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ISSUE NO.207 OCTOBER 2017



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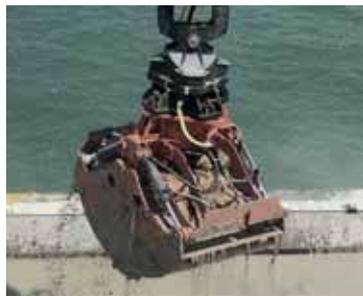
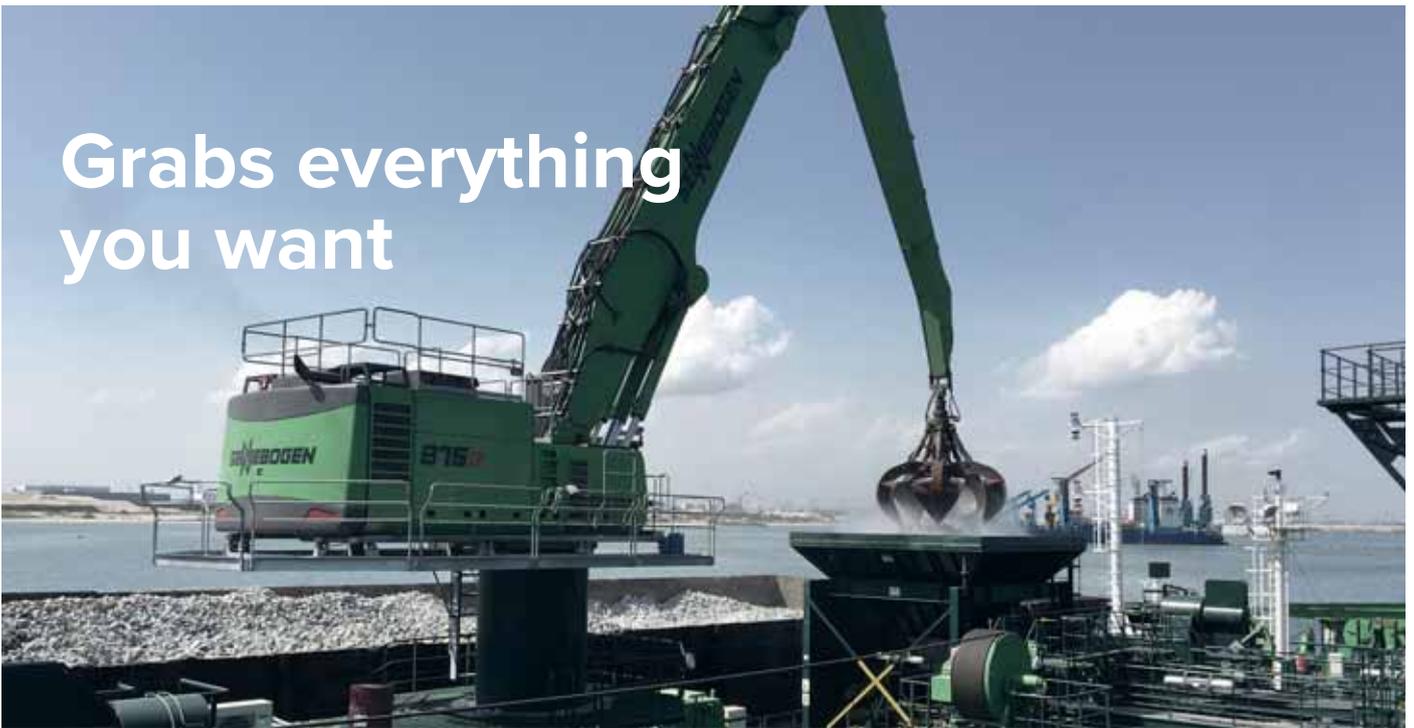


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 ISSN 1466-3643

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OCTOBER 2017 issue

featuring...



	<b>TRADE &amp; COMMODITIES</b>	
	Positive outlook for grain and soya trade	2
	EUROPEAN COAL TRADES	5
	'THE WORLD IS MY OYSTER': INTERVIEW WITH VEDANTA'S ANIL AGARWAL	16
	<b>SHIPPING &amp; TRANSPORT</b>	
	T. Parker Host opens logistics arm	18
	BIMCO advice on life boat safety	18
	OVERCOME DRAUGHT ISSUES: TRANSMAX SHALLOW-DRAUGHT BULKERS	23
	MEASURE, MONITOR & MANAGE: EMISSION TRACKING WITH RIGHTSHIP	25
	<b>PORTS, TERMINALS &amp; LOGISTICS</b>	
	India's Essar Ports to build Beira coal terminal	30
	Port of Portland receives \$1.25m security grant	32
	COAL TRAFFIC UP AT HAMBURG & LE HAVRE	33
	<b>ENGINEERING &amp; EQUIPMENT</b>	
	DSI high angle conveyors for Buriticá Project	37
	65 years of growth at SENNEBOGEN	43
	STOCKYARD SYSTEMS IN THE SPOTLIGHT	47
	KEEPING COAL UNDER CONTROL	69
	<b>COAL HANDLING DIRECTORY</b>	115

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# Positive outlook for grain and soya trade

Commodity import demand around the world has strengthened markedly this year, and a number of positive indicators point to a continuation of the trend into next year. Growth in global seaborne dry bulk trade may exceed 3% in 2017, compared with two minimal annual increases previously.

One key influence supporting this improvement is the pick up in economic activity. Estimates by the OECD organization published in late September suggested that the world economy may achieve GDP growth of 3.5% this year, a notable advance from a sluggish 3.1% seen in 2016. Accelerations in the USA, Europe and Japan, together with no further slowing in China, have been beneficial.

## GRAIN

A rising trend in soya trade is contributing. Global movements of soyabeans and meal are expected to increase by over 4% in marketing year 2017/18 starting this month, as shown in table 1, reaching 214mt (million tonnes). During the past twelve months there was a 5% rise, according to US Dept of Agriculture estimates.

China's strongly rising imports of soyabeans is the main reason. Although domestic production of beans is expanding, the upwards consumption trend boosts foreign purchases. By contrast, high corn stocks are reducing grain imports into China, which could fall by 23% to 15.2mt in the year now

starting. As a result of this and some other changes among importers, USDA calculations suggest that global wheat and coarse grains trade may grow by only 1% in 2017/18, to 369mt.

## IRON ORE

Buoyant steel production in numerous countries, especially the European Union, South Korea and China, is benefiting raw materials movements. Stronger performances in manufacturing industries which consume steel, coupled with additional construction activity, is having a positive impact.

Attention focuses on China's iron ore imports because these dominate international ore trade. In the first eight months of 2017, the China import total was 714mt, a 7% increase from the same period of last year, adding 44mt. Nevertheless, there is some uncertainty about whether this percentage growth will apply over the entire current year. Plans to cut steel production for environmental reasons have been announced, and the underlying steel demand trend may moderate.

## COAL

Resumed growth in global seaborne coal trade this year is clearly assisting bulk carrier employment, although many actual or potential negative influences remain prominent. While imports by major buyer India still appear to be weakening, a downwards trend in another large import component, Europe, is showing signs of ceasing to

fall and stabilizing, at least temporarily.

According to some estimates, India's coking coal imports in 2017 as a whole could rise from last year's 50mt, amid higher steel production which grew by 5% in the first eight months. Conversely, steam coal imports, which totalled about 146mt last year, seem more likely to continue falling, reflecting improvements in the performance of domestic coal mining and output.

## MINOR BULKS

One of the largest minor bulk elements, world seaborne trade in steel products (coil, sheet, plate and other items), is estimated to have reached about 405mt in 2016. But it is not clear whether that volume will be maintained this year. Signs are mixed.

The trade is very widely spread, complicating forecasts. Major supplier China, exporting about a quarter of the world volume, saw a 29% decrease to 48mt in the first seven months of the current year.

