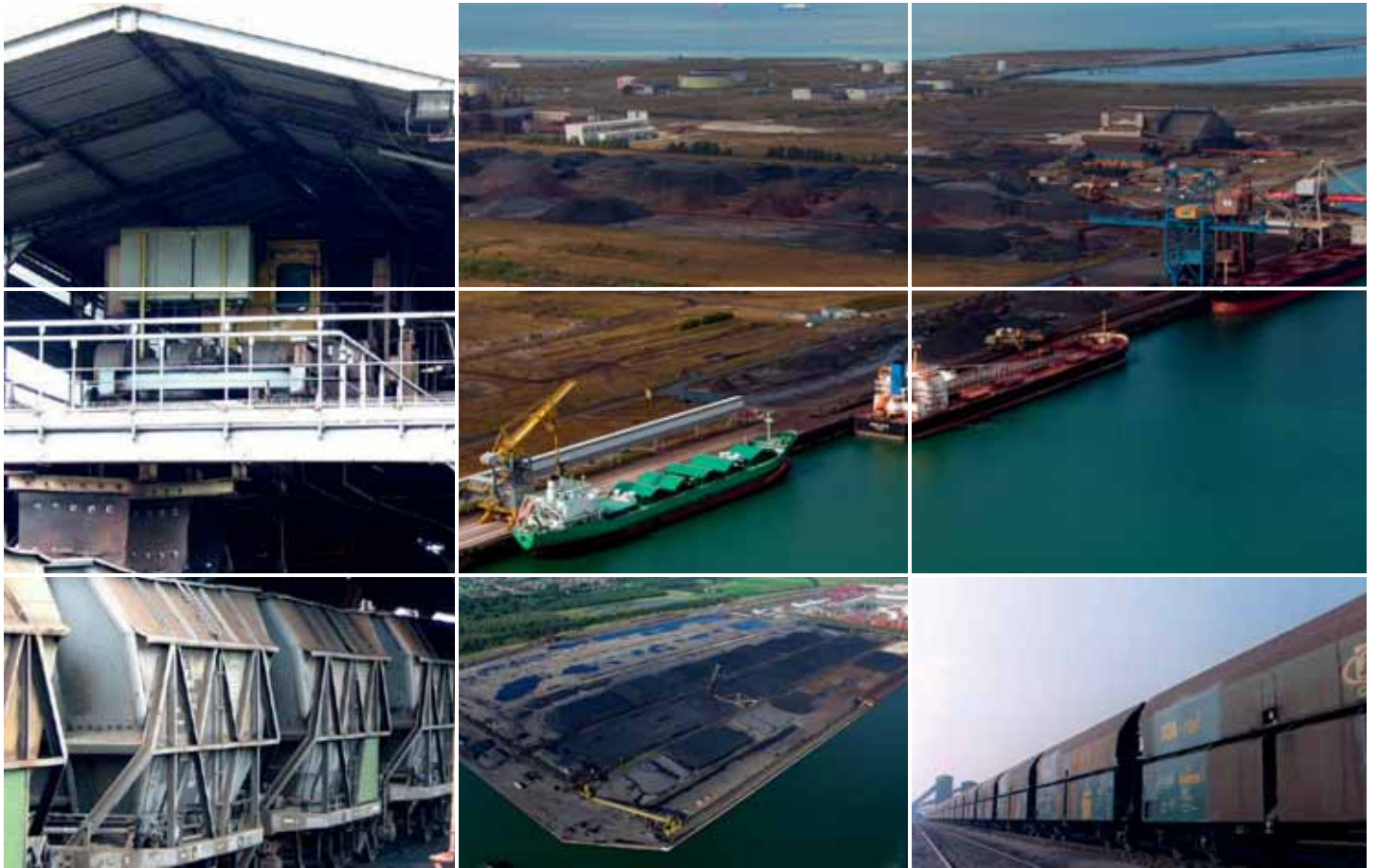
“The bad weather conditions of the 2014 summer had a [negative] impact on the quality of the crop over a large part of Rouen hinterland and led to expectations of a disappointing season. Even the high level of feed wheat handled did not meet the requirements of the Port of Rouen’s traditional milling markets.

But the results recorded by Rouen continue their upward trend and helped maintain its leading position,” said a port spokesperson.



*Grain handling at the Port of Rouen.*





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Port of La Rochelle. (photo ©: Thierry Rambaud)



A number of factors contributed to the port's success in cereals handling, it was suggested, including the favourable Euro/Dollar exchange rate and a cut in freight rates, while terminal operators were also quick to react to market changes, exploiting the high quality of grain being produced along the Atlantic coastline and throughout the north of France.

Nevertheless, the 2014-2015 season is being viewed as atypical. Barley traffic, for example, at 1.85mt, was in greater demand than it had been since the 1998-1999 season.

Significantly, malt and feed barley shipments to China accounted for 80% of the total tonnage.

While Rouen has held onto its traditional export markets for wheat, new markets began to open up. Consignments to the Philippines, Bangladesh, Thailand and South Korea totalled 860,000 tonnes, which is a significant new step for the port. There were also shipments to both Mexico and the United States, which are unusual destinations for the port.

There were also a large number of calls – 69 in total – from both Panamax and over-Panamax vessels, which the port stresses shows the ability of the silos to process this type of bulk carrier and justifies the decision by the Port of Rouen to instigate a draught improvement programme, which has included upgrades to the access channel. By doing this, the overall competitiveness of the port has been increased, since river unloading can now take place at the Socomac silo.

New maritime loading equipment has also been put in place at Simarex, while river unloading and other investment has been made at Sénalia, along with the introduction of a dust reduction system and drainage network at Lecureur. Construction of a new port silo has, additionally, been made by Beuzelin.

“All this resulted in the 2014-2015 season being the fourth consecutive one in the number of shipments made from the Port of Rouen and strengthens its position as a major grain hub in France and in Europe, despite a complicated season,” noted the port.



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Port of Strasbourg.  
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In addition to the despatch of bulk consignments from silos in Rouen silos, the HAROPA port complex also encompasses grain loading at terminals in Limay and Bonnières-sur-Seine, making use of on board river-maritime units. Furthermore, river terminals at the Port of Paris undertake the loading of grain into container, which are then barged along the Seine and loaded on board ocean-going vessels in the ports of Rouen and Le Havre.

Between January and June, the French Atlantic port of La Rochelle handled just over 3mt of dry bulk, of which 2.35mt was exported and 650,000 tonnes imported. Cereals, amounting to 2.32 million, the vast majority of which was exported, were by far the most important commodity. Livestock feed, at just over 100,000 tonnes, and fertilizer (just under 200,000 tonnes) were the two other notable commodities handled, the majority of which is inbound. Other industrial dry bulks generated a combined 384,000 tonnes, also mainly imported.

In comparison, La Rochelle handled 2.49mt in the first half of last year, which is 20% lower than this year's performance. Julien Durand, who heads up the port's strategy and development projects, explains that the difference is mainly accounted for by a significant increase in export cereals.

"There are," he explains, "several factors behind this result. Firstly, a massive focus by the port on rail logistics, allowing La Rochelle to extend its hinterland. In addition, our grain operators have modernized their loading facilities. Secondly, the overall quality of the products being exported is better. Thirdly, the Euro/Dollar exchange rate currently benefits exporters."

Asked to forecast what the end-of-year figure would be for dry bulk, Durand suggests the most conservative figure is in the region of 5.5mt, although it is not impossible that the port will exceed this.

In respect of potential capacity constraints, he stresses that this would not be a function of the port's handling equipment, but rather of supply and demand. Terminal operators, however, continue to invest. Leading cereals operator, SICA Atlantique, has spent heavily on improving its loading facilities and can now achieve rates of up to 1,500tph (tonnes per hour), although the machinery involved incorporates a system to reduce emissions.

The second largest cereals operator, Soufflet, started construction this year of a new 63,000-tonne quayside silo, which has an engineered loading capability of 1,200tph.

For imported bulk commodities, terminal operator EVA has bought a new Liebherr crane and has invested in solutions to enable it to handle big bags.

Quizzed as to the port authority's policy on promoting rail and inland waterway, Durand explains that the use of rail has gone up by 30% in the last five years.

"We have invested more than €10 million in this period on rail transport, with the port authority setting up a joint-venture known as OFP Atlantique with EuroCargoRail, which is a subsidiary of Deutsche Bahn. This has made rail transport more competitive by providing an alternative to the legacy operator SNCF. However, in turn, this has forced SNCF to up its game, which has also helped make rail more attractive overall."

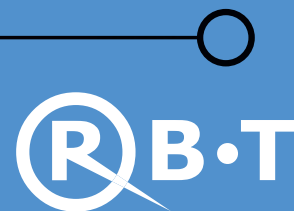
The port authority has also given further incentives to use rail, by making rail access free of charge. Furthermore, investment has been concentrated where it will produce the best return. In this respect, the Soufflet quayside silo, whose construction will commence in the autumn of 2015, is particularly important. This is, says Durand, a global logistics project and should enable the terminal operator to boost its modal share for rail to 27%.





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"All of this has meant that, in the first six months of this year, 23% of dry bulk cargo moved to and from the port has gone by rail or inland waterway," he said.

As for vessel size, the largest bulk carriers calling tend to be Panamax vessels in the 100,000dwt range, which is the largest the dry bulk terminals have been engineered for. However, many smaller bulk carriers call, too.

"Vessel size is driven by the market and not by technical constraints," he stressed.

Finally, Durand revealed that La Rochelle port authority is doing several things to promote greater environmental protection when handling dry bulk. It has worked with one of the cereals operators to shift a loading facility further away from local residents. The port also permanently measures the air quality, which ensures it is always very high. Terminal operators are also encouraged to invest in state-of-the-art dust suppression technology.

"In 2015, we joined the Environmental Shipping Index, which means we now offer significant reductions to the cleanest and most environmentally friendly ships," he noted, additionally.

The French Port of Strasbourg forms a key part in the feeder network serving various coastal ports in the Hamburg–Le Havre range.

In the first half of the present year, it posted figures showing that it had handled 2.672mt of dry bulk, a 15% increase over the 2.333mt recorded in the corresponding 2014 period. Emilie Gravier, the port's Development and Promotion Director, explains the increase on strong trade in cereals during the early part of the year and on a slight improvement in gravel exports.

"For the full year, we are predicting dry bulk traffic will reach 5.265mt, as opposed to 4.926mt last year," she said.

Quizzed about capacity restraints, she pointed out that these were hard to identify, since all handling at the port is undertaken by private sector companies, all of whom are responsible for their own investment in expanding capacity when needed.

Situated at the heart of a major French agricultural region and within distance of a significant gravel producing area, the Port of Strasbourg is mainly an exporter of dry bulk. For

example, to the half year to date, the port had exported 2.268mt of dry bulk, but imported just 393,695 tonnes. The ratio was broadly similar in the first half of last year, when equivalent figures were respectively 1.974mt and 344,691 tonnes.

"We mainly handle two commodities in the dry bulk sector: gravel/construction materials and cereals," said Gravier.

Being an inland port, the port authority clearly aims to attract as much local traffic as possible either to the river or local railways. This promotion can include support to source financing for new handling capacity.

"The port of Strasbourg also undertakes prospective studies aimed at shifting road traffic to rail or inland waterway," she said, explaining that 86.76% of dry bulk traffic generated by the port is moved by inland waterway and 13.14% by rail.

As for vessel size, barges can vary between 90 metres and 135 metres in length, giving a transport capacity range of between 1,650 tonnes and 4,500 tonnes.

In both 2013 and 2014, the Belgian Port of Ghent was the biggest dry bulk facility in Belgium, with shipments moved to and from dedicated terminals by sea, inland waterway, road, rail and pipeline. It is among the European leaders in respect of the storage of cereals and derivatives (agribulk), with a total capacity of 1.3mt. Other bulk commodities, such as coal, ores, minerals, fertilizer, animal feed, peat, salt and sand also account for a large part of the port's goods traffic.

In 2014, while dry bulk traffic remained essentially stable, overall volume declined by 1% to around 47.7mt. Of this, ocean-going cargo, which amounted to 25.9mt, reduced by 0.25% compared to 2013. However, it was on inland waterways that the biggest decline was seen: the 21.8mt handed represented a drop of 1.8%. Despite this, around 14mt of mostly imported bulk commodities were moved from the port to their end destination by inland waterway in 2014.

Nevertheless, dry bulk traffic did increase, albeit slightly, thanks to more agricultural products, ores and metal residues and scrap being handled. Indeed, dry bulk accounted for 65% of all ocean going traffic, increasing by 2.3% to 16.7mt on the year.

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*Digging deep: grain at the Port of Ghent.*

"In the autumn, we suffered four days of strikes that blocked shipping and effectively cost traffic," explained port company president Mathias De Clercq, who pointed out that the decrease in inland waterway traffic was linked to a drop in demand for solid mineral fuels and metallurgical products, among other commodities.

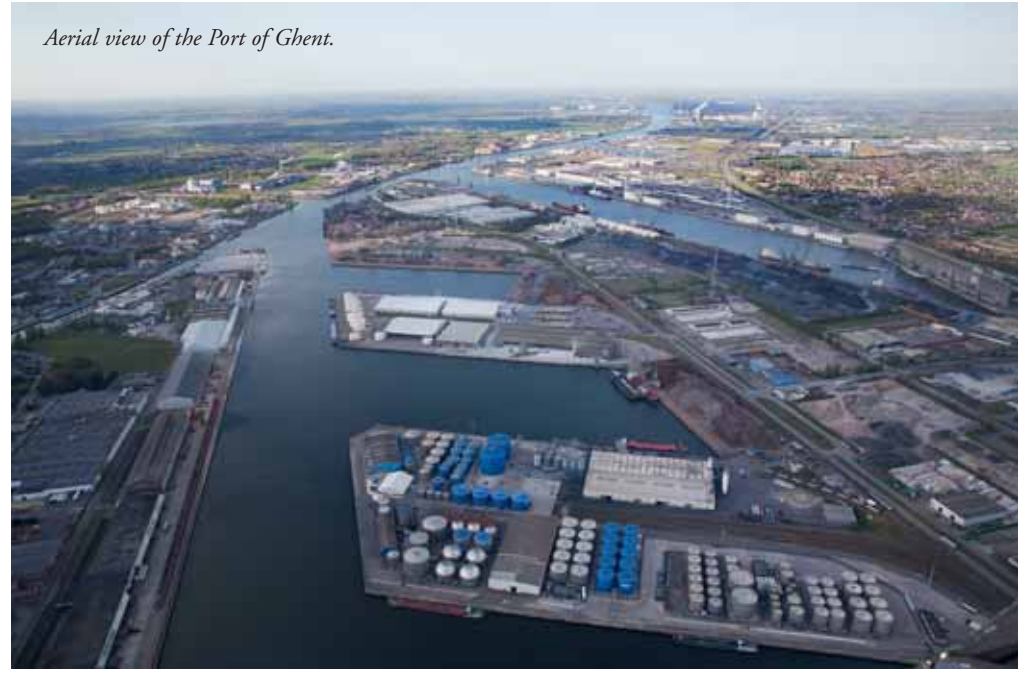
He highlighted a noticeable evolution that is taking place in the port's business mix. While short sea shipping along the European coast and around the Mediterranean again went up slightly — by 1% — and now accounts for 67.5% of ocean going cargo, the share of deep sea traffic continues to slightly decrease every year.

Vessel numbers are also in decline, reflecting the growing size of bulk carriers and barge trains nowadays being deployed. There were 2,893 ocean going vessel calls in 2014, which was 55 down on 2013. On inland waterways, the 14,656 movements recorded were 494 fewer than the previous year.

According to De Clercq, Ghent's top ten trading partners account for two-thirds of overall volume. Sweden, with which Ghent has strong ro/ro traffic, tops the tree. However, Russia, in second place, generated 2.4mt of metal products, while third

place Brazil was a major source of imported iron ore. This is followed by Canada (coal, petcoke and wood pellets) and the United States of America (iron ore and wheat), while Norway, in sixth place, generates flows of iron ore and olivine. Latvia is, perhaps, a surprising trading partner, although its importance is

*Aerial view of the Port of Ghent.*

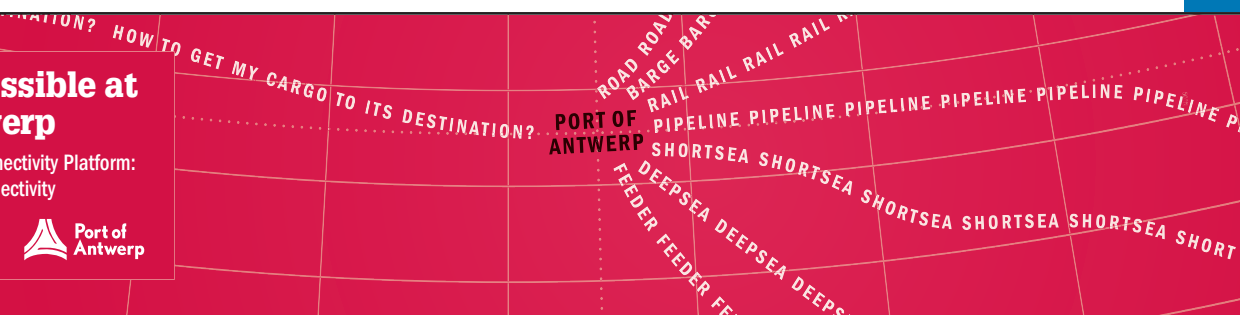


due to its transshipping large amounts of Russian coal (anthracite and linseed). In eighth place comes Ukraine, which trades mainly in maize, rapeseed and anthracite, while Turkey, now viewed as another emerging trading partner is ninth, with scrap, iron and steel sheets all key commodities. In tenth place is the UK, which produces consignments of iron and steel sheets.

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Overall, De Clercq remained optimistic regarding 2015, since new investment is slated. In particular, he pointed to the expectation that a treaty would be concluded between Flanders and the Netherlands for the realization of the new lock in Terneuzen. This is needed, he emphasized, since otherwise Ghent would be at a disadvantage going forward in that ever larger ocean going vessels can no longer reach Ghent via the existing Terneuzen lock. Indeed, vessel size is very much dictated by the lock on the river, which means that, currently, the largest vessel that can call is of 92,000dwt. However, once the new Terneuzen lock — to be known at the Nieuwe Sluis Terneuzen (New Terneuzen Lock) — opens in 2021, vessels of up to 120,000DWT will be able to call.

According to De Clercq, “The new lock, which will actually be sited in the Netherlands, is crucial to the development of the port beyond its current level of traffic, as well as being a means of strengthening its international position and creating new jobs. Overall, it will increase the solidity of our business, since larger ships with more goods on board mean a cut in costs for business.”

In the first six months of this year, Groningen Seaports handled a combined 5.834mt of traffic.

The port authority actually administers two different ports: Delfzijl and Eemshaven. The former accounted for 2.5mt of the aforementioned traffic, while the latter posted traffic of 3.33mt.

A spokesperson for the port suggested that there were no clear factors influencing changes in current traffic patterns.

Interestingly, Delfzijl handles more exports than imports — 1.6mt as opposed to 0.8mt — while the situation is reversed at Eemshaven, where exports accounted for just 922,113 tonnes and imports for 2.4mt.

“We do not have an end-of-year forecast as such, but we expect to end the year with volume of around 11.5mt,” a spokesperson told DCI.

Current capacity, she noted, is more than enough for existing traffic.

Groningen Seaports mostly imports dry bulk commodities. With minerals (mostly coal) accounting for around half of total port traffic and agribulk 6%. Other bulks handled are fertilizer (1%), ore (2%) and metals (1%).

The largest vessels calling at the port tend to be bulk carriers conveying shipments of coal. These can be anything up to 240 metres in length, although size tends to be a function of draught: Delfzijl having a water depth of 9m and Eemshaven a draught of 11m. Indeed, it is the latter facility that mostly handles dry bulk, which accounts for around 69% of the overall traffic, where vessels can dock at the 1,100-metre dedicated dry bulk quay at the northern end of Julianahaven.

Interestingly, the port authority is able to exploit its good inland waterway connections, with around 4,000 vessels a year serving the port via connecting canals and rivers.

Rotterdam, one of the giants of the European dry bulk scene, handled 43.7mt in the first six months. Nevertheless, this was down 4.9% compared with the first six months of last year.

Martin Ouwerkerk, the port authority’s Business Manager for Dry Bulk & Energy explains that this throughput was particularly influenced by a weak first quarter in respect of both iron ore and scrap, although the second quarter had been broadly similar to the corresponding 2014 quarter.

“Despite two new electricity generating plants having opened in the port of Rotterdam, also coal throughput in the first half year of 2015 was a bit less compared to the first half year of 2014. This, in part, is among other factors due to the closure and maintenance of coal-fired power plants in Germany. These, additionally, now have to compete more and more with solar and wind power on the one hand, and still compete with lignite on the other,” he explained.

Agribulk also posted a significant reduction in volume compared to the first half of last year, while other bulk cargo, consisting mainly of industrial minerals and construction materials, remained stable.

“We expect to end the year having handled around 90mt of dry bulk,” said Ouwerkerk.

He pointed out that the port of Rotterdam offers all the facilities necessary for the transshipment, storage, processing and distribution of any dry bulk commodity, be it in large or small quantities. Products are handled at several terminals or directly between vessels at buoys and dolphins.

“The port offers large-scale storage capacity — both open and covered — as well as value-added services, such as

*In the first six months of this year, Groningen Seaports handled a combined 5.834mt of traffic.*





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screening, crushing, blending or packing. Even so, both the terminal companies and the port authority are always looking for opportunities to modernize infrastructure, equipment, and/or storage capacity,” he said, emphasizing that, currently, investments are being made in buoys and dolphins, with new dolphins having been deployed in the Maasvlakte 2 area.

In addition, several buoys and dolphins are being updated or modernized.

At the same time, several terminals — for example EECV, EBS, BSRvanUden Stevedoring, and Marcor — either recently invested in additional storage capacity or have plans to do so.

Rotterdam, serving several industrial areas, mostly imports commodities, with less than 10% of dry bulk traffic exported. A whole raft of products pass through port installations, although the main commodities are iron ore and coal, followed by industrial minerals & construction materials, agribulk, scrap and biomass.

As for the types of vessels used to move dry bulk, Rotterdam’s water depth of up to 23.65 metres means that even the largest vessels can be accommodated under the right conditions. In fact, dry bulk is transported in various types of ships, including VLOCs, Handysize vessels or coasters, and also on multipurpose vessels, and everything else in between.

“The choice of vessel size depends on various aspects: the type of commodity (hence its per-tonne value), the port of origin (and its conditions, such as maximum water depth), charter rates, and so on. So both draught and market conditions play a part,” said Ouwkerk.

In general, policy at Rotterdam is to promote the usage of rail or barge to transport cargo to the hinterland. The majority of dry bulk which is transported to the hinterland is already moved either by barge (approximately 80%) or rail (17%). This is part of the port authority’s overall environmental remit, with the Port of Rotterdam Authority co-operating closely with DCMR, the environmental protection agency of local and regional authorities in the Rijnmond region. This institution covers all aspects of the environmental monitoring of the port and also takes action in the case of nuisance complaints and incidents.

“The Port of Rotterdam Authority is in close contact with companies that operate in the port, too, challenging them to



*Rotterdam Bulk Terminal.*

develop their business as sustainable as possible,” said Ouwkerk.

At the Port of Hamburg at the northern most point of the range, dry bulk handling continues to form an important component of the total traffic mix. Around 43mt of dry bulk, including both suction and grab cargo, as well as additional liquid bulk, are handled there on an annual basis.

For the first six months of this year, the port reported a total of 23.6mt of dry bulk, up 12.3% on the previous year.

Coal and ore imports posted the most dramatic rise, of around 19%, with traffic totalling 11.5mt, which meant grab handled commodities were powering growth in this sector. Coal imports reached 3.8mt, equivalent to growth of 46.3%.

Even commodities moved by pneumatic equipment showed increases. Overall, there were 5.3mt of these in the half year, an increase of 22.4% compared to the first six months of 2014. Indeed, Hamburg remains one of Europe’s top hubs for those commodities handled by pneumatic equipment, with silo storage capacity totalling more than 1mt. Vessels can berth directly in front of the large silos, where high-performance equipment assumes responsibility for loading and discharge operations.



*Hansaport's dry bulk terminal in Hamburg specializes in handling coal and ore. (photo: ©Michael Lindner)*





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## Ovet stays on track with annual volume expected to exceed 9mt



Netherlands-based Ovet Dry Bulk Terminal specializes in the storing, transshipping and processing of dry bulk. Currently, it is active at the ports of Terneuzen and Vlissingen, as well as providing lightering services on the River Scheldt, using floating cranes.

According to Account & Planning Manager Sander van der Veeke, for the first half of the present year, the company handled in the region of 4.5mt (million tonnes), broadly similar to the corresponding 2014 period and very much in line with budget.

“There are several main factors impacting on present traffic. Firstly, the price of both steam coal and Australian coking coal. Secondly, the general market situation, in particular, the demand for steel. Thirdly, the state of the [German] renewables market. Fourthly, the closing of older power stations in the Netherlands. And, finally, the situation in Ukraine, which is affecting the anthracite, coke and petcoke market,” explained van der Veeke.

The company is therefore predicting end-of-year volume to reach a little over 9mt, which is again broadly similar to 2014.

Asked about customers, he explains that it is the steel industry that is the biggest off-taker of Ovet’s handling services for commodities, such as coal, cokes and anthracite. However, for the past ten years, Ovet has also been trying to establish a presence in the biomass market. In 2005, this business generated 500,000 tonnes of traffic, only to be in decline ever since.

“This is entirely due to the cancelling of the subsidy scheme in the Netherlands,” he said. “With current coal prices and a limited supply, it is difficult to have confidence in this market as long as biomass is subsidy driven.”

In 2009, Ovet began storing wood pellets in a custom

designed warehouse. Nevertheless, currently, other products are being sought that can also be stored there.

Ovet has also found ways to tap into other revenue sources, offering a wide range of value added services, such as crushing, blending, screening and compacting. Explaining why, van der Veeke points out that the company has built its reputation on the provision of high quality standards, but is otherwise very much a niche-market player.

“In the types of market that we operate, customers are looking for screening and crushing facilities in order to get the right size of product, which is mainly used as a fuel for industrial applications. Furthermore, being able to offer excellent compacting services is a necessity if long-term storage is involved. As for blending, this can be of interest to traders who want to play with margins, which often involved offering custom-made blends and qualities,” he said.

Ovet also offers a de-ironing option, although this is only used in the case of Russian coal and is therefore requested only by certain customers.

“Iron contamination of coal consignments can be a significant problem, although is dependent on the set-up of the plant.”

Ovet is unique, too, in only operating floating cranes, despite having two land-based terminals. There is one exception: a small, mobile harbour crane is used to handle coasters and barges. Asked why the company has taken this approach, van der Veeke points out that floating cranes are much more mobile and flexible than quay-based lifting equipment.

“We not only use them at both terminals, but also for lightering operations at the river Westerscheldt. Indeed, the main reason for using floating cranes is because of this large



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degree of flexibility, meaning we deploy them where and when they are required,”

In fact, he identified the lightering operations on the Scheldt as perhaps the most important services that Ovet offers. These involve reducing the on board cargo of

Panamax bulk carriers so that they can continue up-river to the Port of Ghent, with the excess transferred to coasters or (push) barges.

“The canal from Terneuzen to Ghent has a draught of 12.5 metres of fresh water, which is not enough to accommodate a full Panamax vessel loaded with coal and/or iron ore,” he said,



adding that, this year, this service is expanding in line with changes to the sea freight market.

Finally, challenged to identify from where Ovet sees the majority of its growth coming from in the future, van der Veeke is in no doubt: from its added-value activities in the niche markets where it has staked an important presence. DCI



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## Superior Industries acquires Brazilian manufacturer of conveyor idlers and pulleys

On 2 September, Superior Industries, Inc., a major American-based manufacturer and global supplier of bulk material processing and handling systems, announced its acquisition of Brazil-based conveyor idler and pulley manufacturer, Parcan Group. Headquartered in Rafard, São Paulo, Parcan is considered the South American country's market leader in idler sales and production with additional locations in Parauapebas, Pará and São Luis, Maranhão, Brazil.

"It was rewarding to find a company with a strong cultural history of hard work and innovation, which is so similar to Superior Industries," says Jarrod Felton, the vice president of sales, marketing and engineering at Superior. "We are confident the innovative products from both our companies will create more positive opportunities for all of our customers, both domestically and internationally."

Today, Parcan manufactures three models of conveyor idlers. A heavy-duty line, a light to medium duty line and a style dedicated for high impact situations. In addition, the 40-year-old manufacturer builds conveyor pulleys for belt widths of 650mm (24 inches) to 2,400mm (96 inches) and is equipped to refurbish used pulleys. A group of in-house engineers create custom products for atypical customer applications.

Over the years, Parcan has also built a strong reputation as a technical solution's specialist. Per client requests, teams from the company are dispatched to mines for conveyor inspections and evaluations, often proposing ideas to extend the life of machinery investments. Additionally, onsite mine visits are key for Parcan's technical staff to evaluate product, reexamine calculations and develop improved products from the learned data.

### ABOUT SUPERIOR INDUSTRIES, INC.

Superior Industries engineers and manufactures groundbreaking, bulk material processing and handling equipment and cutting-edge components related to the machinery. From its headquarters in Morris, Minnesota, USA, the manufacturing firm supplies bulk crushing, screening, washing and conveying systems for industries including construction aggregates, mining, bulk terminals, agriculture, power and biomass. In addition to its home plant in Minnesota, the 43-year-old Superior operates from additional engineering and manufacturing plants in Alberta, Canada; Arizona, USA; Georgia, USA; Michigan, USA; Nebraska, USA; New Brunswick, Canada; and three production facilities in Brazil.

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## New shiploader for LKAB at the Port of Narvik

LKAB Norge AS, the biggest iron ore supplier in Europe, invests into a new loading facility at the port of Narvik in Norway. Being deep enough for ocean going vessels and ice-free all year round, this is the biggest export harbor site for the Swedish mining company LKAB in the northern part of Norway with a capacity of almost 20 million tonnes of iron ore/pellets per annum, arriving by rail from LKAB Kiruna in Sweden. LKAB's inquiry called for a new linear shiploader, to be installed on a new pier in the harbor of LKAB, but to be identical with the main dimensions of the existing shiploader, so that a second shiploader of the same design could be installed later on the old pier as well.

Due to the location of the port close to a populated area in the town of Narvik, the environmental aspect is very important. The new shiploader must incorporate all necessary precautions, equipment and systems to minimize the impact of noise, dust etc. on the surrounding areas.

ThyssenKrupp Industrial Solutions, one of the leading suppliers of high capacity shiploaders as well as other bulk materials handling equipment with their offices in St. Ingbert, Germany, received the contract for the supply of the new shiploader from LKAB in April 2013. The delivery of the shiploader to Narvik is planned in August, 2015. The present contract from LKAB's comprises the design, manufacturing, protection, packing, assembly, delivery to site, installation, commissioning and testing of one shiploader with the option for a second shiploader at a later stage.

The shiploader designed by ThyssenKrupp reaches a loading capacity of 11,000tph (tonnes per hour) for iron ore and 9,000tph for pellets. The main dimensions are a maximum length of 144 metres from pivot point to loading chute in extended position and a maximum height of approximately 50 metres. The shiploader is designed to load ships with a size from 5,000dwt to 180,000dwt and has itself a dead weight of approximately 1,700 tonnes.

The shiploader has a special design with the rear side supported on a fixed point on land and the front side supported on a travel gear on the pier. The main beam is equipped with a driving shuttle and a liftable discharge boom.



In order to observe the environmental requirements regarding noise and dust, the shiploader is provided with a covered boom and a discharge chute, which directly fills into the hatches, avoiding leakage of material and reducing the dust.

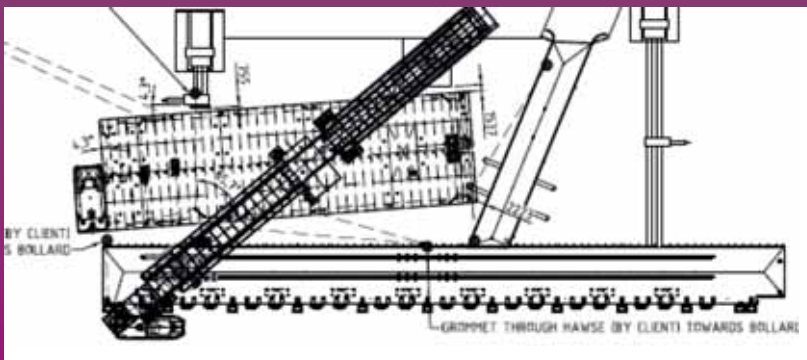
The shiploader can be controlled via the computerized operator's panel in the operator's cabin or via remote control from the ship's deck. A modern drive control and PLC system has also been incorporated.

Because of the large shiploader dimension and lack of space on the new pier and surrounding area, the erection and installation of the machine at Narvik site was not suitable. Therefore, the decision was taken to assemble the machine at the harbour site in Gdynia, Poland, including commissioning of all drive arrangements.

After completion of erection and commissioning, the whole shiploader was loaded onto a barge and shipped to Narvik. The loading procedure in Gdynia is scheduled for end of July 2015 and arrival in Narvik for the second half of August 2015. The loading of the shiploader and the two supporting travel gears onto the barge in Gdynia will be made with Self-Propelled Modular Transporters (SPMTs). These place the shiploader on the barge exactly in the same position, which is required at Narvik for unloading.

Once it has arrived at Narvik, the shiploader will be lifted by means of a crane installed on the barge, and then the barge will move behind the pier into the required final position for unloading and installation and will lower the shiploader onto the supports at land side travel gear and jetty travel gear.

After installation of the shiploader on the pier, the machine will be finally commissioned and tested and thereafter the machine will be handed over to LKAB.



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## River Consulting ranks among top firms on ENR sourcebook lists

River Consulting claimed two spots in the 2015 *Top 500 Design Firm Sourcebook* by *Engineering News-Record* (ENR). Published annually, the *ENR Sourcebook* recognizes top-performing architectural and engineering firms in particular industries of expertise. The sourcebook provides detailed market analysis and rankings of the previously appointed ENR Top 500 Design Firms. River Consulting took the 25th spot for the 'Refineries and Petrochemical Plants' category and the 42nd spot in the 'Industrial Process' category in the recent *Engineering News-Record*.

River Consulting has continued to see significant activity in the petroleum sector since first appearing on the list in 2012. Most of this activity results from services related to gas treating and processing plants and compression stations serving shale plays, working with sister companies and key construction partners to deliver new plants. Additionally, River Consulting has seen steady activity for industrial process industry clients with noteworthy projects for clients in chemicals, food and grain, and plant nutrients.

"Over the past few years we've seen markets such as oil and gas continue with fairly strong activity, while others have fallen off due

to industry challenges and economic cycles," stated Gregory DiFrank, president. "With our industry diversification and ability to evolve to meet clients' changing needs, River Consulting has continued our decades of solutions and expertise to be competitive in today's environment. Appearing on these two lists affirms our efforts to remain a go-to resource for our clients and couldn't be done without all of our industry consultants and hardworking team."

The ENR Top 500 recognizes top-performing architectural and engineering firms. River Consulting ranked 390 in the *Engineering News-Record* in the 11 May 2015 issue.

River Consulting is a leading mid-major A/E (architectural/engineering) supplier to global energy, food, process and industrial clients, delivering multidiscipline engineering and project management solutions for major capital projects and facility and process expansions. As part of the Houston Interests family of companies, River Consulting along with its sister companies provides solutions for clients worldwide. Through combined and diverse expertise, the Houston Interests group brings more than three decades of global experience to a vast array of industries, delivering flexibility for all phases of a project. The firm's office locations include Columbus, Oh; New Orleans, La.; Pittsburgh, Pa; and Tulsa, Ok. River Consulting is recognized nationally by *Engineering News-Record* as a Top 500 design firm.



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# Superior Industries buys crusher manufacturing plant



Superior Industries, Inc., a major American-based manufacturer and global supplier of bulk material processing and handling systems, has reached an agreement to purchase the assets of FLSmith's crusher manufacturing plant in Pekin, Illinois, USA.

According to Superior, the major asset associated with the transaction is a ten-year-old, 70,000ft<sup>2</sup> plant that currently employs 30, well-trained production employees. Superior plans to utilize the new facility as a US-based manufacturing centre for cone crushing equipment.

Earlier this spring, Superior purchased Clemro Western, Ltd. This Calgary, Alberta, Canadian division has manufactured its own line of cone and jaw crushers for more than three decades.

## ABOUT SUPERIOR INDUSTRIES, INC.

Superior Industries engineers and manufactures groundbreaking, bulk material processing and handling equipment and cutting-edge components related to the machinery.

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## Nectar signs 10-year agreement to manage bulk terminal in Sierra Leone

Nectar Group has announced that it has signed a ten year agreement with the government of Sierra Leone to manage and run the bulk terminal located at Queen Elizabeth II Quay, Freetown.

The terminal, which will be known as Nectar Sierra Leone Bulk Terminal (NSBT), is part of a number of new and exciting development projects on which the company has been working and which are now progressing. Nectar will be investing significantly in the terminal at Freetown over the coming years to upgrade and improve the facilities for discharging bulk cargoes including new equipment, improved security and a comprehensive terminal management system which will all contribute towards enhancing the existing terminal in West Africa's largest natural deep water harbour.

New handling equipment for the terminal which has been ordered from TEREX (UK), as well as a complete terminal management system from DBIS (also from the UK), will be delivered in the last quarter of 2015. Nectar Group has a long history of working in Sierra Leone and this latest development



*Nectar's new team at the terminal — left to right: Arnold Kainyek (Chief Stevedore), Kumba Kamara (HR Manager), Jim Page (Terminal Manager), Siamba Kamara (Accounting Manager), Abu Bakarr Bah (Billing Co-ordinator), Edward Kanu Koroma (Documentation and Claims Manager).*

ceases the Group's long-term commitment to the country. NSBT is an exciting addition to the group's activities which will provide employment for 60 new personnel once fully operational.

Headquartered in the UK, Nectar Group now handles over 7 million tonnes of dry bulk products per annum. The Group has a history of providing cost-effective, innovative cargo handling solutions around the globe.





# Peak level of performance



The power of advanced technology has developed a new high-quality range of Hitachi construction machinery. ZW-5 wheel loaders offer a peak level of performance, reinforcing their leading reputation for reliability and durability. Designed for the most challenging material handling environments in ports and harbours, the Hitachi ZW180-5 delivers increased productivity at a lower cost of ownership.

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## New technology enhances safety of Hitachi mining equipment

Hitachi Construction Machinery Co., Ltd (HCM) has obtained the licence for camera image processing technology — jointly developed by Nissan Motor Co., Ltd and Clarion Co., Ltd. — for use in its rigid dump trucks and ultra-large mining excavators. The multi-camera Around View Monitor (AVM) and Moving Object Detection (MOD) technology offer excellent visibility and alert operators to movement on job sites.