## BULK CARRIER FLEET

The Panamax (65-99,999dwt) bulker fleet, comprising one quarter of the entire world bulk carrier capacity, is resuming significant expansion. After a minimal increase last year, as shown in table 2, an acceleration to over 3% growth in 2017 seems likely. Newbuilding deliveries may be similar to last year's level but scrapping is expected to be much lower, amid a freight market pick up.

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

	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18*
European Union	29.5	31.4	33.5	34.3	32.5	34.0
China	59.9	70.4	78.4	83.3	92.1	95.0
Other Asia	27.8	30.3	32.3	34.3	34.9	37.0
Others	33.8	38.9	41.0	43.3	45.1	47.6
<b>World total</b>	<b>151.0</b>	<b>171.0</b>	<b>185.2</b>	<b>195.2</b>	<b>204.6</b>	<b>213.6</b>
% change from previous year	-0.3	+13.2	+8.3	+5.4	+4.8	+4.4

source: US Dept of Agriculture, 12 September 2017      October/September marketing years      \* forecast

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

	2012	2013	2014	2015	2016	2017*
Newbuilding deliveries	27.1	19.9	12.8	9.9	9.5	9.5
Scrapping	8.7	5.0	4.8	6.8	8.4	3.5
Losses	0.0	0.0	0.0	0.1	0.0	0.0
Plus/minus adjustments	-0.1	0.1	0.1	-0.3	-0.2	0.0
<b>World fleet at end of year</b>	<b>169.4</b>	<b>184.3</b>	<b>192.4</b>	<b>195.1</b>	<b>196.1</b>	<b>202.1</b>
% change from previous year-end	+12.0	+8.8	+4.4	+1.4	+0.5	+3.1

source: Clarksons (historical data) & BSA 2017 forecasts      \*forecast

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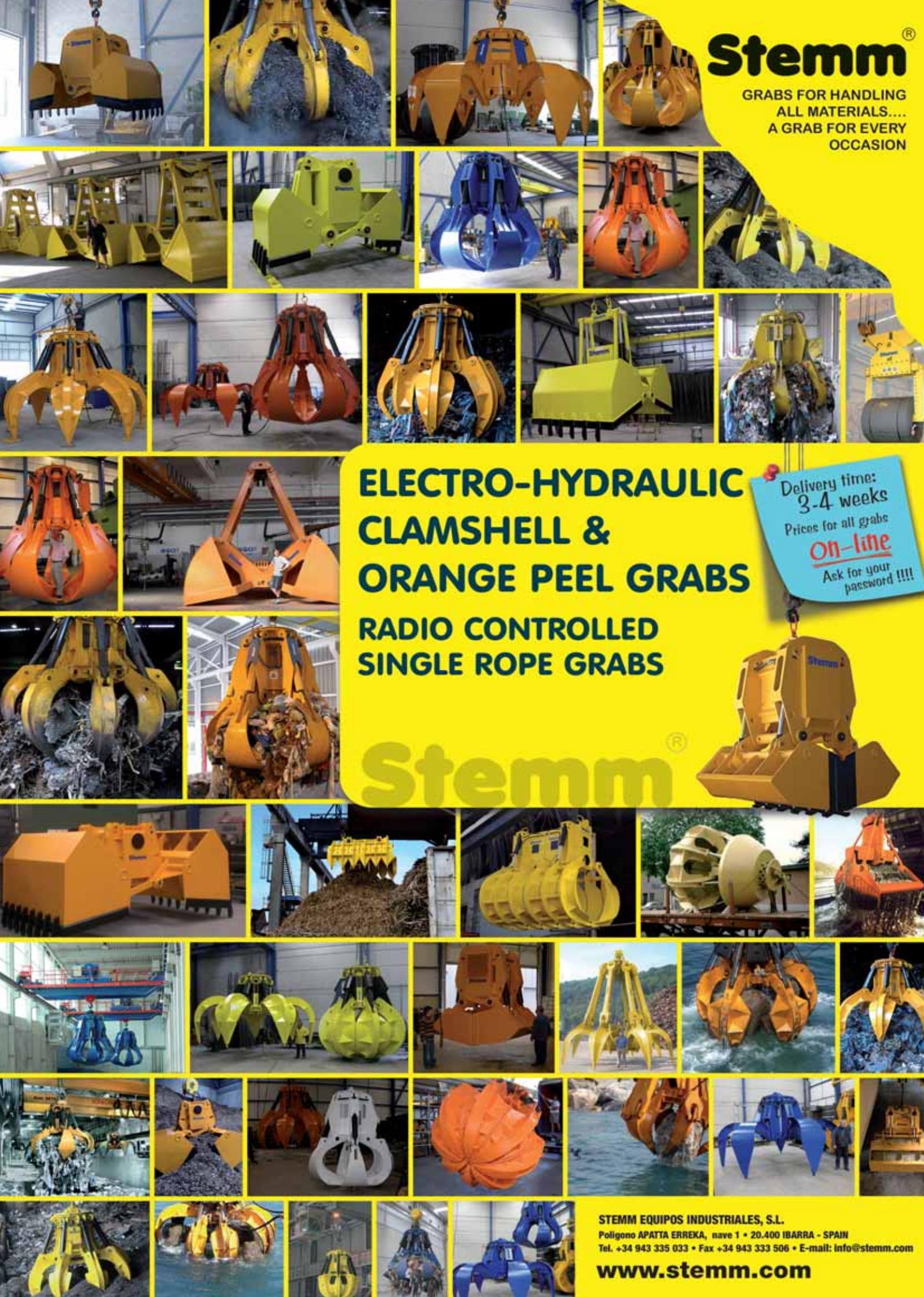
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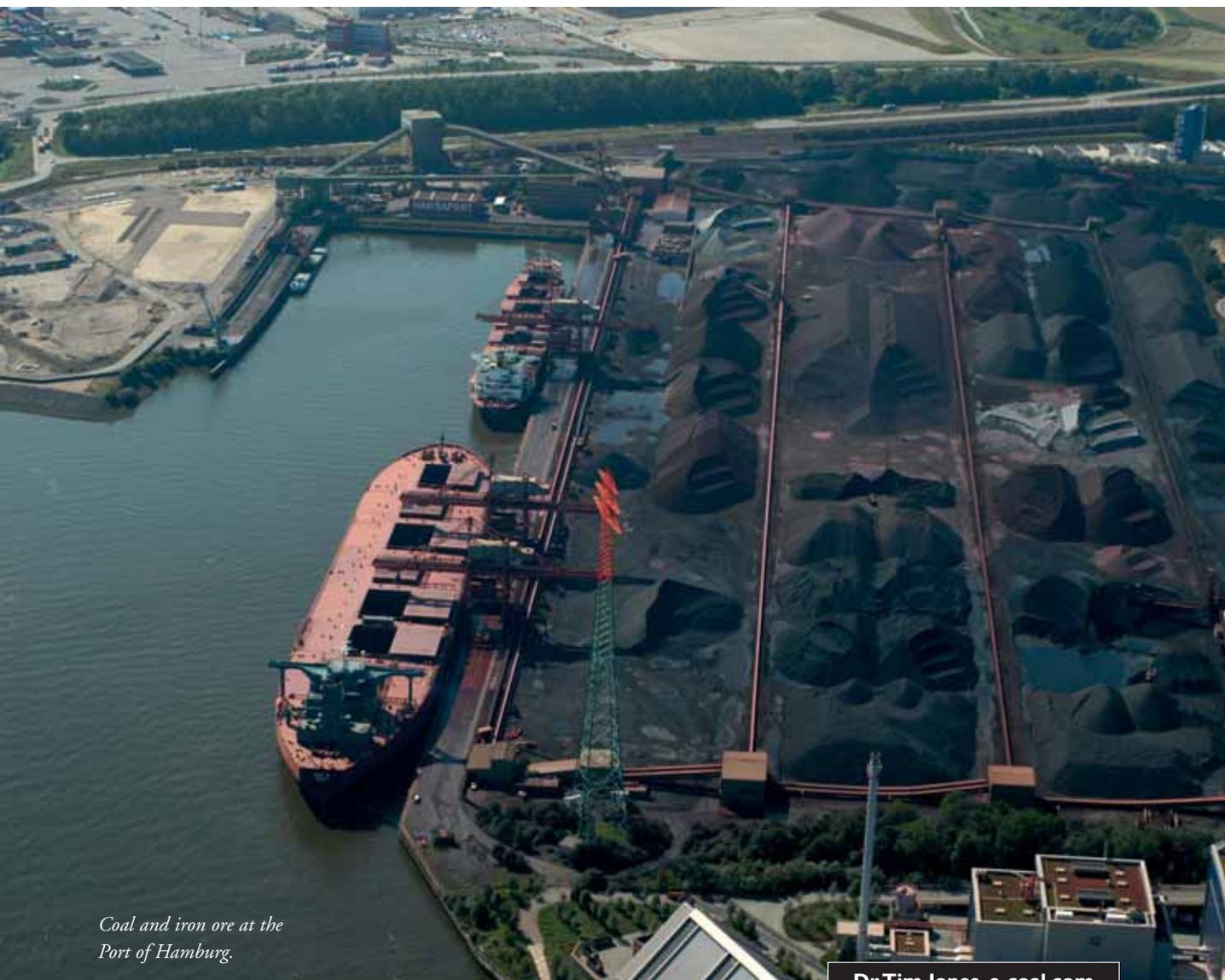
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# European coal trades