The AVM offers an overhead view of the machine's surroundings in real time by composing images from four exterior cameras. The monitor installed in the instrument panel displays the position of the machine and lines to assist parking. Based on the AVM technology, which is already installed in Nissan cars, HCM has developed an overhead-view monitor with Clarion for use in its dump trucks and mining excavators.

The MOD technology analyses images of moving objects from the four AVM cameras. It enhances safety by alerting the driver to any changes in the machine's surroundings. Using the MOD significantly improves the operator's vision of other trucks and machinery in the mines.

Safety on the job site is a top priority for customers and a key development theme for HCM. The company incorporates advanced technologies from other Hitachi Group companies and other industries — particularly the automotive sector — in its own technologies to create products with enhanced safety features.

HCM will make further endeavours to provide products that contribute to safety by developing the overhead-view monitor equipped with MOD, by exploiting benefits of the licensed technology.





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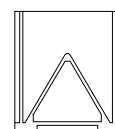
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# Busy times for ESI Eurosilos: enclosed storage

ESI Eurosilos is a Dutch solution provider of storage facilities for non-free flowing bulk solids and large quantities. Its highly automated silos offer maximum control in material handling, up to 100,000m<sup>3</sup>, while saving operational costs and valuable space. Its team of engineers and project managers are passionate about every touch point between bulk materials and storage solutions. What started with an innovative storage silo for a Dutch potato starch manufacturer in the late 1960s has now evolved into a range of powerful Eurosilos solutions for customers in major industries around the globe. ESI Eurosilos's expertise has been recognized by operators, engineering contractors, consultancy agencies and material handling engineers throughout the power industry, chemistry and agriculture.

A Eurosilos combines enclosed storage with a choice of ingenious reclaim mechanisms. These mechanisms are designed to enable reclamation of even such sticky bulk solids as FGD gypsum, making the notorious 'flow-no flow' criteria a thing of the past. This proven solution also meets the requirements of environmental protection agencies worldwide. Leading to over 40 years of experience, ESI Eurosilos has now built over 125 units around the world.

Eurosilos has been very busy recently, and some of its projects are detailed below.

## NEW COMPANY WEBSITE

ESI Eurosilos has recently unveiled its new website, which includes comprehensive information on the company's capabilities, activities and contact details. It gives details of which products its silos can store, and the tried-and-tested 'Eurosilos Concept' is



*Gypsum storage.*

explained in full, with a video demonstration of the technology and a time-lapse video of the construction process of the world's largest potato starch silo (see below for details).



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# specialist reports on recent activities



*Eurosilos is carrying out a mid-life conversion on this fly ash silo in Rohrdorf.*

## HOT COMMISSIONING FGD GYPSUM SILO

At the PKN ORLEN refinery in Plock Poland, the first real live filling process of the new 5,800m<sup>3</sup> FGD Gypsum silo has been completed successfully. PKN ORLEN is a major oil refiner and petrol retailer, owning seven refineries and over 2,000 stations in Poland. After extensive system tests of equipment and operation software (cold commissioning), the desulphurization unit was fired up to produce the input for the silo. An extensive team, including ESI Eurosilos supervisors, overlooked the test with live input (hot commissioning). The main reason that PKN ORLEN is working with the Eurosilos concept is the very limited space at the plant site in Plock. Therefore the dewatering system was built on top of the silo, with load out directly underneath. Reliability and maximum uptime are essential, so ESI Eurosilos is really pleased with the satisfaction and confidence of PKN in the system and its efforts.

## MID-LIFE CONVERSION

To keep the capital expenses of its customers at a minimum, ESI Eurosilos is performing more and more mid-life conversions or retrofits of the silos that are being used. It is not possible to keep production facilities running for 20 to 30 years without regular check-ups and the timely execution of updates. Quite apart from technical considerations, a sudden change in regulations can suddenly outdate storage systems. So ESI Eurosilos is very used to its customers asking it to take a look at their facilities and come up with the best solution

possible. A mid-life conversion is always a tailor-made project, which depends on circumstances and requirements.

## POWER-GEN EUROPE MEETING

From 9–11 June this year, ESI was able to have its own conference at the Power-Gen Europe event in Amsterdam. ESI Eurosilos received its representatives from all parts of the world, from Asia to Europe and the US, to discuss current developments in their regions. The company was very pleased with the great presentation of the technical director of Trianel Lünen Power regarding their goals and mission, and the experience with the Eurosilos coal silos. The Trianel powerplant had just received Peabody's Clean Coal Award for achieving best emissions performance. ESI Eurosilos can look back on a successful meeting, completed by a boat trip and dinner at the EYE, the modern film museum of Amsterdam, and it looks forward to intensified contact and close co-operation on great projects around the world.

## LARGEST POTATO STARCH SILO

The world's largest potato starch silo is now being constructed for KMC at Karup in Denmark. KMC is a leading Danish producer of potato starch and potato flakes. ESI Eurosilos was awarded the assignment to design, produce and install the internal machinery. It designed a huge central shutter column of about 55 metres high to fit the maximum capacity of 88,500m<sup>3</sup> of this huge silo. Production of the complete internal machinery is now under way. The project's execution is on a very tight schedule, as the silo has to be ready for operation this year. There is a very interesting time lapse video of the pouring of the concrete floor on ESI Eurosilos's new website. For more details on the project, please see 'Returning to its roots: ESI Eurosilos builds the world's largest potato starch silo' on p110 of the September 2015 issue of *Dry Cargo International*. Besides the largest potato starch silo, ESI Eurosilos is also involved in other projects in Slovenia and Poland.



*The world's largest potato starch silo.*





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# Telestack extends its range

company widens its port equipment portfolio



*TS radial telescopic shiploader loading coaster vessels from warehouse – fully mobile, dust extraction and discharge chute.*

The coal industry has undoubtedly experienced some turbulence in the past number of years with a reduction in demand, reduced revenue and profits and considerable underinvestment in capital equipment. With a significant rise in CAPEX costs and increased environmental considerations, operators are looking for other ways to improve their margins and provide the return on investment that investors are seeking. The case for innovation and value for money in coal handling technology has never been so persuasive, and the trend is set to continue as coal handlers embrace technology that is innovative and flexible, and which ultimately reduces overall costs.

Telestack firmly believes that the reputation of a business is essential to its survival. Telestack has earned its success by knowledge and experience gathered over many years of servicing multiple industries and a range of diverse applications. The company has a portfolio of installations across the globe in the coal industry including open pit link conveyors, open pit stacking, open pit reclaiming, unloading at inland terminals/sea ports from rail wagons, trucks and barges, port stacking/reclaiming and loading vessels from barges up to Baby Capesize. The Telestack portfolio includes a range of shiploaders and unloaders, hopper feeders, truck unloaders, bulk reception feeders, stockpiling conveyors, link conveyors and telescopic stackers. To complement this extensive series of port solutions,

Telestack has introduced the new Dockside Unloading Hopper (DUH) and new Cambered Boom (CB) shiploader ranges to its vast portfolio.

The complete ports and terminals product range offers a unique material handling solution for sea ports and inland terminals where loading and unloading of bulk materials from vessels of all sizes from small barges/coasters up to Baby Capesize vessels is possible with enhanced mobility, efficiency, reliability and with a high level of performance that often exceeds customer expectations.

The Dockside Unloading Hopper is used to unload a very wide range of bulk materials direct to truck, freight train or conveyor belt and is one of the most cost efficient and environmentally sound method of vessel unloading. The bulk material can be fed to the hopper from either a dockside grab or self-discharging vessel. With hopper mobility and control, fast and efficient vessel unloading can be achieved.

As with any port, environmental considerations are high on the agenda. The Dockside Unloading Hopper is available in various specifications from simple funnel type hoppers to a DUH with full environmental dust control/extraction to suit all materials and the most arduous of environments. Entry sizes from 6m to 12m, the DUH has the ability to receive from grabs up to 30m<sup>3</sup>. The design is based on a unique octagonal shape



that ensures optimum performance with minimum hopper valley angles and maximum structural integrity and can be supplied as a Low Level Discharge (LLD) direct to dockside conveyors or High Level Discharge (HLD) direct to Trucks/ Rail wagons. There is a wide range of mobility options available from simple tractor towing to self-propelled inline or inline and parallel travel. The DUH can be supplied as either a static hopper bolted to the quay, mobile on rubber tyres or rail mounted systems. Handling rates of up to 2,000tph [tonnes per hour] (mobile harbour cranes) and 5,000tph (self-discharging vessel), the Telestack Dockside Unloading Hopper ticks all of the boxes in terms of production rates and cost reductions whilst taking all of the necessary environmental concerns into consideration.

Telestack is currently working on a comprehensive port solution for a blue chip customer and, as demonstrated in this illustrated coal application, the Dockside Unloading Hopper is used to feed a series of link conveyors, designed for transferring coal over large distances as conveying material is the most cost-efficient and environmentally sound method of material transfer. Link conveyors offer a flexible solution to help reduce the high running costs of 'load and haul' operations using either dump trucks or wheel loaders as fuel, maintenance and operator costs are reduced. The coal is then fed onto a Telestack mobile stockpiling conveyor which typically stockpiles at rates of 2,000tph of coal. Once again, by using the Telestack equipment noise, dust and pollution are reduced greatly as well as site traffic, improving overall site safety.

Telestack has a vast range of successful installations globally



*Two mobile Dockside unloading hoppers feeding links and stackers.*

with its products utilized in a range of applications as well as coal, including the mining and quarry industries, stockyard management, ports and inland terminals, power stations, rail yards, steel mills and cement plants. It has a team of specialists to support all projects and applications. Having recently achieved ISO status, Telestack is dedicated to the quality of its products and is steadfast in its commitment to delivering reliable, powerful and environmentally responsible products. In launching these new ranges of DUH and CB Shiploaders, this emphasizes Telestack's commitment to consistent innovation and product development that meet the needs of its ever expanding customer base. Telestack has a complete range to reduce cost, address environmental issues and provide innovative technology to manage coal along the logistic chain from pit to port.

Telestack clients within the coal sector includes coal producers such as Anglo America, Sueki and Mechel, coal terminals such as Port of Kembla, Port of Vostochny and Port of Dhamra and coal consumers such as AES Powerstation, Kilroot Power station, Mittal Steel and Jindal Steel.

DCi

*TS radial telescopic stacker and hopper feeder — stacking and reclaiming coal in a power station.*



# Conveyor belt tracking systems

## reducing hazards and spillage



Martin Engineering, a renowned supplier of bulk material handling solutions offers a family of responsive conveyor belt tracking systems that mitigate misalignment, rather than correcting it after the fact — even on reversing belts — to promote conveyor efficiency and safety. A mistracking belt can contact the mainframe, seriously damaging both the belt and the structure, resulting in excessive spillage and even creating a potential fire hazard. Utilizing innovative multiple-pivot, torque-multiplying technology, the Martin® Tracker™ detects slight misalignments initiated by unbalanced loads and fouled rollers, using the force of the belt to immediately adjust its position and realign the path. The trackers minimize risk and material loss, decreasing downtime and operating costs by reducing clean-up and equipment damage.

Rollers attached to the end of a sensing arm assembly ride both sides of the belt edge, detecting even slight variations in the belt path. Employing the force of the wandering belt, the arms automatically position a steering idler in the opposite direction of the misalignment. Transferring the motion to the steering idler through a unique parallel linkage requires less force to initiate the correction, so fine-tuning of the path can be

continuous, active and precise.

According to Dan Marshall, product engineer for Martin Engineering, “The biggest issue from a mistracking belt is spillage. If the belt is out of place, it’s not handling the load properly, and that will cause material to leave the belt. The build-up can be extremely rapid, especially from a high-speed conveyor, which drives up expenses due to wasted material and added cleanup. It also introduces the inherent risk which is always present when people are working around a moving conveyor,” he added.

“The other big issue is having an instantaneously responsive tracking system, because a misaligned belt can quickly drift over into the conveyor frame and begin abrading the belt and the structure,” Marshall continued. “If this isn’t caught right away, great lengths of valuable belting can be destroyed, and the structural steel itself can be damaged. In some cases, this has caused fires or compromised the integrity of the structure.”

The multi-pivot design of the Martin system corrects many of the problems exhibited by current trainer systems on the market such as belt switches, vertical guides, v-idlers, crowned pulleys and sensing-roll trainers. Some correction systems have a tendency to overcompensate, requiring a safety tether or lead line to catch the device when the force of the misalignment detaches the unit from the mainframe. Many of these systems correct mistracking after it has occurred, rather than constantly working to prevent it. By continuously mitigating tracking issues rather than reacting to them, the risk of failure is significantly reduced.





*Lower units are hung under the return belt, with a single flat rubber idler to align the path.*

#### BELT TRACKER UPPER AND LOWER

Utilizing a troughed idler support system on the carrying side of the conveyor to retain the proper angle and keep the load centered, the Belt Tracker Upper Unit employs guide rolls that are set one-quarter inch (6mm) from the belt for high precision when making opposing adjustments to the idlers. Typically positioned shortly after the loading zone and just before the discharge pulley, extra trackers can be placed along the belt path, depending on the length of the conveyor and the tendency for cargo to shift. Belt Tracker Lower Units are hung from the mainframe under the return belt every 70 to 150 feet (21 to 50m) and use a single flat rubber idler to bring the belt back into alignment.

Upper and lower trackers are available in three models: standard-duty, heavy-duty (HD) and extra heavy-duty (XHD). The standard-duty model is designed for

typical industrial material handling conditions, and can accommodate belt thicknesses of .625 inches (16 mm) and under, widths from 24 to 54 inches (500-1600 mm) and speeds up to 700 feet per minute (3.5 mps).

Engineered to withstand the stress associated with wider, thicker belts moving at higher speeds and carrying heavier loads, the Tracker HD serves belts as thick as 1.125-inches (28.5 mm), widths of 36-72 inches (800-2000 mm), and traveling as fast as 800 FPM (4 mps). The Tracker XHD handles all other belt speeds and thicknesses exceeding those specifications for belts



*The upper unit has guide rolls set just 1/4-inch (6 mm) from the belt for high precision when making adjustments.*

up to 108 inches (2700 mm) in width.

#### REVERSING TRACKER

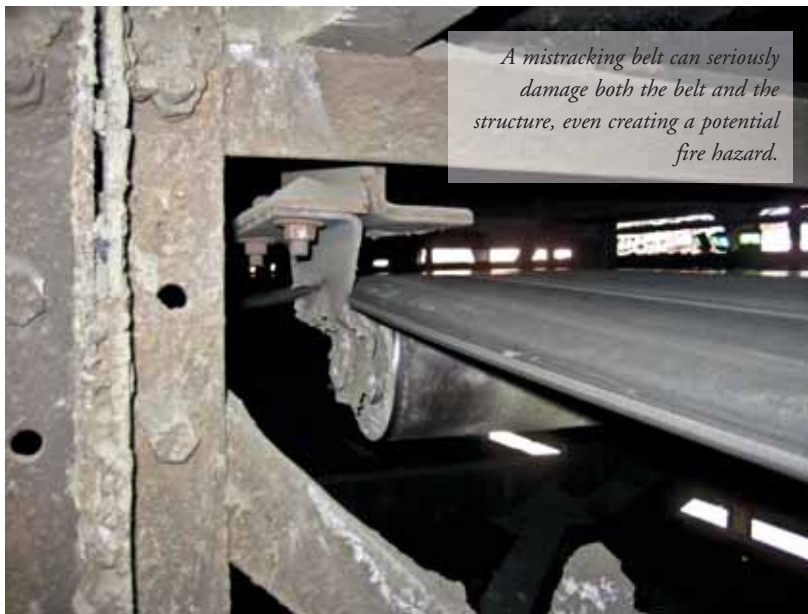
Reversing belts are a particularly difficult issue for belt tracking. "Reversing belts have some unique issues, because what works for conventional belt-training devices to centralize a belt's path when it runs in one direction, will have the opposite effect when the belt direction is reversed," Marshall pointed out. "A pivoted idler that correctly steers the belt when the conveyor is operating in one direction will mistrack a belt moving in the opposite direction."

Martin Engineering designers determined that the same multiple-pivot, torque-multiplying technology as the upper and lower tracker could be utilized for a reversing belt by adding a circular forked paddle or stainless steel lamella that detects the belt direction. Utilizing two sets of sensing arm assemblies on either side of the unit to accommodate belt widths of 24 to 84 inches (500 to 2,200mm), the arms are engaged based upon the direction of the spinning paddle. The Martin® Tracker™ Reversing is also available with an air operated cylinder replacing the paddle wheel, to activate the sensing rollers on the proper end of the unit when belt direction changes. To keep the belt centered in a reversing conveyor's loading zones, Martin Engineering recommends the installation of one reversing tracker at the entry and exit of each loading point.

"Although reducing downtime and operating costs are at the top of our minds with these designs, safety is a primary motivating factor behind all of our components," Marshall said. "By incorporating that philosophy into the Tracker designs, we've produced a better end product that delivers a complete solution to mistracking issues."

Founded in 1944, Martin Engineering is known for making bulk materials handling cleaner, safer and more productive. The company supplies conveyor products around the world for a wide variety of bulk material applications, including coal, cement/clinker, rock/aggregate, biomass, grain, pharmaceuticals, food and other materials. The firm is headquartered in Neponset, IL, offering manufacturing, sales and service from factory-owned business units in Brazil, China, France, Germany, Indonesia, Mexico, South Africa, Turkey, India and the UK, and under exclusive licence with ESS Australia.

DC



Superior Midwest Energy Terminal handles approximately 22 million tons of PRB coal annually, loading approximately 450 vessels during a 305-day shipping season.

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**"Martin Engineering's team proved excellent to work with."**

stated **Marshall Elder**, Director of Terminal Operations.

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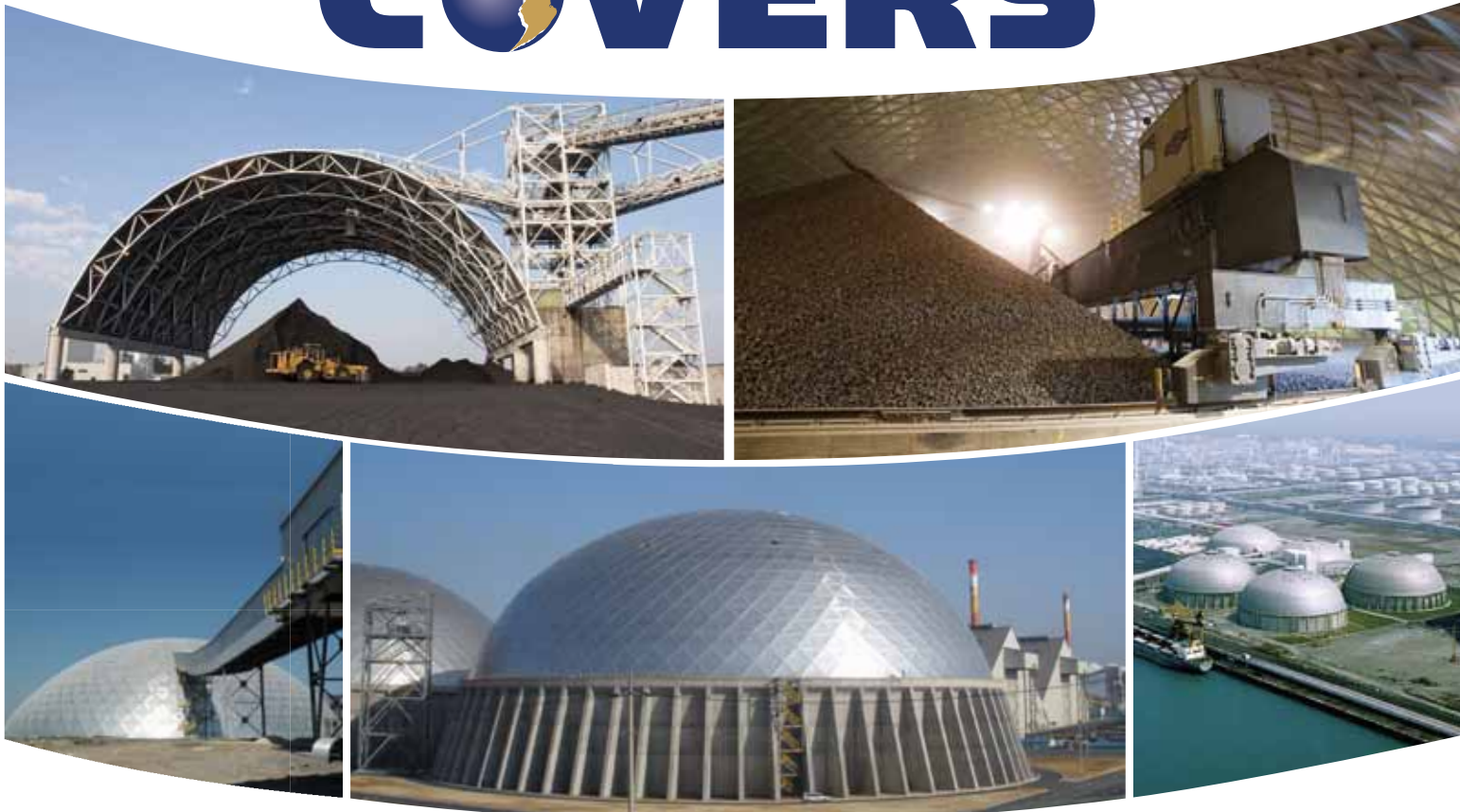


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# Stockyard systems from some of the bulk industry's big hitters



*Portal scraper reclaimers installed at Jorf Lasfar.*

Louise Dodds-Ely

## ThyssenKrupp reports on recent stockyard and mine developments

As a major supplier of materials handling equipment, ThyssenKrupp Industrial Solutions AG Business Unit Resource Technologies (TKRT) has developed a complete range of products for stockyards, mines, bulk terminals and fertilizer, steel and cement plants. With more than 100 years' experience, TKRT today supplies a complete range of products for bulk materials handling, including:

### Stockyard equipment

- ❖ slew type or bridge type bucket-wheel machines of different designs;

- ❖ drum (barrel) type reclaimers;
- ❖ longitudinal and circular stockyards with stackers and scraper reclaimers;
- ❖ homogenization/blending beds with stacker and bridge type scraper reclaimers, both as circular or longitudinal stockyards; and
- ❖ combined portal scraper reclaimer with both stacking and reclaiming functions.

### Ship unloading and loading equipment

- ❖ grab type ship unloaders of different designs;



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- ❖ pontoon based floating transshipment.

#### Other materials handling equipment

- ❖ railway car tipplers;
- ❖ truck dumpers and unloading stations; and
- ❖ belt conveyors, curved conveyors and pipe conveyors.

TKRT's new development of full-line materials handling equipment has focused on:

- ❖ being a global supplier with its own subsidiaries throughout the world;
- ❖ a full range of products and designs;
- ❖ multi-purpose applications;
- ❖ suitability of machines for diverse materials with significantly different characteristics; and
- ❖ design suitable for upgrading to either fully automatic operation or unmanned remote controlled operation.

Recent technical achievements and contracts highlight TKRT's development work for the coal handling in terminals and stockyards.

#### MATERIALS HANDLING EQUIPMENT FOR SHOUGANG HIERRO PERU

Recently TKRT was awarded a milestone contract from Shougang Hierro Peru for its iron ore mine expansion project.

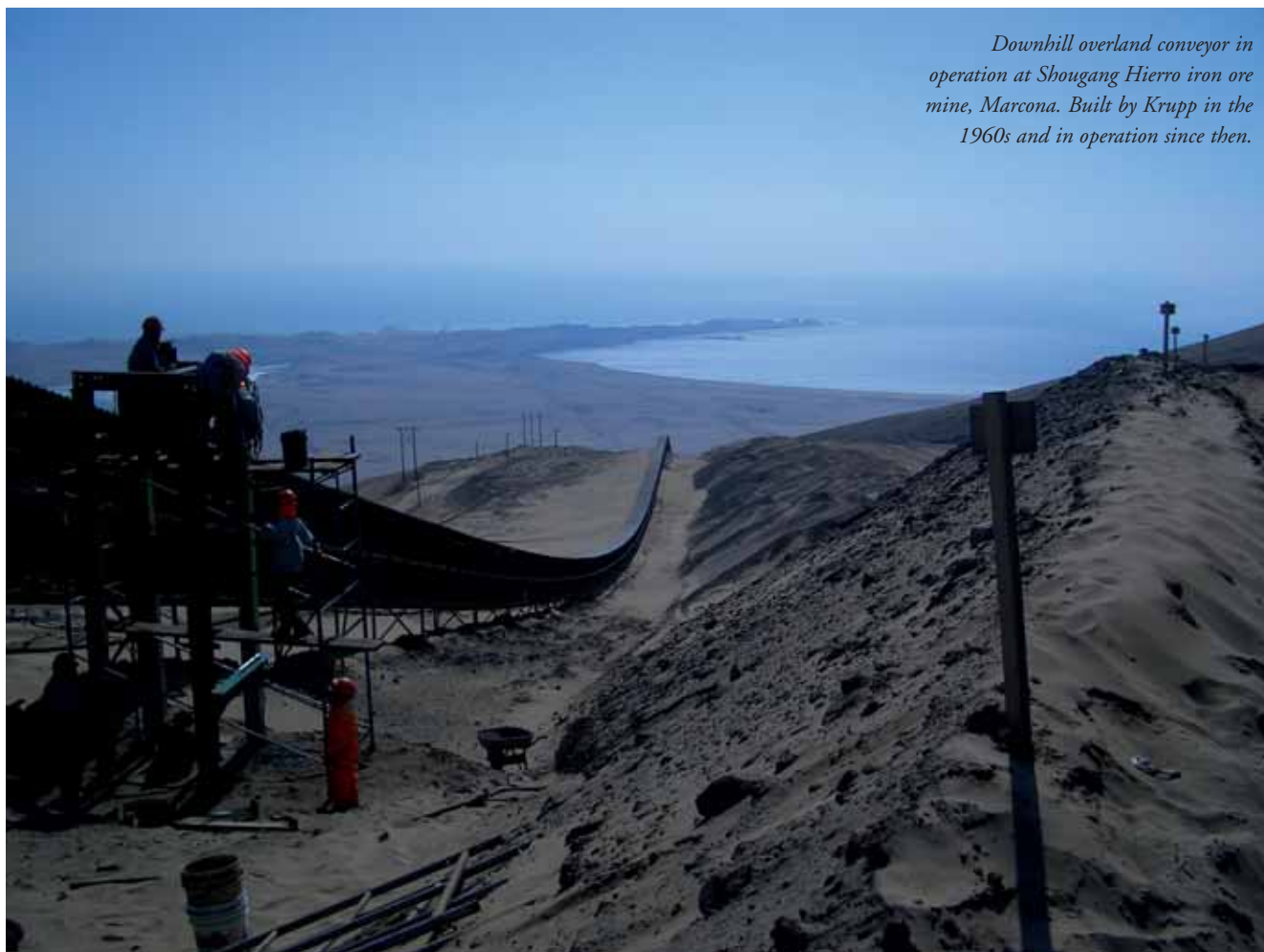
Shougang Hierro Peru, the Chinese mining and steel company, will begin to expand the production capacity of its iron ore



*A semi-mobile crusher plant for iron ore, similar to that for Shougang Hierro Peru, just put into commercial operation at Tangang Mine, China.*



*Downhill overland conveyor in operation at Shougang Hierro iron ore mine, Marcona. Built by Krupp in the 1960s and in operation since then.*





smelter at San Juan de Marcona, on Peru's south coast.

The expansion will allow the refinery to increase production to additional 10 million tons per year. The iron ore of the company's mineral exports is mainly for shipment to China.

The contract awarded by Shougang Peru consists of the following packages:

- ❖ one semi-mobile primary crusher plant with a high capacity gyratory crusher;
- ❖ one curved overland belt conveyor system, in total 6km long;
- ❖ one downhill overland belt conveyor system, in total 6km long;
- ❖ one ROM (run of mine) ore blending yard plant with stacker, drum reclaimer and belt conveyors; and
- ❖ one product stockyard plant with stacker, bucketwheel reclaimer and conveyors.

Back in the 1960s, Krupp built one downhill conveyor system for the Marcona Mine, which since then has been in operation to transport the iron ore from the open pit crusher plant down to the beneficiation plant. It has handled 10mt (million tonnes) per year for more than 50 years and is still in very good condition. This is one of the reasons that the client decided to opt once more for TKRT.

The primary crusher plant equipped with a TKRT's gyratory crusher of compact design is the key item of equipment for the expansion project, which will produce 10mt crushed ROM ore annually for the further process of the whole mining and beneficiation plant.

In front of the beneficiation plant the ROM ores should be blended on a storage and blending yard. This is equipped with a slewing and luffing stacker and a blending drum reclaimer.

The blending yard stacker is designed to stockpile ROM iron ores in layers with a capacity of 4,500tph (tonnes per hour), while the drum reclaimer, having a design capacity of 3,000tph, will feed the beneficiation plant continuously with controlled mixtures of raw materials.

The drum reclaimer is designed for bi-directional reclaiming operation, which is a specialized design to meet Shougang's requirements, which is that a very high grade of blending of materials (sorts, sizes, etc) should be achieved. This is the first installation of a bi-directional reclaiming drum reclaimer in Peru.

From 2014 up to now, most equipment and structures have been manufactured, shipped and received at the Shougang Hierro Mine at Marcona, Peru. Construction has been taking place throughout 2015 and will continue into 2016. Commissioning is anticipated in 2016.



*TKRT's blending yard machines operating at a mine in South Africa, similar to that for Shougang Peru.*

#### FULL PORTAL RECLAIMERS TO FOUR PHOSPHATE FERTILIZER DAP PLANTS IN MOROCCO

In July 2012, ThyssenKrupp Industrial Solutions AG, Business Unit Resource Technologies, Mining – Materials Handling was contracted by OCP S.A. (Office Chérifien des Phosphates, S.A.), the leading phosphate producer of Morocco, to supply eight full portal reclaimers to be operated within the Morocco Phosphorous III & IV Complex at Jorf Lasfar, Morocco. There, as part of its strategic development plan, OCP S.A. will establish four new ODI (owner direct investment) integrated DAP granular fertilizer manufacturing plants on greenfield plots. These machines will be delivered and erected in sequences within two to three years from the beginning of 2014.

The eight identical A-frame full portal reclaimers are running on a 45.50m rail gauge and designed for a nominal reclaiming rate of 2,000tph.

The principal challenge was proving, during a fiercely contested tendering process, that TKRT offers a technical lead by presenting an innovative and different reclaimer design to achieve the requested high throughput. TKRT succeeded in promoting its meanwhile proven new technology of high speed/high rate portal reclaimers for which the weak element — the roller chain — has been replaced by a track link chain which allows for higher chain speed.

Thanks to that, it was possible to design the portal reclaimer itself with only two scraper booms; i.e. an arrangement of one main and one auxiliary scraper boom mounted laterally to the portal structure and connected together by a knuckle arrangement, instead of three scraper booms which are normally required for such a high handling rate.

ThyssenKrupp Industrial Solutions' innovative approach for the design of high capacity portal reclaimers, backed up by the numerous references and the company's excellent track record, were deciding factors in the contract being awarded to TKRT. With this prestigious and challenging contract, ThyssenKrupp Industrial Solutions AG will consolidate its position in the supply of high-capacity portal reclaimers working in fertilizer plants, and demonstrate once again its technological excellence.

With these achievements in the development and construction for the mining and materials handling technology TKRT is convinced that it will keep its prominent position in the world market.



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## STM: offering innovative bulk material handling solutions



Italian company STM is well-known for its expertise in the engineering and supply of belt conveyor systems for bulk material handling facilities. Since it was set up as family business in 1975, it has provided innovative integrated solutions worldwide that increase efficiency, reliability and cost savings for the customers production processes.

STM offers its customers a full range of project services:

engineering, fabrication and commissioning. At each stage of the process, STM develops flexible, individual and effective solutions. The whole supply process, from feasibility study to final delivery and commissioning, is completely implemented in STM's factory which is located at the company's headquarters in Tito Scalo (Potenza). This allows STM to support the customer in every stage of the project up to full implementation.







Over the years, STM has developed a deep knowledge operating in many fields, with specific cutting-edge solutions for each applications: tunnelling conveyors, crushing plants conveyors, batching plants conveyors, waste to energy plants conveyors. Thanks to its expertise, STM has developed even more innovative solutions for bulk materials handling in order to meet the needs of all of its customers. This is why, over the past few years, STM's portfolio has become even more challenging and specialized.

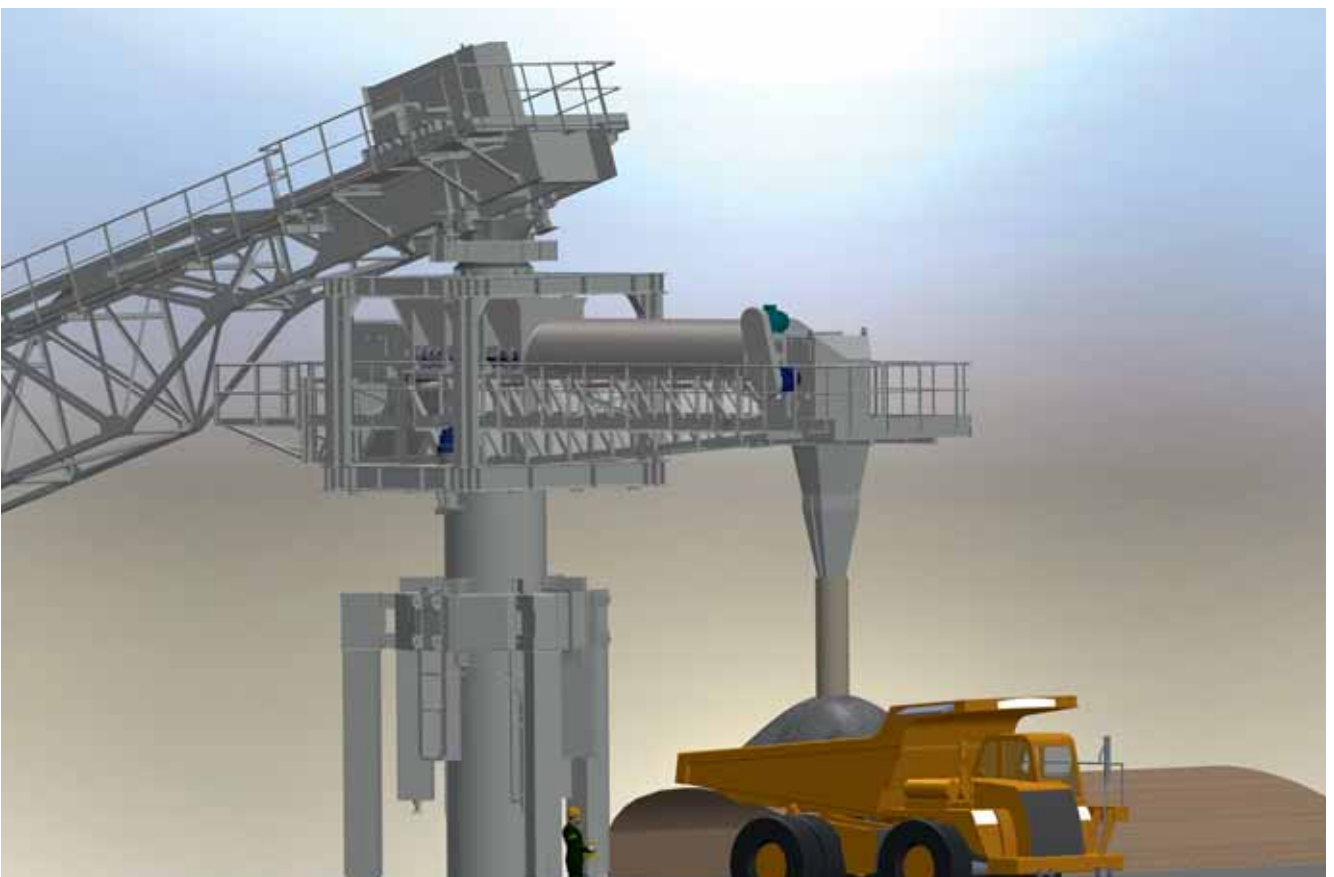
#### CUTTING-EDGE SOLUTION: ROTATING AND SELF-ELEVATING CONVEYORS

STM has gained great experience in concrete placing systems, particularly in the placement of roller-compacted concrete

(RCC) used in gravity dam construction. Indeed STM staff are often required to supply conveyor lines able to follow the dam as it grows, and to guarantee continuous feeding with flexible use, with special devices such as elevation tools for conveyors and distribution devices like swingers, crawler placers and tripper conveyors.

At the moment, STM is working to supply the belt conveyor package at Neckartal Dam, in the Karas region, Namibia. The Neckartal dam will be made from RCC concrete and will stand around 80 metres high. For this, STM will provide a cutting edge and complex plant able to lift in order to follow the growing dam wall.

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able to assure uninterrupted feeding, STM developed the new swinger conveyor: a special conveyor with main features of rotating (even up to 360°) and self-elevation. Undoubtedly the swinger is an effective solution to follow the elevation of the dam but it is necessary to modify the height of the conveyor which feeds the swinger as well. To reach this goal the conveyor, with another upper conveyor which discharges the material in it, is located on a tower which is provided with a lifting system. The tower is composed of an internal tower supported by an external one during the lifting phase. In the internal tower there

is a one-metre base on which additional modules are added and a last fixed module. This module is the place where the two conveyors are located: the upper one discharges the RCC in a lower conveyor which reaches the swinger.

#### COAL HANDLING: FROM MINES TO POWER STATIONS

STM has great experience in the handling of coal. Indeed, the company designed and realized conveyor systems to process coal both in mines and in power stations. The conveyor systems that will be used in mines need to have a specific configuration







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because they have to follow the development of the excavation site. STM's systems can expedite, optimize and economize the process of overburden removal, redistribution and stacking. The conveyors for this application are designed for a long lifetime and for minimizing extraordinary maintenance and downtime risk. Thanks to its flexibility and the long experience in this field, STM is able to create and manage equipment of any size and complexity, including mobile plants. This configuration satisfies the plant owner who wants to have freedom to move the plant after limited time usage in determined area.

It is necessary to have an efficient coal handling system in thermal power generation plants as well, the most conventional source of electric power. Handling those kind of materials in a complex power plant makes it essential to design a system with exceptional reliability in order to avoid any kind of decades-long shutdown. STM is able to provide a complete engineering service, including specific back-up solutions, limited maintenance devices, best-in-class components manufacturers. A valuable example of the long experience of STM in coal handling is the supply of seven conveyor belts to ENEL's Federico II power plant, in the territory of Brindisi (Italy). This thermal power plant, with a total capacity of 2,640MW installed and with an area of about 270 hectares, is the second-largest thermal power plant in Italy and one of the largest in Europe. The whole line of belt conveyors, provided by STM to this power plant, comprises seven conveyors, with one of them reversible, two distributors, four tank feeders, two transfer towers and all the support steel structures for the conveyors and mixers. The material that the



conveyor system has to transport is the result of coal combustion so it appears as light humidified ash. For this reason, the STM team created conveyor belts able to handle a very hot material with a high level of moisture and abrasiveness. Moreover, the conveyors are situated outdoors so they are equipped with a rainproof roofing and they are treated to face different atmospheric conditions like temperature leap and a saline and industrial atmosphere.