*Coal and iron ore at the Port of Hamburg.*

Dr Tim Jones, e-coal.com

Europe accounts for about a tenth of total world thermal coal trade with demand of around 90mt (metric tonnes) recorded last year. Although the market for thermal coal is in general decline there, the region still remains an important centre for the international coal market. Some countries have coal use and production policies that will see activity continue over the coming decades while others are reducing their activities on both supply and demand sides. Countries including Poland, Portugal, Spain, and Turkey remain steady consumers of thermal coal amid the declines elsewhere.

Within five years, European thermal coal demand is forecast to decline by some 25mtpa (million tonnes per annum)

bringing the size of the market down to only about 7% of total world trade. The major economies of Germany, France, and smaller countries like The Netherlands have governments which have been supporting alternative fuels such as natural gas and nuclear to the detriment of thermal coal for some time. The coal industry in the United Kingdom has been in decline for many years, and coal-fired power stations have been shut down and even demolished in order to comply with the then European Union regulations. When the United Kingdom leaves the European Union following the democratic result of the referendum in 2016 those assets cannot now be recovered.

Total European thermal coal demand in 2017 is forecast to be about 94mt due mainly to some increase in demand in Spain which could take about 14mt compared to about 11mt last year. In the Iberian markets, Portugal's intake is likely to be steady compared to 2016 at over 5mt.

In the Scandinavian markets, Norway showed more demand for coal last winter to supplement its power generation from hydroelectric stations, although the market is relatively small there at around 100kt each year. The Danish consumers also took more tonnage, recording an increase of 22% to 2.4mt in 2016 compared to the previous year at 1.9mt. Growth in Finland was seen, with 0.2mt more thermal coal

taken in 2016 at 2.4mt. The other thermal coal market in Scandinavia is in Sweden which recorded demand of 0.5mt last year which was steady on the previous year. Overall the Scandinavian markets took 5.3mt last year compared to 4.7mt in the previous year. The latest forecasts, however, predict a steady overall decline in thermal coal demand across Scandinavia in the coming years, with some expecting the total to reach just 3.7mt within five years with Sweden becoming the smallest market of the four countries by then. Conversion of existing plant to burn biomass will contribute to this decrease

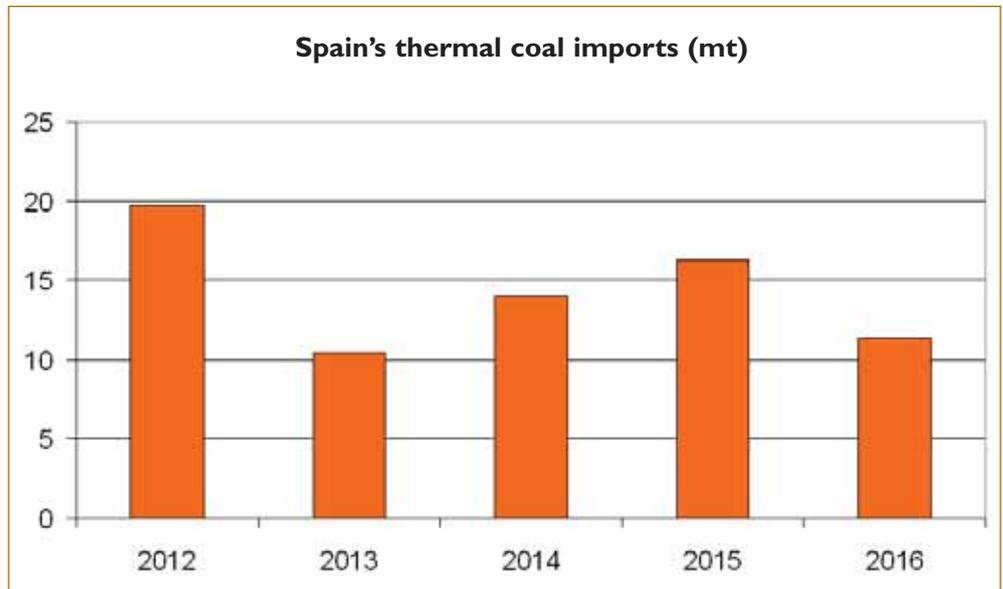
in coal demand in Denmark this year and into the future. The trend towards the use of renewable energy sources will continue throughout the region in the next decade.

Western European markets are forecast to take about 70mt of thermal coal this year, but the trend is for an overall decline of around 18mt within the next five years when the market could be just over 50mtpa. This compares with a total of 111.4mt recorded in 2013. Germany dominates the thermal coal market in Western Europe now, and will continue to be the largest consumer in the coming years. A total requirement of about 40mt there will decline by some 10mt within five years according to the latest predictions. That will account for about 60% of the total thermal coal demand in the whole of Western Europe combined. The United Kingdom has seen fluctuations in thermal coal demand in recent years as competing

fuel prices and the gradual closure of coal-fired facilities influenced its market. Demand was less than 5mt last year after recording 17mt in 2015, also down from the 32mt and 39mt seen in the previous two years. There is little hope of seeing a recovery in thermal coal demand in the coming years, and current forecasts suggest the market will have declined to between 1mt and 2mt within five years. Once free of European Union legislation, it will be interesting to see how the United Kingdom government regards its coal sector and overseas markets in the future. France has recorded relatively steady demand for thermal coal and last year this was around 10mt as the fuel supplemented its mainly nuclear-based electricity sector. Growth in thermal coal demand is not forecast for France either, and over the next five years it is expected that demand will decline by

almost a half to around 5–6mt by 2022. Other consumer countries in Western Europe take relatively small quantities of thermal coal, with Belgium on around 1.1mt and Ireland importing around 1.7mt. These two countries, however, are expected to maintain these levels for the foreseeable future.

In the Iberian markets, the Portuguese buyers have recorded a total of around 5mt of thermal coal demand lately, and this is expected to continue over the next few years. A decrease of about 1mt could occur by about 2022 as other energy sources displace coal to some extent. Spanish consumers are recording demand of around 11–14mtpa depending on hydro availability and the price of competing fuels. A projection for thermal coal demand within five years is difficult, but a decline is expected by 2022. This may see Spain's customers take less than 10mt by then.