Thanks to its strong expertise, its attention to the quality, the focus on the customer and the uninterrupted improvement of industrial standards and practices, STM is globally recognized as a trusted partner in developing custom made solutions.



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## Bucking the trend: RAM Spreaders unveils revolutionary railcar emptying system

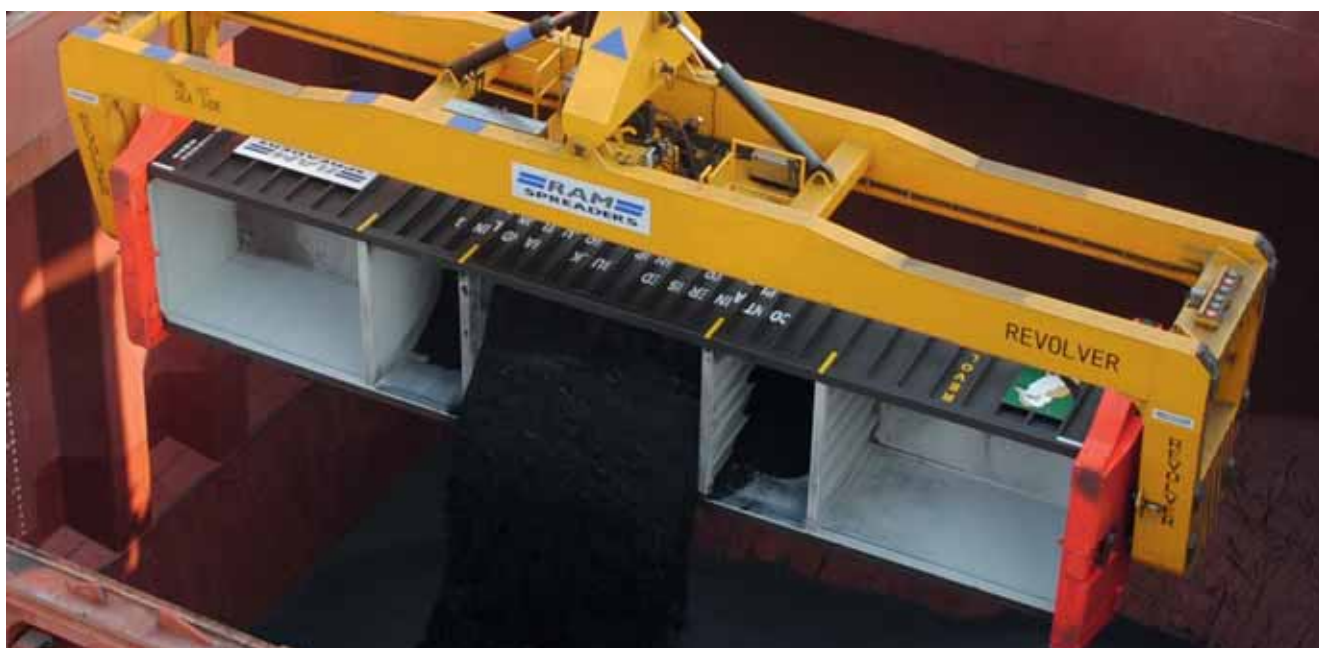


RAM Spreaders has introduced a new pit-to-port rail system that uses top lift Revolvers to handle ore. This is a revolutionary alternative to expensive bottom dump or rotary railcar dumpers, which are expensive and involve long lead times.

The system includes a large gantry that straddles the rail tracks at the receiving stockyard, and the crane across the gantry literally picks up a 20ft or 40ft container that is carried by the railcar, lifts it across to the required part of the stockpile, and empties the contents of the container onto the stockpile before returning it to the train. The gantry then moves along and collects the container from the next railcar and repeats the process. Each cycle takes only two minutes, and a capacity of 800–1,500tph (tonnes per hour) can be achieved with each gantry. The system is modular, so capacities can be increased with the addition of more gantries.

### SYSTEM SPECIFICATIONS

65-tonne lifting capacity
Two-minute cycles
1,000tph range (800–1,500tph)
Modular — add more gantry to get higher rates: five gantries = 5,000tph
Cost less than US\$3 million vs US\$100 million for rotary rail car dumper
Fast delivery = six months
Flexible: if one machine breaks down then others keep working
Dust suppression fitted to gantry which allows spraying when not unloading





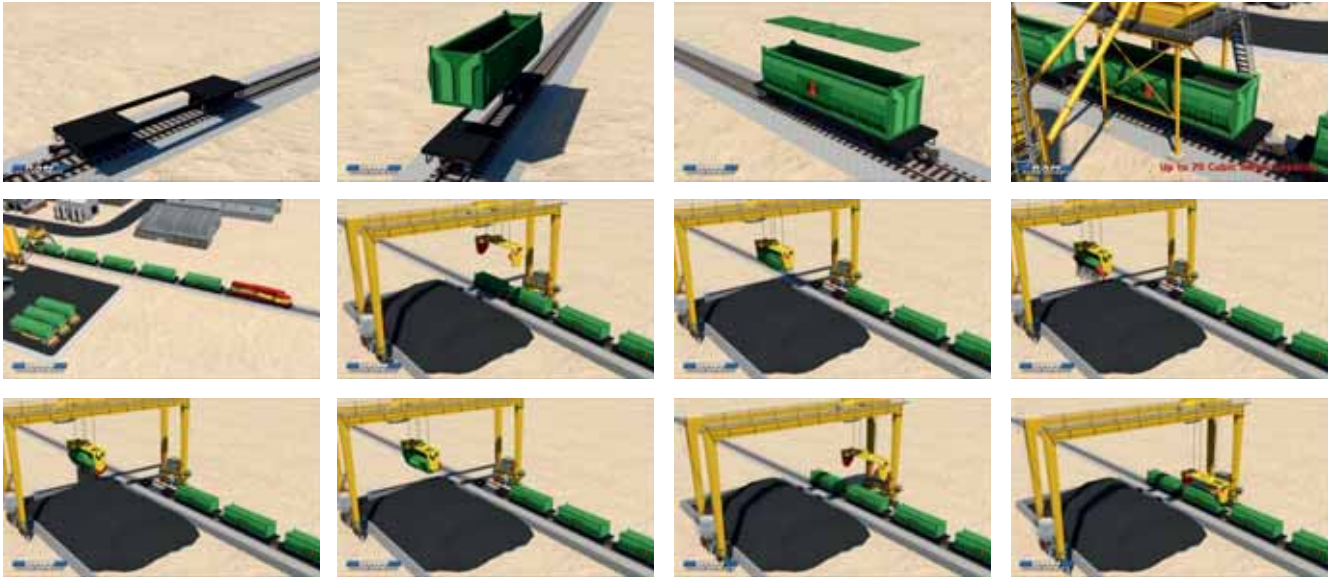
The containers themselves are fitted with lids, to prevent the escape of fugitive dust at any part of the process, as well as while travelling to the receiving stockyard. The containers can be transported by both trains and lorries, so the system works equally well with road and rail.

Traditionally dry bulk is offloaded from rail wagons by rotary railcar dumpers or bottom dump wagons. Both of these solutions require extensive capital investment and long lead times as well as being fixed in place allowing limited flexibility.

An additional benefit of the system is that it can be fitted with dust suppression equipment, making it even more environmentally friendly. The dust-suppression mist forms a light 'crust' on the stockpiled material, preventing the escape of dust.

Customers so far include a West African iron ore operator; an Egyptian coal-fired power station; a South African coal-fired power station; and an exporter of copper conns (inside a shed) from Chile. It is also being used to stockpile iron ore in the Congo. The new system was developed for clients who needed a solution in place quickly but at a reduced capital cost. It is also ideal for use where there is available container rail equipment, but less equipment for handling bulk wagons.

All of the equipment used is standard off-the-shelf container handling equipment, and each gantry crane is capable of handling 1,000tph. Customers requiring faster rates can add further equipment. The system is <10% of the cost of conventional rotary rail car dumpers.



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## RDS manages mobile machinery at dry bulk terminals



Many of the material handling systems applied in the operation of modern dry bulk handling terminals are stationary and feature integrated bulk storage management systems. Regardless of this level of mechanization and control mobile assets, such as loaders and forklifts, are required to facilitate conveying. More often than not this is where terminal management is compromised. RDS on-board weighing systems eliminates this disconnect by assisting with the daily management of mobile bulk handling machines.

Versatility, a focus on productivity and the ability to operate in the harsh environment encountered in a dry bulk handling terminal, makes RDS systems ideal for this application. Total, 100% integration is ensured by a focused development of machine specific systems to ensure compatibility with most mobile machinery currently in operation within dry bulk terminals. RDS systems are hydraulic and ready to fit to most brands of on and off road loaders, forklifts, forktrucks and telehandlers. RDS systems have proven to be effective when used with the loading/movement of chrome concentrate, coal, iron ore and aggregates. Enhanced weighing systems such as the Loadmaster 100(FEL) and Loadex 100 (excavators) are coupled with their own iSync databasing and connectivity

system, as well as GPS technology, to deliver a complete solution for machines handling and loading product. The recently launched Liftlog 1000 offers an extremely high degree of accuracy for the loading of high end goods such as copper concentrate. The Liftlog 1000 a 0.5% accuracy and can be retrofitted onto all types of forklifts/forktrucks.

At their core RDS systems offer terminal managers a cost-effective two-way remote communication to mobile assets via a central computer. The information that is sent and received enables effective management over inventory and productivity while rendering traceability of stock handled by mobile machinery possible. RDS systems allow terminal managers to measure tonnes per hour performance and monitor over- and under-loading to minimize machine and personnel movements and enhance productivity. Quick data transfer and precise instructions sent to machines also enable machine operators to load more per shift. Because RDS systems allow for the import and export of all references, jobs and load information, via iSync software, the need for operator interaction is minimized and in some cases eliminated. A further bonus is that RDS systems allow for strategic analysis of operational processes and allows the terminal manager to define weak areas and eliminate them.

## CASE launches eco- and operator-friendly wheel loaders at Intermat 2015

In April this year, at the Intermat 2015 show, CASE Construction Equipment launched its new range of wheel loaders. These new loaders generate fewer emissions in six months than a 1996 loader in a single day. The F Series features four owner friendly solutions unique to CASE for quarrying, waste handling and contracting: the Hi-eSCR in-house technology, the rear mounted engine, the Proshift 5-speed transmission and the heavy duty cooling cube. In addition, CASE customers will enjoy excellent

visibility also after dark with the highly effective LED lighting and exceptional comfort for long working days.

### LOW EMISSIONS TECHNOLOGY: CASE KEEPS IT SIMPLE AND EFFICIENT WITH HI-eSCR

The F Series complies with EU Stage IV/Tier 4 Final with the Hi-eSCR technology developed by FPT Industrial, CASE's sister company. It uses the well-proven SCR introduced by FPT on



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trucks in 2004 and on CASE wheel loaders in 2011, and doesn't require a particulate filter or EGR valve. This unique design, which uses only built-for-life-components, is maintenance-free and fuel efficient. With this system, fewer components are involved, engine oil is not compromised and, since there is no need for a diesel particulate filter (DPF) or extra cooling, the engine hood is more compact, providing better rear visibility. An additional advantage is the wheel loader's safety near flammable materials, as the exhaust's maximum temperature is 200°C, lower than it would be with a DPF. This is particularly valuable when doing jobs such as handling materials in wood recycling centres, for example.

#### HEAVY DUTY COOLING CUBE DELIVERS SUPERIOR COOLING EFFICIENCY AND RELIABILITY

The unique design, with five radiators mounted to form a cube instead of overlapping ensures a constant flow of fresh, clean air

from the sides and the top. This cube structure also provides easy access for effective cleaning.

#### FUEL SAVINGS AND HIGHER PRODUCTIVITY WITH PROSHIFT AND REAR-MOUNTED ENGINE

Models up to 20 tonnes feature the high efficiency Proshift five-speed transmission that enables the operator to take better advantage of the outstanding torque. The lock-up results in fuel savings of up to two litres per hour and faster cycles compared with conventional transmissions. Productivity of these models is further improved by the rear mounted engine, which results in a better weight distribution, increasing the bucket payload by up to 15% compared to other loaders of the same weight.

#### HIGHLY EFFECTIVE LED LIGHTING LENGTHENS WORKING DAYS INTO THE NIGHT

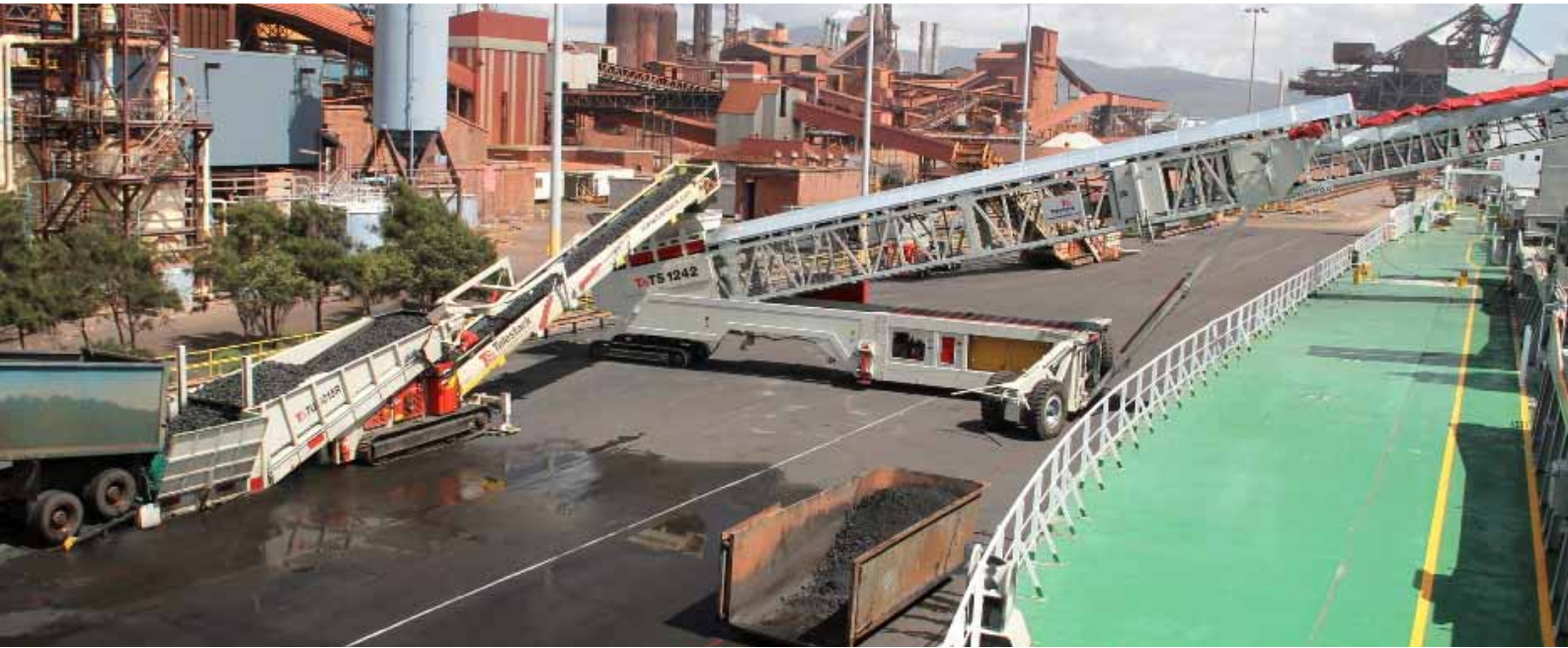
Effective lighting is a key requirement for customers, who need

#### LOADER STATISTICS

F SERIES	621F	721F	921F	1121F
Bucket Payload	4.3 t	5.4 t	7.1 t	9.1 t
Max Power	128 kW 172 hp	145 kW 195 hp	190 kW 255 hp	259 kW 347 hp
Max Torque	730N.m @1,600rpm	950N.m @1,300rpm	1,300N.m @1,300rpm	1,604N.m @1,100 rpm
Transmission	Powershift	Proshift	Proshift	Powershift



# MOBILE COAL HANDLING SYSTEMS



Radial Telescopic Shiploader and Mobile Truck Unloader loading pet coke to Handymax vessels



Radial telescopic stockpiling coal @ 2000tph in powerplant receiving from ship unloading system



Hopper Feeder & Radial Telescopic reclaiming/ stockpiling coal in stockyard of powerplant

Telestack **mobile** coal handling systems offer significant **operating costs savings** compared to traditional methods of material handling (e.g wheel loaders, mobile harbour cranes, stacker/reclaimers etc.) as well as providing **environmental** and **health & safety benefits**. Additional benefits include **reduced planning** permission required due to product **mobility**. Also the **flexibility** to move Telestack Mobile Conveyors off site. Telestack Conveyors can be **rapidly deployed** on site with handling rates of up to 3,000 TPH.

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their wheel loaders to work in low light situations, for example during the winter months in northern countries when night falls

with electronic automatic weight adjustment and dynamic dampening system delivers ultimate comfort. The adjustable

armrests, extra-wide cushion, high and adjustable backrest, adjustable headrest and 80mm height adjustment enables the operator to personalize the seat set-up to create the perfect working position.

#### CASE CONSTRUCTION EQUIPMENT

CASE Construction Equipment sells and supports a full line of construction equipment around the world, including loader/backhoes, excavators, motor graders, wheel loaders, vibratory compaction rollers, crawler dozers, skid steers, compact track loaders and rough-terrain forklifts. Through CASE dealers, customers have access to a true professional partner with world-class equipment and aftermarket support, industry-leading warranties and flexible financing.

CASE Construction Equipment is a brand of CNH Industrial N.V., a major supplier of capital goods listed on the New York Stock Exchange and on the Mercato Telematico Azionario of the Borsa Italiana.



early, or when they are running their units up to three shifts per day finishing well after dark. The new F Series offers a highly efficient lighting package with 6 LED lights providing a far-reaching spread of light – over 21,000 lumen of lighting power.

#### PREMIUM SEAT FOR BEST-IN-CLASS COMFORT

Wheel loader operators work long hours on a fast and powerful machine, so comfort is a key concern. CASE teamed up with top range seat experts Grammer for the F Series' new Premium leather seat, which provides outstanding protection from repetitive shocks and vibrations. The low frequency absorber provides a smooth ride at all speeds, the fore and aft isolator ensures a comfortable ride on rough terrain, and the best-in-class active seat suspension





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## Simulation modelling – a key to successful stockyard design



*Shiploaders at Vale's Teluk Rubiah maritime terminal in Malaysia.*

South African-based DemcoTECH Engineering completed a simulation and modelling study for a major iron ore distribution centre for Brazilian miner, Vale, in Malaysia, underpinning its successful global track record of capabilities in stockyard design and layout.

DemcoTECH was appointed the materials handling engineering contractor for the Teluk Rubiah Maritime Terminal in Malaysia and was involved in the entire project from concept to completion of the implementation phase, FEL4.

DemcoTECH with ZAA Engineering Projects and Naval Architects completed the simulation study for the project. The study simulated operational processes such as import of materials from bulk carriers via the ship-unloaders and transport on the import conveyor system to the stockpiles, including blending and export of iron ore from the process stockpiles to the bulk export carriers.

The modelling of the import, blending and export operations was carried out using a combination of static spreadsheet models and dynamic Monte Carlo based simulations of operations.

“The dynamic simulation techniques are very powerful tools to simulate events such as unloading and loading operations as a time series, particularly as these processes consist of a large number of individual events that occur randomly in space and time,” says Paul van de Vyver, DemcoTECH Engineering GM.

“Through repeat simulations, we were able to statistically evaluate all possible outcomes of the process and the probability of achieving the required outputs given the randomness of the events.

“In addition, we could also test the influence of assumptions regarding individual events through sensitivity analysis.”

The simulations were repeated over the full import/export period, taking cognizance of all influencing factors ranging from weather and sea conditions, equipment capacities, rates and efficiencies, through to vessel arrival and departure schedules, all materials handling operations, power supply and potential failures and operating times.

“For each scenario, the typical output generated included

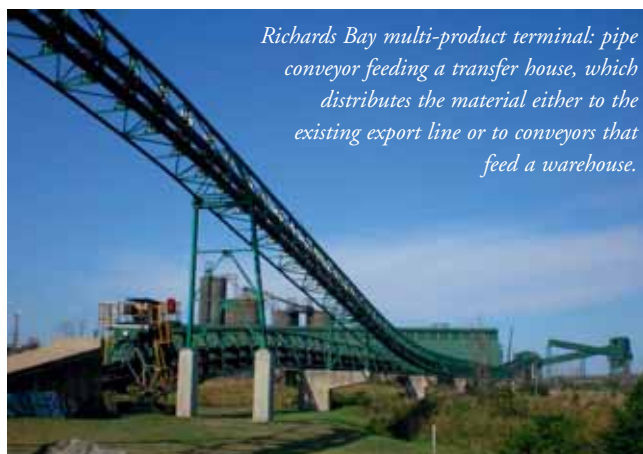
import/export volumes achieved, berth occupancies and demurrage, results which could then be utilized to optimize/adapt the plant layout, equipment selection or operational parameters,” adds van de Vyver.

“As undoubtedly one of the most important maritime terminal developments in this region, Teluk Rubiah, which initially handles 30mt (million metric tonnes) of iron ore per year and serves as a strategic distribution hub to Vale's customers in Asia, highlights DemcoTECH's ability to handle major terminal and stockyard projects.”

Detailed engineering of the bulk materials handling on stockyards is an integral component of an import terminal project DemcoTECH is presently executing for the Port of Ploče in Croatia.

“The multi-product terminal will offload and handle mainly coal, but also iron ore for distribution to the region's coal-fired power stations and steel mills. The project scope includes the entire materials handling system, starting with coal offloaded from the ship-unloaders through to the coal stockyards and the train rapid rail load-out system.

“The vastly different material properties of coal and iron ore have design implications for the system, particularly the chutes and train rapid rail load-out system, as well as the fact that the main stockpile is served by only one rail-mounted bucketwheel



*Richards Bay multi-product terminal: pipe conveyor feeding a transfer house, which distributes the material either to the existing export line or to conveyors that feed a warehouse.*





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*Lětseng — the drive of the 24m-high boom of the ROM stacker was relocated down to ground level for ease of maintenance.*



stacker reclaimers, after being offloaded by grab type ship-unloaders,” notes van de Vyver.

A standby stockpile facility is also being designed, utilizing mobile plant feeding into mobile hoppers, which discharge onto the yard conveyor via dual vibratory feeders. The mobile hoppers can be positioned along the entire length of the new yard conveyor.

Earlier this year, DemcoTECH successfully commissioned the upgrade to Lesotho’s Lětseng Diamond Mine’s run-of-mine (ROM) stacking conveyor. The turnkey contract comprised mechanically and structurally redesigning out the original design items that were compromising the performance of the conveyor. This included installing a new rake trestle as well as relocating the 160kW drive from the head end of the 33m-high boom and relocating it at ground level for ease of maintenance. This entailed the entire conveyor structure having to be reviewed and then redesigned. In addition, the head arrangement was redesigned to cater for a new head chute.

A new WEBA head chute was installed allowing even material particle size distribution across the stockpile. This ensures consistent feed of fines and lumpy materials being distributed evenly over both reclaim feeders reclaiming for Lětseng’s Plants No 1 and No 2.

The implementation contract followed a design audit performed for Lětseng by DemcoTECH.

“We worked to a very tight schedule to minimize any

disruption to production, with the improvements to the ROM stacker being implemented during the mine’s annual shut down period of seven days in February this year,” says van de Vyver.

The boom stacker conveyor feeds from the primary crusher to the stockpile, where the material is reclaimed to feed Lětseng Plants No 1 and No 2.

DemcoTECH was also appointed in 2014 to carry out the conveyor design and layout for the expansion to the tailings dump for Phase 3 of the Lětseng Mine expansion and is currently upgrading the tailings dump. This involves the installation of additional conveyor equipment as well as relocating the main extendable boom stacker conveyor and transfer towers. This current work is aimed at enabling the tailings system to handle higher capacities resulting from Lětseng’s Project Kholo, which, amongst other objectives, is aimed at increasing ore throughput.

Previous stockyard projects include the design, engineering, procurement and construction management for the materials handling portion of the expansion to Grindrod’s multi product terminal at the port of Richards Bay in South Africa. The scope of the contract was to provide the bulk materials handling system conveying various materials, but mainly coal and rock phosphate, from three Richards Bay terminal sites. The system provided, which has been operating successfully since commissioning, included receiving the coal from a tippler discharging onto three belt conveyors, one of which fed an open stockpile. The stockpile was equipped with mobile plant reclaiming material via a Buffalo feeder.

DemcoTECH also completed an expansion to the manganese export facility at Assmang Limited’s Cato Ridge Alloys plant in KwaZulu-Natal, South Africa, working jointly with Kantey & Templer Engineers. Part of the project focused on the supply of a greenfields stockpile and reclaim facility and included an automatic truck loading system.

The stockpile has a new elevated tripper feeding the stockpile with a dust suppression system to provide a safe and environmentally friendly operation. The wagon tippler was supplied with a new side arm charger to eliminate the positioning of rail wagons using a locomotive.

DemcoTECH Engineering is a specialist bulk materials handling and niche process plant company, offering services from concept design through to project completion to the power generation, cement, mining, metallurgical, manufacturing and port handling industries.

*Improvements to the ROM stacker were implemented during the mine’s annual shut down period of seven days in February this year.*







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## Phoenix Terminal Solutions: a new level

Founded in 1892, Phoenix Products Company Inc. designs and manufactures lighting fixtures for some of the world's harshest environments, including bulk handling stockyards. One of its key markets is the bulk handling industry a critical link in the world's supply chain. How a terminal utilizes the ever-changing technology available in this competitive industry can have a direct effect on the operator's bottom line. For this reason, having integrated systems and concise information about them is crucial.

### FILLING A VOID

For years, Phoenix has been observing the many unique characteristics of the terminal industry from the long buying cycles to the amount of capital investment required to remain competitive. The distribution channels are also unique. In many cases, the manufacturer, OEM and specifier are all located on separate continents, which often complicates the management of these projects.

Phoenix has responded to these distinguishing factors with an innovative new business model — Phoenix Terminal Solutions. It sells Phoenix's lighting fixtures in addition to other industry-leading manufacturers' of specialty equipment.

### THE FORMATION

Prior to doing anything, Phoenix researched, interviewed and judged key market professionals' reactions to its concept. The response was positive, and it was convinced it was the right thing to do for two predominant reasons:

- ❖ **Trust:** Phoenix is more than 123 years old. With its rich history and the credibility built over the decades, customers were confident they'd be presented with top-quality products from trusted suppliers.
- ❖ **Efficiency:** there was also a consensus that, with PTS bringing more products from more manufacturers, customers would learn more from a single sales call than they would by meeting with four or more separate vendors.

Phoenix has aggressively grown its presence in the terminal market for lights installed on equipment worldwide. Scott Fredrick, CEO of PTS and Phoenix explains, "A good deal of our

growth has been in LED technology and was leveraged when we established a specialized port sales team within Phoenix. Until then, we weren't able to identify an alternate sales channel that would focus exclusively on the port market, be adaptable to the long buying cycle or have a multi-national presence required by the industry."

### FORMING PARTNERSHIPS

In addition to Phoenix, PTS currently represents two premium manufacturers — LASE and Bright Light Systems. But this is only the beginning. Fredrick states that they plan to add others possibly organizations based overseas that are looking to grow in the North American market. Plans also exists to partner with American companies looking to expand into international markets because its port sales team already has a strong presence in Europe, Latin America, and Asia.

In reference to LASE's new partnership with PTS, Lars Ambrosy, CEO of the Germany-based manufacturer says, "LASE strengthens its presence by this partnership. Phoenix stands for quality as well as high-value products and services, which also reflects the philosophy of LASE."

This increased presence means more information for port operators who may not have the exposure to these manufacturers due to time or geographical constraints.

### MAXIMIZING RESOURCES

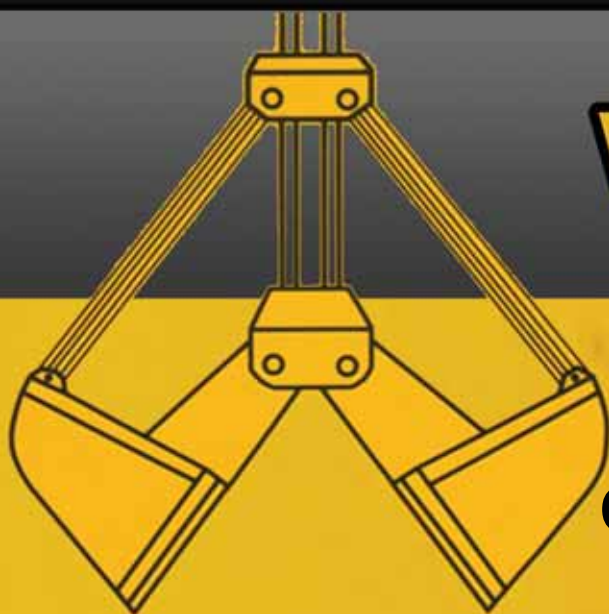
Fredrick further explains, "PTS' sales team had proven to be very effective. It includes credible, port industry veterans with a wealth of applicable knowledge." This brings a wealth of resources and a new level of service to terminals worldwide.

PTS has been fully operational since January 2015. Thus far, the market response and overall performance of the newly formed, specialized company has exceeded expectations. The project opportunities are abundant, and appointments have been incredibly productive.

All in all, it's been a very promising start for a company that is challenging the *status quo* and working to optimize distribution in the port industry.







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The 966M, 966M XE, 972M and 972M XE wheel loaders have EU Stage IV C9.3 ACERT™ engines equipped with a combination of proven electronic, fuel, air and aftertreatment components. Applying proven technologies systematically and strategically lets Caterpillar meet its customers' high expectations for productivity, fuel efficiency, reliability and service life. Deep system integration results in reduced emissions, improved performance and improved fuel economy without interrupting machine performance making it seamless to operators.

### PRODUCTIVITY AND FUEL EFFICIENCY

The XE advanced powertrain first introduced with the 966K XE continues with the 966M XE and the 972M XE. The XE technology results in 25% higher fuel efficiency on average compared with machines with traditional torque converters, and simplifies operation with a two pedal design while providing seemingly endless power.

The 966M and 972M powertrains have also been improved with the addition of lock-up clutch torque converters as standard. These new torque converters have also been matched with the engine power and hydraulics to improve performance and fuel efficiency and are another example of deep system integration. These rugged planetary transmissions also have a split-flow oil system and use new multi-viscosity oil which improves fuel economy. The deep system integration of the above features and further axle and hydraulic improvements below result in ten percent lower fuel consumption on average compared to the 966K and 972K. The new 966M and 972M are second only to the 966M XE and 972M XE which are the class leaders in fuel efficiency.

These models are used in dry bulk handling and where poor underfoot conditions make traction difficult slowing production and challenging job deadlines. By their ability to engage on-the-

go and to transfer 100% of the torque to the wheel with traction, the disc-type differential locks improve tractive ability in these applications thereby increasing productivity. All four models come standard with front axle differential locks which are manually activated by a switch on the floor. Optional fully automatic front and rear axle differential locks operate by measuring differences in axle speeds and require no operator intervention to activate. These disc-type differential locks will reduce tyre scuffing compared with other traction aids further reducing operating costs for customers.

The axles contribute to lower fuel consumption due to lower oil levels and bevel gear shrouds which reduce churning losses from rotating components. They also have external caliper disc parking brakes mounted to the input shaft of the front axles. Caliper parking brakes have higher capacity than the drum brakes used on the 966K and 972K. Since they are external, they do not have the inefficiencies of enclosed wet parking brakes due to brake discs running in oil nor is there any oil to change reducing fuel and maintenance costs. External caliper parking brakes are easily accessible for inspection and service.

The main hydraulic valve is a mono-block with an integrated ride control section. The mono-block design reduces weight, has forty percent fewer leak points and is common across all M Series models. The ride control system now has two accumulators enabling it to be more effective over a greater payload range, increasing productivity and operator efficiency due to a better ride. Auxiliary third and fourth hydraulic functions can be easily added at the factory or in the field with the addition of a second remote valve.

Hydraulic implement pumps continuously and automatically balance hydraulic loads with the machine performance desired by the operator. The pumps have larger displacements for increased hydraulic flow at lower engine rpm thereby saving fuel.



A new 'aggregate handler' version of these models allows to increase payload by approximately 700kg in free-flowing material applications.

#### OPERATOR EFFICIENCY

Improving operator efficiency remains a key design goal for the 966M, 966M XE, 972M and 972M XE. Ensuring operators are safe, confident in the control of their machines, have a clean, comfortable and quiet operating environment with controls that are intuitive and low effort, all contribute to reduced operator fatigue and better performance.

In the cab, the new door securely seals against the new roll formed ROPS posts and the lower glass panel has been extended several centimetres to improve visibility to the left side of the machine. Large convex mirrors improve visibility to the rear and integrated spot mirrors provide visibility close to both sides of the machine.

A new multipurpose colour touch screen display dramatically simplifies the operator interface; with machine controls, rear view camera and new fully integrated Cat Production Measurement

system. Intuitive navigation with in-language text enables operators to modify certain machine operating parameters and monitor machine conditions literally at the touch of their fingers. Some controls have been relocated to this new display eliminating the need for the second membrane switch pad further reducing cab clutter.

Operator sound pressure level & exterior sound power level remain unchanged for the 966M and 972M at respectively 69 dB(A) and 108 dB(A). The 966M XE & 972M XE operating at lower engine speed, benefit from reduced noise levels at respectively 67 dB(A) and 105 dB(A).

Cat Connect enables operators and managers to access machine operating data including total fuel consumption, average fuel rate, total idle time and fuel consumed at idle, total operating hours and several other machine data. The Caterpillar Production Measurement app option is integrated in the touch screen display providing payload information. These technologies and services provide an increasing ability for customers to monitor, manage and enhance operations, gain more control of their jobsites and reduce costs and increase profits. **DCi**



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# White is the new green



*An E-Crane in operation at Harsco, Brazil.*

Energy consumption and environmental impact are becoming increasingly important when a company invests in new material handling equipment. In other words, nowadays the impact on the environment caused by a material handler needs to be minimized. Additionally, the cost to handle one tonne of bulk material also has great importance, as this shows the economic feasibility.

As a result, over the last few years, there has been a tendency towards greater energy efficiency. Several manufacturers now supply material handlers with hybrid systems, where the energy that is released during the boom down function is stored into accumulators. When the boom is lifted, the stored energy is utilized to support this movement. Usually an additional cylinder is required in combination with an energy storage system. Suppliers claim to save customers 30–35% on their energy bills.

At the same time, more and more electrically powered machines are becoming available, instead of the traditional diesel powered material handlers.

At E-Crane, they have been doing things quite differently for the last 25 years. Utilizing the principle of equilibrium, where the stick is connected to the rotating counterweight by means of a connecting rod, the load can be moved from point A to B at a fraction of the energy usually required. The energy savings accomplished using hybrid systems is insignificant in comparison. The philosophy is simple; start with an energy efficient design rather than adapting to a fundamentally inefficient one.

On an E-Crane, the centre of gravity of the machine always stays within the slewing ring as the movement of counterweight and stick are synchronized. As a result of this, a balanced state is maintained and guaranteed at all times. When working with lighter loads, the movable counterweight moves the stick out almost spontaneously as it pulls the boom up. When working with heavier loads, the movable counterweight assures that smooth lifting is possible at low hydraulic working pressures.

Additionally, electrically powered machines are nothing new for Belgium's only manufacturer of bulk handling cranes. All

# E-Crane launches the 'E-Handler™'

In 2015, E-Crane proudly announced the launch of a new product line: the E-Handler™.

The E-Handler is designed specifically for high production material handling, and comes in both the EH900 and EH1200 Series. The E-Handler is a versatile machine, which is available on a fixed pedestal lower, rails, crawler or barge mounted lower. All E-Handlers are electrically powered, with a diesel genset option for mobile equipment. The E-Handler has many advantages including low operating costs, long term reliability, low maintenance costs, long term durability, long outreach, and quiet, ergonomic operation.

The EH900 Series consists of six



different models with up to 31.7m (104ft) outreach and up to 13.6 metric tonne (15.0 US ton) capacity.

As a result of E-Crane's continuously improving production efficiency, the new E-Handler can be delivered within three months of order and all models are very competitively priced. This new product has ensured E-Crane's position as a leading supplier in the material handling market. Lieven Bauwens, Executive Director of E-Crane Worldwide, states, "Our new crane is an absolute 'must' for scrap businesses which are looking to improve their efficiency."

## E-HANDLER™ SPECIFICATIONS

	EH900 Series				EH1200 Series				
	Outreach		Capacity		Outreach		Capacity		
	Metres	Feet	Metric tonne	US ton	Metres	Feet	Metric tonne	US ton	
EH8248	24.8	81.5	13.6	15.0	EH11290	29.0	95.1	19.1	20.9
EH8264	26.4	86.5	13.0	14.3	EH10317	31.7	104.0	19.4	21.1
EH7290	29.0	95.1	10.5	11.6					
EH6317	31.7	104.0	10.6	11.7					

machines are equipped with an electrical motor as the power source, and have been for many years. When no shore power is available, the machines can be equipped with a diesel generator set. Switching between shore power and diesel is always possible. What others see as an important innovation has been common practice for decades at E-Crane.

This was clearly illustrated during the E-Crane Demo Days, which were held recently at the headquarters of the E-Crane Group of Companies to celebrate its 25th anniversary (please see 'E-Crane celebrates 25th birthday with the launch of E-Handler' on p58 of the July 2015 issue of *Dry Cargo International*).

During this open house, an E-Handler® with a maximum outreach of 29 metres and a lifting capacity of 10.5 tonnes was

shown and available for demonstration. It was impressive to see that this machine only required a 132kW electric motor to power it, while material handlers in the same range require a power source of around 350kW... start counting your energy savings! The E-Handler gives E-Crane a big advantage when entering the market of traditional material handlers.

Where E-Crane was formerly known as a manufacturer of mostly large harbour cranes and as the market leader of cranes for scrap catering inside steel mills, the company has now entered a segment where this equipment is within reach of a larger public. Consider recycling facilities where a shredder, shear or baler is fed. One E-Handler can do the job of three smaller material handlers at a fraction of the cost. The machine can comfortably cover an area of 2,700m<sup>2</sup> and store material at



## The world's largest grains and oilseeds event



The 2016 outlook for grains presents a less significantly bearish view than was present at the beginning of 2015.

Extreme weather in the US and Europe has brought production concerns, and this could be followed by a severe El-Niño event in the year ahead that could adversely affect growing conditions in Asia and Australia.

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heights of 15m or more. The E-Handler becomes one efficient unit together with, for instance a shredder, and can carry out all tasks involved: unloading trucks, storing material, feeding the shredder as well as loading the processed metals.

In addition, the on-site safety is brought to a higher level, as there is a much reduced need for rolling equipment (material handlers, wheel loaders, etc...). Finally, the elevated position of the operator adds to the safety as he/she always has the best possible overview while working.

While many claim to offer 'green' alternatives, E-Crane actually delivers. This is realized, considering a machine that can reach a life of 60,000 hours or more. The scope of supply starts at an outreach of 25 metres all the way up to 50 metres and lifting capacities of up to 60 tonnes are possible.

Examples of these machines being used in Belgium include the Galloo Group, RETRA and Carinox in Chatelet.

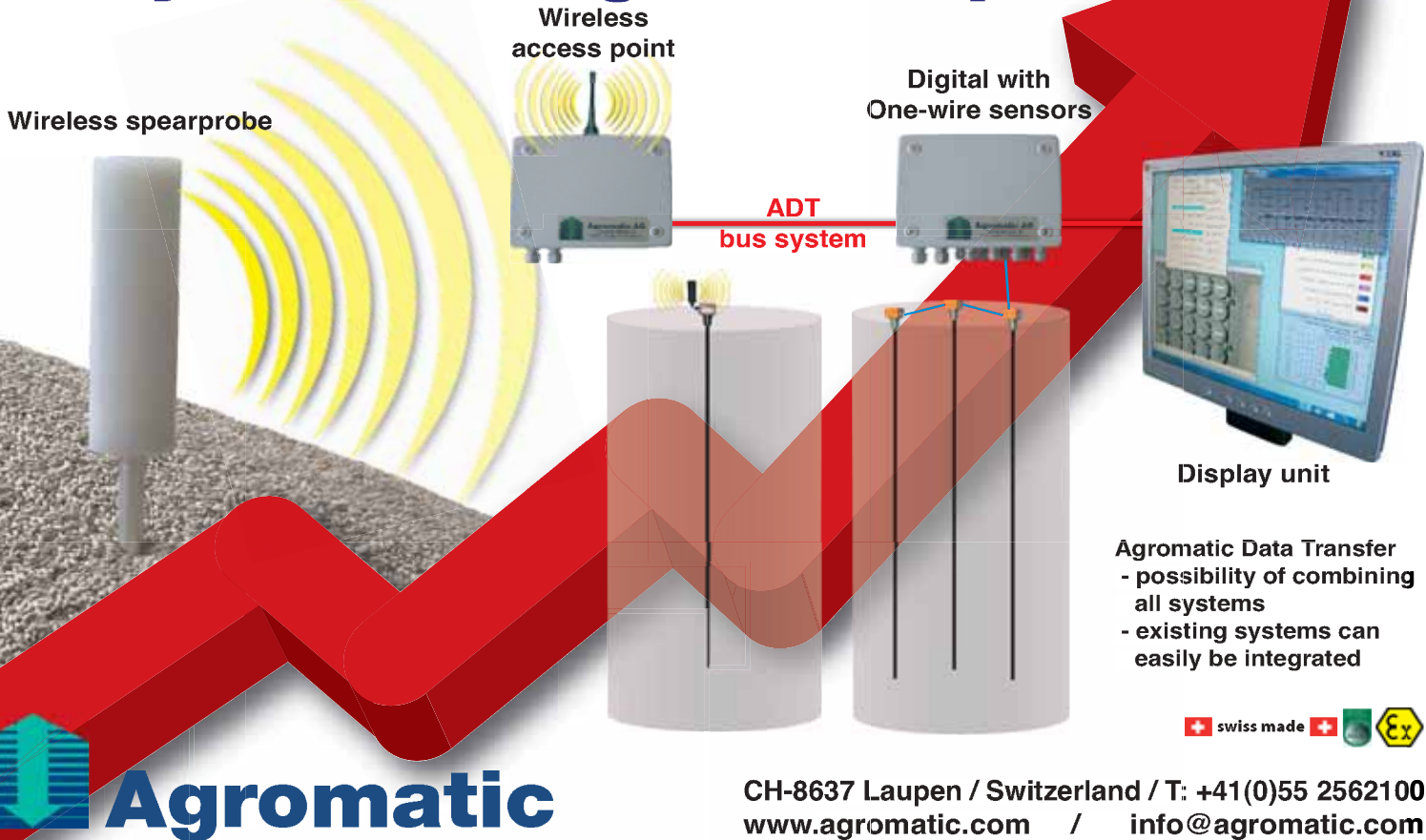
Examples of North American customers for these machines include American Recycling, Nucor, and Harsco Brazil.

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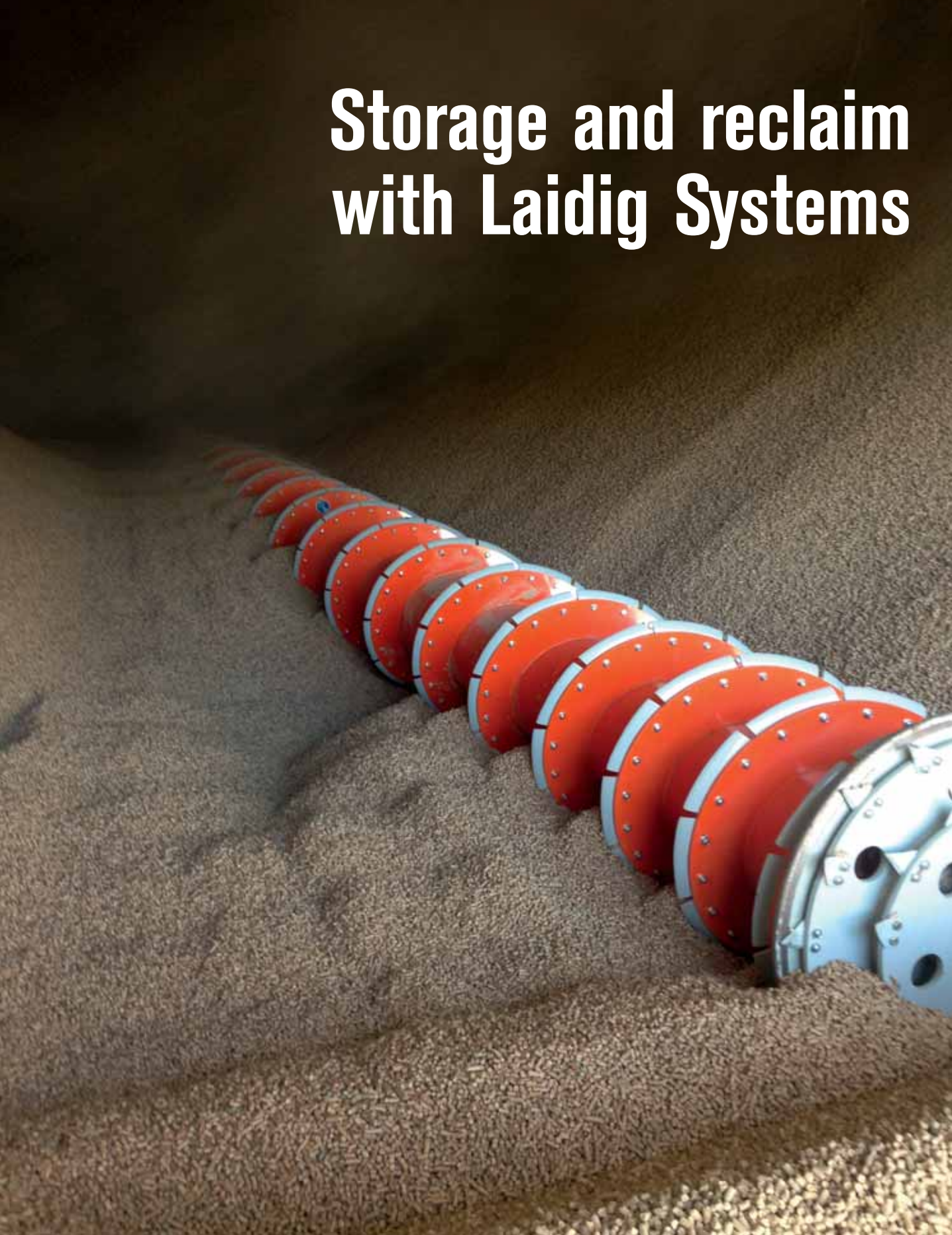
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- Henry Ford

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# Storage and reclaim with Laidig Systems



Laidig Systems, Incorporated provides custom-engineered bulk storage and reclaim systems that are exceptionally durable, reliable, with fully automated, state-of-the-art control interface technology. Laidig Systems is known throughout the industry for its rugged, high-quality solutions. Laidig excels in innovative, effective designs that are customized to store and reclaim bulk materials with poor material flow characteristics or other special

handling requirements. Some of these materials include grains, grain meals, biomass (i.e. wood chips and pellets), trona, crushed coal, FGD gypsum, limestone, fly ash, cement, powders, and a variety of recycled materials.

Laidig has pioneered the bulk storage and reclaim industry for over 50 years, and is recognized as the industry leader for screw-type bottom reclaimers in silos, domes, and open piles.







Laidig engineers, fabricates, installs and services, and markets its bulk storage and reclaim systems to provide a complete material-handling package that includes: the reclaimer, storage vessel, and peripheral conveying and handling equipment. Laidig's highly-qualified team has the knowledge and expertise necessary to provide solutions for some of the most difficult material handling challenges, especially with grain and grain meals.

One of the Laidig reclaim systems that excels with these types

of materials is the CleanSweep. The Laidig CleanSweep system is ideal for high-volume storage of free-flowing materials, such as dry grains and pellets. The CleanSweep is a wheel-supported reclaimer that provides total clean-out with zero personnel entry into the bin. The unique reversing capability of the CleanSweep enables maximum operational flexibility.

CleanSweep systems are available in corrugated bins, steel tanks, or monolithic concrete silos in diameters up to 200 feet.



Designed specifically for free-flowing and semi-free-flowing materials, the Laidig CleanSweep is the ultimate bin, silo and dome clean-out solution. It allows for more-frequent inventory turnover eliminating dead zones and minimizing waste caused by mold and infestation. The CleanSweep's fully-automatic, push-button clean-out operation reduces labour costs while increasing net profits. High-volume discharge is achieved by combining free-flow through draw-downs with consistent, high-delivery from the reclaim auger. The Laidig CleanSweep provides the highest level of operator safety by avoiding many of the health and safety risks of silo entry. Its zero-entry clean-out operation eliminates employee exposure to harmful dust, chemicals and the risk of material engulfment. The CleanSweep is 'confined-space friendly', with minimal maintenance required, and with serviceable components in easily-accessible locations.

Laidig's CleanSweep leads the industry by offering key features that add value and flexibility. Its reversible sweep operation allows for greater flexibility when partial clean-out or unexpected silo fill is required. In the case of upset material conditions or a material avalanche, the sweep auger has the ability to reverse out of the material and then continue normal operation. The CleanSweep features a heavy-duty, rigid auger design coupled with advanced-torque sensing controls to ensure the reclaim auger remains at floor level while advancing at the appropriate rate. These torque-sensing controls and rigid construction eliminate auger climb and maximize efficiency by allowing the sweep auger to cut (not climb) into the stored material.

The Laidig CleanSweep is built with longevity and flexibility in mind. Designed to handle a wide variety of materials, the CleanSweep is ideal for free-flowing and semifree-flowing materials. Unlike traditional bin sweeps, Laidig's rugged

CleanSweep is built to perform under upset material conditions or collapsed material piles. For efficient operation, Laidig utilizes high-power hydraulic motors for the CleanSweep's reclaim and advance drives. This hydraulic system has an integrated, automatic dual-speed reclaim drive, allowing for greater operational flexibility under harsh conditions, frequently eliminating the need for costly aerated floors and dryers. All drive components are protected from the stored material to ensure longevity of equipment and minimize the possibility of material contamination.

The Laidig CleanSweep also offers an intelligent, fully automated, push-button operation utilizing Laidig's LMI™ (Laidig Machine Interface). The LMI™ provides the operator with maximum control and flexibility while ensuring the reclaiming is running in a safe and efficient manner. It allows full interaction and monitoring of the reclaiming's status and operation in a graphic-rich display. The LMI™ provides an interface to safely control the CleanSweep reclaim system, which can be integrated with various types of customer control systems. It can also include remote access capability for monitoring or troubleshooting the system off-site.

All of Laidig's systems — including construction and field services — are offered worldwide, with the most active regions of export being Central America, South America, Asia and Europe. Both domestically and internationally, Laidig provides solutions to bulk storage and handling problems that other companies are unable or unwilling to provide. Decades of problem-solving experience around the globe have resulted in innovative and effective designs, allowing Laidig to expand with confidence into the unique material-handling applications of the 21st century.

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# Telestack gets to grips with grain



With the demand for grain exports increasing over the last number of years, UK-based Telestack has been at the forefront in providing custom-designed solutions for this important sector. Telestack has extensive experience in the handling of specialist applications and offers a range of truck unloader and telescopic/cambered boom shiploaders custom-designed to handle specialist products — without compromising the all-important tonnage!

Philip Waddell, international sales manager for Telestack, explains, “There are many considerations when handling grain, barley, wheat and oilseeds. Degradation of material by over handling, dust emissions, product contamination and potential flammability of material are all considerations of the application that need to be incorporated into the design. This is in addition

to the necessary functionality of the unit — achieving high throughput, site parameters, mobility, trimming and loading requirements as well as other options and features specific to the individual client requirements. We have almost 20 grain handling units working in Ukraine alone and are working on several others.”

The Telestack telescopic and cambered boom shiploading and truck unloader range offers a complete raft of solutions and reference sites for those handling specialist products such as grain. Multi-national Nibulon has a fleet of ten Telestack TS 227 shiploaders as an integral part of a multi-billion dollar grain transshipment project in Ukraine. This investment arose from the growing export demands for barley, wheat and oilseeds, especially to Japan and Asia. On a single mobile chassis, each



TS 227 parallel/radial telescopic conveyors consisted of key functions including rail-mounted parallel travel, radial slewing, luffing and telescopic features winning the 'Best Shiploading System' category at the *International Bulk Journal* awards.

The undoubted success of these units was clearly demonstrated when the customer placed several repeat orders to facilitate the expansion of other river terminals throughout the Ukraine. Telestack has also supplied a 500tph (tonnes per hour) × 80 metre radial telescopic mobile shiploader and wheel mounted truck unloader for Nika Tera grain terminal in Nikolaev. Supported by the Ukrainian dealer YTS, Telestack in the last few months has also commissioned a new TS550 parallel rail-

mounted telescopic shiploader and HF 521 hopper feeder to stevedoring company Transservic, which operates in the Port of Illichivsk.

Prior to the arrival of the TS 550, Transservic had been using gantry cranes which were slow, costly and unreliable. In contrast the Telestack shiploader gave superior reliability, increased capacity as well as lower operating and maintenance costs. Incorporating features such as a parallel travel system (utilizing existing jetty rails), radial function for trimming of hatches, luffing (from 14° to 27° allowing it to work hatches on board a Panamax vessel) and dust containment system (through the incorporation of a Cleveland Cascade chute with 360° trimmer),

the TS 550 is electrically powered thereby cutting out unnecessary diesel fumes. In terms of productivity, it can load up to 600tph of grain at a density of 0.7t/c<sup>2</sup>. The shiploader is mostly handling grain but the multi-functionality has also meant that it has been used to handle soya beans as well as cake and meal for animal feed.

Commercial director Malachy Gribben continues, "Our success is in our experience. We have managed such a vast portfolio of applications across the globe and have such a wide range of products and options to draw upon, that when it comes to providing solutions, chances are we have already solved the problem! Our team of sales and design specialists work closely with the client to understand their needs and incorporate design solutions







specific to their application requirements and site limits. This is one of the reasons why we continue to win reoccurring contracts across the globe.”

Telestack has always been renowned throughout the industry for the quality of its machines and has recently been awarded UKAS accreditation covering the following recognized global standards; ISO 14001 (Environmental Management), OHSAS 18001 (Health & Safety Management). This is in addition to its existing accreditation to ISO 9001 (Quality Management). The Telestack Integrated Management System (IMS) ensures that anything which has an effect on overall business performance is monitored, actioned and improved as a natural part of the company’s business culture.

With a proven global record Telestack continues with its successful implementation of integrated solutions that perform not only in terms of tonnage but also fulfil the key deliverables of functionality and handling of material during all elements of the process. With a range of grain reference sites and clients from around the world, Telestack can deliver increased productivity, accuracy, flexibility and efficiency in all operations.

Telestack specializes in the complete design, manufacture, installation and commissioning of mobile, bulk material handling systems.

Telestack has a global proven record

in a range of applications including the coal, mining and quarry industries, stockyard management, ports and inland terminals, power stations, rail yards, steel mills, cement kilns and many other bulk material handling industries.

Its mobile solutions offer significant operating cost savings compared with traditional methods of material handling (wheel loaders, haul trucks, static conveyors), as well as providing environmental, health and safety and other benefits. Other significant benefits include not requiring planning permission due to product mobility and flexibility to move Telestack products to work on other projects.

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# Takraf delivers cross conveyor system



*Pre-assembly of hopper cars 1 and 2  
(source: TAKRAF).*

## TAKRAF supplies cross-conveyor for Vattenfall's F60 overburden bridge

In August 2014, TAKRAF GmbH received an order from Vattenfall Europe Mining AG for the supply and installation of the new cross-conveyor system for the F60 conveyor bridge in the open cast mine at Welzow-Süd/Brandenburg. The scope of services included the fabrication respectively conversion of hopper cars and chassis as well as the scrapping of system components which would no longer be used. The special challenge of the project was the tight schedule. Thanks to the commitment and the long-standing experience of all experts involved in Vattenfall and TAKRAF, it was possible to deliver the system in ten months, as planned.

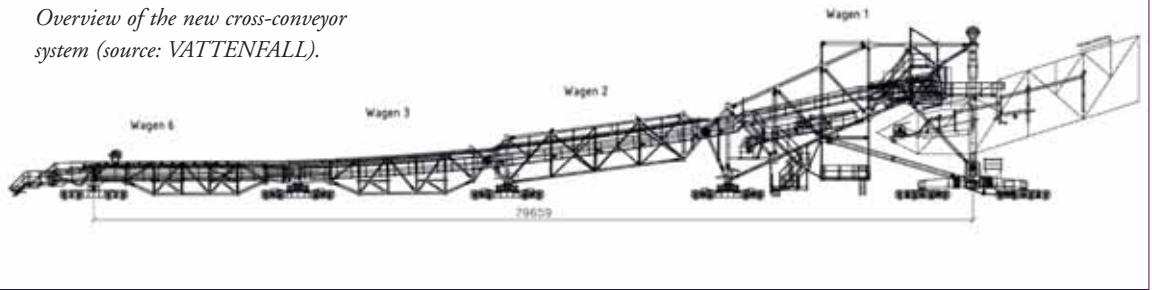
Production started immediately after the award of the

contract, and the first parts arrived on site after five months. In close co-ordination with the fabrication and erection team, all operational obstacles were managed to meet the demanding schedule. The hopper cars were relocated from April 2015 onwards. Thus an important milestone with regard to the mine operation was reached on time.

Further assembly work on the cross-conveyor took place until the end of the June 2015. The scrapping, conversion and adaptation work, which was carried out in parallel, was executed with the help of a TAKRAF transport crawler. This machine has a load capacity of 250 tonnes and had been supplied by TAKRAF to Vattenfall earlier.



*Overview of the new cross-conveyor system (source: VATTENFALL).*



The next milestone was in May 2015, again on schedule, when the complete conveyor bridge was

moved by about 10m in order to couple the new cross-conveyor system to the bridge. The scope of work also included the renovation of the lubrication system as well as corrosion protection at the construction site.

All personnel involved in the project team in the fields of engineering, fabrication and site erection worked closely together, thus enabling the successful realization of the contract within the pre-determined schedule. Everyone involved benefited from the expertise developed over many years in complex reconstruction and modernization works, as e.g. changing the tension tie rods on the conveyor bridge in the Jämschwalde open cast mine. The cross-conveyor system was able to be completed in June 2015.

After three days of commissioning of the conveyor bridge complex by experts from Vattenfall, the conveyor bridge went back into mine service.

TAKRAF is already working on another project at Vattenfall, i.e. changing the large bogie and the roller table at the F60 conveyor bridge at open cast mine Nochten.

TAKRAF GmbH is a leading supplier of equipment and systems for open cast mining and bulk handling. Headquartered in Leipzig, the company has an additional engineering and production site located in Lauchhammer. TAKRAF's product range includes planning, development, design and delivery of

equipment and systems, including the manufacture of key components for open cast mining equipment and bulk handling systems in TAKRAF's own workshop. The company's equipment and systems for bulk handling are used in port facilities, storage areas, power plants, the smelting industry and in the cement industry, among other places.



*Pre-assembly of the cross-conveyor system (source: TAKRAF).*



*(And picture, right): Move of transfer conveyors 1, 2, 3 and 6 from pre-assembly area to final erection site (source: TAKRAF).*



*Start of the commissioning as of 26 June 2015 (source: TAKRAF).*



*Relocating hopper car 4 with an RT 250 (source: TAKRAF).*





# Bulk Material Handling Equipment for the Iron Ore Industry

Tenova TAKRAF is a key supplier of individual machines and integrated systems for handling bulk materials in mine stockyards, ports, power stations and metallurgical plants. Each project is approached from the end-user's viewpoint in order to deliver optimized solutions that meet and exceed requirements and expectations.

Complex material handling operations starting from train unloading via stockyard handling and blending to ship loading are handled on the basis of extensive experience and know-how in bulk handling. Stackers, Reclaimers, Stacker/Reclaimers, Scrapers, Ship Loaders and Ship Unloaders are reliably in operation all over the world.



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# Driving force?

bulk handling drives,  
systems & controls



Jay Venter

## Liebherr LHM 280 with hybrid drive for Vienna

**HAFEN WIEN INVESTED IN A NEW LIEBHERR MOBILE HARBOUR CRANE, TYPE LHM 280, WHICH STARTED OPERATION IN AUGUST 2015.**

Hafen Wien operates the largest free port in Austria. Its perfect connection to waterways, road and rail network characterize this port in the Austrian capital of Vienna. The port is continuously expanding to become one of the largest and most modern logistics centres on the Danube in Europe. In order to update its

facilities, the company opted for a Liebherr mobile harbour crane, type LHM 280. Providing a maximum lifting capacity of 84 tonnes and an outreach of up to 40 metres, the crane is equipped with two winches for highly efficient cargo handling.

“Our new mobile harbour crane helps us to improve cargo handling efficiency. Thanks to its versatility and mobility, we are able to expand our service portfolio which is important for the future development of our port. This investment also

strengthens the attractiveness of inland waterborne transport,” says Karin Zipperer, Technical Director of the port.

#### PERFORMANCE MEETS MOBILITY AND FLEXIBILITY

Hafen Wien has already successfully operated a Liebherr mobile harbour crane, type LHM 1080 (Grey crane in the background of the picture on the left), for more than 25 years. The new machine, which started operation in August 2015, is twice as strong as the old one and universally applicable. Although the LHM 280 is 55 metres high and 240 tonnes heavy, the crane is mobile and highly flexible. The new cargo handling solution will be used for container handling, bulk handling as well as general cargo operation.

#### INNOVATIVE TECHNOLOGY FOR HIGHER TURNOVER

Taking a major step towards low-emission but high-performance, the LHM 280 is equipped with Liebherr's unique Pactronic® hybrid drive system. Pactronic® is regenerating the reverse power while lowering the load. In addition, the surplus power of the primary energy source is also used for charging the accumulator. The stored energy is transferred back to the system when the crane requires peak power during hoisting. In

terms of turnover capacity, that means a plus of 30% compared with a conventional machine with equal power rating of the primary energy source. In addition, Pactronic® leads to a reduction of fuel/energy consumption (litre/tonne) as well as CO<sub>2</sub> and exhaust emissions in the range of 30% depending on the operation.

Hafen Wien also ordered Liebherr's Cycoptronic® system for its new LHM 280. This optional tool ensures accurate and sway-free load motion through initiating dynamic counterbalancing movements for operation at maximum speed. The Cycoptronic® teach-in feature is a point-to-point control for semiautomatic operation. It pilots the crane to predetermined loading and unloading points at the highest possible speed.

#### MORE CAPACITY FOR AUSTRIA'S BIGGEST HINTERLAND HUB

The Port of Vienna is conveniently situated at three TEN-T corridors and is one of the main hinterland hubs in Europe, especially for the major North Sea ports and the Adriatic ports. With its facilities in Freudenuau, Albern and Lobau, Hafen Wien is the largest public port on the Danube in Austria, handling 13 million tonnes of cargo per year. The new investment in the Liebherr LHM 280 will further strengthen its market position.

## The best of two industrial gear unit worlds

The new P-X series of industrial gear units combines the advantages of SEW-EURODRIVE's P planetary gear units with those of its helical-bevel gear units in the X range. With specially designed housings that integrate the intermediate flange, the result is a series of compact, weight-optimized drive units. These are available in seven sizes and with a torque range of 100 to 500kNm.

From bucketwheel excavators and apron feeders

to shredders, sugar mills and wood panel systems, SEW-EURODRIVE's P-X industrial gear units provide the ideal drive solution for a wide range of high-power, high-performance applications. With seven sizes to choose from, torques of between 100 and 500kNm, and a gear ratio range of  $i = 160$  to 560, they also offer a great deal of flexibility.

One key feature comes in the form of the high thermal ratings that these industrial gear units are equipped for as a result of their shared oil chambers and thermally optimized housings — this helps keep down cooling system costs. However, the drive units also function reliably at temperatures of below  $-25^{\circ}\text{C}$  if used in conjunction with the relevant heaters and heating mats.

Another important plus-point is that the housings are designed as symmetrical, invertible enclosures and have an inspection cover on both sides. What's more, the motor adapters can be used to connect motors of up to IEC 355 with 500kW.

#### THE BENEFITS OF THE NEW P-X RANGE OF INDUSTRIAL GEAR UNITS AT A GLANCE:

- ❖ save on cooling system costs thanks to the high, gear unit-specific thermal ratings;
- ❖ reduce costs spent on storing replacement units thanks to the symmetrical, invertible enclosures;
- ❖ save even more on energy costs if using DRN.. energy-efficient motors from SEW-EURODRIVE;
- ❖ meet tighter deadlines as a result of short delivery times for standard products from SEW-EURODRIVE; and
- ❖ the received is fully tried and tested, as the P-X series combines the best of two well-established industrial gear unit worlds and thus represents many years of experience with numerous drive units in the field.



*The new P-X series of industrial gear units*



## That's how it is: six surprising capabilities of modern hydraulics

### SIMPLY EXCHANGEABLE: READY-TO-INSTALL SERVO-HYDRAULIC AXE

Anyone with only a superfluous familiarity with fluid technology could easily underestimate the performance and intelligence of modern hydraulics, writes *Dr. Steffen Haack, Executive Board of Bosch Rexroth AG, responsible for Industrial Applications and Sales Division.*

Who would think that this technology is highly precise, energy-efficient, and ready today for Industry 4.0 applications? Here are six capabilities of a strong drive technology, which probably come as a surprise for many:

**Micrometer precision:** electrohydraulic axis controllers close the control loop decentrally, similar to electrical servo drives, and harmonize the target/actual position in real time within milliseconds. The precision of the movement solely depends on the respective utilized measuring system. In tool and plastic machines, hydraulic drives reliably position axes to a few micrometers precise. (Image 1)

**Compact:** it is often difficult to place electromechanical drives with sufficient performance in tight construction spaces. Unlike hydraulic drives they also add significant heat. Since power generation is decentralized in the power unit and since it is connected to the actuator via lines or pipes, OEMs can generate high forces even on minimal construction space. The relatively low level of heat created in the work area dissipates optimally through the hydraulic fluid. (Image 2)

**Need-based energy efficiency:** software combines the best from electrical and hydraulic systems. The decentralized intelligence in the electronic control device adjusts the rotational speed of the pump drive on demand as the consumer requires power, or it lowers it to zero. In comparison to common constant drives, this reduces the energy consumption of hydraulic power units by up to 80%. By the way: even older facilities and machines can be retrofit without major efforts to significantly reduce the energy consumption in production. (Image 3)

**Balanced drive physics:** fluid technology is not always inherently linear. Drive software for hydraulic actuators takes these particularities into consideration and harmonizes them automatically. Preprogrammed, typical hydraulic functions, e.g. synchronization or position-dependent braking, merely require the optimization of parameters within the scope of start-up. They are based on a transparent software structure and function equally on all hardware platforms.

**Open and outgoing:** with increasing frequency, real time Ethernet protocols in modern machines integrate all actuators and peripherals into each other. Modern motion controls for hydraulic drives support all common protocols, e.g. Sercos, EtherCAT, Ethernet IP, PROFINET RT, Powerlink and Varan. Their software is also based on open standards, e.g. IEC 61131-3 and PLCopen. With this they are an ideal match for the increasingly integrated and technology-overlapping infrastructure of modern production environments — all the way up to Industry 4.0.

**Simply exchangeable:** ready-to-install servo-hydraulic axes have an integrated fluid loop and are driven by the same servo drives as the electromechanical versions. Since axes are encapsulated systems, engineers must only connect power and communication cables for assembly and start-up, and start-up can begin. Everything else, for example the parameterization values determined from simulations, are already stored in the drive software and support the plug & run philosophy. (Image 4)



Image 1.



Image 2.

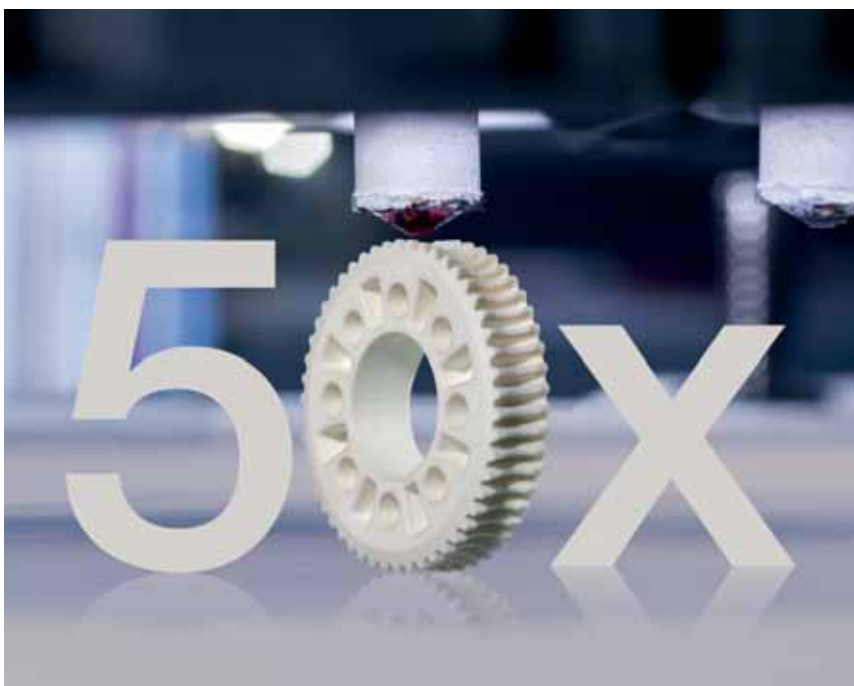


Image 3.



Image 4.

## igus' 3D printing service enables fast delivery of tribo-plastic prototypes



### AT THE HANNOVER MESSE EXHIBITION, THE SPECIALIST FOR PLASTICS IN MOTION INTRODUCES ITS NEW SERVICE FOR TRIBO PARTS

Those who need prototypes or special plain bearings in the future will be able to get even faster solutions supplied by igus. A year ago at the Hannover Messe, the expert for motion plastics and high-performance plastics for moving applications, presented the world's first tribo-filament for 3D printers. Now igus has expanded its range of offers and will now provide a 3D printing service to its customers by delivering special parts even faster and at very affordable prices.

From the Hannover Messe onwards, igus will offer a 3D printing service with the in-house tribo-filament and will take

over the complete production of special parts. "Our customers can contact us with their 3D data and get their parts quickly and easily printed by us," says Tom Krause, product manager at igus iglidur® tribo-filament. "This is what we have been occasionally carrying out in recent months and now want to offer this service to all our customers." igus has expanded its potential with the tribo-filament, which is 50 times more abrasion-resistant than conventional 3D printing materials and delivers even more unusual geometries quickly and easily. The delivery times for printed parts are mainly dependent on the complexity of the components. 'From 24 hours' is a statement that is also true for these igus products.

### CALCULATE PRICES AND ORDER ONLINE

The service for customers is made as simple as possible up to the finished component.

The data can be uploaded on the igus website and the components ordered. The

prices are also determined automatically online, and similar to the indication of the delivery time, the price also depends on the complexity and the structure of the component. "It is also possible for us to print components from two different plastics," says Krause. "That means it can print either very complicated components in which the support material dissolves, or the component is printed from a normal ABS and only the sliding surfaces are made of our abrasion-resistant iglidur I180-PF." At the Hannover Messe, igus offers, as a first step, components such as worm gears from this first low wear tribo-material. In the future, complex shapes can be printed from more iglidur® standard materials to offer users more creative freedom in their designs.

## Bluetooth interface developed for wireless TorqSense

### A BLUETOOTH INTERFACE AND ANDROID APP HAVE BEEN DEVELOPED BY SENSOR TECHNOLOGY LTD FOR ITS NON-CONTACT TORQUE SENSOR, THE TORQSENSE.

TorqSense is unusual in that it does not have to be physically connected to the shaft the torque level of which is being measured. Instead two tiny piezoelectric combs are glued onto the shaft and an adjacent radio transmitter/pickup monitors their distortion due to the shaft's rotation, using radio frequency waves. There is no physical connection between shaft and sensor, hence no need for delicate wiring or fiddly slip rings.

Bluetooth is conceptually very similar. It is a wireless technology that allows data exchange over short distances and like TorqSense transmits uses radio waves. It is commonly found in hands-free phones and other mobile devices, so is used by many many people in their everyday lives. In the engineering and industrial worlds it is often favoured as a wireless alternative to RS-232 data cables and can connect several devices simultaneously.



Thus Sensor Technology's new Bluetooth module brings total wireless flexibility to torque measurement. In use the module simply plugs into the TorqSense's existing 15 way 'D' digital lead connector. As well as collecting the torque signal, the Bluetooth allows the transducer to be powered through the interface and also provides a USB output for connection to a PC, which allows a full version of the TorqView software to be used.

Having a Bluetooth enabled TorqSense transducer removes the need for cable runs from the sensing head to the receiver. This can make system lay out easier and even allow torque to be measured in real time in situation where it was previously impossible.

Significantly the new unit also allows monitoring of the torque signal on any device that has Bluetooth capabilities.

The Android app enables real-time viewing of the current and peak values of torque, speed and temperature of a TorqSense reading via a standard mobile phone or tablet computer. This provides instant access to information without the need to set up a computer.

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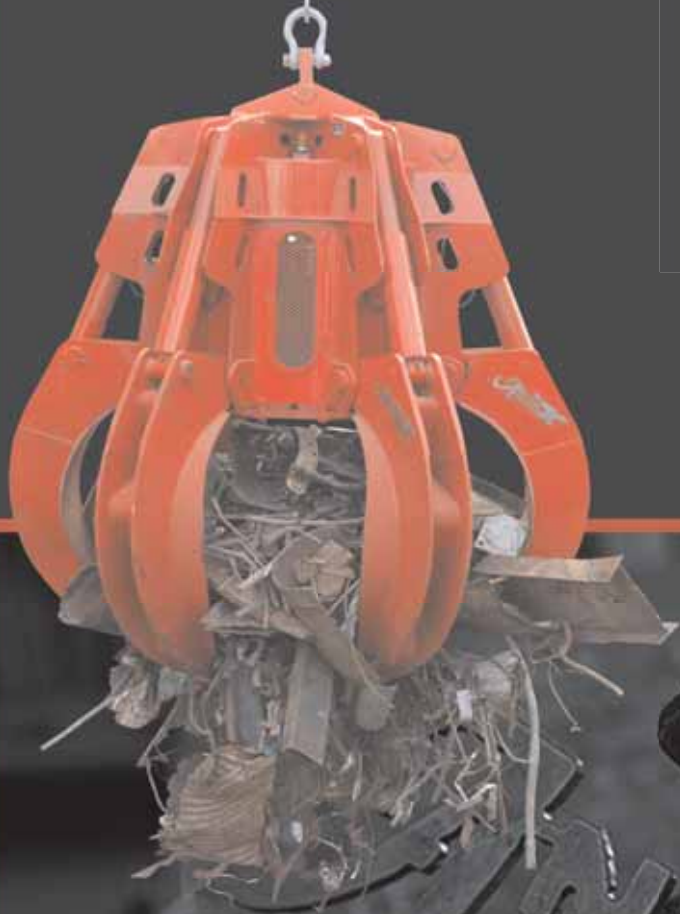
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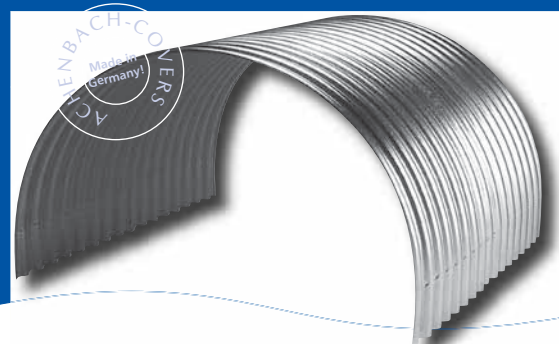
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E: sales@bedeschi.it  
elena.marcato@bedeschi.it  
W: www.bedeschi.it  
Founded in 1908 and since the  
early '70s has offered its  
experience to the cement,  
gypsum, mining, energy  
production (coal and petcoke)  
industries and pollution  
prevention, with a complete line of  
solutions for crushing (primary  
and secondary) and bulk material  
handling.

**Bekaert NV**

Product Group Steelcord  
Bekaert Street 2  
Zwevegem B-8550  
Belgium  
Contact: Mr Hans Desmet  
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T: + 32 9 3749 148  
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E: hans.desmet@bekaert.com  
W: www.bekaert.com  
Bekaert is a leader in  
manufacturing of wire and wire  
products for a wide range of  
industrial and household  
applications. Steel cord is the  
best way to reinforce a tire, a  
conveyor belt. Bekaert produces  
conveyor belt cords and woven  
steel cord fabrics for conveyor  
belt reinforcement.

**BELTANA Trading EK**

Sorenfeldring 27  
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22359  
Germany  
Contact: Mr Jörg Heyenga  
T: + 49 40 6037456  
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E: info@beltana.de  
W: www.beltana.de  
Specialises in supply of high  
quality fabric and steelcord  
conveyor belts for horizontal,  
inclined and vertical systems.

**Benetech GmbH**

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Deuben  
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**Benetech USA**

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E: blazekc@benetechusa.com  
W: www.benetechusa.com  
Benetech provides engineering,  
equipment, installation, and field  
services for bulk material handling  
projects, dust control equipment,  
advanced transfer chutes, flue  
gas conditioning chemicals and  
systems, and slagging/fouling  
control products. Our Plant  
Professionals division provides  
operating and risk management  
consulting.