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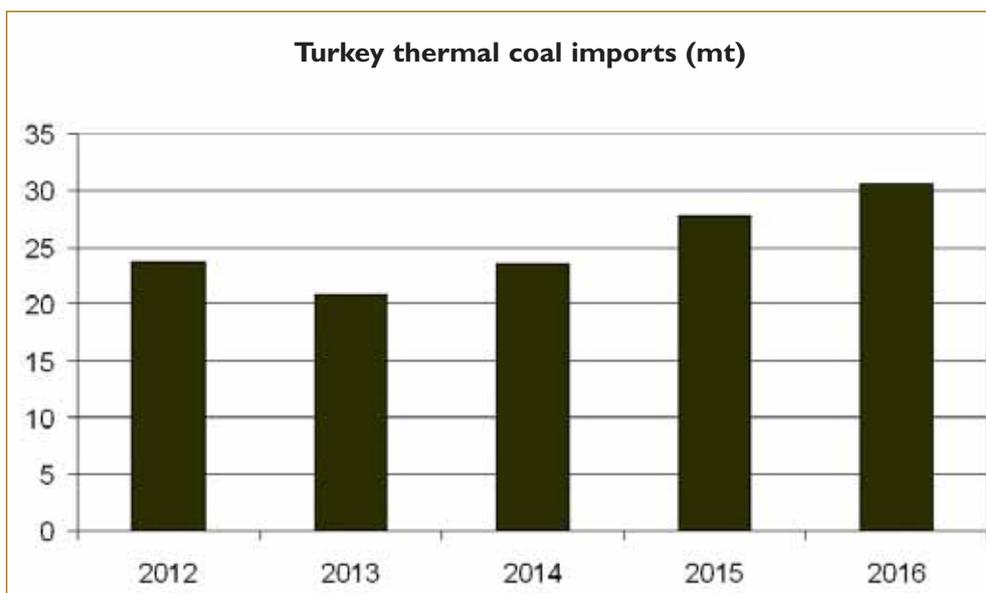
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Considering the individual countries in Western Europe, France has bought thermal coal from a number of supplier countries with Russia being the main source in 2016. A total of 2.8mt was recorded as coming from there last year, and has been rising steadily from 1.5mt in 2012. The other main suppliers to France have shipped similar quantities of thermal coal recently, with Colombia, South Africa, and Australia each sending close to 1.5mt last year. A similar quantity was recorded as being received from the ARA and UK ports. Australian tonnage is more dependent on the state of the dry cargo

shipping market due to the freight disadvantage from there, as well as coal market conditions. Variations in the supply of electricity from nuclear power stations has a large role in fluctuations in thermal coal demand in France every year. For the last full year, the French consumers recorded a total of 9.4mt of imports which was the highest since 2013 when their demand reached 10.8mt. French government policy has been to close all coal-fired power stations in the coming years.

German demand for thermal coal declined to 39.6mt last year, after a couple of years of increases, with the main source being Russia. A total of 15.8mt was imported from there and has been increasing steadily for several years now. Colombia was the next-largest supplier



with 10.6mt recorded in 2016 following growth in the previous year as well. The United States was the third largest shipper to Germany last year, with 6.3mt recorded. Tonnage from there has been decreasing in recent years as shipments of Russian material has increased. South Africa and Poland have been able to ship significant quantities to the German consumers at 1.8 and 1.4mt respectively last year but these volumes are smaller than has been seen in the previous couple of years. The German government has a policy of closing down older coal-fired power stations and this is continuing. Over 10,000MW of coal-fired capacity will probably have been shut down during the second half of this decade. Some new coal-fired capacity has been commissioned, and more is planned. This

will not, however, replace the capacity being closed, and it is unclear if remaining plans will be fulfilled. Environmental issues have led to challenges to the projects. Major electricity companies such as EnBW, Vattenfall and RWE Generation have plans to close coal-fired generating capacity in Germany in the next few years, with some of the timings dependent on the state of the market for competing fuels, mainly LNG.

Germany's production of hard coal reached only 3.9mt in 2016 which was a decrease of some 40% compared to the previous year. There are only two hard coal mines left in Germany now: Prosper Haniel and Ibbenburen.

Poland has remained heavily reliant on coal for electricity generation and the fuel



*Turów lignite mine in Poland.*

accounted for 79% of the total last year. This was only a small decrease from the 81% of share in the previous year. Total seaborne thermal coal imports reached 5.6mt in 2016 with the remainder being produced in Poland's own mines. This was an increase of 13% compared to 2015, with additional tonnage being purchased from Russia and Colombia. The country imported more electricity to supplement its own output last year as demand increased. Poland produced 70.4mt of hard coal in 2016 and recorded a total of 57.2mt of thermal coal within that mix. This was about 2mt less than was recorded in the previous year, and coal stocks were drawn down as demand for electricity increased at the power stations. The Polish government has had a policy of maintaining its reliance on indigenous coal resources and to continue to operate its mines and coal-fired power stations. Unlike other member countries of the European Union it appears that Poland wishes to maintain some form of energy independence and use new coal-fired power technology in the future as well. The issue of climate change and global warming is expected to be a factor on this in the coming years.

The coal industry in the United

Kingdom has been in decline for years, and in 2016 there was very little underground production after decreasing by a few million tonnes each year in the past decade. Five years ago underground production was 6.6mt while surface mines recorded 10.1mt in 2012. Only a few small underground operations remain, producing a combined output of 22kt last year. Opencut mining has also been declining and a total of 4.2mt was recorded last year. There is no prospect of change now. In 2013 the United Kingdom recorded consumption of 53.8mt but that quantity has been decreasing substantially since then with 14.7mt recorded in 2016. Thermal coal imports reached just 4.5mt last year after reaching 39mt in 2013. Coal-fired power stations have been closed largely due to European Union emissions regulations as well as economic factors related to competing fuels. A total of 4GW of coal-fired capacity was closed in the United Kingdom last year and that coincided with attractive gas prices as well as government policy disadvantaging coal as a choice of fuel. Consequently, coal burn and import demand slumped. The electricity sector consumed 12mt of coal last year compared to 55mt five years ago. With less require-

ment for thermal coal in the near future, stocks were also depleted over the course of last year by some 5.7mt to reach 6.7mt by the end of 2016.

The decline of the coal sector in the United Kingdom has had an impact on the main suppliers in Russia, Colombia, and the United States as demand for thermal coal decreased so greatly over the past few years. The Colombian exporters found a market for only 2.4mt of thermal coal in the United Kingdom last year. That compares with 11mt sold into the UK market five years ago. The situation was even worse for the Russian shippers who supplied only 1.2mt of thermal coal in 2016 after enjoying demand for more than 16mt five years earlier. Across the Atlantic last year, the US thermal coal exporters shipped just 261kt to the United Kingdom after reaching almost 10mt in 2013. The USA has always been a swing supplier in the market depending on the price of thermal coal, but this significant swing is more related to the policy related to coal use in the United Kingdom. South Africa and Poland only found a market for a few ships there last year as well, at 94kt and 85kt recorded respectively. While the Polish suppliers have never enjoyed a large market