**Best Service Group (B.S.G.)  
bvba**

Bogaardestraat 168M  
Maldegem  
Oost-Vlaanderen B-9990  
Belgium  
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Breusegem  
Job Title: Managing Director  
T: + 32 50 711801  
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E: info@sobemai.com  
W: www.sobemai.com  
Manufacturer of equilibrated

cranes, selling to the international  
market.

**Beumer Group GmbH & Co KG**

Oelder Strasse 40  
Beckum  
North-Rhine Westphalia  
D-59269  
Germany  
Contact: Dr Gerd Oberheuser  
Job Title: Head of System  
Technology  
T: + 49 2521 24 0  
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E: beumer@beumergroup.com  
W: www.beumergroup.com  
Curved belt conveyors can be  
supplied as open-air or enclosed,  
weather-tight systems. A  
diversified line of apron conveyors  
also supplied: high material flow  
volume, large centre distances,  
varying conveyor routes, handling  
of considerable conveying heights  
and intermediate discharge  
facilities.

**BGS Holland**

Hoogveeneweg 5  
Nieuwerkerk ad IJssel  
2913 LV  
The Netherlands  
Contact: Ms Martina Hermans  
T: + 31 180 317838  
F: + 31 180 315538  
E: info@bgsholland.nl  
W: www.bgsholland.nl  
Dust free loading chutes for  
shiploaders, truck and railcar  
loaders.

**Binder + Co AG**

Grazer Strasse 19-25  
Gleisdorf  
A-8200  
Austria  
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W: www.binder-co.com

**Birrus International Pty Ltd**

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**BLUG Credebbug S.L.**

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T: + 34 943 810 150  
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E: comercial@blug.es  
W: www.blug.es  
BLUG has over 40 years  
experience, more than 5,000  
grabs delivered worldwide and

don't play with your cargo

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IT WITH  
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**BLUG**  
Credebbug, s.l.  
HANDLING SOLUTIONS

Juan XXIII, 9 Azpeitia (Spain)  
blug@blug.es . www.blug.es



# BECO | GRABS



Technology that grabs you!

- Our program of Grabs:**
- Mechanical clamshell buckets
  - Hydraulic clamshell buckets
  - Electro-hydraulic clamshell buckets
  - Orange Peel grabs
  - Specials (tailor made)



Electro hydraulic clamshell bucket



Mechanical one rope clamshell bucket with remote control



Mechanical four rope clamshell bucket



Mechanical one rope clamshell bucket



Electro hydraulic clamshell bucket



Hydraulic clamshell bucket



Hydraulic clamshell bucket with connection piece

BV Beco, De Limiet 18, 4131 NR  
Vianen, Netherlands  
Telephone +31 (0)347-323100  
Fax. +31 (0)347-377780

E-mail: [info@beco-vianen.com](mailto:info@beco-vianen.com)  
Website: [www.beco-vianen.com](http://www.beco-vianen.com)  
Facebook: [www.facebook.com/beco.vianen](http://www.facebook.com/beco.vianen)  
Twitter: [www.twitter.com/BecoVianen](http://www.twitter.com/BecoVianen)

offers a wide grab catalogue. BLUG solutions - from single-rope operated radio controlled and automatic grabs, to 4-rope and electro-hydraulic high volume grabs - to fit any crane, material and production requirements.

### Bogaert Transmission (GEHA)

Industriepark  
Neringstraat 5  
Londerzeel  
B-1840  
Belgium  
Contact: Mr Luc Vliminckx  
T: + 32 52 75 0421  
F: + 32 52 30 01 98  
E: info@bogaert-transmission.com  
W: www.bogaert-transmission.com  
Specialists for over 30 years in supplying, engineering and manufacturing high quality chains and sprockets as well as for bucket-elevators en masse conveyors, apron conveyors etc and for cement, coal, fertilizer, steel, ore, minerals and other plants and factories.

### Bosch Rexroth B.V.

Kruisbroeksestraat 1  
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The Netherlands  
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Materials Handling & Mining  
T: + 31 411 65 19 51  
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E: cylinders@boschrexroth.nl  
W: www.boschrexroth.nl  
Has a worldwide responsibility for turkey projects and the development and production of Hydraulic Cylinders. Core competence is the development of engineered-to-order products, mostly one-off solutions for specific applications.

### Bosch Rexroth Mellansel AB

PRS-MLL  
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W: www.boschrexroth.com  
Hägglunds Drives is a global

market leader in hydraulic drive systems, specializing in heavy applications that demand high torque and variable speed.

### Boyne Area Manufacturing (BAM)

1 Altair Drive  
Boyne City  
MI  
49712  
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T: + 1 231 459 4242  
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E: jlaursen@boynearea-mfg.com  
W: www.boynearea-mfg.com  
Boyne Area Manufacturing designs and builds bulk material handling equipment for ship, barge, railcar, & trailer loading & stockpiling. Over 40 years experience. We build loading spouts, positioners, gates and valves, diverters, air flow conveyors, wet or dry dust collectors, hopper feeders, and bag filters.

### Brelko Conveyor Products

PO Box 62392  
Marshalltown  
Johannesburg  
Gauteng  
2107  
South Africa  
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T: +27 11 013 4000  
F: +27 11 013 4150  
E: peter@brelko.com  
W: www.brelko.com  
Development, production and marketing of an exclusive range of products for the bulk materials handling industry backed-up by a comprehensive installation and maintenance service, including 24-hour call out. BRELKO products assist in the control of spillage, carryback and dust, as well as promoting trouble free flow of material at belt conveyor transfer and load points. Other equipment: Air Cannons.

### Bretby Gammatech Ltd.

Unit 4 & 5 Station Yard  
Station Road  
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Derbyshire DE73 8HJ  
UK  
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T: + 44 1332 694594  
F: + 44 1332 865860  
E: info@bretbygammatech.com  
W: www.bretbygammatech.com  
Our equipment is vitally important as lesser quality coal with a high ash content could be rejected, at huge cost to the producer. Our products are accurate to within 1% of actual laboratory analysis enabling real time decision making. Other Equipment: Coal Quality Monitoring Systems

### Bridgestone Industrial Limited

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W: www.bridgestoneindustrial.com

### Bridon International Ltd

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W: www.bridon.com

### BRUKS AB

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E: phr@bruks.com  
W: www.bruks.com/

### BRUKS Rockwood Incorporation

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Contact: Mr Ken Upchurch  
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T: + 1 770 849 0100 x109  
E: kuh@bruks.com  
W: www.bruks.com  
Machines and complete plants for processing, storing and handling bulk materials in Bulk Terminals - including Tubulator conveyors, various storage solutions and ship loaders as core products. BRUKS supplies complete stockyard equipment and systems which range from the smallest semi-automated systems to the largest fully automated systems including open storage and closed or covered storage configurations.

### Bucket Mart Inc.

PO Box 1240  
Marion  
Illinois  
62959  
USA  
Contact: Mr Jack Johnson  
Job Title: President/CEO  
T: + 1 813 390 8626  
F: + 1 813 908 9474  
E: salesbucketmart@aol.com  
W: www.bucketmart.net  
We have all sizes and types 1Yd.=32Yd. of new or used Clamshell/Grapple/Dragnine/Rock Scoop/Misc. buckets for sale, rent or lease. Supplying Material Handling Service Companies Worldwide around the clock, 24/7!

### Bulk Cargo Handling BVBA

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E: bch.belgium@gmail.com

### BULK.ID

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E: bart.vanpoucke@bulkid.be  
W: www.bulkid.be

BULK.ID is strong in turn-key solutions for the handling and recycling industries. We collaborate with leading German manufacturers who deliver innovative products. A stable German partner and our own engineering, construction, assembly and service departments leads to an ideal collaboration for the customer. Other Equipment - Wind Sifters

### Bulk Logistic Landmark



Bedeschi (leading supplier of machinery and services for bulk material handling and minerals industries), Liebherr (experienced world-class crane manufactures) and Logmarin Advisors (specialized in shipping and maritime logistics) have formed a strategic business alliance profiting from the individual strengths and networks of each of the three partners, together generating value-added solutions and providing the most complete range of logistical services, creative advice and cargo handling equipment linking shipping with industry.  
Contacts:  
Bedeschi: Pietro De Michieli  
Liebherr: Alexander Bonbizin  
Logmarin: Mario Terenzio  
E: info@bulklogisticlandmark.com  
W: www.bulklogisticlandmark.com

### Buttimer Engineering



Carrigeen Industrial Estate  
Cahir  
Co. Tipperary  
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Buttimer Bulk Engineering are experts in the mechanical handling of dry bulk materials - including coal, grain, minerals and others - and offer consultancy, design, procurement, installation, bespoke fabrication and project management of complete turnkey solutions for ports, mines and industrial facilities.

### BV Beco



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E: h.vanvuren@beco-vianen.nl or d.vanhattem@beco-vianen.com  
W: www.becograbs.com  
One of the world's leading specialists in grabs for the bulk market. For more than 20 years BV Beco has been providing high-end, ready-to-run technological solutions. We have a big scale of products: Grabs - Wheelloaders, excavator and demolition equipment - Tipping Trailers - Hooklift carriers - Harbour- and industrial trailers.





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**Cable Arm Inc**

3452 W Jefferson Avenue  
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Contact: Mr Ray Bergeron  
Job Title: President  
T: + 1 734 676 6108  
F: + 1 734 676 1345  
E: info@cablearm.com  
W: www.cablearm.com  
As well as offering environmental dredging expertise, Cable Arm manufactures a range of equipment for bulk handling. Its buckets incorporate special features for moving nearly any granular material. Utilizing a patented level-cut bite, its buckets are faster and more efficient in bulk handling, eliminating extra cleanup equipment.

**Cachapuz Bilanciai Group**

Parque Industrial de Sobreposta  
Apartado 2012  
Braga  
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4701-952  
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**Calim Grab Industry**

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Çınar San.  
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Contact: Mr Murat Calim  
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W: www.calimgrabs.com or  
www.calimkepce.com  
Calim Grab Industry, established in 1970, specializes in manufacturing grabs for international seagoing cargo handling grabs. Over 2,300 grabs have been delivered worldwide to date. High-standard technology and reliable products are the result of our respect for the requirements of the market in combination with incremental improvement and implementation of experience gained throughout decades. CALIM GRABS will continue to be a reliable name in the machine industry.

**Cambelt International Corp**

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**Capotex**

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**Carbonser, S. A. DE C. V.**

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Carbonser is a company owned by Techint Group for the construction and operation of the 6 million tpa Petacalco Coal Terminal in the Pacific shore of Mexico. The installation includes two CSU manufactured by Techint Technology and is able to unload cape size vessels up to 150,000dwt.

**Cargotec Sweden AB, Marine Selfunloaders**

PO Box 914  
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W: www.cargotec.com  
Cargotec offers dry bulk handling systems for ship operators worldwide. Through the MacGregor brand, we provide complete self-unloading/loading systems for dry bulk carriers, integrated transloading solutions and bulk handling systems for offshore supply vessels - all designed to ensure efficient, flexible and environmentally-friendly operation. The systems are tailor-made for each customer's particular requirements. Virtually any dry bulk material can be handled.

**Carlsen Group**

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**Carsurin**

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W: www.carsurin.com  
Established in 1968, CARSURIN is Indonesia's largest private, independent inspection company servicing the energy industrie and mining (coal and minerals), as well as the marine, cargo, and agriculture industries to minimize risks. With over 700 employees in 20 branch offices and laboratories throughout the Indonesian archipelago, CARSURIN services both domestic and international clients. We are the ONLY Indonesian company that have independently secured to be a part of the International Federation of Inspection Agencies based in London and the sole Lloyd's Agent in Indonesia.

**Caterpillar SARL**

Caterpillar SARL  
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Caterpillar builds and supports products that are ideally suited for dry bulk handling in port environments. CAT equipment can be used to load and unload ships, barges; transfer, load and store materials; build and manage stockpiles; clean and maintain ships and quays.

**Cavotec SA**

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Other Equipment: Electrical Equipment. Cavotec is a global engineering group that enables industries worldwide to improve productivity, safety and sustainability. Cavotec delivers power transmission, distribution and control technologies that form the link between fixed installations, in for example airports, ports and mines, and mobile equipment such as aircraft, ships, mining equipment and cranes.

**CDM Systems, Inc**

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E: steve@cdmsys.com  
W: www.cdmsys.com  
Over 30 years experience offering a comprehensive range of bulk conveying systems, components and engineering/design services. Provide conveying and bulk handling solutions for materials

from Ash through to Zinc, including marine applications as well as those in hostile, severe or high-temperature environments.

**CFS Handling srl.**

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F: + 39 0302 072026  
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W: www.cfshandling.it  
CFS International Engineering Handling srl works in design and manufacturing of equipment for handling across a range of sectors including, coal, cement, steel mills, demolition, ores, urban solid waste, paper etc. The company's product range includes mechanical, hydraulic and electro-hydraulic buckets as well as hydraulic and electro-hydraulic grabs to suit customer's specific needs.

**Changsha Kaiyan Instruments Co. Ltd**

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Changsha Economic & Technological Development Zone  
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China  
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E: susanky@chs5e.com  
W: www.ckic.net

**China Sonangol International (S) Pte Ltd**

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E: sg@chinasonangol.com  
W: www.chinasonangol.com

**CHL Equipment Ltd (incorp. Versteegen Grabs UK)**

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Solihull  
West Midlands B90 3HD  
UK  
Contact: Mr John Hinder  
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T: + 44 121 733 8100  
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**Cimbria Bulk Equipment**

Industrivej 1a  
Herning  
DK- 7400  
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Contact: Mr Lars Noergaard  
Job Title: Managing Director  
T: + 45 72 42 24 00 / +45 96179000  
F: + 45 72 42 24 99  
E: cbe@cimbria.com

W: www.cimbria.com  
Develops and markets a line of loading chutes and screw conveyors within dust-free bulk handling. Supplies solutions for all types of dry bulk materials and for all loading tasks - ship loading, warehousing, road and rail. Chutes are supplied with or without integrated filter and made of modularly-structured components, all kept in stock.

**Claudius Peters Projects GmbH**

Schanzenstrasse 40  
Buxtehude  
D-21614  
Germany  
Contact: Mr Matthias Raabe  
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T: + 49 4161 706 349  
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E: mail@bhmclaudiuspeters.com  
W: www.claudiuspeters.com  
Product lines include grinding systems, storage and mixing silos, pneumatic conveying systems, ash removal systems, self-unloading vessels, packing and palletising systems, pulverised coal injection systems for blast furnaces.

**Claudius Peters Technologies S.A.S**

34 Avenue de Suisse  
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T: + 33 389 313 301  
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W: www.claudiuspeters.com  
Claudius Peters Technologies SAS is a company of Langley Holdings. Specialised in Stockyards and Belt Conveying systems we develop all kind of projects with stackers, reclaimers, including side stackers, tripper, shuttle type stackers; bridge, portal or side reclaimers; linear or circular, open or covered.

**Cleveland Cascades Ltd**

Unit 22 Dukesway  
Teesside Industrial Estate  
Thornaby  
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Contact: Mr Ian Barnard  
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W: www.clevelandcascades.co.uk  
Designs and constructs the Cleveland Cascade bulk loading chute for shiploading, silo filling, truck and railcar loading and for conveyor transfer points. The chute minimises dust emissions and reduces product degradation and segregation.

**Clough Limited**

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W: [www.clough.com.au](http://www.clough.com.au)  
A service provider of Project Management, Engineering and Construction Contracting services in the oil and gas (onshore and offshore), petrochemicals, mining and minerals processing industries, infrastructure (including power and harbour works) and manufacturing sectors.

#### CNBM International Engineering Co., Ltd.

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Edge Innovate are a blue sky thinking, imaginative and creative equipment manufacturing company. With our ethos of "Innovation at Work" EDGE persist in pushing the boundaries of design and manufacturing to produce hard working, quality machinery to fit any materials handling requirement from recycling, material handling to quarrying.

### Egis International

Place des Freres Montgolfier  
Guyancourt  
78286  
France  
Contact: Mr Pierre Aristaghes  
T: + 33 1 30 12 47 84  
F: + 33 1 30 12 10 95  
E: Pierre.aristaghes@egis.fr  
W: www.egis-international.fr

### EIFFEL Etablissement SOMDEL

80 bis rue Jean Jaurès  
Quievrechain  
F-59920  
France  
Contact: Mr Gérard Pellez  
Job Title: (see ed notes)  
T: + 33 32 714 1516  
F: + 33 32 714 1515  
E: contact.somdel.eiffel@eiffage.com  
W: www.eiffel.fr  
Specialised in the provision of tailor made lifting and handling equipment. The range of products extends from EOT for steel plants, nuclear power plants and gantry cranes to ship loaders, ship unloaders, stackers and reclaimers, conveying systems and turnkey installations.

### Elecon Engineering Company Ltd

Post Box # 6  
Anand Sojitra Road  
Vallabh Vidyanagar  
Gujarat 388 120  
India  
Contact: Mr B J Babaria  
Job Title: Vice President  
T: + 91 2692 237016 / 227131  
F: + 91 2692 236457  
E: bjabaria@mhe.elecon.com  
W: www.elecon.com  
Elecon since established in 1951, apart from Power Transmission Products, provides engineered solutions, manufactures and supplies Bulk Material Handling Plants and Equipments for the core sector industries which includes power, steel, cement, fertilizer, port mechanisation and open cast mines in India and Abroad.

### Elecon Singapore PTE Ltd.

10, Anson Road  
#24-03  
International Plaza  
Singapore  
079903  
Singapore  
Contact: Mr Vipul Shah  
Job Title: Manager Sales and Services  
T: + 65 62274694  
F: + 65 6227 8942  
E: vipul@singapore.elecon.com  
W: www.elecon.com

### Elgin Engineering and Construction

2001 Butterfield Road  
Downers Grove  
Chicago  
Illinois  
60515  
USA  
Contact: Mr Bob Williams  
Job Title: Marketing Director  
T: + 1 630 434 7200  
F: + 1 630 434 7272  
E: soros@elginindustries.com  
W: www.elginindustries.com  
An international consulting engineering firm specialising in conceptual development, planning, feasibility studies, design engineering, project management, construction supervision, rehabilitation and expansion of port facilities.

### EMS-Tech Inc



699 Dundas Street West  
Belleville  
Ontario  
K8N 4Z2  
Canada  
Contact: Ms Gail Carl  
Job Title: Executive Assistant, Sales & Marketing  
T: + 1 613 966 6611  
F: + 1 613 966 6710  
E: sales@ems-tech.net  
W: www.ems-tech.net  
A multi-task, multi-discipline company specialising in design and supply of dry bulk material handling equipment, both mobile and stationary; including custom designed conveyors, belt elevators, receiving hoppers, storage/load-out systems, environmental controls, shiploaders, stackers and reclaimers, self-unloading ships.

### EMS-Tech Inc.

Vlaardingestraat 3  
Ijmuiden  
1976 AS  
The Netherlands  
Contact: Mr Luke Huietema  
Job Title: Manager, International Sales  
T: + 31 251 291 340  
F: + 31 251 291 344  
E: europe@ems-tech.net  
W: www.ems-tech.net  
A Multi-task, multi-discipline company specializing in design and supply of dry bulk material handling equipment, both mobile and stationary; including custom designed conveyors, belt elevators, receiving hoppers, storage/loadout systems, environmental controls, shiploaders, stackers and reclaimers, self-unloading ships.

### EMTICI Engineering Co Ltd

68 Sarat Bose Road  
Calcutta  
West Bengal  
700025  
India  
Contact: Mr D Sen  
T: + 91 33 24761861  
F: + 91 33 24761831  
E: dsen@calemici.elecon.com  
W: www.elecon.com

### Enco Engineering Inc

4410 13th Street  
Wyandotte

MI  
48192  
USA  
Contact: Ms Bobbi Lang  
T: + 1 734 407 2400 x 202  
F: + 1 734 676 3436  
E: enco@encoeng.com  
W: www.encoeng.com  
Provides a broad spectrum of services ranging from conceptual studies through detailed engineering and supply of shiploaders/unloaders and related bulk materials handling equipment.

### Engicon nv

Broelstraat 20  
Harelbeke  
B-8530  
Belgium  
Contact: Mr Pieter Van Acker  
Job Title: Sales & Marketing Director  
T: + 32 56 73 21 21  
F: + 32 56 73 40 40  
E: sales@geldof.be  
W: www.geldof.be  
Offers complete solutions in bulk handling systems. Product range includes silos with extraction systems, discharge hoppers, pressure vessels and storage tanks, conveyor belts, screw conveyors, chain conveyors, bucket elevators.

### Enviro Abrasion Resistant Engineers Pvt. Ltd

"ENVIRO HOUSE", Sector-27  
Plot No. F/12  
Near Sambhaji Chowk  
Pradhikaran  
Pune  
411044  
India  
Contact: Mr Milind Dixit  
T: + 91 20 27641757  
F: + 91 20 27650316  
E: info@enviroabrasion.com  
W: www.enviro-abrasion.com

### EPN Solutions

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Piteå  
SE-941 52  
Sweden  
Contact: Mr Mattias Öman  
Job Title: Managing Director  
T: + 46 70 371 15 30  
E: mattias.oman@epnsolutions.se  
W: epnsolutions.se/

### EQUIPO LLC

Salahudeen Road  
Dubai  
64624  
UAE  
Contact: Mr Mohamad Yasar Aboobackar  
Job Title: Operations & Sales Manager  
T: + 971 506 408 626  
F: + 971 426 822 17  
E: yasar@equipo.ae  
W: www.equipolc.com/  
We are one of the suppliers of grabs in PG & Indian Subcontinent. All our grabs are radio remote controlled varying from 5 to 12 cbm. Grabs can be supplied on short term and long term rentals.

### Eriez Europe

Bedwas House Industrial Estate  
Bedwas  
Caerphilly  
CF83 8YG  
UK  
Contact: Ms Gareth Meese

Job Title: Marketing Executive  
T: + 44 29 20 868 501  
F: + 44 29 20 851 314  
E:  
Gareth.Meese@eriezeurope.co.uk  
W: www.eriez.com  
Eriez, a world authority in separation technologies is a one-stop solution thanks to its range of magnetic separators, metal detectors, feeders, wet drums and other processing equipment, particularly suited to the mining, aggregate and coal processing sector.

### ESI Eurosil BV



Newtonstraat 26-28  
Purmerend  
1446 VR  
The Netherlands  
Contact: Mr Jaap P J Ruijgrok  
Job Title: Managing Director  
T: + 31 299 630 730  
F: + 31 229 630 737  
E: esi@eurosil.com  
W: www.eurosil.com  
Other Equipment: Mammoth silo systems. Active in the field of design construction and/or turnkey delivery of large scale enclosed storage systems for coal, FGD-gypsum, limestone, minerals, basic chemicals and potato starch. Storage capacity of this flat bottom mammoth silo system (Eurosil) can range from 1,000 up to 100,000 m3 per unit.

### Euromec Srl

Via Visano 78/80  
Isorella  
25010  
Italy  
Contact: Mr Gervasio Alessandro  
Job Title: Sales Manager  
T: + 39 030 9958 151  
F: + 39 030 9952 223  
E: sales@euromecsr.com  
W: www.euromecsr.com  
Our deep knowledge and 60 year's experience in the process of handling all materials guarantees our presence in the most important ports and plants all over the world. Euromec pays particular attention to the simplicity of the manufacturing processes so that it can keep production costs low, improve final quality and reduce maintenance. As a result, our electrohydraulic and mechanical equipment are economical, reliable, long-lasting and with very low maintenance costs. Equipment is built with respect to the most rigorous certifications worldwide, both NEMA, ATEX and NEC 500 regulations for dangerous environments and GOST laws.

### Euro-Tramco BV

Spacelab 47 D  
Amersfoort  
3824MR  
The Netherlands  
Contact: Mr Hans Plekkenpoel  
T: + 31 33 4567033  
F: + 31 33 4558149  
E: hans@tramco-europe.com  
W: www.tramcoinc.com  
Manufactures chain, screw and bucket conveyors and 'Aerobel' air-supported belt conveyor systems.

### F E Schulte Strathaus GmbH & Co KG

Runtestrasse 42  
Werl  
D-59457  
Germany  
Contact: Mr Andre Hanke  
T: + 49 2922 9775 0  
F: + 49 2922 9775 75  
E: ha@schulte-strathaus.de  
W: www.schulte-strathaus.de  
Accessories for Conveyors: Starclean Conveyor Belt Scrapers, Belt Trackers, Spillex transfer point seals, Friflo impact tables and bars.

### F L Smidth A/S

Vigerslev Alle 77  
Valby  
DK-2500  
Denmark  
Contact: Mrs Camilla Travis  
T: + 45 3618 1000  
F: + 45 3645 4427  
E: ctr@flsmidth.com  
W: www.flsmidth.com  
FLSmidth offers products and solutions to handle any type of bulk material: lumpy, powdery, sticky, wet or dry. We supply process design and equipment for all materials handling applications for the cement industry, pulp & paper, fertilizer and related industries.

### Fairport Engineering

Market Place  
Adlington  
Lancashire  
PR7 2QP  
UK  
Contact: Mrs Linda White  
Job Title: Communications Manager  
T: + 44 1257 484000  
F: + 44 1257 483312  
E: info@fairport.co.uk  
W: www.fairport.co.uk  
FEL is the UK market leader in the successful development and delivery of major projects for the coal, quarrying & aggregate and building and concrete product sectors is a company and is continually enhancing its position within the power, alternative fuels and recycling markets.

### FAM Foerderanlagen Magdeburg

Sudenburger Wuhne 47  
Magdeburg  
D-39112  
Germany  
Contact: Mr Ulrich Schneider  
Job Title: Director Sales and Marketing  
T: + 49 391 6380 10 1 01  
F: + 49 391 6380 10 1 99  
E: sales@fam.de  
W: www.fam.de  
An independent company (head office in Germany; more than 1000 employees worldwide) whose scope of services includes: consulting, project management, scheduling, monitoring of dates, development, project planning, design, fabrication, construction, commissioning, quality management and supervision, maintenance, modernization, trainings as well as after-sales-services for turnkey bulk materials handling systems.

**Famak SA**

Machinery and Equipment Company  
 Fabryczna Street 5  
 Kluczbork  
 PL 46-200  
 Poland  
 Contact: Mr Wojciech Staszak  
 Job Title: President and CEO  
 T: + 48 77 40 70 100  
 F: + 48 77 418 15 45  
 E: famak@famak.pl  
 W: www.famak.pl

Over 60 years experience as manufacturers of transport-hoisting equipment. Highly qualified technical engineering staff have interdisciplinary knowledge and experience and design-development base, implementing the highest technical level of offered products. Products designed according to individual needs and installed on-site. Full service after installation.

**Fantuzzi Reggiane S.p.a**

Via Cisa Ligure 51/A  
 Lentigione di Brescello (RE)  
 42040  
 Italy  
 Contact: Ms Francesca Alfieri  
 T: + 39 0522 680 221  
 F: + 39 0522 680 426  
 E: falferi@fantuzzi.com  
 W: www.fantuzzi.com

**FELD Maschinen-und  
Industriebau GmbH**

Winkelfeld 3  
 Oer-Erkenschwick  
 D-45739  
 Germany  
 Contact: Mr Andre Stueckradt  
 T: + 49 2368 98890  
 F: + 49 2368 9889 27  
 E: Andre.Stueckradt@Maschinenbau-Feld.de  
 W: www.maschinenbau-feld.de  
 High standards, qualified and creative employees, the right technology to meet customers' demands. High-Tech for preservation of our resources.

**Fenner Dunlop Conveyor  
Beltting Europe**

Marfleet  
 Hull  
 Yorkshire  
 HU9 5RA  
 UK  
 Contact: Mr Jim Jones  
 T: + 44 1482 785450  
 F: + 44 1482 785438  
 E: jim.jones@fennerdunlop.com  
 W: www.fennerdunlop.com  
 Fire-resistant, solid-woven conveyor belting, with rubber or PVC covers, is manufactured to all major national safety standards. Supplied to all major underground materials handling and extraction industries and to other coal handling operations where safety and economy are major criteria.

**Fenner plc**

Hesslewood Country Office Park  
 Hessle  
 East Yorks  
 HU13 0PW  
 UK  
 Contact: Ms. Michelle Madden  
 Job Title: Studio Manager  
 T: + 44 1482 626 500 / 523  
 F: + 44 1482 626522  
 E: eprismuk@fenner.com  
 W: www.fennerdunlop.com/

**FFE Ltd**

9 Hunting Gate  
 Hitchin  
 Hertfordshire  
 SG4 0TJ  
 United Kingdom  
 Contact: Mr Mark Wood  
 Job Title: Business Development Manager  
 T: + 44 1462 444 740  
 F: + 44 1462 444 789  
 E: sales@ffeuk.com  
 W: www.ffeuk.com/

**Figeo Crane Services BV**

PO Box 235  
 Zaandam  
 1500 EE  
 The Netherlands  
 Contact: Mrs Babette Sloven  
 T: + 31 75 6810 410  
 F: + 31 75 6315 996  
 E: b.slovan@kenz-figee.com  
 W: www.kenz-figee.com  
 Merger of Kenz offshore cranes and Figeo harbour cranes. Founded in 1836, Figeo designs and manufactures a complete range of bulk handling cranes including the unique and well proven Lemniscate floating grab cranes with capacities from 16-50 tonnes, gantry grab unloaders, single- and double boom cranes, kangaroo cranes.

**Flexco**

2525 Wisconsin Avenue  
 Downers Grove  
 IL  
 60515-4200  
 USA  
 Contact: Ms Jayne Dore  
 Job Title: Sales Manager  
 T: + 1 630 971 6476  
 F: + 1 630 971 1180  
 E: jdore@flexco.com  
 W: www.flexco.com  
 Manufactures conveyor belt fasteners, installation tools and conveyor belt accessories. A broad line of products is marketed through a worldwide network of distributors under the brand names of Alligator, Clipper, Flexco, Tatch-A-Cleat, Eliminator

and Flex-lag.

**Flexco Europe GmbH**

Leidringer Strasse 40-42  
 Rosenfeld  
 D-72348  
 Germany  
 Contact: Mr Joerg Schairer  
 Job Title: Managing Director  
 T: + 49 7428 94060  
 F: + 49 7428 9406260  
 E: europe@flexco.com  
 W: www.flexco.com  
 Mechanical conveyor belt fastening systems and accessories; belt cleaning systems; ceramic lagging; maintenance tools.

**Flexicon Corporation**

2400 Emrick Blvd  
 Bethlehem  
 PA  
 18020-8006  
 USA  
 T: + 1 610 814 2400  
 F: + 1 610 814 0600  
 E: sales@flexicon.com  
 W: www.flexicon.co.uk/

**Flexoveyor Conveyor**

3795 Paris St., Unit D  
 Denver  
 Colorado  
 80239  
 USA  
 Contact: Mr Bill Priday  
 T: + 1 303 375 0200  
 F: + 1 303 373 5149  
 E: billpriday@conveyind.com  
 W: www.flexoveyor.com

**FLSmidth GmbH**

Alfred Leiner Strasse 3  
 Lanzendorf  
 A-2326  
 Austria  
 Contact: Ms Susanne Stidl  
 T: + 43 2235 4751011  
 F: + 43 2235 47568  
 E: susanne.stidl@flsmidth.com  
 W: www.flsmidth.com

**FLSmidth Minerals Pvt. Ltd**

FLSmidth House  
 34 Egatoor  
 Kelambakkam  
 Old Mahabalipuram Road  
 Chennai  
 Tamil Nadu  
 603 103  
 India  
 Contact: Mr Sivalingam  
 Santhakumar  
 Job Title: Library  
 T: + 91 44 47484795  
 F: + 91 44 27470301  
 E: indiainfo@flsmidth.com  
 W: www.flsmidth.com

**FLSmidth Wadgassen GmbH**

Karl-Koch-Strasse 1  
 Wadgassen  
 Saarland  
 66787  
 Germany  
 Contact: Mr Matthias Schmidt  
 Job Title: Sales Director EMENA  
 T: + 49 6834 470 0  
 F: + 49 6834 470 339  
 E: wadgassen@flsmidth.com  
 W: www.flsmidth.com  
 FLSmidth has developed a worldwide reputation for supplying innovative, fully-mobile material handling equipment solutions including mobile conveyors, stackers, loaders and unloaders, stockyard systems, and crushing and sizing equipment.

**Frigate Technologies Private  
Limited**

Gr. Floor, No. 9,  
 Block 5, Eros Garden  
 Charmwood Village  
 Surajkund Road  
 Faridabad  
 Haryana  
 121 001  
 India  
 Contact: Mr Ajay Hooda  
 Job Title: Director (Marketing)  
 T: + 91 129 4116470  
 F: + 91 11 66173981

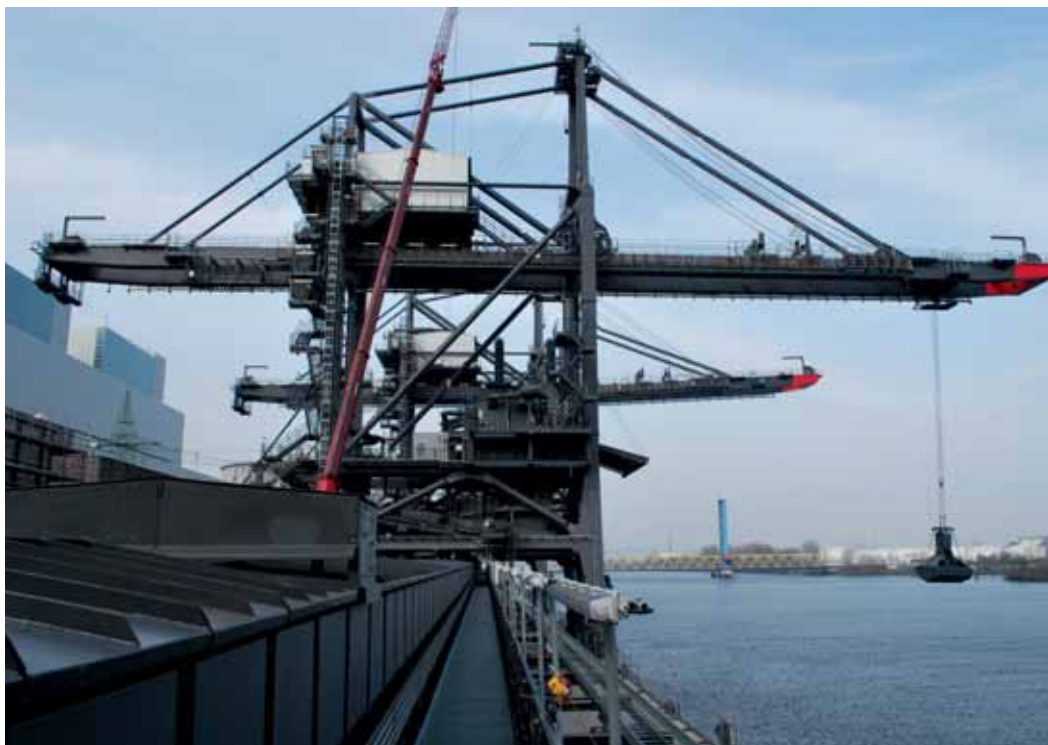
E: office@frigate.in  
 W: www.frigate.in  
 Other Equipment: Silo, Buckler  
 Elevator, Deep Pan Conveyor,  
 Marine Vessels

**Gama Endustri Tesisleri Imalat  
Ve Montaj AS**

Narcissus Street No: 9, 06 520  
 Söğütözü  
 Ankara  
 06540  
 Turkey  
 Contact: Mr Mehmet Artun  
 Job Title: General Manager  
 T: + 90 312 248 42 00  
 F: + 90 312 4094360  
 E: industry@gama.com.tr  
 W: www.gama.com.tr  
 Other Equipment: Apron feeders,  
 Air slides, Scrapers. One of  
 Turkey's most prestigious leading  
 contracting companies, with  
 experience in constructing  
 industrial and power plants, dams,  
 pipelines, infrastructures and  
 similar. Established in 1959, with  
 clients worldwide, has completed  
 more than 200 significant sized  
 projects internationally.

**Gambarotta Gschwendt**

Viale Verona 200  
 Trento  
 38123  
 Italy  
 Contact: Mr Luca Mastrorocco  
 Job Title: Sales Managers  
 T: + 39 0461 920403  
 F: + 39 0461 933391  
 E: gambarotta@gambarotta.it  
 W: www.gambarotta.it  
 Manufactures bucket elevators,  
 pan conveyors, drag chain  
 conveyors, extractors and  
 feeders, palletised product  
 loaders, gate valves, cell feeders,  
 flap valves and screw conveyors  
 used in petrochemical, cement,  
 coal, waste to energy plants and  
 for power generation, steel and  
 heavy industry applications.





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Tel.: +90 262 743 88 58 pbx Fax: +90 262 743 11 41

info@guvengrab.com

www.guvengrab.com



**Ganz Danubius Trading Co Ltd**

PO Box 1138  
Budapest  
H1325  
Hungary  
Contact: Mr Karol Bayus  
Job Title: Director  
T: + 36 1 350 5570  
F: + 36 1 329 8041  
E: gdtco@hu.inter.net  
W: www.ganztrading.hu  
Suppliers of mechanical  
shiploaders and unloaders, level  
luffing harbour grab cranes,  
floating grab cranes and other  
bulk handling equipment.

**Garwood Consulting Ltd**

Garwood Lodge  
Wentworth  
Ely  
Cambridgeshire  
CB6 3QG  
UK  
Contact: Mr Barry Woodbine  
T: + 44 780 102 4583  
F: + 44 1353 777315  
E: barry@garwoodconsulting.com  
Advice and consultancy on the  
design and implementation of fuel  
intake and storage systems in  
cement, power or CHP plant  
including the use of alternative  
fuels and Biomass plus Ship  
Loading and Discharge systems  
at Port and Terminal.

**General Kinematics Corp.**

5050 Rickert Rd.  
Crystal Lake  
IL  
60014  
USA  
Contact: Mr Gordon Frank  
Job Title: VP Sales & Marketing  
T: + 1 815 455 3222  
F: + 1 815 455 2285  
E: info@generalkinematics.com  
W: www.generalkinematics.com  
General Kinematics specializes in  
vibrating and rotary equipment  
and solutions for bulk processing  
of material in the foundry,  
recycling, scrap, mining, minerals,  
food, chemical, and wood  
industries. Each piece of GK  
equipment is custom engineered to  
your specifications to meet  
your process objectives.

**Geo - Chem Laboratories Pvt. Ltd**

Geo - Chem House  
294 Shahid Bhagat Singh Road,  
Fort  
Mumbai  
400 001

India  
Contact: Mr Subhashis  
Chakraborty  
Job Title: Head of Marketing  
T: + 91 22 663 83838  
F: + 91 22 663 83800  
E: s.chakraborty@geochem.in  
W: www.geochemgroup.com

**Geometrica Inc**

12300 Dundee Court  
Suite 200  
Cypress  
Texas  
77429  
USA  
Contact: Mr Cecilio Zalba  
Job Title: Sales Manager  
T: + 1 832 220 1200  
F: + 1 832 220 1201  
E: sales@geometrica.com  
W: www.geometrica.com  
Specialists in the design,  
fabrication and installation of bulk  
storage domed structures  
requiring large, column-free  
interiors, utilizing low  
maintenance galvanized steel or  
aluminum. Structures can cover  
any shaped area, can span over  
300m, and can be erected even  
over operating stockpiles.

**Gertech Handling Systems cc**

PO Box 4014  
Durbanville  
Cape Town  
Western Cape  
7551  
South Africa  
Contact: Mr Gerrit De Hoog  
T: + 27 21 914 5333  
F: + 27 21 914 5666  
E: gdh@gertech.co.za  
W: www.gertech.co.za

**GF MHS Srl**

Via Guido Rossa, 11  
Paderno Dugnano (MI)  
Milan  
20037  
Italy  
Contact: Mr Francesco Tummiolo  
Job Title: Managing Director  
T: + 39 0 2 91 08 20 02  
F: + 39 0 2 91 84 31 47  
E: info@gfmhs.it  
W: www.gfmhs.it  
Other Equipment: Pipe  
Conveyors. Please contact us  
with any Handling System  
problems, such as lay-out or  
pollution of your handled product.

**GGT Goldengrain Trading SA**

Via Capelli 28  
Lugano  
6900

Switzerland  
Contact: Ms Cornelia Riep  
Job Title: Manager  
T: + 41 91 971 40 20  
F: + 41 91 971 40 21  
E: cgriep@ggt.ch

**Golden West Industries**

332 West Railroad Ave  
Price  
UT  
84501  
USA  
Contact: Mr Ellis Pierce  
Job Title: Advertising  
T: + 1 435 637 3211  
F: + 1 435 637 6628  
E: pwynny@gbis.com  
W: www.goldenwest-industries.com  
17 years experience providing  
dust control and anti-freeze  
solutions to the mining and  
material handling industries.

**Goodman Conveyor Company**

U.S. Route 178 South  
PO Box 866  
Belton  
South Carolina  
29627  
USA  
Contact: Mr Carter Matthews  
Job Title: VP Sales & Marketing  
T: + 1 864 338 7793 x 102  
F: + 1 864 338 8732  
E: info@goodmanconveyor.com  
W: www.goodmanconveyor.com  
Provides a wide selection of belt  
conveyor idlers and components,  
together with a comprehensive  
selection of bulk conveyor  
equipment and components. Belt  
conveyors available in belt widths  
14"-96"; screw conveyors  
available in diameters 4"-60".  
Centrifugal and continuous  
discharge bucket elevators also  
available.

**Gordinne & Co NV/SA**

Belgian Ports Operation  
Leegstraat 1  
Zelzate  
B-9060  
Belgium  
Contact: Mr Patrick Bosschaert  
Job Title: Operation Manager  
T: + 32 9 342 3333  
F: + 32 9 342 3331  
E: patrick.bosschaert@stewartgroupglobal.com  
W: www.gordinne.be

**Guttridge Ltd**

Wardentree Park  
Pinchbeck  
Spalding  
Lincolnshire

PE11 3UU  
UK  
Contact: Mr Peter Lambert  
Job Title: Sales Manager  
T: + 44 1775 765300  
F: + 44 1775 765304  
E: sales@guttridge.co.uk  
W: www.guttridge.co.uk  
Guttridge offer a wide range of  
bulk handling machinery, ideal for  
moving ores, granules, powders,  
sand, cement, salt and fertilizers  
around process plants. All our  
machines are manufactured to  
suit customers' individual  
requirements.

**Güven Grab and Machine Ltd. Co**

Nazim Hikmet Cad 536. sk. No: 9  
Aske Köyü  
Cayirova  
Kocaeli  
41420  
Turkey  
Contact: Mr Engin Demir  
Job Title: Sales & Export Manager  
T: + 90 262 743 8858  
F: + 90 262 743 1141  
E: info@guvengrab.com  
W: www.guvengrab.com  
Established in 1984, with its own  
manufacturing facilities, Güven  
Grab and Machine supplies its  
range of grabs all over the world.  
These include radio remote  
control grabs, electro hydraulic  
clamshell/orange peel grabs,  
mechanical double wired grabs  
and mechanical clamshell/orange  
peel touch down grabs.

**Hangzhou Huaxin Mechanical & Electrical Engineering Co., Ltd.**

No. 2 Xiyuan Road  
Xihu Science and Technology  
Economic  
Garden  
Sandun  
Hangzhou  
310030  
China  
Contact: Ms Sandy  
T: + 86 571 8131 5353  
F: + 86 571 8542 5353  
E: sales@ship-unloader.com  
W: www.ship-unloader.com

**Hans Turck GmbH & Co. KG**

Witzlebenstraße 7  
Mülheim an der Ruhr  
D-45472  
Germany  
Contact: Mr Klaus Albers  
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**Hansen Industrial Transmissions NV**

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**Hansen Transmissions Ltd**

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F: + 44 1484 431426  
E: info.uk@hansentransmissions.com  
W: www.hansenindustrialgearboxes.com  
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**Hasel Machinery Inc**

Cumhuriyet Mh. Nr 15 E5  
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Yakacik Kartal  
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**Haskoning India Pvt Ltd**

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Navi Mumbai  
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**Hasler International SA**

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**HAUGEN System AB**

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**Heyl & Patterson Inc**



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PA  
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USA  
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President  
T: + 1 412 788 9810  
F: + 1 412 788 9822  
E: info@heylpatterson.com  
W: www.heylpatterson.com  
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material handling equipment. A  
complete line of railcar unloading  
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1045 AT  
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Hitachi Construction Machinery  
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Halesowen  
West Midlands B63 3PD  
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Manufacturers of Steel, Plastic &  
Aluminium Idler rollers, Conveyor  
Belt Scrapers and Conveyor  
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**HOSCH-Fördertechnik  
Recklinghausen GmbH**

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E: sales@hosch.de  
W: www.hosch.de  
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**Huadian Heavy Industries Co.,  
Ltd.**



B0813, Huadian Plaza  
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W: www.hhi.com.cn;  
www.chec.com.cn  
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business and the R&D and  
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**Hycontrol Limited**

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**Hyundai Heavy Industries Co**

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**IBAU HAMBURG**



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F: + 49 40 369 019 62  
E: mraemmele@ibauhamburg.de  
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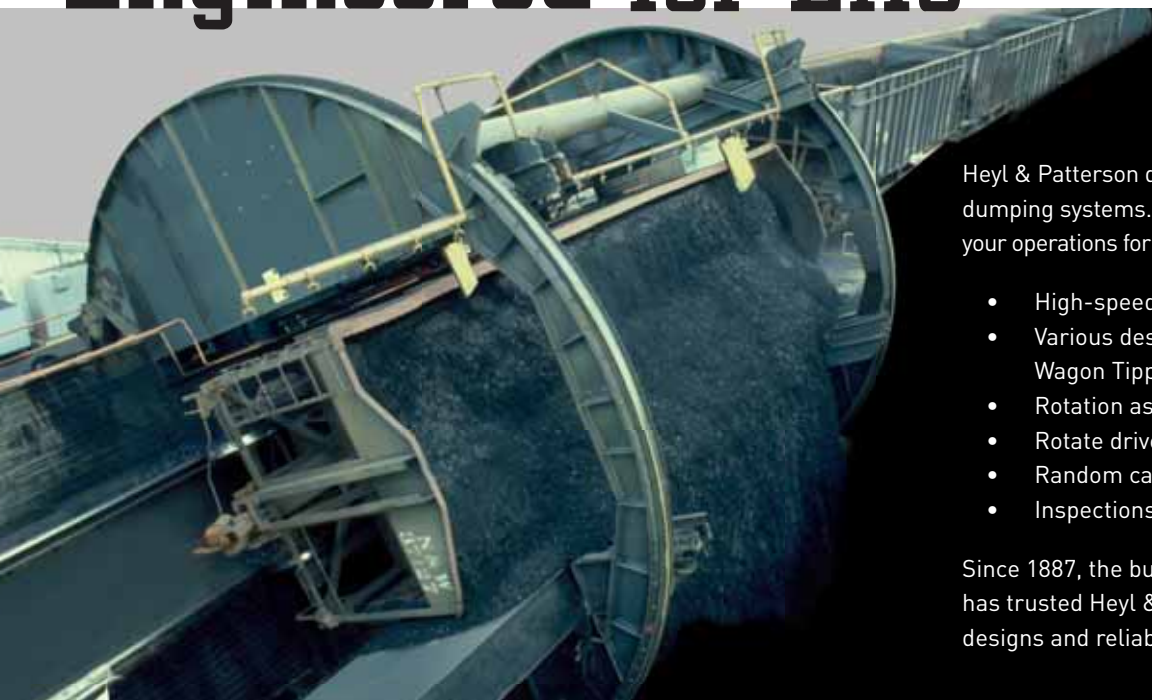
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T: + 49 2203 9649 0  
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E: cranes@igus.de  
W: www.igus-cranes.com  
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Tokyo  
104-0044 MZ  
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**IMGS**

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**Imperial Technologies, Inc.**

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E: rontschantz@imperial-technologies.com  
W: www.imperial-technologies.com  
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**Incolab Services BV**

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W: www.inspectorate.com  
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**International Bulk Handling Technology BV**

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F: + 31 492 664 695

E: info@ibtbulk.nl  
W: www.ibtbulk.nl  
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**iSAM AG Gesellschaft fuer angewandte Kybernetik**

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T: + 55 31 2128 2600 / 2641  
F: + 55 31 3351 4093  
E: info@isomont.com  
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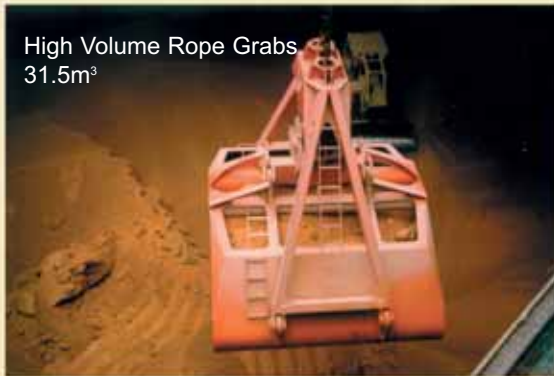
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**J & B Grabs b.v.**



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Designs, engineers and manufactures mechanical and hydraulic grabs for all kinds of bulk material.

**Jansen & Heuning**

Bulk Handling Systems  
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Kaohsiung  
81266  
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E: jw@roller.com.tw  
W: www.roller.com.tw  
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D-35394  
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**Joy Mining Machinery**

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**Kalenborn Kalprotect GmbH & Co. KG**

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T: + 49 26 45 18 121  
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W: www.kalenborn.de  
Other: Wear-protection solutions. Planning, production, working and worldwide installation of highly wear-resistant linings made of ceramic, metallic and plastic materials for protecting pneumatic and hydraulic pipe systems as well as plant components.

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**Kinergy Corporation**

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W: www.kinergy.com  
Other equipment: Vibrating Feeders and Conveyors; Bin Activators, Storage Pile Dischargers, Rail Car Dischargers and Densifiers, Fluid Bed Dryers and Coolers, Vibrating Spiral Elevators. Kinergy Corporation is a vibratory machine manufacturer designing, engineering and fabricating machines for capacities ranging from pounds per hour to several thousand tons per hour. Manufacturers of 'Induced Vertical Flow' and 'Induced Conveying' units using vibration.

**Kingfisher Industrial Ltd**

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**KOCKS KRANE GmbH**

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T: + 33 2 35 25 95 14  
F: + 33 2 35 25 95 82  
E: gerard.lesueur@konecranes.com  
W: www.konecranes.com  
Provides complete crane service worldwide for all types and makes of harbour and shipyard cranes. These services include: inspections, maintenance, spare parts, engineered parts, repairs, modernisation/refurbishment, moves/relocations and second hand cranes.

**Konecranes Finland Corporation**

PO Box 662  
(Koneenkatu 8)  
Hyvinkää  
FIN-05801  
Finland  
Contact: Mr Jari Itäcodes  
Job Title: Product Manager,  
Shipyard and Bulk Handling  
Cranes  
T: + 358 40 768 8258

F: + 358 20 427 2599  
E: jari.itakodes@konecranes.com  
W: www.konecranes.com  
Konecranes is a world-leading group of Lifting Businesses™, serving a broad range of customers, including manufacturing and process industries, shipyards, ports and terminals. Regardless of your lifting needs, Konecranes is committed to providing you with lifting equipment and services that increase the value and effectiveness of your business. See more information on www.konecranes.com

**Konecranes Hafentechnik GmbH**

Mühlenfeld 20  
Langenhagen  
D-30853  
Germany  
Contact: Mr Dirk Groth  
Job Title: Manager Marketing & Sales Support  
T: + 49 511 7704 418  
F: + 49 511 7704 477  
E: info-hafentechnik@konecranes.com  
W: www.konecranes.de  
Provides a complete crane service worldwide for all types and makes of harbour and shipyard cranes. These services include inspections, maintenance, spare parts, engineered parts, repairs, modernisation/refurbishment, moves/relocations and second hand cranes.

**KPI-JCI and Astec Mobile Screens**

700 West 21st Street  
Yankton  
South Dakota  
57078  
USA  
Contact: Mrs Melinda Schweitzer  
Job Title: Marketing Manager  
T: + 1 605 668 2524  
E: melindaschweitzer@kpijci.com  
W: www.kpijci.com  
KPI-JCI and Astec Mobile Screens, Astec companies (NASDAQ: ASTE), is a worldwide leader in manufacturing equipment for the aggregate, construction, paving and recycling industries. KPI-JCI and Astec Mobile Screens proudly manufacture its products in Yankton, South Dakota, Eugene, Oregon and Sterling, Illinois.

**KRANUNION GmbH**

Spinnereistraße 13  
Leipzig  
04179  
Germany  
Contact: Ms Gabriela Schilk  
Job Title: Marketing Department  
T: + 49 341 49 53 212  
F: + 49 341 49 53 125  
E: gabriela.schilk@kranunion.de  
W: www.kranunion.de  
Kranunion is an association of three crane manufacturers specialised in lifting and transporting heavy loads. Kirow is the world market leader for railway cranes and slag pot carriers. Ardelit is the world market leader for double jib level luffing cranes. Kocks is the world

market leader for Goliath cranes and innovator for STS container cranes.

**Kröger Greifertechnik GmbH & Co. KG**

Steinheide 1-9  
Sonsbeck  
D-47665  
Germany  
Contact: Dr Philipp Diekmann  
Job Title: Managing Director  
T: + 49 2838 3750  
F: + 49 2838 3729  
E: info@kroeger-greifertechnik.de  
W: www.kroeger-greifertechnik.de  
Manufacturer of grabs of all types since the year 1962. Main products - two and four rope grabs, hydraulic grabs, electro hydraulic grabs from 0.5-25m3.

**Laing O'Rourke**

825 Ann Street  
Brisbane  
Queensland  
4105  
Australia  
Contact: Mr Josh Murray  
T: + 61 7 3223 2303  
F: + 61 7 3223 2300  
E: rlayton@laingorourke.com.au  
W: www.laingorourke.com.au  
One of the world's most dynamic and innovative privately owned development, construction and specialist companies. Acquired Barclay Mowlem in 2006, thereby providing additional scale, resources and capability. Offers a Total Solution Partner - bringing finance, development, design, construction and maintenance solutions to clients throughout Australia and the Asia Pacific region.

**Larsen & Toubro Limited**

Monunt Poonamallee Road  
Manapakkam  
PB No.979  
Chennai  
600089  
India  
Contact: Mr Kumar Vikram  
Job Title: ECC Division  
T: + 91 44 2252 6250  
F: + 91 44 22526993  
E: kvikram@lntecc.com

**Lassing Dibben Consulting Engineers Ltd**

PO Box 472  
Trenton  
Ontario  
K8V 5R6  
Canada  
Contact: Mr David Jesse  
Job Title: Projects Manager  
T: + 1 613 398 0007  
F: + 1 613 394 4173  
E: info@lassingdibben.com  
W: www.lassingdibben.com  
Award winning consulting engineers, specialising in bulk material handling. Extensive experience around the world means the company can handle all aspects of system design. Projects include shiploading and unloading equipment for coal and coke, stackers, conveyor systems and storage facilities.

**Lawrence Industries, Inc.**

10403 Arbor Trail  
Fort Wayne  
Indiana  
46804  
USA  
Contact: Mr Kerry McAtee

Job Title: Sales Engineer  
T: + 1 260 432 9683  
F: + 1 260 432 6302  
E: kmatee@lawrenceindustriesnow.com  
W: www.tivar88.com  
Lawrence Industries, Inc. is a fabricator and distributor of TIVAR 88 polymer liners. TIVAR 88 is a low coefficient of friction liner that is used to eliminate sticking, pluggage, ratholing material build-up. TIVAR 88 has excellent wear properties.

**Legacy Building Solutions, Inc.**

19500 County Road 142  
South Haven  
Minnesota  
55382-9240  
USA  
Contact: Mrs Jenniefer Halverson  
T: + 1 320 258 0500  
F: + 1 320 259 0087  
E: jhalverson@legacybuildingsolutions.com  
W: www.legacybuildingsolutions.com

**Libran Engineering and Services**

C-33, First Floor  
Malviya Nagar  
New Delhi  
110 017  
India  
Contact: Mr Anil Seth  
Job Title: Director  
T: + 91 11 266 71658  
E: libranengineering@gmail.com  
W: www.libranengineering.com

**Liebherr Maritime Cranes**

Dr. Hans Liebherr Str. 1  
Nenzing  
A-6710  
Austria  
Contact: Mr Leopold Berthold  
Job Title: Sales Director  
T: + 43 50809 41725  
F: + 43 50809 41447  
E: mobile.harbour.crane@liebherr.com  
W: www.liebherr.com  
With 7 models available (42 - 208 tonnes capacity), Liebherr offers a wide range of cranes for dedicated coal handling. Due to optimized opening/closing and hoisting speeds, simultaneous functions, increased filling degrees, electronically controlled winch synchronisation etc., outstanding handling figures are being achieved.

**Liebherr-Hydraulikbagger GmbH**

Liebherrstrasse 12  
Kirchdorf  
88457  
Germany  
Contact: Mr Thomas Baeuerle  
T: + 49 7354 80 0  
F: + 49 7354 80 7294  
E: info@lnb.liebherr.com  
A member of the Liebherr Group a manufacturer of hydraulic material handlers.



**Listenow GmbH & Co.**

Dieselstrasse 21  
Rutesheim  
71277  
Germany  
Contact: Mr Carsten Lohr  
T: + 49 7152 50900  
F: + 49 7152 509050  
E: c.lohr@listenow.com  
W: www.listenow.com  
Other equipment: loading  
equipment, filters.

**Logmarin Advisors Srl**



Via Ilva, 2/9  
Genova  
16128  
Italy  
Contact: Mr Mario Terenzio  
Job Title: Managing Director  
T: + 39 010 538 5723  
E: info@logmarin.net  
W: www.logmarin.net  
Logmarin's scope of business is  
to provide an integrated,  
comprehensive and tailor-made  
advisory service for marine  
terminals and associated handling  
infrastructures, both off-shore and  
on-shore. Logmarin individuals  
and its associates have pioneered  
dry-bulk shipping logistics off-  
shore, devising and designing  
innovative floating terminals, self  
unloading vessels and floating  
cranes, as well as on-shore  
terminals.

**LogSys NV**

Land Van Waaslaan 5  
Haven 1213



Kallo  
B-9130  
Belgium  
Contact: Ms Sabine Berckmans  
Job Title: Project Manager &  
Marketing/Sales  
T: + 32 3 755 89 62  
E: sberckmans@logsys.eu  
W: www.logsys.eu  
LogSys has developed  
LGS.Stevedore, a browser based  
Terminal Operating System aimed  
at dry bulk terminals. It provides  
you with the opportunity to  
manage all aspects of your  
terminal including products,  
tariffs, orders, stock, gate traffic,  
invoicing, management  
information and reporting, a  
customer portal, ...

**Loibl Allen-Sherman-Hoff  
GmbH**

Arberstrasse 40  
Straubing  
D-94315  
Germany  
Contact: Mr Jules Fricke  
Job Title: Managing Directory  
T: + 49 9421 92560  
F: + 49 9421 925625  
E: jules.fricke@loibl.biz  
W: www.loibl.biz  
Core business is the process  
engineering of bulk goods. With a  
highly specialized team, an  
environmentally conscious  
approach and reliability in our way  
of planning and managing, and  
through the application of state-of-  
the-art manufacturing engineering

methods, we will live up to our  
reputation, meet the requirements  
of materials and technology, and  
guarantee the highest quality  
possible.

**Lycopodium**

163 Leichhardt St  
Spring Hill  
QLD  
4171  
Australia  
Contact: Mr Mark Osborne  
Job Title: Engineer  
T: + 61 7 3244 7777  
F: + 61 7 3244 7788  
E: mminerals@lycopodium.com.au  
W: www.lycopodium.com.au

**Macawber Engineering, Inc**

1829 Clydesdale Street  
Maryville  
TN  
37801-3796  
USA  
Contact: Mr Dean Wicks  
Job Title: Business Development  
T: + 1 865 984 5286  
F: + 1 865 977 4131  
E: sales@macawber.com  
W: www.macawber.com

**MacGregor SWE AB**

Sjögatan 4G  
Örnsköldsvik  
SE-891 85  
Sweden  
Contact: Mr Anders Berencsy  
Job Title: Sales Manager  
T: + 46 660 294000  
F: + 46 660 12455  
E: anders.berencsy@macgregor.com  
W: www.macgregor-group.com

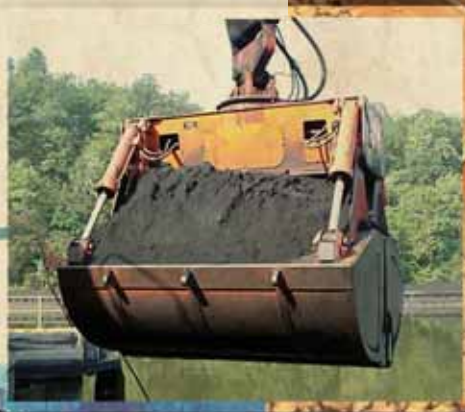
**Mack Manufacturing Inc**



PO Box 1559  
7205 Bellingrath Road  
Theodore  
Alabama  
36582  
USA  
Contact: Mr Matthew A. Davidson  
Job Title: Vice President -  
Marketing  
T: +1 251 653 9999  
F: +1 251 653 1365  
E: sales@MackMfg.com  
W: www.mackmfg.com  
Manufactures all types of grabs  
and grapples, both wire rope and

**Mack**  
**Manufacturing**  
**Grapples & Buckets**  
**“Quality First”**  
**Since 1942**

[www.mackmfg.com](http://www.mackmfg.com)



7205 Bellingrath Road, P.O. Box 1559, Theodore, Alabama 36590, USA  
Fax: +1-251-653-1365

Email: [sales@mackmfg.com](mailto:sales@mackmfg.com)

Telephone: +1-251-653-9999  
Website: [www.MackMfg.com](http://www.MackMfg.com)



hydraulically operated, as well as radio-controlled and diesel operated systems.

### Mactenn Systems Ltd.

One Bull Lane  
Acton  
Sudbury  
Suffolk  
CO10 0BD  
UK

Contact: Mr Lee Suckling  
Job Title: Director, Sales & Application Engineering  
T: + 44 1787 882 422  
F: + 44 1787 882 433  
E: sales@mactenn.com  
W: www.mactenn.com  
Sales and manufacturing of dense-phase pneumatic conveying systems. Worldwide reputation for successfully handling bulk materials in low velocities. 30,000 systems operating throughout the world in all process industries. Customer benefits include process cost savings and increased process reliability.

### Mantsinen Group Ltd Oy



Valikankaantie 3  
Ylmylly  
FIN-80400  
Finland  
Contact: Ms Mia Mantsinen  
Job Title: Sales and Marketing Director  
T: + 358 20 755 1230  
F: + 358 13 252 5555  
E: mia.mantsinen@mantsinen.com  
W: www.mantsinen.com  
Mantsinen Group manufactures highly efficient and precise hydraulic harbour cranes for bulk and general cargo operations. Mantsinen cranes can be tailored to best suit each application. Mantsinen Hybrilift® energy saving system and wide range of attachments makes the cranes economical, efficient and universal tools for stevedoring companies and harbour operators. Other equipment/expertise: Wood handling, Subcontracting.

### Marine Inspection LLC

621 North Carrollton Avenue  
New Orleans  
LA  
70119  
USA  
Contact: Mr John Monticello  
Job Title: Managing Partner  
T: + 1 504 866 0014  
F: + 1 504 866 0016  
E: nola@marineinspection.com  
W: www.marineinspection.com/

### Martin Engineering



One Martin Place  
Neponset  
Illinois  
IL 61345  
USA  
Contact: Mr Rick Felde  
T: + 1 309 852 2384  
F: + 1 800 814 1553

E: rickf@martin-eng.com  
W: www.martin-eng.com  
Martin Engineering makes bulk material handling cleaner, safer and more productive, improving belt conveyors by suppressing dust and spillage, removing carryback and controlling belt tracking. Specialists in belt cleaners, air cannons, engineered vibration, transfer point technologies, dust management, silo cleaning.

### Martin Engineering GmbH

In der Rehbach 14  
Walluf  
Hessen  
D-65396  
Germany  
Contact: Mr Joachim Preiß  
Job Title: Marketing Manager Europe  
T: + 49 61 23 978 221  
F: + 49 61 23 75 5 33  
E: joachim.preiss@martin-eng.de  
W: www.martin-eng.de  
Since 1944 Martin Engineering has been a worldwide leader in making Bulk Material Handling cleaner, safer and more productive. Other equipment: Field Services, Safety Products, Flow Aids, Screen Vibrators

### Maschinen und Mühlenbau Erhard Muhr GmbH



Grafenstraße 27  
Brannenbunrg  
D-83098  
Germany  
Contact: Mr Roland Muhr  
Job Title: Managing Director  
T: + 49 8034 9072 26  
F: + 49 8034 9072 526  
E: info@muhr.com  
W: www.muhr.com  
MUHR offers a wide range of high quality Bulk Loading Systems (for open and closed, dust-free loading), Loading Spout Positioners, Pneumatical Docking Devices and even Railcar Dumping Systems for economical unloading of trains with open railcars.

### Mentor Dynamics

170 Penrod Court  
Glen Burnie  
Maryland  
21061  
USA  
Contact: Mr Don Watts  
Job Title: President  
T: + 1 410 760 6349  
F: + 1 410 760 8284  
E: don.watts@MentorDynamics.com  
W: www.mentordynamics.com  
Leading supplier of cargo hold liners for self unloaders, barges, and other bulk material storage & handling equipment. Products include Dyna-Flo high performance plastic liners and ceramic wear liners.

### Merrick Industries

10 Arthur Drive  
Lynn Haven  
FL  
32444  
USA  
Contact: Mr Tommy Lynch  
Job Title: Applications Specialist  
T: + 1 850 265 3611  
F: + 1 850 265 9768  
E: info@merrick-inc.com  
W: www.merrick-inc.com

Merrick Industries is a leader in continuous weighing and feeding solutions, since 1908. Merrick designs, manufactures, and supports all of our products at our Lynn Haven, Florida plant for the Coal, Cement, Mining, Chemicals, Lime, Gypsum, Steel and Aggregates industries.

### Metso Minerals Industries, Inc.

Bulk Materials Handling  
4000 Town Center Boulevard  
Suite 400  
Canonsburg  
PA  
15317  
USA  
Contact: Mr Tom Lippencott  
Job Title: VP, Mineral Process Solutions Sales, USA  
T: + 1 412 269 5137  
F: + 1 412 269 5212  
E: Tom.Lippencott@metso.com  
W: www.metso.com  
Products include stacker/reclaimers; railcar dumpers/wagon tippers; grab, continuous and balance unloaders; barge/ship loaders; barge and train positioning systems; mechanical ash handling systems; coal preparation equipment; apron feeders and overland conveyor systems.

### Midwest Industrial Supply Inc

1101 3rd St. SE  
Canton  
Ohio  
OH 44707  
USA  
Contact: Ms Liz Campbell  
Job Title: Marketing  
T: + 1 330 456 3121  
F: + 1 330 456 3247  
E: liz.campbell@midwestind.com  
W: www.midwestind.com  
Provide a complete line of dust control, erosion control, soil stabilization lubricants, anti-icing and de-icing products that are developed by the company staff of chemists and backed by a complete range of services, equipment, expertise and technical support since 1975.

### Midwest International Standard Products, Inc.

105 Stover Road/ PO Box 438  
Charlevoix  
MI

49720-0438  
USA  
Contact: Mr Walter Pair  
Job Title: Director of Operations  
T: + 1 231 547 4000  
F: + 1 231 547 9453  
E: sales@midwestinternational.com  
W: www.midwestmagic.com  
Founded in 1967, the company focuses on dust free loading and stockpiling of dry bulk with products including The Paragon Series and the Heavy Duty Mining Series. The Chokefeeder® dust free shiploading systems are used by governments and industries in over 50 countries.

### Mitsui Miike Machinery Co., Ltd.

Nihonbashi-Muromachi 2-1-1  
Chuo-ku  
Tokyo  
103-0022  
Japan  
Contact: Mr Hachiro Naito  
Job Title: General Manager, Material Handling Machinery  
T: + 81 3 3270 2001  
F: + 81 3 3245 0203  
E: soumu@mitsuimiike.co.jp  
W: www.mitsuimiike.co.jp

### Moffatt & Nichol

The Hub  
Farnborough Business Park  
Fowler Avenue  
Farnborough  
GU14 7JF  
UK  
Contact: Mrs Rebecca Roberts  
Job Title: Office Manager  
T: + 44 203 2061062  
F: + 44 203 2061061  
E: roberts@moffatnichol.com  
W: www.moffatnichol.com

### Mole-Master Services Corporation™

27815 State Route 7  
Marietta  
Ohio  
45750  
USA  
Contact: Mr David Laing  
Job Title: General Manager  
T: + 1 740 374 6726  
F: + 1 740 374 5908  
E: contactus@molemaster.com  
W: www.molemaster.com  
In addition: Silo cleaning services and equipment. Silo, bin, bunker, transport and process vessel cleaning, clearing and unclogging services and equipment.

### Motherwell Automation

10 Sangiorgio Court  
Osborne Park  
West Perth  
WA  
6017  
Australia  
Contact: Mr Chris Watson  
Job Title: Marketing Manager  
T: + 61 8 9212 4444  
F: + 61 8 9212 4479  
E: townsend@motherwell.net.au  
W: www.motherwell.net.au

### Motridal SpA



Via Pietro Bubba 17  
Piacenza  
Piacenza  
29122  
Italy  
Contact: Mr Giampietro Calvi  
Job Title: Sales Manager  
T: + 39 0523 59 66 11  
F: + 39 0523 59 01 28  
E: motridal@motridal.com  
W: www.motridal.com  
Specialist, with over 50 years experience, in heavy-duty, high-capacity machines, intended for operating under severe conditions in cement factory, steel works, power plant, aluminium smelter... Product line includes screw, chain, belt and pipe conveyors, bucket elevators, stackers. Worldwide operation.

### MRS Greifer GmbH

Talweg 15-17  
Helmstadt-Bargen  
D-74921  
Germany  
Contact: Mrs Karin Greulich  
Job Title: Export Manager  
T: + 49 7263 912 915  
F: + 49 7263 912 912  
E: export@mrs-greifer.de  
W: www.mrs-greifer.de  
Approaching more than 40 years experience in producing all types of grabs. The company's product range includes mechanical grabs, radio-controlled, hydraulic and electro-hydraulic grabs. MRS has an excellent after-sales and repair service, provides spare parts from stock and supplies parts for a long period after delivery.





**NAVCO (National Air Vibrator Co)**

PO Box 40563  
Houston  
TX  
77240-0563  
USA  
Contact: Mr Ann Hutchinson  
T: + 1 832 467 3636  
F: + 1 832 467 3800  
E: ben@navco.us  
W: www.navco.us

**Negrini Srl**

via E. Torricelli n.4  
Castelfranco Emilia  
Modena  
41013  
Italy  
Contact: Mr Rossetti Alessandro  
T: + 39 059 923110  
F: + 39 059 920378  
E: info@negrini.org  
W: www.negrini.org  
Engineers and producers of state-of-the-art grabs, clamshells and buckets.

**Nemag BV**

Deltastraat 15  
PO Box 110  
Zierikzee  
4300 AC  
The Netherlands  
Contact: Mr Riny Stoutjesdijk  
Job Title: Sales Manager  
T: + 31 111 418 900  
F: + 31 111 416 154

E: sales@nemag.com  
W: www.nemag.com  
Specialized in the sales, engineering and construction of rope operated grabs for large scale dry bulk handling. The company has a vast record of worldwide deliveries and is recognized as one of the leading grab manufacturers worldwide. Other equipment: NEMAG Quick Release Links and Rope Pear Sockets.

**NERAK GmbH Fördertechnik**

Brigitta 5  
Hambühren D-29313  
Germany  
Contact: Mr Edgar Bleeker  
Job Title: Marketing  
T: + 49 50 84 944 0  
F: + 49 50 84 944 222  
E: bleeker@nerak.de  
W: www.nerak.com  
NERAK Continuous Bucket Conveyors are designed for combined horizontal and vertical conveying. Each bucket is securely attached to adjacent buckets and located between two steel reinforced rubber block. The assembly with no moving parts is capable of high conveying rates.

**Neuero Industrietechnik GmbH**

Neuerostrasse 1  
Melle  
D-49324  
Germany  
Contact: Eng Andreas Haeuser  
Job Title: Sales & Project Manager  
T: + 49 5422 9503 26  
F: + 49 5422 9503 50  
E: ha@neuero.de

W: www.neuero.com  
NEUERO designs and manufactures a wide range of pneumatic and mechanical ship/barge unloaders, ship/barge loaders and pneumatic conveyors, with high capacities and gentle handling of materials.

**NILOS GmbH & Co KG**

Reisholzstrasse 15  
PO Box 970  
Hilden  
40709  
Germany  
Contact: Mr Jens Hamacher  
Job Title: Export Manager  
T: + 49 2103 9510  
F: + 49 2103 951 209  
E: jens.hamacher@nilos.de  
W: www.nilos.com  
Conveyor belt equipment ranges from simple small tools to vulcanising presses up to the planning, construction and commissioning of complete conveyor belt repair workshops. Range of products include hot and cold repair material, along with basic overhauling, reconditioning, maintenance and assemblies.

**NKM Noell Special Cranes GmbH**

Kruisweg 643  
Hoofddorp 2132 NC  
The Netherlands  
Contact: Mr Gerard de Wild  
T: + 31 20 655 0030  
F: + 31 20 655 0040  
E: gerard.dewild@nkmnoell.com  
W: www.nkmnoell.com/  
Company is specialized in special

cranes. For the bulk industry the knowledge is concentrated on floating lemniscate cranes and terminals.

**NM Heilig BV**

Newtonstraat 17  
Heerhugowaard  
1704 SB  
The Netherlands  
Contact: Mr G. S. Dwarsweerd  
Job Title: Head of Sales Department  
T: + 31 72 571 6688  
F: + 31 72 571 6020  
E: info@heiligbv.com  
W: www.heiligbv.com  
Heilig Holding is a company group based in Europe specialized in manufacturing bulk handling and recycling systems. - Custom design and engineering - High quality manufacturing facilities - Experienced Assembly and service staff We are 35 years on the market, privately owned family company with over 250 employees. Other Equipment: Mobile (on tracks) stackers, conveyors and feeders

**NMH s.r.o**

Priemyselná 4608/10  
Sereď  
926 01  
Slovakia  
Contact: Ms Veronika Kremľ  
Job Title: Marketing Manager  
T: + 42 131 230 4441  
E: v.kremľ@nmh-sro.com  
W: www.nmh-sro.com

**Nordströms Konstruktionsbyrå**

Storgatan 58  
Umeå  
SE-903 30  
Sweden  
Contact: Mr Peter Vedin  
Job Title: Marketing  
T: + 46 90 1136 4500  
F: + 46 90 1330 69  
E: arletun@nordstroems.se  
W: www.nordstroems.se

**Nordstrong Equipment Ltd**

5895 Ambler Drive  
Mississauga  
Ontario  
L4W 5B7  
Canada  
Contact: Mr Bill Van Duyñ  
Job Title: Sales Manager  
T: + 1 289 562 6402  
F: + 1 289 562 6445  
E: wmvanduyñ@nordstrongequipment.com  
W: www.nordstrongequipment.com  
Product range: screw conveyors/feeders; belt conveyors/feeders; pipe conveyors; flexible wall conveyors; drag conveyors; apron conveyors/feeders; bucket elevators; idlers. Every endeavour will be made to provide clients with an efficient and honest assessment of their needs.

**North American Crushing & Screening, LLC**

322 Lafayette Street  
New Orleans  
Louisiana  
LA 70130  
USA

**NEGRINI**  
since 1967  
S.R.L.  
*the piece you are missing!*

Contact: Mr Gilbert Wright  
 T: + 1 504 866 0014  
 F: + 1 504 866 0016  
 E: gwright@nacslc.com  
 W: www.nacslc.com  
 Contract processing services (crushing and screening) for all types of heavy bulk cargo. Also reconditions soft commodities offering solutions for distressed cargo. Processing and reconditioning equipment is designed for mobile operations and can be relocated to almost any site.