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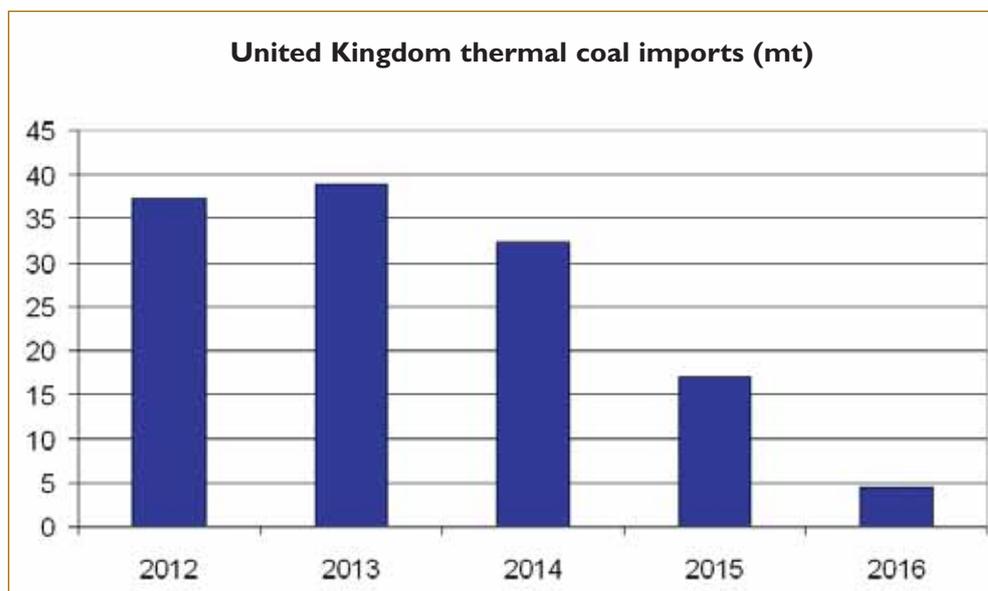
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there, the South Africans are missing the halcyon days they experienced at one time.

Portugal has been continuing to import coal for the Sines and Pego power stations with the Colombian shippers seeing most business last year. The availability of hydro power is a large influence on thermal coal demand in Portugal but around 5mtpa has been needed recently. The future of coal in Portugal is also facing challenges to comply with European Union regulations in the coming years, but unlike the United Kingdom they have not been permanently losing their coal-fired plant.

Spain's electricity sector is also influenced strongly by hydro availability as was seen last year and more recently. The total import tonnage of 11.3mt in 2016 was a decrease of 30% compared to the previous year because of this. Colombian thermal coal shippers have a relatively steady market in Spain but despite the freight disadvantage, so do the Indonesian exporters. Spain's boiler designs are compatible with a fuel blend produced with the Indonesian material, and unusually for Europe now, there remains a steady market for that coal. Almost 4mtpa has been imported in recent years. Five years ago the demand for thermal coal imports in Spain reached almost 20mt. Meanwhile, with European Union encouragement the Spanish government is to close 26 of its domestic coal mines within a couple of



years at a cost of more than €2bn. In addition to this, several coal-fired power plant are to be shut down in order to comply with emissions regulations, and demand for thermal coal imports is expected to decrease significantly at the end of this decade.

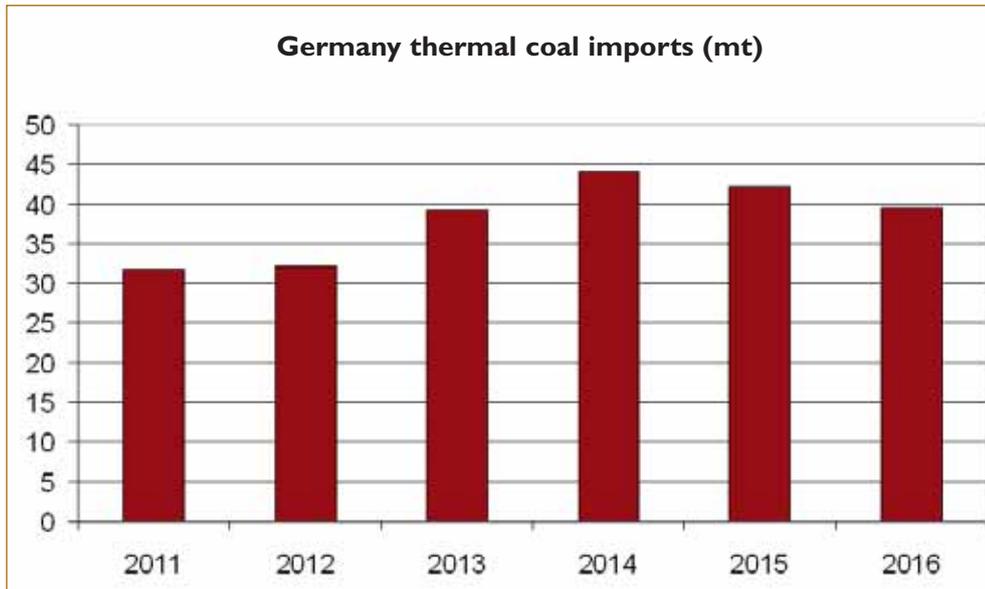
Elsewhere in the Mediterranean region the market for thermal coal is being boosted by ongoing demand in some countries. Of the European ones, Turkey is expected to be a firm buyer of thermal coal for some time, while the current member countries of the European Union such as Italy will face restrictions on coal use. Italy's thermal coal imports have been decreasing in recent years with 13.9mt recorded last year compared to 19.7mt in 2012. This was due to the competitive price of gas as well

as maintenance closures at coal-fired power plant during the course of the year. The Italian consumers had been steady buyers of Russian material at around 4mtpa but South African, US and Indonesian shippers have seen the decrease in demand affect them. Colombian product remains attractive to the Italian generators when they are in the market. The long-term future of coal in Italy looks bleak and unless the price is attractive the level of imports will decline.

Turkey imported 30.6mt of thermal coal last year reflecting steady growth as coal-fired generation increased. Imports from Colombia more than doubled from the 7.26mt seen in 2012 to reach 15.4mt last year. Imports from Russia grew to 11.8mt but there was less trade with the South

*Portugal has been continuing to import coal its power stations.*





Africans and US exporters. A cargo of Polish thermal coal was recorded in the statistics. More than 6GW of new coal-fired generating capacity had been given the go ahead in Turkey and much of it could be online by the end of 2020. Cenal Elektrik is expanding the need for coal and its 1,320MW Canakkale power station will be a new market when ramped up to full capacity. Power producer Eren Enerji has been expanding coal-fired generating capacity, and the Zonguldak power station is estimated to be a buyer of 6.5mtpa when operating at full capacity. Some projects, however, have faced challenges on environmental grounds and these include a 900MW project by Selena Elektrik.

There are some ten new projects due for commissioning by 2020 which will require imported thermal coal and these

units vary in size from 10MW to 1,600MW. Most of them currently appear to be on track and shippers are negotiating coal supplies for the future. A growth in imports of 10% compared to last year has been forecast over the next two years by some analysts.

Further east, in Ukraine, the import market for thermal coal has seen around 3.5mt being shipped there annually after reaching close to 4mt in 2014. Only the USA and South Africa delivered coal by ship last year, with about 1.3mt entering the ports. The remainder was delivered by rail from Russia and Poland, which recorded 2.045mt and 0.165mt respectively. Ukraine still has a number of coal mines despite the change to its borders in the east, and last year a total of 40.86mt was produced. Of this total, 32.5mt was thermal coal (up 3.5%

year on year) and 8.36mt was coking coal (down 0.5%).

Political problems persist in the country and these have affected the coal sector. Ukrainians have blockaded the rail lines used to supply coal from the Donbass region and the government has been forced to limit coal use at power stations burning anthracite. Pro-Russian separatists have been able to take control of mines and electricity generating facilities this year as well, where some 9mt of coal has been produced annually. The future of Ukraine's mines and power stations is uncertain amid the continuing political unrest, but

the seaborne import market is always set to benefit when conditions dictate.

So the overall picture of European coal trade is currently one of general decline in the years to come whereas other regions of the world choose to maintain or grow their coal sector. Carbon dioxide emissions from coal in Europe have been controlled, while those in Asian countries such as China and India have risen substantially. Economics has played a big part in the decline of the coal mining sector in much of Europe. European Union regulations on member countries have played a major role in the demise of coal-fired electricity generation across most of the continent, as well as its use in other sectors.

Poland is an example of one member state that has resisted this to a large extent so far, while the United Kingdom is an example of one with a small coal sector left on both supply and demand sides as it departs the European Union to set its own course in the world once more. In the years ahead it is noteworthy that predictions indicate that all the countries of Europe combined will be importing less thermal coal than Germany will alone with its remaining coal-fired assets, and France will continue to benefit from its nuclear power which can be exported and sold to some of those countries unable to meet their demand with their own domestic assets. DCi



*Eren Enerji has been expanding coal-fired generating capacity.*

*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.*

# Rosterminalugol (Ust-Luga Coal Terminal) to boost coal handling in 2017



This year Rosterminalugol (Ust-Luga Coal Terminal) plans to boost its annual coal handling up to 21mt (million tonnes), which is the historical maximum of the terminal. This means an increase in total throughput by 16% (or +2.9mt) year on year. Ust-Luga Coal Terminal is the largest and the most advanced specialized coal terminal in the North-West of Russia and in Baltic.

Since 2003, the terminal has handled 120mt of coal.

Ust-Luga Coal Terminal is located on the eastern coast of the Baltic Sea, 130km from St. Petersburg, Russia.

The advantage of the port is the immediate vicinity of European countries, importing high-quality coal from Kuzbass region and other coal basins.

The process of transshipping coal from railcars to vessels is highly automated owing to efficient coal handling equipment manufactured by leading European companies. The overall procedure includes cleaning coal from contamination, crushing it to the required fractions, continuous sampling and chemical analyses performed by the reputable independent survey

companies Incolab and SGS. Two deep-water berths of the terminal can accommodate vessels with a deadweight up to 100,000 tonnes.

In 2013 the terminal was awarded with international certificates ISO 9001:2008 and 14001:2004.

Around 90% of the overall throughput of the terminal is provided by Carbo One Ltd., which is the largest supplier of high-quality steam and PCI coal from Russia, with annual sales of about 60mt.

The coal terminal is equipped with two advanced infrared defrosting devices, one for each railcar dumper. Twelve railcars can be processed simultaneously. The procedure of defrosting railcars takes 12–15 minutes on average, and depends on weather conditions.

After passing through defrosting devices, railcars are unloaded by two tandem railcar dumpers designed to work with any railcar size. Each of them can unload two railcars simultaneously with 160° rotation. The dumpers provide a high level of productivity without damaging railcars. The use of railcar dumpers reduces the costs of railcar repair while



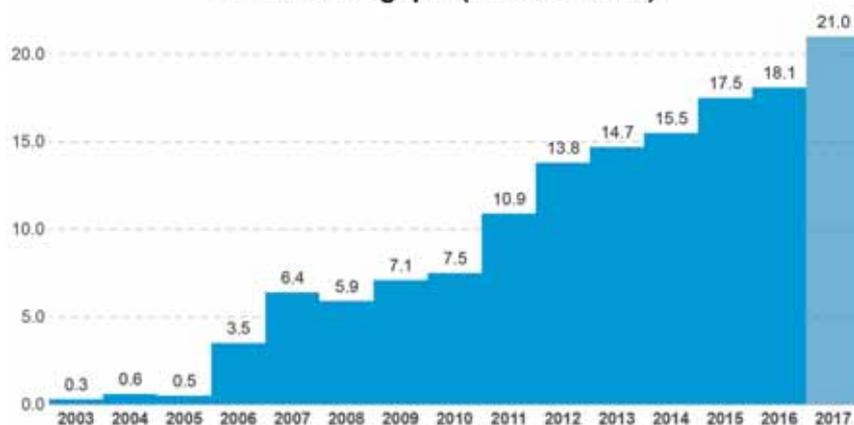
increasing the railcar lifespan. It also prevents metal contamination caused by grab cranes.

After unloading, empty railcars are brought to an indoor parking facility equipped with two automatic trans-borders. The empty railcars are then moved to the railway station, after which the railcars are assigned to their next destination in accordance with the railcar owner's instructions.

After being unloaded from railcars, coal is moved by conveyer belts to one of four coal storage sites or directly to the vessel. The total length of the conveyer belt system is 5,280 metres.

The incoming coal is stored in accordance with the customer's instructions. Modern stackers and reclaimers are used to move coal to/from stockpiles. Coal storage areas allow the terminal to store coal of different grades in ten separate stockpiles. The total coal storage capacity of the terminal is 600,000

Annual throughput (million tonnes)





tonnes at any given time.

All coal handled in the terminal is cleaned in a high-tech multistage system of magnetic decontamination. The system consists of 17 electromagnetic separators with the capacity of 1,200–4,000 gauss and weighs from 10 to 17 tonnes each. It guarantees contamination-free coal. In winter, any frozen lumps of coal are milled by a hammer crusher. The terminal is able to crush coal as fine as 0–50mm, which is in high demand on the international coal market. The crusher can process up to 3,500 tonnes of coal per hour.

All of the terminal's key areas are equipped with video monitoring systems linked to a central control board. All necessary information on coal handling can be easily accessed at any given time.

The terminal is equipped with two automatic samplers certified with the international ISO/ASTM standards. Non-stop sampling is carried out 24 hours a day, seven days a week.

Chemical analyses of the samples are performed by the independent survey companies Incolab and SGS. Their laboratories are located directly on site at the terminal. The specialists are skilled to undertake comprehensive chemical analyses of coal using high-quality certified equipment.

Their conclusions are ready within 48 hours after ship loading and include all the main coal specifications and sizing of coal.

Two high-performance shiploaders are located on two berths with a total length of 565 metres. They can load two Panamax simultaneously. Loading speed is 30,000 tonnes of coal per day, seven days a week, including holidays. If a vessel is loaded by two shiploaders simultaneously loading speed can reach 50,000 tonnes per day.

Ust-Luga Coal Terminal is committed to



providing a world class operation with minimal impact on the surrounding environment. Modern technologies are applied to ensure environmental protection and health care. Each transfer tower is equipped with a highly efficient air purification system which removes coal dust from the air.

The effective stockpile irrigation system prevents the spread of dust in the air. The terminal is equipped with high-tech water treatment facilities compliant with the international standards, and provides day-

to-day environmental monitoring and auditing.

As the major objective of Ust-Luga Coal Terminal is to supply high-quality services to its customers, the company invests in capital re-equipment and sustainability.

Modern and highly effective facilities as well as state-of-the-art technologies are the key factors for the successful future of the terminal, which plans to increase its throughput and strengthen its positions as the leading coal port in the region. **DC**

**The perfect material**



**Carbo One**



# 'The world is my oyster'

## market awaits the next move from Vedanta's Anil Agarwal



Aluminium ingots produced by Vedanta Resources.

Kunal Bose

Anil Agarwal, chairman of resources giant Vedanta Resources and the second-largest shareholder of Anglo American, has come a long way from his humble days in the provincial town of Patna where in his formative business years he was engaged in metal scrap trading and the making of wires and cables. Today the 63-year-old, credited with visionary but audacious acquisitions of metal and minerals businesses in India and abroad, splits his time between upmarket Mayfair in London and Mumbai and Delhi in India. Besides his uncanny knack of spotting takeover targets then bringing them to denouement, Agarwal has proved his mettle in executing ambitious greenfield projects. The integrated Vedanta Aluminium project in India's Orissa and the now under implementation Gansberg zinc mining and smelting project in South Africa stand testimony to the latter.

But why did Agarwal earlier this year decide to buy into Anglo American, which is one of the world's leading mining groups, involving an investment of \$2.4bn and using his family trust Volcan? At the time of purchase facilitated by JP Morgan raising the required money through the sale of mandatory exchangeable bonds to be exchanged either for cash or Anglo shares in 2020, the Vedanta chairman went to extraordinary length to describe the move as only an investment in a "great company with excellent assets." Did anybody believe that he would go through the complexities of the deal for dividend and capital

appreciation?