**NSL Engineering Pte Ltd**

117 Dalhousie St  
 Haberfield  
 Sydney  
 NSW  
 2045  
 Australia  
 Contact: Mr Cameron Hay  
 Job Title: Sales & Marketing Manager  
 T: + 61 297 972054  
 F: + 65 626 11300  
 E: cameron@ramspreaders.com  
 W: www.ramspreaders.com/

**Orthos Projects Ltd.**

Fernie Road  
 Market Harborough  
 Leicestershire  
 LE16 7PH  
 UK  
 Contact: Mr Nick Hall  
 Job Title: Director  
 T: + 44 1858 462806  
 F: + 44 1858 464403  
 E: Nick.Hall@orthosprojects.com  
 W: www.orthosprojects.com  
 Since 1977 Orthos Projects have designed, manufactured and

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Windmühlenbergstrasse 20-22  
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 E: marketing@pfisterwaagen.de  
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 E: Christoph.Hoehr@brevini.com  
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 E: info@pneumat.com  
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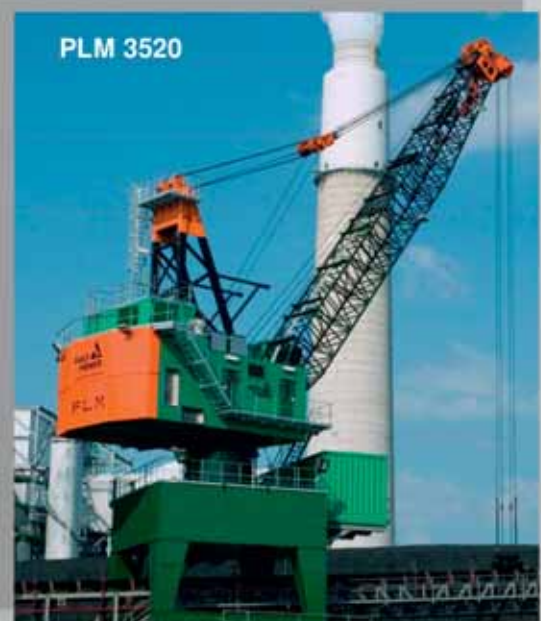


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Karettmagervej 9  
 Fredericia  
 DK 7000  
 Denmark  
 Contact: Mr Peter J Muller  
 Job Title: Managing Director  
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 F: + 45 7628 0103  
 E: peter.muller@port-trade.com  
 W: www.port-trade.com  
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10120  
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F: + 33 2 41 21 19 59  
E: s.bouhours@rblrei-france.com  
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T: + 44 1453 733300  
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E: info@rdstec.com  
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### REMA TIP TOP GmbH

Business Unit Industrie  
Gruber St. 63  
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### Risun Technologies

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F: + 1 614 890 1883  
E: ksmith@riverconsulting.com  
W: www.riverconsulting.com  
River delivers EPCM material handling experience, including project management, design/supply of conveying systems, and engineering. With four offices and more than 30 years of experience, we provide proven solutions including blending, conveying, silo and stacking tubes, automation and controls, and marine structures

### Roberts & Schaefer Company

222 South Riverside Plaza  
Chicago  
Illinois  
60606-3986  
USA  
Contact: Mr Ike Miller  
Job Title: Business Development Mgr  
T: + 1 312 236 7292  
F: + 1 312 726 2872

E: rs@elginindustries.com  
W: www.r-s.com

### RockTree Logistics Pte. Ltd.



3 Church Street  
#24-01/02  
Samsung Hub  
Singapore  
049483  
Singapore  
Contact: Mr Daniele Pratalongo  
T: + 65 6622 65 10  
F: + 65 6622 65 11  
E: info@rocktree.sg  
W: www.rocktree.sg  
RockTree Logistics Pte. Ltd. Designs customised logistics that manage the complete transshipment aspect of your supply chain for all dry bulk commodities. Our goal is to get your dry bulk moving on schedule, saving you time and money in the process.

### Ronin GMS



No 1 Nobel Avenue  
Modderfontein  
Johannesburg  
Gauteng  
1645  
South Africa  
Contact: Mr Ferdinand Meyer  
Job Title: Sales and Marketing Executive, Ronin Group  
T: + 27 11 608 3666  
F: + 27 11 608 4679  
E: ferd@roningms.com  
W: www.roningms.com  
Ronin GMS provide bulk inventory

management systems and moment in time audits for balancing real-time stock positions to stock positions on book. Our systems can be used in Silo's, warehouses and open air stock yards. Enrolling business partners worldwide.

### Royal Haskoning DHV



George Hintzenweg 85  
Rotterdam  
3068 AX  
The Netherlands  
Contact: Ms Berte Simons  
Job Title: Director Advisory Group  
T: + 31 10 2865 398  
F: + 31 10 443 3688  
E: info@rotterdam.royalhaskoning.com  
W: www.royalhaskoning.com  
Studies on marketing/distribution/feasibility/management handling/storage/environmental impact. Design, procurement, tender evaluation, contract aware, on-site supervision. Has carried out projects in over 70 countries.

### RTA ALESA Ltd.

Max Hogger-Strasse 6  
Zurich CH - 8048  
Switzerland  
Contact: Mr Marcel Polidori  
T: + 41 44 435 3357  
F: + 41 432 0666  
E: marcel.polidori@riotinto.com  
W: www.rta-alesa.com

### Rubb Buildings Ltd

Dukesway  
Team Valley Trading Estate  
Gateshead  
Tyne & Wear NE11 0QE  
UK  
Contact: Ms Clare Wilson  
Job Title: Marketing Director  
T: + 44 191 482 2211  
F: + 44 191 482 2516  
E: info@rubb.co.uk  
W: www.rubb.co.uk  
Designs, manufactures and installs relocatable flat storage buildings. Structures are made from a frame consisting of hot dip galvanised steel and PVC impregnated polyester outer membrane. Structures can be supplied worldwide complete turnkey solutions to any bulk storage problem can be offered.

### RULMECA HOLDING S.P.A.



Via A Toscanini 1  
Almé  
Bergamo 24011  
Italy  
Contact: Mr Carsten Spanggaard  
Job Title: Group Sales Director  
T: + 39 035 430 0111  
F: + 39 035 545 700  
E: rulmecca@rulmecca.it  
W: www.rulmecca.com  
Specialises in the production of rollers, motorized pulleys and components. Rulmecca Group

# Ronin®



BINS



BUNKERS



STOCKPILES



## DRY BULK Inventory Management Solutions

*Mitigating your risk and balancing your dry bulk stock to book value has never been this easy!*

Ronin is a dynamic and constantly evolving bulk commodity inventory management solution provider. Our proprietary ART software and dry bulk storage specific ART, ART+, Artemis and AIMS laser architectures were developed over a decade and today Ronin is one of the most trusted risk mitigation and supply verification solution providers in South Africa. Be it bin, bunker, warehouse or open to air stock pile; we place the control over you inventory right at your fingertips. For further information please contact us at +27 (0) 11 608 3666 or e-mail at office@roningms.com.

INTERESTED IN SELLING OUR PROPRIETARY SOLUTIONS?  
Contact us today to find out if we have agencies available in your area.

[www.roningms.com](http://www.roningms.com)



means: wide distribution networks; close relationships with customers and complete service; manufacturing flexibility; continuously expanding and evolving product range; constant improvement in technical, design and sales service; global market reach and a network of skilled agents.

### SABS - Mining & Minerals

PO Box 413  
Richards Bay  
KwaZulu Natal 3900  
South Africa  
Contact: Ms Audrey Ndlovu  
Job Title: Operations Manager  
T: + 27 35 797 7209  
F: + 27 35 797 7212  
E: ndlovua@sabs.co.za  
Provides a holistic range of sampling, analytical and product certification services to the solid-fuel and mineral industries. In addition to its core values of Accredited Quality (ISO 17025), integrity, accuracy and speed, also offered is a very competitive pricing structure resulting in product samples for analysis being received from around the world.

### Sammi

Via Tuderte, 388  
Narni Scalo  
Terni  
05036  
Italy  
Contact: Mr Daniele Bellezza  
Job Title: Engineer  
T: + 39 0744 733832  
F: + 39 335 5313331  
E: daniele.bellezza@sammi.it  
W: www.sammi.it  
In addition: Lime kilns equipment, Ceramic casting equipment  
Sammi is a leading company in design, supply and installation of industrial plant, able to resolve customer's needs with a wide range of application, such as:  
- Complete industrial plants - Bulk handling equipment - Off-shore conveyor systems - Lime kilns - Machine for the ceramic sector  
In January 2012, acquired majority shareholder of PLANIA Ingegneria (Architectonic Engineering Planning); a company of professional civil, industrial engineers and architects, completing the competences already present at Sammi.

### Sampling Associates International

22 Enterprise Parkway  
Suite 220  
Hampton  
Virginia  
23666  
USA  
Contact: Mr Paul Reagan  
Job Title: President  
T: + 1 757 928 0484 ext 100  
F: + 1 757 928 0482  
E: preagan@samplingassociates.com  
W: www.samplingassociates.com

### SAMSON Materials Handling Ltd

**SAMSON**  
AUMUND GROUP

Gemini House  
Cambridgeshire Business Park  
1 Bartholomew's Walk  
Ely

Cambridgeshire  
CB7 4EA  
UK

Contact: Mr Malcolm Youll  
Job Title: Managing Director  
T: + 44 1353 665001  
F: + 44 1353 666734  
E: sales@samson-mh.com  
W: www.samson-mh.com  
SAMSON, a company within the AUMUND Group, is a leading supplier of an extensive range of Mobile Stackers (Stormajor®), Shiploaders, Link Conveyors, Eco Hoppers, and SAMSON Material Feeders for bulk materials reception. The SAMSON concept offers a mobile and economical alternative to conventional fixed installations and represents a unique approach to the bulk cargo handling in ports and terminals requiring a high degree of mobility and flexibility.

### Sandvik Mining

Materials Handling GmbH & Co KG  
Vordernberger Strasse 12  
Leoben A-8700  
Austria  
Contact: Dr. -Ing. Stefan Hotz  
Job Title: Vice President Sales Projects & Systems  
T: + 43 3842 2077 550  
F: + 43 3842 2077 501  
E: stefan.hotz@sandvik.com  
W: www.sandvik.mining.com  
Sandvik has the long term experience to design and install virtually any kind of bulk materials handling system. From continuous opencast mining systems to integrated stacking and reclaiming systems for mines, terminals, power plants and port facilities, we offer total solutions and turnkey installations and services. Other equipment: Continuous Mining Equipment e.g. bucket wheel excavators, belt wagons, spreaders, transport crawlers, fully-, semi-mobile and stationary crushing plants, mine- and overland conveyors.

### Sandvik Mining and Construction (China) Co., Ltd.

No.986, Baota Rd  
Jiading District  
Shanghai  
201821  
China  
Contact: Mr Zhang Jianyuan  
Job Title: Vice President, Surface Mining  
T: + 86 21 6916 6050  
F: + 86 21 6916 6025  
E: jianyuan.zhang@sandvik.com  
W: www.sandvik.com  
Continuous open pit mining systems, including bucket wheel excavators, belt wagons, spreaders, transport Crawlers.

### Scantech International

PO Box 1485  
Springwood  
Queensland  
4127  
Australia  
Contact: Mr Henry Kurth  
T: + 61 7 3710 8406  
F: + 61 7 3710 8499  
E: sales@scantech.com.au  
W: www.scantech.com.au  
World leader in process control solutions for conveyed bulk materials. On-belt analysers with proven technologies. Reliable, accurate and dependable ash, moisture and elemental measurement minute by minute. Control quality through blending or monitor specification compliance. Over 1,000 installations.

### SCHADE Lagertechnik GmbH

**SCHADE**  
AUMUND GROUP  
Bruchstraße 1  
Gelsenkirchen  
D-45883  
Germany  
Contact: Mr Karl-Heinz Fiegenbaum  
Job Title: Managing Director  
T: + 49 209 50 31 60  
F: + 49 209 50 31 62 88  
E: sales@schade-lagertechnik.com

W: www.schade-lagertechnik.com  
SCHADE Lagertechnik GmbH is a leading supplier for stockyard technology including longitudinal and circular stockyards, blending beds, tripper cars, bridge- and portal-type stackers and reclaimers, as well as wagon unloading systems. Founded in 1879, the company has been part of the Aumund Group since 2001.

### Schenck Process UK Limited

Carolina Court  
Lakeside  
Doncaster  
South Yorkshire DN4 5RA  
UK  
Contact: Mr Richard Sims  
Job Title: Director of Heavy Sales International  
T: + 44 1302 321 313  
F: + 44 1302 554 400  
E: enquiries@schenckprocess.co.uk  
W: www.schenckprocess.co.uk  
Schenck Process is an expert in the weighing, conveying and handling of coal. Using a range of equipment including train loading and unloading systems, mechanical conveyors and weighing technologies the movement of the material can be accurately monitored and recorded.

### Scorpio Engineering Pvt. Ltd

Scorpio House  
132 Wheeler Road  
Cox Town  
Bangalore  
560 005  
India  
Contact: Mr Jacob P.  
Job Title: VP - Marketing & Application  
T: + 91 99801 625 39  
F: + 91 80 2548119  
E: jacob@scorpioengg.com  
W: www.scorpioengg.com  
In addition: fly ash conveying, liner container filling & discharging equipment. The company is a 25-year-old manufacturing organisation in the areas listed and the capacities of the equipment are custom specified

and built. The average range is from 100 tph to 1000 tph.

### Sea Transport Corporation

PO Box 1043  
Southport  
QLD 4215  
Australia  
Contact: Mr Ross Ballantyne  
T: + 61 7 5529 5777  
F: + 61 7 5529 5177  
E: ross@seatransport.com  
W: www.seatransport.com  
Sea Transport Corporation group of companies own, operate and construct commercial vessels. We offer specialist marine design and consulting services with extensive commercial experience through our team of Naval Architects, Consultants, Surveyors and Project Managers.

### Seabulk Inc

Suite 150  
10271 Shellbridge Way  
Richmond  
British Columbia V6X 2W8  
Canada  
Contact: Mr Sidney Sridhar  
Job Title: President  
T: + 1 604 273 1378  
F: + 1 604 273 1358  
E: sbs@seabulk.com  
W: www.seabulk.com  
Involved in 'design and build' projects in the marine bulk transportation industry. Ports, self unloaders and transhipper developed by Seabulk have improved bulk transportation logistics significantly.

### Selpeco Resources Inc.

14150 NE 20th Street  
F1, PMB342  
Bellevue WA 98007  
USA  
Contact: Mr S E (Steve) Laccinola  
Job Title: President  
T: + 1 425 952 4463  
F: + 1 425 822 1235  
E: selpeco@selpeco.com  
W: www.selpeco.com  
Selpeco is a project, program and construction management





## Stockyard Equipment in the Coal Industry



Circular Stockyard with Bridge-type Reclaimer



Portal Scraper Reclaimer with Twin-Boom



Coal Stacker, Hammer-head Design



Coal Stockyard with Pylon-type Stacker

**SCHADE**  
AUMUNDGROUP



company for all types of bulk material handling projects. The company has particular skill at development of material handling terminals, cost analysis, project plans and creating teams of companies to design and build turnkey material handling facilities.

### Sempertrans France Belting Technology SAS

Sempertrans Marketing  
10 rue des charretiers  
Argenteuil Cedex  
95104  
France  
Contact: Ms. Catherine Flichy  
T: + 33 1 30 25 72 00  
F: + 33 2 39 80 46 16  
E: contact@sempertrans-france.com  
W: www.sempertrans.com  
SEMPERTRANS has been developing, manufacturing and installing conveyor belts for more than 50 years. Its knowhow, its experience and the quality of its products make SEMPERTRANS one of the world's leading companies in its field.

### SENNEBOGEN

#### Maschinenfabrik GmbH

Hebelstrasse 30  
Straubing  
D-94315  
Germany  
Contact: Mr Bernhard Kraus  
T: + 49 9421 540143  
F: + 49 9421 43882  
E: marketing@sennebogen.de  
W: www.sennebogen.com  
Sennebogen offers a wide range of all kinds of materials handling machines, HD rope excavators/cranes, crawler cranes, telescopic cranes and base carriers.

#### Sensor Technology Ltd

Apollo Park  
Ironstone Lane  
Wroxton  
Banbury  
Oxon  
OX15 6AY  
UK  
Contact: Mr Mark Ingham  
Job Title: Sales Manager  
T: + 44 1869 238400  
F: + 44 1869 238401  
E: info@sensors.co.uk  
W: www.sensors.co.uk  
Manufacturers of TORQSENSE and LOADSENSE Sensors and Transducers. The TorqSense and LoadSense range of sensors offer accurate, affordable, market leading products across the whole range of industrial applications.

#### Sentry® Equipment Corp

966 Blue Ribbon Circle North  
Oconomowoc  
Wisconsin 53066  
USA  
Contact: Ms Doris Hoelt  
Job Title: Marketing Director  
T: + 1 262 567 7256 x 157  
F: + 1 262 567 4523  
E: dorish@sentry-equip.com  
W: www.sentry-equip.com  
Sentry Equipment manufactures liquid, gas, slurry and bulk solids samplers - delivering representative samples from a variety of applications. Products include sample coolers, needle and cylinder panels, liquid and bulk solids samplers, and steam and water sample conditioning

systems and components.

### SESCOTRANS (SAE)

1 c EL Shahid sayed Zakarya st.  
Cairo  
11361  
Egypt  
Contact: Mr Ahmed Hassan  
Job Title: VP & CEO  
T: + 2 222679115  
F: + 2 222679449  
E: ahmed@sescotrans.net  
W: www.sescotrans.com  
SESCOTRANS has 50 years of experience in integrated logistics solutions for your business - serving main Egyptian main ports including transportation, customs clearance, warehousing, loading and discharging of different cargo and vessel sizes supported with full setup of facilities and fully-employed resources

### SEW-EURODRIVE GmbH & Co KG

P O Box 3023  
Bruchsal  
D-76652  
Germany  
Contact: Mr Manfred Müller  
T: + 49 7251 75 0  
F: + 49 7251 75 1970  
E: sew@sew-eurodrive.de  
W: www.sew-eurodrive.com  
Complete drive packages: Helical gear units, Bevel-helical gear units, motors, couplings, swing bases, brakes, geared motors. Planetary gear units, frequency inverters Torque range: 100 ... 1 Mio Nm.

### SGS (Nederland) BV

Malledijk 18  
Spijkenisse  
AE  
3200  
The Netherlands  
Contact: Mr Rolf Wilting  
T: + 31 181 69 3260  
F: + 31 181 69 3581  
E: rolf.wilting@sgs.com  
W: www.sgs.nl

### SGS Australia Pty Ltd

Unit 16  
33 Maddox Street  
Alexandria  
NSW  
2015  
Australia  
Contact: Mr Stephen Hemsworth  
Job Title: National Business Manager  
T: + 61 2 8594 0400  
F: + 61 2 8594 0419  
E: stephen.hemsworth@sgs.com  
W: www.au.sgs.com  
SGS is the world's leading inspection, verification, testing and certification company. SGS also designs and supplies mechanical sampling systems for a wide range of bulk materials. SGS has more than 30 years experience in this field with equipment in operation throughout the world.

### SGS Minerals Services

185 Concession Street  
PO Box 4300  
Lakefield  
ON  
K0L 2H0  
Canada  
Contact: Ms Jean Richardson  
Job Title: Global Director Marketing  
T: + 1 705 652 2000

F: + 1 705 652 6365  
E: minerals@sgs.com  
W: www.sgs.com/coal  
Knowing your coal quality and representatively sampling are essential to eliminate penalties and maximize profits. SGS' technical expertise provides unrivalled experience and value throughout the coal value chain to eliminate operation risk.

### SGS Minerals Services

1 Place Des Alps  
PO Box 2152  
Geneva  
CH 1211  
Switzerland  
Contact: Mr Richard Lihou  
T: + 41 22 739 9111  
F: + 41 22 739 9815  
E: richard.lihou@sgs.com  
W: www.sgs.com  
The SGS Group is the global leader and innovator in verification, inspection, testing and certification services. Founded in 1878, SGS is recognised as the global benchmark for the highest standards of expertise and integrity. With over 30,000 employees, the Company operates a network of offices and laboratories in over 140 countries around the world.

### Shanghai Global Machinery Co., Ltd (SGMC)

No.1449 Baishi Road  
Qingpu District  
Shanghai 201711  
China  
Contact: Mr Luo Tao  
T: + 86 21 398 21129  
F: + 86 21 398 21130  
E: luo@sgmc.com.cn  
W: www.sgmcgrab.com

### Shanghai Janus Grab Co., Ltd.

Room 518-519  
VMO 37#  
2049 Pujin Road  
Shanghai  
Shanghai  
201114  
China  
Contact: Mr Practy Jia  
Job Title: Marketing Manager  
T: + 86 21 6885 5558  
F: + 86 21 6885 5559  
E: janus@janusgrab.com  
W: www.janusgrab.com  
Job Title: President  
T: + 91 11 2811 5093  
F: + 91 11 2811 6744  
E: spp@simplicityprojects.com  
W: www.simplicityprojects.com

### Siwertell (part of Cargotec Corporation)

PO Box 566  
Gunnarstorp  
Bjuv  
SE-267 25  
Sweden  
Contact: Mr Juha Huovilainen  
Job Title: Sales Director, Bulk Handling  
T: + 46 42 85800  
F: + 46 42 85899  
E: blksales@cargotec.com  
W: www.siwertell.com  
For dry bulk handling, Cargotec offers high-capacity, efficient and environment-friendly systems under their brand name Siwertell. Products include ship loaders, ship unloaders, bulk terminal systems, horizontal and vertical screw conveyors and storage

systems. Deliveries are uniquely tailor-made to suit each customer's specific requirements.

### SMB International GmbH

Friedrich List Str 3-7  
Quickborn  
25451  
Germany  
Contact: Mr Andreas Heckel  
Job Title: Managing Director  
T: + 49 41 06 12388 0  
F: + 49 41 06 12388 19  
E: heckel@smb-group.de  
W: www.smb-shiploading.com  
SMB meets the demanding material-related requirements of conveying bulk and bagged goods. The company designs and manufactures high-performance conveying solutions designed for trouble-free long-term operation. Projects all over the world convince fertilizer producers, port operators and industrial specialists of the quality of German engineering.

### Smiley Monroe Ltd

23 Ferguson Drive  
Knockmore Hill Industrial Park  
Lisburn, Co. Antrim  
Northern Ireland  
BT28 2EX  
UK  
Contact: Mr Tim Monroe  
Job Title: Senior Marketing Manager  
T: + 44 28 9267 3777  
F: + 44 28 9266 3666  
E: sales@smileymonroe.com  
W: www.smileymonroe.com  
Exporting worldwide - experts in the design, manufacture and service of conveyor belts, screening media and conveyor spillage control & dust encapsulation systems for bulk materials handling. Industries served range from quarrying, mining and cement plants to ports, steelworks and power stations.

### SMM-UM Sociedade de Montagens Metalomecnicas SA

Quinta da Fonte  
Edificio D.João I  
Paço de Arcos  
2770-203  
Portugal  
Contact: Ms Ines Goncalves  
T: + 351 21 4697600 / 607  
F: + 351 21 4697612  
E: ines.goncalves@smm.com.pt  
W: www.smm.com.pt

### Solitec Engineering Ltd

Unit 8  
Gilchrist Thomas Industrial Estate  
Blaenavon  
Gwent  
NP4 9RL  
UK  
Contact: Mr David Woodland  
Job Title: General Manager  
T: + 44 1495 790623  
F: + 44 1495 790666  
E: sales@solitec.co.uk  
W: www.solitec.co.uk  
Design and manufacture bulk materials handling equipment to food, pharmaceutical, cement, petrochemical and other industries. Product range, typically, consists of screw conveyors, bucket elevators, mixers (various), IBC systems and silo discharge aids. Part of the ROTOLOK Group of

companies.

### Sotecma inc

245, boul. Yvon - L'Heureux Nord  
Beloil  
Quebec  
J3G 5R8  
Canada  
Contact: Ms Catherine  
Tranchemontagne  
Job Title: Administrative Assistant  
T: + 1 450 464 4426  
F: + 1 450 464 4534  
E: info@sotecma.com  
W: www.sotecma.com  
Canadian company offering turnkey engineering and construction services in bulk handling and flat storage solutions at low cost. The type of structure used is a highly versatile alternative to conventional constructions. The storage shed can be dismantled and be relocated. For more details visit www.sotecma.com.

### Specialised Handling & Eng (Pty) Ltd

PO Box 125  
Featherbrooke Estate  
Mogale  
Gauteng  
1746  
South Africa  
Contact: Mr Derek Albertson  
Job Title: Managing Director  
T: + 27 11 662 1649  
F: + 27 11 662 1049  
E: she@she.co.za  
Custom designs bulk materials handling stacking and reclaiming machinery and systems. Specialist suppliers of rail wagon tippers and positioners. Patented circular stockpiling system stacks and reclaims multiple grades of materials.

### STAG AG

Industriestrasse 11  
Maienfeld  
7304  
Switzerland  
Contact: Mr Thomas Zanettin  
Job Title: Sales/Marketing  
T: + 41 81 3035800 / 53  
F: + 41 81 3035899  
E: office@stag.net  
W: www.stag.net  
STAG bulk material technology for mechanical and pneumatic conveying technology as well as ensilage technology. We are also the ideal partner as a general company for complex assignments for nearly all bulk materials in plant construction.

### Stas BV

Kathodeweg 4  
Hoom  
1627 LK  
The Netherlands  
Contact: Mr Rob ver Doren  
Job Title: Managing Director  
T: + 31 229 282 940  
F: + 31 229 233 177  
E: info@stasgroup.eu  
W: www.stas-nl.com  
Stas is a manufacturer (production) of transport rollers, drive and tension drums and import bearings and bearing blocks.

### Stewart Inspection and Analysis (Pty) Ltd

PO Box 267  
Brakpan  
1541  
South Africa  
Contact: Mrs Carol Le Cordeur  
T: + 27 11 740 0621  
F: + 27 11 740 0626  
E: carol.lecordeur@alsgroup.com  
W: www.stewartgroupglobal.com

### STM srl

Zona Industriale snc  
Tito Scalo  
Potenza  
85050  
Italy  
Contact: Mr Anselmo Zirpoli  
Job Title: Sales Manager  
T: + 39 0971 485073  
F: + 39 0971 485086  
E: anselmo.zirpoli@stmpotenza.com  
W: www.stmpotenza.com

### Stock Equipment Company

16490 Chillicothe Road  
Chagrin Falls  
Ohio  
44023-4398  
USA  
Contact: Mr Simon Shipp  
Job Title: Business Development  
T: + 1 800 289 7326 ext: 217  
F: + 1 440 543 5944  
E: simon.shipp@stockequipment.com  
W: www.stockequipment.com  
Other equipment: High capacity hopper and belt feeder reclaim.  
Stock Equipment and the Schenck Process Group are global specialists in the weighing, screening, feeding and conveying of bulk materials. Systems include railcar unloading, stockpile stackers, plant transfer and high capacity volumetric and gravimetric material reclaiming and feeding systems

### Stokman BV

Brasem 18  
Raamsdonksveer  
AB  
4941 SE  
The Netherlands  
Contact: Mr Mark Hoekstra  
Job Title: Account Manager  
T: + 31 162 516040  
F: + 31 162 517590  
E: mhoekstra@stokmanbv.com  
W: www.stokmanbv.com

### Strudes Inc

1440 Sainte Catherine St  
Suite 905  
Montreal  
Quebec  
Canada  
Contact: Mr Henry Nowodvorski  
Job Title: President  
T: + 1 514 731 6951 x 123  
F: + 1 514 737 4146  
E: h.nowodvorski@strudes.com  
W: www.strudes.com  
Strudes Inc. is an engineering consulting company, founded in Montreal in 1984. We specialize in design for heavy industry. We provide full range of engineering services including preliminary and final design, contract evaluation and administration, environmental studies, schedule development, etc.

### STUDIO TECNICO MALNATI SAS

Via G. Treccani/Alfieri 22  
Milano  
I-20141  
Italy  
Contact: Dr Andrea Malnati  
Job Title: Product Manager  
T: + 39 02 895 017 30  
E: andrea.malnati@stmalnati.com  
W: www.stmalnati.com  
Our company represents several industrial manufacturers. We develop basic engineering for solid material handling systems. Our team is focused on selecting machineries and designing plants for: - crushing - screening - handling systems - rollers and rubber belt - e-motors and inverters - process automation  
Other Equipment: Telescopic Cascade Chutes

### Sucofindo

Laboratory Strategic Business Unit  
Graha Sucofindo 6th Floor  
Jalan Raya Pasar Minggu Kav.34  
Jakarta  
12780  
Indonesia  
Contact: Mr Diding Sudira  
Job Title: Senior Manager  
T: + 62 21 798 3666  
F: + 62 21 798 6878  
E: diding@sucofindo.co.id  
W: www.sucofindo.co.id

### Sumitomo Heavy Industries Material Handling Systems Co., Ltd.

5th Floor Sumitomo Fudosan  
Hibiya Building  
8-6, Nishishimbashi 2-Chome  
Shinagawa-ku  
Minato-Ku  
Tokyo  
105-0003  
Japan  
Contact: Mr Akihide Ito  
Job Title: General Manager,  
International Sales  
T: + 81 3 6737 2643  
F: + 81 3 6866 5181  
E: Akh\_Itou@shi.co.jp  
W: www.shi.co.jp/shi-mh/  
SES has produced a very wide range of materials handling equipment for many years and perseveres in its efforts to improve the efficiency of their leading continuous ship unloading range of machines.

### Superior Industries, Inc.

315 East State Highway 28  
PO Box 684  
Morris  
Minnesota  
56267  
USA  
Contact: Mr Jeff Steiner  
Job Title: Sales Manager  
T: + 1 320 589 2406  
F: + 1 320 585 5644  
E: info@superior-ind.com  
W: www.superior-ind.com  
Superior Industries is the only North American based company to manufacture a complete line of conveying equipment like telescoping radial stackers, mobile shiploaders, truck unloaders and fixed conveyor systems; plus conveyor related components like idlers, pulleys, scrapers and other accessories.

### Swire CTM Bulk Logistics



C Transport Maritime SAM  
Gildo Pastor Centre  
7 Rue du Gabian  
Monaco  
MC 98000  
Monaco  
Contact: Captain Giorgio Vallega  
Job Title: Operation/Commercial Manager  
T: + 377 9798 5981  
F: + 377 9798 2306  
E: gvallega@ctmmc.com  
W: www.swirectmbl.com  
Sums up the experience, know-how and networks of its parent companies in the dry bulk and logistics field, providing a full range of integrated services from the supplier to the end users, including specialised barge services, transshipment, river, coastal and ocean transportation by means of conventional bulkcarriers or self-unloading vessels and barge.

### Synergy Engineering Ltd

135 Glacier Street  
Coquitlam  
BC  
V3K 5Z1  
Canada  
Contact: Mr Richard Neuman  
Job Title: President  
T: + 1 604 472 2800  
F: + 1 604 464 9399  
E: office@synergy-eng.com  
W: www.synergy-eng.com

### TAIM WESER GmbH

Koenigstrasse 45  
Bad Oeynhausen  
32547  
Germany  
Contact: Mr Frank Hermann  
Job Title: Sales Manager - Bulk Materials Handling  
T: + 49 5731 1508 12  
F: + 49 5731 1508 13  
E: frank.herrmann@taimweser.com  
W: www.taimweser.com

### TAIM WESER, S.A.

Carretera de Castellón, km 6,3  
Poligono Industrial La Cartuja  
Zaragoza  
50013  
Spain  
Contact: Mr Simon Whalley  
Job Title: Sales Director  
T: + 34 976 500 006  
F: + 34 976 500 028  
E: info@taimweser.com  
W: www.taimweser.com  
TAIM WESER is a world leading company within the fields of bulk materials handling, lifting equipment, waste treatment plants and renewable energy, with more than 100 years of experience and committed to innovation and technology.

### TAKRAF GmbH



Torgauer Str. 336  
Leipzig  
D-04347  
Germany  
Contact: Mr Thomas Eckel  
Job Title: Director Sales

T: + 49 341 2423 605  
F: + 49 341 2423 610  
E: takraf.sales@tenova.com  
W: www.takraf.com  
With more than a century of experience and tradition in the field of open cast mining, bulk materials handling, and port facilities, the company is proud of its worldwide standing. Services offered: planning, design, fabrication, erection and after sales service of machines, systems and complete plants.

### TBS Shipping Services

612 Grassy Sprain  
Yonkers  
New York  
10710  
USA  
Contact: Mr Gregg McNelis  
T: + 1 914 961 1000  
F: + 1 914 961 2286  
E: TBSRates@nyc.tbsship.com  
W: www.tbsship.com/

### Tebodin Consultants & Engineers

P.O. Box 16029  
The Hague  
2500 BA  
The Netherlands  
Contact: Mr R J Smits van Oyen  
Job Title: Manager Logistics,  
Asset Management &  
Maintenance  
T: + 31 70 348 0249  
F: + 31 70 348 0591  
E: info@tebodin.com  
W: www.tebodin.com  
Tebodin is an independent, multidisciplinary firm of consultants and engineers. We offer clients around the world the experience and expertise of more than 3,500 employees. Our extensive office network allows us to offer clients the best of both: integrated engineering and consultancy expertise combined with local knowledge. Clients include major international companies, governments and multilateral financing institutes.

### techNaero aps

Blaabaervej 3  
Haslev  
DK-4690  
Denmark  
Contact: Mr Anders Larsen  
Job Title: CEO  
T: + 45 56314925  
F: + 45 56314555  
E: sales@techNaero.dk  
W: www.techNaero.dk  
Other equipment: Silo systems

### Telestack Limited



Bankmore Way East  
Omagh  
County Tyrone  
BT79 0NZ  
Northern Ireland  
Contact: Mr Carl Donnelly  
Job Title: Regional Sales  
Manager  
T: + 44 28 82 25 11 00  
F: + 44 28 82 25 22 11  
E: sales@telestack.com  
W: www.telestack.com  
Specialist manufacturers of mobile bulk material handling systems for the Ports/Inland

terminals, Mines, Quarries, Steel Mills, Cement Plants and Powerstation industries globally. The mobile range of equipment offers unrivalled flexibility for the operator, reducing costs in Cap-Ex Investment compared to fixed installations, fuel and labour. Equipment includes; mobile shiploaders/unloaders, mobile stackers, mobile truck unloaders, mobile reclaim hoppers, mobile rail wagon loaders/unloaders and mobile link conveyors. We have supplied and support some of the world largest blue chip companies.

### Tema BV

PO Box 3220  
Rijswijk  
GE  
2280  
The Netherlands  
Contact: Mr M P van Delden  
T: + 31 70 390 6555  
F: + 31 70 399 3390  
E: mp.vandelden@tema.nl  
W: www.tema.nl  
TEMA / SIEBTECHNIK  
Centrifuges Coal centrifuges for coarse and fine coal; Sample taking, sample preparation, complete sampling plants and laboratory equipment; Linear- and circular-motion screening machines.

### TEMA Systems Inc.

7806 Redsky Drive  
Cincinnati  
Ohio  
45249  
USA  
Contact: Mr Mike Mullins  
T: + 1 513 489 7811  
F: + 1 513 489 4817  
E: sales@tema.net  
W: www.tema.net  
Other equipment: Centrifuges/dryers. Manufacture and supply cross-belt sampling systems (up to 3M wide primary cutter) in accordance with ISO standards, screening machines and centrifuges for the coal and other mineral industries. Please visit our web page for additional information.

### TENOVA S.p.A - Tenova Takraf Italy

Via Albareto, 31  
Genova  
16153  
Italy  
Contact: Mr Pietro Bibolini  
Job Title: Commercial Director  
T: + 39 010 605 4634  
F: + 39 010 605 4710  
E: pietro.bibolini@it.tenovagroup.com  
W: www.tenovagroup.com  
Provides a full range of high capacity bulk materials handling equipment for coal and other minerals and ores. Its range of CSUs and shiploaders are amongst the largest capacity machines operating worldwide.

### Tenova TAKRAF Africa

58 Emerald Parkway Road  
Greenstone Hill Ext. 21  
Johannesburg  
Gauteng  
2047  
South Africa  
Contact: Mr Peter Cheshire or Ms Kay Subramoney  
T: + 27 11 201 2300  
F: + 27 11 455 4547



E: TMM@za.tenovagroup.com  
 W: www.tenovagroup.com  
 Profile Statement: Tenova is a worldwide supplier of advanced technologies, products, and engineering services for the iron & steel and mining industries providing innovative, integrated solutions for complete process areas. Profile Sentence: Tenova: One network, better solutions.

**Terex Deutschland GmbH**

Industrie str. 3  
 Bad Schönborn 76669  
 Germany  
 Contact: Mr Thomas Berners  
 T: + 49 725 384 136  
 E: thomas.berners@terex.com  
 W: www.terex-fuchs.de  
 Loading machines from 19 to 77.5t operating weight and up to 21m reach. Complete solutions honed for your specific purpose.

**Terex MHPS GmbH**

Terex Port Solutions  
 Forststrasse 16  
 Düsseldorf D-40597  
 Germany  
 Contact: Mr Peter Klein  
 Job Title: Senior Manager  
 Marketing  
 T: + 49 211 7102 3355  
 F: + 49 211 7102 3651  
 E: info@terexpportsolutions.com  
 W: www.terexpportsolutions.com  
 Terex Port Solutions supplies customers in ports with a unique combination of machines, software and services under the Terex and Terex Gottwald brands. Whether it is ship-to-shore cranes, reach stackers or fully automated, integrated handling systems for containers and bulk, Terex Port Solutions provides reliable solutions for rapid, safe, efficient handling of all forms of cargo.

**Teufelberger Seil GmbH**

  
 Böhmerwaldstraße 20  
 Wels 4600  
 Austria  
 Contact: Mr Michael Brandstötter  
 Job Title: Area Sales Manager  
 Offshore / Wire Rope  
 T: + 43 7242 615 310  
 F: + 43 7242 60 501  
 E: Michael.Brandstoetter@teufelberger.com  
 W: www.teufelberger.com

**The ACT Group**

14644 El Molino Street  
 Fontana  
 CA 92335  
 USA  
 Contact: Mr Edward Sunseri  
 T: + 1 909 350 4703  
 F: + 1 909 350 4982  
 E: esunseri@groupactinc.com  
 W: www.groupact.com  
 Bulk material handling: includes supply and design of conveyor, hoppers, screens, crushers. Dust control includes dust collection and dust suppression utilizing air, water and chemicals. Engineering services and complete service and installation capabilities are also offered.

**The China Navigation Co. Pte. Ltd**

300 Beach road #27-01



The Concourse  
 Singapore  
 199555  
 Singapore  
 Contact: Mr Richard Sell  
 Job Title: Commercial Manager  
 T: + 65 6603 9429  
 E: Richard.Sell@chinanav.com  
 W: www.chinanav.com

**The Grab Specialist b.v.**

Draaibrugweg 1  
 Almere  
 1332AA  
 The Netherlands  
 Contact: Mr Emiel Bleyenbergh  
 Job Title: Director  
 T: + 31 365 32 88 22  
 F: + 31 365 49 99 22  
 E: info@tgs-grabs.nl  
 W: www.tgs-grabs.nl  
 We supply all types of bulk handling grabs like clamshells in single line/remote control/electrohydraulic/2-line and 4-line. Grabs can be supplied in standard design or to clients specification. We stand for good advice, quality, short delivery times and good service.

**The Raring Corporation**

12007 NE 95th St  
 Vancouver  
 WA  
 98682  
 USA  
 Contact: Mr David L Raring  
 Job Title: President  
 T: + 1 360 892 1659  
 F: + 1 360 892 1624  
 E: draring@raringcorp.com  
 W: www.raringcorp.com

**Thermo Fisher Scientific**

501 - 90th Avenue NW  
 Minneapolis  
 MN  
 55433  
 USA  
 Contact: Ms Paula Frisk  
 Job Title: Product  
 Manager/Marketing

T: + 1 800 445 3503  
 F: + 1 763 783 2525  
 E: Sales.bulk.us@thermofisher.com  
 W: www.thermoscientific.com/  
 bulkweighing  
 Thermo Scientific branded products are a specialty line of industrial in-motion weighing, inspection, monitoring and control equipment. These products, formerly branded as Ramsey, are used for process control, production monitoring and automation in the coal and minerals mining, cement, construction and aggregates industries, among others.

**THIELE GmbH & Co KG**

  
 Werkstrasse 3  
 Iserlohn  
 D- 58640  
 Germany  
 Contact: Mr Cihan Geduek  
 Job Title: Sales Manager - Bulk  
 Material Handling  
 T: + 49 2371 947 359  
 F: + 49 2371 947 295  
 E: bulkmaterial@thiele.de  
 W: www.thiele.de  
 More than 80 years experience in the engineering and manufacturing of conveyor chain systems such as round steel chains, bushed conveyor chains, forged conveyor chains and cardan chains, including all attachments.