Analysts and bankers are not convinced that someone with ambition to join the ranks of BHP Billiton and Rio Tinto will make the effort to buy 12% of Anglo and thereby become the second-largest owner of the miner next only to South Africa's Public Investment Corporation (PIC). PIC with over \$12bn assets under management on behalf of South Africa's government employees will be a big determining factor for any ambition that Agarwal is entertaining, which understandably at this point he will keep close to his chest.

Agarwal has in the past been successful in buying zinc and copper assets from Anglo. But last year his attempts to court Anglo with the idea to merge the mining group with Vedanta subsidiary Hindustan Zinc were rebuffed without, however, in any way dimming Agarwal's zeal to remain in pursuit of other ideas. In an interview on the sidelines of the World Economic Forum in Davos in January, he said "a good idea of a match falling through" was not to stop him from "further discussions" with Anglo. In a style of his own, he said: "It was a good match; one and one wasn't going to be two, but 11."

While analysts have questioned the "capacity or firepower" of Vedanta Resources to go for a fully blown takeover of a group, which is seven times bigger than itself, the 12% ownership gives Agarwal a vantage position in Anglo to influence its corporate activity, especially if at any point

it is to hive off a big portion of its South African assets. Heath Jansen, a mining analyst at Citigroup has said in a note to clients that Agarwal's company "is positioning itself to be in a frontline seat if any breakup of Anglo American were to happen. It also potentially introduces a second activist investor, which could ultimately lead to a breakup of South African and non-South African assets." The other but bigger activist shareholder is PIC, which recommends bundling of Anglo's South African coal and iron ore mines with some platinum assets to create a diversified company of some size. But a part of PIC's agenda is to create a company owned by black capital, which, however, is not available in required quantities. Vedanta represents non-white capital. If PIC would accept that to compensate for black capital shortage, then the two entities could work in tandem to rejig Anglo.

All that is in the realm of possibility. But post March buy, Agarwal now has to contend with the UK listed miner Anglo posting a net income of \$1.4bn in the first half of 2017 compared with a net loss of \$813m for the same period last year. To the delight of shareholders, the company reinstated dividends for the first half after having suspended payouts in 2015. The sharp turnaround from the previous two years when Anglo was haemorrhaging leading to toying with the idea of hiving off poor-performing assets was fuelled by resilient rebound in commodity prices.

Cutifani says, “We have got the operations in pretty good shape, but there’s still a lot more to do.”

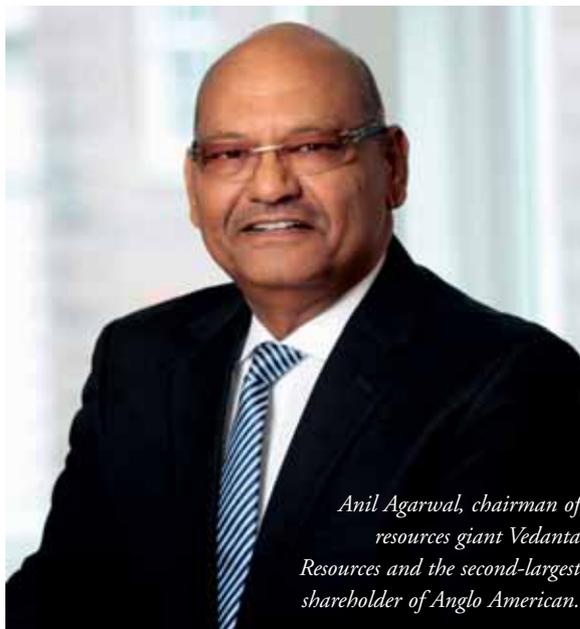
The earlier plan to exit under-performing coal and iron ore assets has been put on the shelf, at least for the near future. This happened as Anglo’s bouquet of commodities managed to gain 30% from a year ago. Even then, Agarwal will be seeing an opportunity in what Anglo CEO Mark Cutifani said in February: “If someone has a view on how they would like to see something consolidated in South Africa, we are open to the conversation, but I would have to be able to demonstrate to all of our shareholders that it created value.” Leaving aside whether in the future he will be able to acquire a part or the whole of Anglo, Agarwal claimed earlier that his acquisition of shares in the miner is “strategically very important for India.” This is because India offers the ideal playing field for most of the work that Anglo does in South Africa and elsewhere in the world.

Agarwal also then said: “We are a large shareholder in the company and they are also friends of ours. So, we will speak with them,” with the objective of securing the miner’s presence in India. Anglo has a major profile in coal, iron ore, copper, magnesium and fertilizers. De Beers being among its assets, Anglo enjoys global leadership status in diamond mining and India has the biggest share of polishing of diamonds in the world. The world will be watching if Agarwal in his capacity of a major shareholder will be able to prevail upon Anglo to invest in a liberalizing India, which is rich in resources. Agarwal has got three years to pursue whatever undisclosed agenda he has for Anglo since the bonds used for buying Anglo shares will come for either exchange for cash or Anglo shares three years hence. If nothing happens, his family trust will continue to collect dividend for its investment in Anglo.

Besides its extensive exposure to alumina and aluminium, iron ore, zinc and copper in India, Vedanta Resources has a growing presence in South Africa, Namibia, Zambia, Liberia and Australia. Agarwal has a nice take off on Shakespeare’s *Merry Wives of Windsor* when he says being a “global miner the world is my oyster. My job is to identify opportunities wherever on earth they exist and then work on them.” If BHP Billiton could be in oil and gas, then why not Vedanta? On his own admission, Agarwal

has developed a “passion” for oil and gas. If anything, this particular passion has remained on ascendance since Vedanta signed a \$9.6bn deal for the Indian oilfield assets of London listed Cairn Energy a few years ago.

A recent report by the International Energy Agency says that India, which is to emerge as the world’s biggest centre of future oil demand growth will see its energy import bill climbing to \$460bn by 2040 from \$65bn in 2015. While this



*Anil Agarwal, chairman of resources giant Vedanta Resources and the second-largest shareholder of Anglo American.*

remains the reality, India’s oil and gas production trends and levels of explorations of new fields point to growing dependence on imports. In an article that he has written for *Bloomberg Quint*, Agarwal says serious attempts need to be made to step up oil and oil equivalent gas production from the current 70mt (million tonnes) to over 105mt by 2025. He is preparing Vedanta to play a befitting role in this quest by doubling its production. (Cairn India has since been merged with Vedanta.) But what acts as a disincentive is the requirement to sell energy at 10% discount to world prices. “Why should anyone invest here if you don’t allow him to get international price? The price we producers are paid should be linked to the benchmark Brent crude rate,” says Agarwal.

Vedanta in India remains the most diversified resource group. During 2016/17, the group produced in India 1.2mt of alumina and similar quantity of aluminium by sourcing large quantities of the intermediate chemical from outside, 907,000 tonnes of zinc, 402,000 tonnes of copper and 190,000 barrels of energy per day. In the eyes of Agarwal, “India is an exciting place to be” at this point. No wonder then of Vedanta Resources’

planned investment of \$10bn over the next three to four years, India alone will claim as much as \$8bn. On many occasions Agarwal has said that all the resources from coal to iron ore to bauxite lying under Indian earth give the country natural advantage to emerge as a global powerhouse in minerals and metals.

But for this goal to be reached, the government will have to be bold in simplifying a host of rules that govern mining in India. As Agarwal says, if forest clearances could be had in two months instead of a year or more as is the case now, then projects will move faster. He is all in favour of simplified rules being strictly enforced. Vedanta could have produced a lot more iron ore in Goa had it not been constrained by court-ordered “cap” on output. Iron ore production cap for Goa is 20mt and for Karnataka 30mt. The silver lining is the government in both the states are convinced that raising of production ceiling will not in any way harm the environment. Isn’t there a contradiction that while the government is pushing for steel capacity to be raised to 300mt by 2030 from the present 126mt, the cap remains on iron ore production? On the basis of requirement of 1.6 units

of iron ore to make one unit of steel, the country will need 480mt of ore to use the targeted 300mt steel capacity. India’s present ore production is around 180mt. There is a long way to go for India in developing new mines to support the ambitious steel development programme.