**ThyssenKrupp Canada**

1177-11th Avenue SW  
 Suite 500  
 Calgary  
 Alberta  
 2TR 1K9  
 Canada  
 Contact: Mr Steve Harrington  
 Job Title: Vice President  
 Marketing  
 T: + 1 403 209 4431

F: + 1 403 245 5625  
 E: infocanada@thyssenkrupp.com  
 W: www.krupp.ca  
 Involved for many years in the design and supply of turnkey, environmentally sensitive mining and material handling projects. Product range: conveying systems; crushing systems; stackers; ship loaders and ship unloaders; storage and reclamation design and supply.

**ThyssenKrupp Industrial Solutions AG**



Bus. Unit Resource Tech./Mining-  
 Materials Handling  
 Ernst-Heckel-Strasse 1  
 St Ingbert-Rohrbach  
 Saarland  
 D-66386  
 Germany  
 T: + 49 6894 599 0  
 F: + 49 6894 599 468  
 E: Info-mh@thyssenkrupp.com  
 W: www.thyssenkrupp-industrial-  
 solutions.com  
 Beside individual items listed, the company designs and supplies complete material handling plants turnkey to thermal power plants, the fertilizer industry (for handling of urea, phosphates etc), the cement and mining industry as well as complete port handling solutions.

**ThyssenKrupp Industrial Solutions South Africa - Resource Technologies**

71 Nanyuki Road  
 Sunninghill  
 Johannesburg  
 Gauteng

2191  
 South Africa  
 Contact: Mr Ralf Hesemann  
 Job Title: Managing Director  
 T: + 27 11 236 1236  
 F: + 27 11 236 1235  
 E: info.tkri@thyssenkrupp.com  
 W: www.thyssenkrupp-  
 materialshandling.co.za and/or  
 www.thyssenkrupp-industrial-  
 solutions.co.za  
 We offer a comprehensive product portfolio and a close-meshed sales and service network for our customers in the sectors of mining, cement, mineral processing and bulk materials handling. Our customers benefit from our decades of experience and our unique know-how in the fields of research and development, engineering, project management and after-sales service.

**ThyssenKrupp Robins, Inc.**

7730 E. Belleview Ave  
 Suite #404  
 Greenwood Village  
 Colorado  
 80111-5820  
 USA  
 Contact: Mr Bill Halley  
 Job Title: Mechanical Engineer  
 T: + 1 303 770 0808  
 F: + 1 303 770 4522  
 E: bill.halley@thyssenkrupp.com  
 W: www.krupprobins.com  
 Design and supply turnkey, environmentally sensitive mining and material handling projects. Product range includes: conveying systems; crushing systems; stackers; ship loaders and ship unloaders; storage and reclamation design and supply.

**TME BV**

Hoekerweg 2  
 Postbus 164  
 Zwolle  
 8000 AD  
 The Netherlands

Contact: Mrs Ilke Tollenaar  
Job Title: Sales  
T: + 31 38 425 00 35  
F: + 31 38 423 42 72  
E: i.tollenaar@tme.nl  
W: www.tme.nl/

### TMEIC

1325 Electric Road  
Roanoke  
Virginia  
24018  
USA  
Contact: Mr Don Samsa  
Job Title: Marketing  
T: + 1 540 283 2000  
F: + 1 540 283 2001  
E: don.samsa@tmeic-ge.com  
W: www.tmeic.com

### TMSA Tecnologia em Movimentação S/A

Avenida Bernardino Silveira  
Pastoriza, 710  
Bairro Sarandi  
Porto Alegre  
RS  
91160-310  
Brazil  
Contact: Mr Mathias Elter  
Job Title: CEO  
T: + 55 51 2131 3318  
F: + 55 51 2131 3330  
E: mathias.elter@tmsa.ind.br  
W: www.tmsa.ind.br  
Design, manufacturing, assembling and representation of mechanic, pneumatic and electrohydraulic equipments for handling and processing solid bulk materials (ore, cereals, sugar, flour, etc.), for port terminals or industries and agricultural facilities.

### Tramco, Inc



1020 East 19th Street  
Wichita  
KS 67214  
USA  
Contact: Mr Todd Warner  
Job Title: Director of Sales & Marketing  
T: + 1 316 264 4604  
F: + 1 316 264 7965  
E: sales@tramcoinc.com  
W: www.tramcoinc.com  
Manufactures enclosed belt, drag chain and bucket elevators for industrial markets. The JetBelt conveyor is a belt supported by a cushion of air between the belt and the pan and offers an entirely new level of operating efficiency for dry bulk handling of coal.

### Trans Elektro

Spuieweg 8a  
Waalwijk  
N-Br  
5145NE  
The Netherlands  
Contact: Mr Ronald van Egeraat  
Job Title: Business Development  
T: + 31 416 34 00 16  
F: + 31 416 56 07 90  
E: egeraat@transelektro.nl  
W: www.transelektro.com  
BMAir systems provide Clean Cabin Air for all brands of mobile plant. The usage of a BMAir systems means complying to HSE and taking care of plant operatives' health. The wide range of products starts from step-in models up to advanced systems.

### Trans-Global Solutions, Inc

11811 East Freeway  
Suite 630  
Houston  
Texas  
TX 77029  
USA  
Contact: Mr Dan Orsini  
T: + 1 713 453 0341  
F: + 1 713 453 2756  
E: dorsini@tsgs.com  
W: www.tsgs.com

### Trans-Global Solutions, Inc.

5255 N Twin City Hwy  
Nederland  
TX  
77627  
USA  
Contact: Mr William Scott  
Job Title: Vice President  
T: + 1 409 727 4801  
F: + 1 409 729 1132  
E: wfscott@tsgs.com  
W: www.tsgs.com

### TRF Limited (TaTa)

11 Station Road  
Burma Mines  
Jamshepur  
Jharkhand  
831 007  
India  
Contact: Mr D.C. Jha  
Job Title: Sr. Divisional Manager (Marketing)  
T: + 91 657 2345728  
F: + 91 657 2271 075  
E: dcjha@jst.trf.co  
W: www.trf.co / www.tata.com/trf  
Other equipment: Port crane, Special duty crane, SDL, Steep Inclined Conveyor. A TaTa Group of company producing service to all sectors in bulk material handling & processing system on

epc basis.

### Triodetic

10 Didak Drive  
Arnprior  
Ontario  
K7S 0C3  
Canada  
Contact: Mr Tim Staniszewski  
Job Title: Sales & Marketing Manager  
T: + 1 613 623 3434 ext 2234  
F: + 1 613 622 4003  
E: info@triodetic.com  
W: www.triodetic.com  
Designs, manufactures and constructs dome roofs and longitudinal bulk storage enclosures for medium-large clear span applications.

### Triple Point Technology

22 Frith Street  
Mayfield West  
NSW  
2304  
Australia  
Contact: Mr Steve Maxwell  
Job Title: GVICE President,  
Mining, APAC Sales  
T: + 61 2 4908 2222  
F: + 61 2 4968 2043  
E: info@tpt.com  
W: www.tpt.com  
Triple Point Technology@ is the leading global provider of Commodity Management software. Triple Point's Commodity XL Metals and Mining solution reduces operational, logistical, marketing and commercial costs by managing the tonnage, quality and value of coal and mineral supply chains.

### Tsubaki Kabelschlepp GmbH

Daimlerstr. 2  
Wenden-Gerlingen  
D-57482  
Germany  
Contact: Mr Frank Springer  
T: + 49 2762 4003 0  
F: + 49 2762 4003 220  
E: info@kabelschlepp.de  
W: www.kabelschlepp.de  
Founded in 1954, KABELSCHLEPP is known today as one of the world leaders where cable carriers, guideway protection and conveyor systems are concerned. Products are today being used by numerous well-known machine builders in Germany and abroad.

### Tsubakimoto Bulk Systems Corporation

4-1  
Terauchi 2-Chome  
Toyonaka  
Osaka  
561-0872  
Japan  
Contact: Mr Y Horii  
Job Title: Manager, Overseas Operations  
T: + 81 6 6862 2329  
F: + 81 6 6862 8516  
E: sales@tsubaki-bulk.com  
W: tsubakimoto.com/tbs/  
Produces bulk handling systems equipment, bucket, flow and pan conveyors.

### TTS (Transportation Technology Systems)

60 Darzociema Street  
Riga LV-1073  
Latvia  
Contact: Mr Alex Menschikov  
Job Title: Sales Europe  
T: + 371 6713 8267  
F: + 371 6713 8365  
E: alex.menschikov@tts.lv  
W: www.tts.lv

### TTS HuaHai Ships Equipment

18th Floor  
3255 Zhou Jia Zui Road  
Shanghai  
200093  
China  
Contact: Mr Lian Zhou Yang  
Job Title: Business Development Manager  
T: + 86 21 6539 8257  
F: + 86 21 6539 7400  
E: info@tts-huahai.com

### TTS Marine AS

Barstølveien 26  
Kristiansand 4606  
Norway  
Contact: Mr. Peter Klasson  
Job Title: Communications & Marketing Coordinator  
T: + 47 55 94 74 08  
F: + 47 55 94 74 01  
E: info@tts-marine.no  
W: www.ttsgroup.com  
TTS is a global company that develops and supplies equipment for the maritime and offshore industry, organised in five divisions: Marine Cranes, Drilling Equipment, Dry Cargo Handling, Deck Machinery and Port & Material Handling. TTS has 25 operational units in 12 countries.

### Ulrich Brehme GmbH

Otto-Hahn-Str. 1  
Hattorf am Harz  
37197  
Germany  
Contact: Mr Bodo Altgeld-Wichmann  
Job Title: Marketing Manager  
T: + 49 5584 94210 0  
F: + 49 5584 94210 99  
E: info@brehme-ubo.com  
W: www.brehme-ubo.com

### V D D B (Pty) Ltd

PO Box 16985  
Lyttelton  
Gauteng  
0140  
South Africa  
Contact: Mr Leonard van der Dussen  
T: + 27 12 664 2300  
F: + 27 12 644 2902  
E: admin@vddb.co.za  
W: www.vddb.co.za

Manufactures air-supported belt conveyors. Low-pressure air is blown in, replacing roller-idlers on the carrying side. The aeroconveyor is a bulks solid conveyor and is suitable for a wide range of products. It can be totally enclosed protecting the product from the environment and vice versa.

### Veenstra Machinefabriek B.V.

De Holwert 10  
KC Coevorden  
7741  
The Netherlands  
Contact: Mr Paul Kuiper  
T: + 31 524 599 333  
F: + 31 524 599 330  
E: mach@veenstra-coevorden.nl  
W: www.veenstra-coevorden.nl

### Ventyx

193 Turbot Street  
Brisbane  
Queensland  
4000  
Australia  
Contact: Mr Greg Clark  
Job Title: CEO  
T: + 61 7 3303 3333  
F: + 61 7 3303 3232  
E: info@mincom.com  
W: www.ventyx.com

### Verachttert Nederland B.V.

De Bloemendaal 8  
's Hertogenbosch  
Noord Brabant  
The Netherlands  
Contact: Mr Rudy van Leeuwen  
Job Title: Director  
T: + 31 73 - 640 41 11  
F: + 31 36 529 85 94  
E: info@dcc-grabs.nl  
W: www.dcc-grabs.nl

### Verachttert Nederland B.V.

De Bloemendaal 8  
Hertogenbosch  
North Brabant  
5221EC  
The Netherlands  
Contact: Mr Robbert Boersma  
Job Title: Sales Manager  
T: + 31 73 640 41 11  
F: + 31 73 641 97 40  
E: info@veraned.nl  
W: www.veraned.nl/en  
Verachttert has developed itself in 60 years into the market leader of Work Tools for all types of excavators and wheel loaders, and offers solutions for the specific wishes of the customer. Verachttert products represent quality and productivity. Other equipment: Coal handling buckets & funnel buckets

### Verstegen Grippers BV



PO Box 1014  
Nieuwegein  
3430 BA  
The Netherlands  
Contact: Mr Eric Visser  
Job Title: Managing Director  
T: + 31 3060 62222  
F: + 31 3060 60657  
E: info@verstegen.net  
W: www.verstegen.net  
A leading manufacturer, specialising in developing, designing and constructing all kinds and types of grab units. Its product range includes single/two/four rope grabs and hydraulic grabs.





**Vibrafloor**

Za 27 Rue de la Tuilerie  
Dracy-le-Fort  
71640  
France  
Contact: Mr Jean-Claude Poncet  
Job Title: President  
T: + 33 3 85 44 06 78  
F: + 33 3 85 44 06 79  
E: jc.poncet@vibrafloor.com  
W: www.vibrafloor.com  
Vibrafloor supplies the automatic reclaimer VIBRAFLOOR. Independent vibrating modules laid on slight inclines, typically 8 to 12°, remove efficiently most bulk products, free flowing or cohesive, out of ship holds, silos, storage platforms, railway cars etc.... No personnel, maintenance free, totally safe, negligible operating cost are major advantages.

**Vollert Anlagenbau GmbH**

Stadtseestr. 12  
Weinsberg  
74189  
Germany  
Contact: Mr Juergen Schiemer  
Job Title: Vice President  
T: + 49 7134 52 232  
F: + 49 7134 52 222  
E: juergen.schiemer@vollert.de  
W: www.vollert.com  
Other equipment: Shunting Systems. Vollert shunting systems are the ideal solution for rail-bound in-plant loading and shunting operations handling all kinds of materials (bulk cargo, liquids etc) - ranging from

stationary shunting systems to free-moving shunting robots with diesel or electric drive.

**Vossloh Kiepe GmbH**



Kiepe-Platz 1  
Düsseldorf  
D-40599  
Germany  
Contact: Mr Rainer Luehring  
Job Title: Head of Sales Industrial Components  
T: + 49 211 7497 265  
F: + 49 211 7497 1265  
E: r.luehring@kiepe-elektrik.com  
W: www.kiepe-elektrik.com  
Vossloh Kiepe is a leading supplier of pull wire switches, belt drift switches and speed monitoring devices for the control of belt conveyor systems. The trade mark KIEPE is worldwide a synonym for proven products of highest quality.

**VSR Industrietechnik GmbH**

Am Alten Schacht 6  
Duisburg  
D-47198  
Germany  
Contact: Mr Wolfgang Schlabach  
Job Title: Export Manager  
T: + 49 20 66 99 66 40  
F: + 49 20 66 99 66 62



E: info@vsr-industrietechnik.de  
W: www.vsr-industrietechnik.de  
Products have been proving themselves in the bulk handling business for more than 39 years. Due to the specially designed and patented products, they have achieved a name for their high effectiveness and dependability.

**WeatherSolve Structures**

3127 248th St  
Langley  
British Columbia  
V4W 1X7  
Canada  
Contact: Mrs Barbara Robinson  
Job Title: Marketing Manager  
T: + 1 604 607 7781  
F: + 1 604 909 1914  
E: Barbara@WeatherSolve.com

W: www.weathersolve.com

**Wirtech AG**

Zelgstrasse 86  
Uetendorf  
CH-3661  
Switzerland  
Contact: Mr K Buehler  
Job Title: Marketing  
T: + 41 33 346 5050  
F: + 41 33 346 5059  
E: info@wirtech.ch  
W: www.wirtech.ch

**Worley Parsons Canada (Westmar)**

400-233 West First Street  
North Vancouver  
BC  
V7M 1B3

Canada  
Contact: Mr Stanley Cowdell  
Job Title: President  
T: + 1 604 985 6488  
F: + 1 604 985 2581  
E: info@westmar.com  
W: www.westmar.com

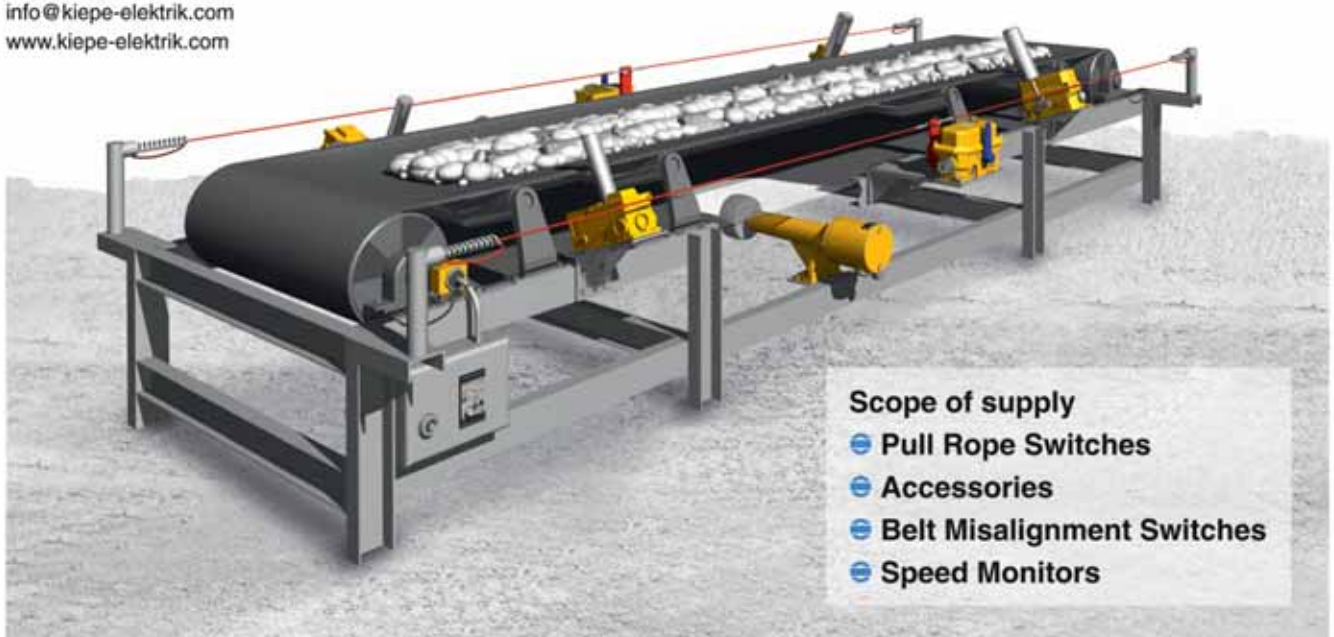
**Yernaux-Pasage**

Zone Industrielle Beraugard PB  
552  
Brive Cedex  
19107  
France  
Contact: Mr Willy Banc  
Job Title: Marketing Department  
T: + 33 475 66 4600  
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E: willy.banc@preciamol.fr

**KIEPE – Keep a good thing going**



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Phone +49 (0) 2 11 74 97-2 80  
Fax +49 (0) 2 11 74 97-4 20  
info@kiepe-elektrik.com  
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- Scope of supply**
- ⊖ Pull Rope Switches
  - ⊖ Accessories
  - ⊖ Belt Misalignment Switches
  - ⊖ Speed Monitors

2000 Engineering  
 4B BRAIME Components  
 A. Friedr. Flender AG  
 AIS Cimbria  
 ABB AB  
 Abbey Rollers Limited  
 Abraaj  
 Achenbach GmbH Metalltechnik  
 AE AntiEmission GmbH  
 AE Automation (M) Sdn bhd  
 AFM Industries  
 Agrico Sales, Inc.  
 Akerbergs Maskiner AS  
 Alex Stewart International  
 AMEC  
 AMECO SA  
 Anindya  
 Anvil Attachments  
 Arlona Engineering  
 ASGCO "Complete Conveyor Solutions"  
 ASGCO Manufacturing  
 ATIC Services  
 ATIC Services - Asia Pacific  
 Atlas Manufacturing Co. Inc  
 AUMUND Foerdertechnik GmbH  
 Aurecon  
 Aurecon  
 Aurecon Hatch  
 Ausenco Engineering Canada Inc.  
 Bedeschi Mid-West Conveyor  
 Bedeschi SpA  
 Bekaert NV  
 BELTANA Trading EK  
 Benetech GmbH  
 Benetech USA  
 Best Service Group (B.S.G.) bvba  
 Beumer Group GmbH & Co KG  
 BGS Holland  
 Binder + Co AG  
 Birrus International Pty Ltd  
 BLUG Credeblug S.L.

Company	Shiploaders	Ship-unloaders	Grab Loaders	Grab Unloaders	Grabs	Continuous Ship Unloaders	Barge Loaders	Barge Unloaders	Self-Unloaders & Equipment	Belt Conveyors/Loaders	Stackers	Reclaimers	Stacker Reclaimers	Conveyors & Accessories	Front-End Loaders	Crushing	Screening	Blending	Weighing	Sampling & Inspection	Dust Control & Suppression	Drives, Controls & Automation	Enclosed Storage	Stockyard Systems	Railcar Loaders/Unloaders	Engineering Consultants	Other		
2000 Engineering																													
4B BRAIME Components																													
A. Friedr. Flender AG																													
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ABB AB																													
Abbey Rollers Limited																													
Abraaj																													
Achenbach GmbH Metalltechnik																													
AE AntiEmission GmbH																													
AE Automation (M) Sdn bhd																													
AFM Industries																													
Agrico Sales, Inc.																													
Akerbergs Maskiner AS																													
Alex Stewart International																													
AMEC																													
AMECO SA																													
Anindya																													
Anvil Attachments																													
Arlona Engineering																													
ASGCO "Complete Conveyor Solutions"																													
ASGCO Manufacturing																													
ATIC Services																													
ATIC Services - Asia Pacific																													
Atlas Manufacturing Co. Inc																													
AUMUND Foerdertechnik GmbH																													
Aurecon																													
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Ausenco Engineering Canada Inc.																													
Bedeschi Mid-West Conveyor																													
Bedeschi SpA																													
Bekaert NV																													
BELTANA Trading EK																													
Benetech GmbH																													
Benetech USA																													
Best Service Group (B.S.G.) bvba																													
Beumer Group GmbH & Co KG																													
BGS Holland																													
Binder + Co AG																													
Birrus International Pty Ltd																													
BLUG Credeblug S.L.																													



	Shipladers	Ship-unloaders	Grab Loaders	Grab Unloaders	Grabs	Continuous Ship Unloaders	Barge Loaders	Barge Unloaders	Self-Unloaders & Equipment	Stackers	Reclaimers	Stacker Reclaimers	Conveyors & Accessories	Front-End Loaders	Crushing	Screening	Blending	Weighing	Sampling & Inspection	Dust Control & Suppression	Drives, Controls & Automation	Enclosed Storage	Stockyard Systems	Railcar Loaders/Unloaders	Engineering Consultants	Other
Bogaert Transmission (GEHA)	✓	✓																								
Bosch Rexroth B.V.																										
Bosch Rexroth Mellansel AB																										
Boyne Area Manufacturing (BAM)																										
Breiko Conveyor Products																										
Bretby Gammatech Ltd.																										
Bridgestone Industrial Limited																										
Bridon International Ltd																										
BRUKS AB																										
BRUKS Rockwood Incorporation																										
Bucket Mart Inc.																										
Bulk Cargo Handling BVBA																										
BULK.ID																										
Bulk Logistic Landmark (BLL)																										
Buttimer Engineering																										
BV Beco																										
C. Christophel GmbH																										
Cable Arm Inc																										
Cachapuz Bilancial Group																										
Calim Grab Industry																										
Cambelt International Corp																										
Capotex																										
Carbonser, S.A. DE C.V.																										
Cargotec Sweden AB, Marine Selfunloaders																										
Carlisen Group																										
Carsurin																										
Caterpillar SARRL																										
Cavotec SA																										
GDM Systems, Inc																										
CFS Handling srl.																										
Changsha Kaiyan Instruments Co. Ltd																										
China Sonangol International (S) Pre Ltd																										
CHL Equipment Ltd (incorp.																										
Verstegen Grabs UK)																										
Cimbria Bulk Equipment																										
Claudius Peters Projects GmbH																										
Claudius Peters Technologies S.A.S																										
Cleveland Cascades Ltd																										
Clough Limited																										
CNBM International Engineering Co., Ltd.																										
CNK INTERNATIONAL LIMITED																										
Coal & Mineral Technologies (SABS)																										
COBRA Europe SA																										

	Shipladers	Ship-unloaders	Grab Loaders	Grab Unloaders	Grabs	Continuous Ship Unloaders	Barge Loaders	Barge Unloaders	Self-Unloaders & Equipment	Belt Conveyors/Loaders	Stackers	Reclaimers	Stacker Reclaimers	Conveyors & Accessories	Hoppers	Crushing	Screening	Blending	Weighing	Sampling & Inspection	Dust Control & Suppression	Drives, Controls & Automation	Stockyard Systems	Railcar Loaders/Unloaders	Engineering Consultants	Other
Coelerici Logistics S.p.A.	✓	✓																								
Coles Associates																										
Comercial Tauro S.A.																										
Conductix -Wampfler Australia																										
Conductix-Wampfler Americas	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Continental Construction (Memphis)																										
Continental Conveyor & Equipment Co Inc	✓																									
CONTINENTAL MATADOR																										
RUBBER, s.r.o.																										
ContiTech Transporbandsysteme GmbH																										
Control Systems Technology Pty Ltd																										
CPS Projects (Pty) Ltd	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
CST Covers																										
CST Storage																										
Cullen Grummitt & Roe																										
CWA Engineers																										
Dalian Huarui Heavy Industry																										
International CO. LTD																										
Dbis (Software and Automation) Ltd																										
DCL, Incorporated	✓																									
De Regt Conveyor Systems																										
DeMarco Industrial Vacuum Corporation	✓																									
DemcoTECH Engineering																										
Den Bakker Dustrusting																										
Technology b.v. (dbd global b.v.)																										
DMN-WESTINGHOUSE																										
Dome Corp of North America																										
Dome Technology, LLC																										
DOMTEC International LLC																										
Donaldson Filtration Deutschland GmbH																										
Doosan Benelux SA																										
Doppelmayr Transport Technology GmbH																										
Dos Santos International, LLC	✓																									
Dosco Overseas Engineering Ltd																										
Doubrava Ges GmbH																										
Dry-Bag A/S																										
Dunlop Conveyor Belting																										
DURO FELGUERA, S.A.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Dust Control Technology																										
Dust Solutions Inc.																										



Company Name	Shipladers	Ship-unloaders	Grab Loaders	Grab Unloaders	Grabs	Continuous Ship Unloaders	Barge Loaders	Barge Unloaders	Self-Unloaders & Equipment	Belt Conveyors/Loaders	Stackers	Stackers Reclaimers	Conveyors & Accessories	Front-End Loaders	Hoppers	Crushing	Screening	Blending	Weighing	Sampling & Inspection	Dust Control & Suppression	Enclosed Storage	Stockyard Systems	Railcar Loaders/Unloaders	Engineering Consultants	Other
E-Crane World Wide	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
E-Crane World Wide /	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
E-Crane International USA	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
EDGE INNOVATE. (NI) LTD	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Egis International	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
EIFFEL Etablissement SOMDEL	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Elecon Engineering Company Ltd	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Elecon Singapore PTE Ltd.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Elgin Engineering and Construction	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
EMS-Tech Inc	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
EMS-Tech Inc.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
EMTICI Engineering Co Ltd	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Enco Engineering Inc	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Engicon nv	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Enviro-Abrasion Resistant Engineers Pvt Ltd	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
EPN Solutions	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
EQUIPO LLC	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Eriez Europe	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
ESI Eurosil BV	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Euomec Srl	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Euro- Tramco BV	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
F E Schulte Strathaus GmbH & Co KG	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
F L Smidth A/S	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Fairport Engineering	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
FAM Foerdieranlagen Magdeburg	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Famak SA	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Fantuzzi Reggiane S.p.a	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
FELD Maschinen-und Industriebau GmbH	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Fenner Dunlop Conveyor Belting Europe	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Fenner plc	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
FFE Ltd	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Figee Crane Services BV	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Flexco	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Flexco Europe GmbH	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Flexicon Corporation	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Flexveyor Conveyor	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
FLSmidth GmbH	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
FLSmidth Minerals Pvt. Ltd	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
FLSmidth Wadgassen GmbH	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Frigate Technologies Private Limited	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Gama Endustri Tesisleri	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	





Company	Shiploaders	Ship-unloaders	Grab Loaders	Grab Unloaders	Grabs	Continuous Ship Unloaders	Barge Loaders	Barge Unloaders	Self-Unloaders & Equipment	Stackers	Reclaimers	Stacker Reclaimers	Conveyors & Accessories	Front-End Loaders	Crushing	Screening	Blending	Weighing	Sampling & Inspection	Dust Control & Suppression	Enclosed Storage	Stockyard Systems	Railcar Loaders/Unloaders	Engineering Consultants	Other
International Bulk Handling Technology BV	✓																								
Intersystems	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
iSAM AG Gesellschaft fuer angewandte Kybernetik	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Isomonte SA	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Italgru S.r.l	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
J & B Grabs b.v.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Jansen & Heuning	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Jenike & Johanson Inc.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Jim Way Enterprise Co., Ltd	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Johannes Huebner Fabrik	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
elektrischer Maschinen GmbH	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Joy Global Inc	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Joy Mining Machinery	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
JSC Tehnoros	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Kalenborn Kalprotect GmbH & Co.KG	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Kardesler Grab & Machine	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
KCT Grab Industry	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Kinergy Corporation	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Kingfisher Industrial Ltd	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Kiruna Wagon AB	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Kleemann GmbH	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Knight Energy Services Limited	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Kocks Ardelet Kranbau GmbH	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
KOCKS KRANE GmbH	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Konecranes (France)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Konecranes Finland Corporation	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Konecranes Hafentechnik GmbH	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
KPI/JCI and Astec Mobile Screens	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
KRANUNION GmbH	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Kröger Greifertechnik GmbH & Co.KG	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Laing O'Rourke	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Larsen & Toubro Limited	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Lassing Dikken Consulting Engineers Ltd	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Lawrence Industries, Inc.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Legacy Building Solutions, Inc.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Libran Engineering and Services	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Liebherr Maritime Cranes	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Liebherr-Hydraulikbagger GmbH	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Listenow GmbH & Co.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Logmarin Advisors Srl	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

	Shipladers	Ship-unloaders	Grab Loaders	Grab Unloaders	Grabs	Continuous Ship Unloaders	Barge Loaders	Barge Unloaders	Self-Unloaders & Equipment	Belt Conveyors/Loaders	Stackers	Reclaimers	Stacker Reclaimers	Conveyors & Accessories	Hoppers	Crushing	Screening	Blending	Weighing	Sampling & Inspection	Dust Control & Suppression	Drives, Controls & Automation	Enclosed Storage	Stockyard Systems	Railcar Loaders/Unloaders	Engineering Consultants	Other
LogSys NV	✓																									✓	
Loibl Allen-Sherman-Hoff GmbH																											
Lycopodium																											
Macawber Engineering, Inc																											
MacGregor SWE AB																											
Mack Manufacturing Inc																											
Mactem Systems Ltd.																											
Mantsinen Group Ltd Oy																											
Marine Inspection LLC																											
Martin Engineering																											
Martin Engineering GmbH																											
Maschinen und Mühlenbau																											
Erhard Muhr GmbH																											
Mentor Dynamics																											
Merrick Industries																											
Metso Minerals Industries, Inc.																											
Midwest Industrial Supply Inc																											
Midwest International																											
Standard Products, Inc.																											
Mitsui Milke Machinery Co., Ltd.																											
Moffatt & Nichol																											
Mole-Master Services Corporation™																											
Motherwell Automation																											
Motridal SpA																											
MRS Greifer GmbH																											
NAVCO (National Air Vibrator Co)																											
Negrini Srl																											
Nemag BV																											
NERAK GmbH Fördertechnik																											
Neuro Industriechnik GmbH																											
NILOS GmbH & Co KG																											
NKM Noell Special Cranes GmbH																											
NM Heilig BV																											
NMH s.r.o																											
Nordströms Konstruktionsbyrå																											
Nordstrong Equipment Ltd																											
North American Crushing & Screening, LLC																											
NSL Engineering Pte Ltd																											
Orthos Projects Ltd.																											
ORTOS GmbH Maschinenfabrik																											
P.T. Mitra S.K. Analisa testama																											



	Shiploaders	Ship-unloaders	Grab Loaders	Grab Unloaders	Grabs	Continuous Ship Unloaders	Barge Loaders	Barge Unloaders	Self-Unloaders & Equipment	Stackers	Reclaimers	Stacker Reclaimers	Conveyors & Accessories	Hoppers	Crushing	Screening	Blending	Weighing	Sampling & Inspection	Dust Control & Suppression	Enclosed Storage	Stockyard Systems	Railcar Loaders/Unloaders	Engineering Consultants	Other
PAGE MACRAE ENGINEERING	✓				✓																				
Parker Plant Ltd	✓																								
PEBCO®	✓																								
Peinemann Cranes																									
PEINER SMAG Lifting Technologies GmbH																									
Peterson Agricare & Bulk Logistics BV																									
Pfister Waagen Bilancial GmbH																									
PHB Weserhütte, S.A.	✓																								
PHOENIX Conveyor Belt Systems GmbH																									
PINTSCH BUBENZER GmbH																									
Pirs SAS																									
PIV Drives GmbH - .	✓																								
a. Brevini Power Transmission Co																									
PLM Cranes B.V.																									
Pneumat Systems Inc																									
Polymer Industries - Ultrapoly Division																									
Portasilo Ltd																									
Port-Trade AS																									
Powerscreen International																									
Precia-Molen Nederland BV																									
Primasonics International Limited																									
Procon Engineering Limited																									
PT Bukaka Teknik Utama																									
PT CCIC Jakarta																									
PT Jakarta Prima Cranes																									
PT MacGregor Indonesia																									
PT Mitra Bahtera Segarasejati																									
PT Pamapersada Nusantara																									
PT SpanSet Indonesia																									
PT Thiess Contractors Indonesia																									
PT. Bando Indonesia																									
PT. Thermialindo Sarana Laboratoria																									
Quadrant Engineering Plastics Products																									
Quality Handling Systems Pty Ltd																									
Qube Ports & Bulk																									
R & S S.r.l.	✓																								
RAM SMAG Lifting Technologies	✓																								
Rapat Asia																									
Rapat Corporation																									
Rapidpack Corporation																									
RBL-REI France																									

	Shiploaders	Ship-unloaders	Grab Loaders	Grab Unloaders	Grabs	Continuous Ship Unloaders	Barge Loaders	Barge Unloaders	Self-Unloaders & Equipment	Stackers	Reclaimers	Stacker Reclaimers	Conveyors & Accessories	Hoppers	Crushing	Screening	Blending	Weighing	Sampling & Inspection	Dust Control & Suppression	Enclosed Storage	Stockyard Systems	Railcar Loaders/Unloaders	Engineering Consultants	Other
RC Inspection B.V																									
RDS Technology																									
Redaelli Tecna S.p.A.																									
REMA TIP TOP GmbH																									
RHC Deutschland GmbH																									
RHC Heavy Machinery Ltd																									
Risun Technologies																									
River Consulting																									
Roberts & Schaefer Company																									
RockTree Logistics Pre. Ltd.																									
Ronin GMS																									
Royal Haskoning DHV																									
RTA ALESA Ltd.																									
Rubb Buildings Ltd																									
RULMECA HOLDING S.P.A.																									
SABS - Mining & Minerals																									
Sammi																									
Sampling Associates International																									
SAMSON Materials Handling Ltd																									
Sandvik Mining																									
Sandvik Mining and Construction (China) Co., Ltd.																									
Scantech International																									
SCHADE Lagertechnik GmbH																									
Schenck Process UK Limited																									
Scorpio Engineering Pvt. Ltd																									
Sea Transport Corporation																									
Seabulk Inc																									
Selpeco Resources Inc.																									
Sempertrans France Belting Technology SAS																									
SENNIBOGEN Maschinenfabrik GmbH																									
Sensor Technology Ltd																									
Sentry® Equipment Corp																									
SESCOTRANS (SAE)																									
SEW-EURODRIVE GmbH & Co KG																									
SGS (Nederland) BV																									
SGS Australia Pty Ltd																									
SGS Minerals Services																									
SGS Minerals Services																									
Shanghai Global Machinery.																									



Company	Shiploaders	Ship-unloaders	Grab Loaders	Grab Unloaders	Grabs	Continuous Ship Unloaders	Barge Loaders	Barge Unloaders	Self-Unloaders & Equipment	Stackers	Reclaimers	Stacker Reclaimers	Conveyors & Accessories	Hoppers	Crushing	Screening	Blending	Weighing	Sampling & Inspection	Dust Control & Suppression	Drives, Controls & Automation	Enclosed Storage	Stockyard Systems	Railcar Loaders/Unloaders	Engineering Consultants	Other
Co., Ltd (SGMC)																										
Shanghai Janus Grab Co., Ltd.																										
Shanghai Qifan Co., Ltd.																										
Shanghai Yo-Pi Port Machinery Co.LTD																										
Shanghai Zhenhua Port Machinery Co (ZPMC) Ltd																										
Shanthy International																										
Shaw Almex Canada																										
SIBRE - Siegerland Bremsen GmbH																										
SIDERAR / TERNIUM																										
Siebtechnik GmbH																										
Siemens AG																										
Siemens AG																										
Siemens Nederland NV																										
SIG Società Italiana Gomma Spa																										
Simplicity Projects Pvt Ltd																										
Siwertell (part of Cargotec Corp)																										
SMB International GmbH																										
Smiley Monroe Ltd																										
SMM-UM Sociedade de Montagens Metalomecnicas SA																										
Solitec Engineering Ltd																										
Sotecma inc																										
Specialised Handling & Eng (Pty) Ltd																										
STAG AG																										
Stas BV																										
Stewart Inspection and Analysis (Pty) Ltd																										
STM srl																										
Stock Equipment Company																										
Stokman BV																										
Srudes Inc																										
STUDIO TECNICO MALNATI SAS																										
Sucofindo																										
Sumitomo Heavy Industries Material Handling Systems Co., Ltd.																										





Company	Shiploaders	Ship-unloaders	Grab Loaders	Grab Unloaders	Grabs	Continuous Ship Unloaders	Barge Loaders	Barge Unloaders	Self-Unloaders & Equipment	Belt Conveyors/Loaders	Stackers	Reclaimers	Stacker Reclaimers	Conveyors & Accessories	Front-End Loaders	Hoppers	Crushing	Screening	Blending	Weighing	Sampling & Inspection	Dust Control & Suppression	Drives, Controls & Automation	Enclosed Storage	Stockyard Systems	Railcar Loaders/Unloaders	Engineering Consultants	Other
TTS HuaHai Ships Equipment																												
TTS Marine AS	✓																											
Ulrich Brehme GmbH	✓																											
V D B (Pty) Ltd																												
Veenstra Machinefabriek B.V.	✓																											
Ventyx																												
Verachtert Nederland B.V.																												
Verachtert Nederland B.V.																												
Verstegen Grijpers BV																												
Vibrafloor																												
Vollert Anlagenbau GmbH																												
Vossloh Kiepe GmbH																												
VSR Industrietechnik GmbH																												
WeatherSolve Structures																												
Wirtech AG																												
Worley Parsons Canada (Westmar)	✓																											
Yemaux-Passage																												





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