India has three integrated aluminium producers, namely, Vedanta, Hindalco and the largely government-owned National Aluminium. While Vedanta remains under pressure to secure bauxite from multiple sources to run its refinery, which has capacity of 2mt, the other two have the benefit of captive mines. Vedanta has received approvals to expand refinery capacity to 4mt. But the company says: “This will be considered when we have further visibility on bauxite sources.” It has every reason to be cautious on raw material front after it was forced to abandon mining of bauxite at Orissa’s Niyamgiri hills because of tribal protests. Abandonment of mining at Niyamgiri hills in 2014 was a major setback for Vedanta’s refinery operation at Lanjigarh. But instead of buckling under the pressure, the group steadied the non-ferrous white metal business by procuring bauxite and alumina from multiple sources, including imports. DC



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## 3D printed ship's propeller takes step closer to completion

A prototype of the world's first class-approved ship's propeller has been produced using 3D printing techniques. The 1,350mm diameter propeller — named WAAMPeller — is the result of a co-operative consortium of companies that includes Damen Shipyards Group, RAMLAB, Promarin, Autodesk and Bureau Veritas.

The WAAMPeller was fabricated from a Nickel Aluminium Bronze (NAB) alloy at RAMLAB (Rotterdam Additive Manufacturing LAB) in the Port of Rotterdam. The propeller was produced with the Wire Arc Additive Manufacturing (WAAM) method using a Valk welding system and Autodesk software. The triple-blade structure uses a Promarin design that is used on Damen's Stan Tug 1606. With production complete, the WAAMPeller will be CNC milled at 'Autodesk's Advanced Manufacturing Facility in Birmingham, UK'.

### MATERIALS SCIENCE

This prototype 3D printed propeller represents a steep learning curve of the understanding of material properties. "This is because 3D printed materials are built up layer by layer," says Kees Custers, Project Engineer in Damen's R&D department. "As a consequence, they display different physical properties in different directions — a characteristic known as anisotropy. Steel or casted materials, on the other hand, are isotropic — they have the same properties in all directions."

Because of this critical difference, one of the first steps was to carry out extensive testing of the material properties of the printed material to ensure compliance to Bureau Veritas standards. "This involved printing two straightforward walls of material — then using a milling machine to produce samples for lab testing of tensile and static strengths."

It can also be said that the 400kg WAAMPeller sets a milestone in terms of 3D printing production techniques. "The challenge has been to translate a 3D CAD file on a computer into a physical product. This is made more complex because this propeller is a double-curved, geometric shape with



some tricky overhanging sections," explains Custers.

Yannick Eberhard from Promarin's R&D department adds that "the transformation from a semi-automatic to robotic processing is the solid foundation for even more complex and reliable future propeller designs".

### GREAT POTENTIAL

"Material characterization and mechanical testing have been an important part of this project," says Wei Ya, Postdoctoral Researcher from the University of Twente

at RAMLAB. "We have to make sure that the material properties meet the needs of the application. Material toughness, for example — ensuring that the propeller is able to absorb significant impact without damage."

"But we have also been working towards optimizing the production strategy for 3D metal deposition. This includes bead shape and width, as well as how fast we can deposit the printed material."

Highlighting RAMLAB's capacity to print objects with maximum dimensions of 7 x 2 x 2 metres, Ya says: "For large scale 3D metal deposition, the WAAMPeller is really groundbreaking for the maritime industry."

"This technology is a fundamental change in the concept of how we make things. With additive manufacturing, you can print most metallic components that are needed in principle. There is so much potential for the future — these techniques will have a big impact on the supply chain."

### CLASS APPROVAL

This first prototype WAAMPeller will be used for display purposes, and planning for a second example is already under way. "We start production of a second propeller with class approval later next month — using all the lessons we have learned over the past few months," notes Custers. "We are aiming to install this second one onto one of our tugs later this year."





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## Damen Shipyards Group delivers Shoalbuster 3209 to ISA Towage



ISA Towage B.V. (formerly known as V.O.F. Sleepboot ISA) has taken delivery of a Shoalbuster 3209 from Damen Shipyard Hardinxveld (DSHa). The vessel was already in stock at the yard and was handed over to the client within four weeks of the order being agreed. Damen's extensive range of Shoalbuster vessels offers some of the most versatile workboats available in the marketplace today, capable of taking on a wide variety of roles.

The purchase of the 3209 by ISA Towage B.V. marks the return of the Dutch towage and marine assistance company to DSHa following its taking delivery of a smaller version in December 2016, its first purchase from the Damen Group. The Shoalbuster, named *ISA*, is now working on a contract in Germany.

At 32 metres long and with a beam of over 9 metres, *ISA* is ready for operations such as towing, mooring, pushing, anchor handling and dredging support. These are supported by an equipment package specified by the



client that includes twin Caterpillar engines delivering 3,500bhp for 52 tonnes of bollard pull and a top speed of 11 knots, an HS Marine deck crane giving eight tonnes of lift at 16 metres, and a 50-tonne towing and a 12-tonne tugger winch. The fully air-conditioned interior has comfortable accommodation for up to seven crew.

"We're delighted that ISA Towage B.V. has returned to us so soon," says Jos van Woerkum, Managing Director of Damen Shipyards Hardinxveld. "Willem-Harm Mastenbroek, owner and managing director of ISA Towage B.V., was able to take advantage of a great deal and

immediate availability to provide an enhanced capability to his clients, and it is very gratifying to welcome back him and ISA Towage B.V. back to the Damen family."

"When in July, Jos van Woerkum at DSHa offered us the opportunity to upgrade to a Shoalbuster 3209 that had just been just completed and completely outfitted at the shipyard, it was just too good to miss," says Willem-Harm Mastenbroek. "Our current

client at the time had recently informed us that our existing vessel did not have sufficient bollard pull for their next contract and that 50 tonnes of bollard pull would be needed. So the decision to make the step up to a bigger vessel with more capabilities was easily made. The new 3209 has now replaced its predecessor in the Baltic Sea, and we look forward to the new and better opportunities and different types of contracts that our new *ISA* will open up for us."

Based in Wijk bij Duurstede in the Netherlands, ISA Towage B.V. undertakes projects across Europe and into Asia.



# Overcoming draught limitations

## with Transmax shallow-draught bulkers



*Transmax loading from shore conveyor (all pictures: ©National Ports Corporation).*

National Ports Corporation is a renowned and experienced developer of integrated infrastructure solutions for floating ports and shallow water ports.

National Ports, in partnership with thyssenkrupp, has developed a self-unloading super shallow draught bulk carrier that will revolutionize transshipping operations in shallow water ports around the world: the Transmax™.

The Transmax is a 190,000dwt bulk carrier with a 14-metre draught. Each self-propelled Transmax will be designed to match the depths of water available at each port, for example, a 60,000dwt Transmax can transit a port with water depths of only 6.5 metres.

The Transmax is equipped with innovative cargo handling systems capable of self-unloading its cargo into any size

ocean going vessel at rates of up to 10,000tph (tonnes per hour).

The Transmax can be loaded at existing berths using existing shiploaders, or can be loaded directly from a shore conveyor, avoiding the capital cost for land-backed wharf and shiploader. This represents a substantial saving in capital expenditure.

The Transmax is able to unload material from any size bulk carrier.

The Transmax is a solution for draught-restricted ports worldwide.

#### LIMITED DRAUGHT IS A WORLD-WIDE PROBLEM

- ❖ The vast majority of global export ports are geographically remote and not sufficiently dredged to handle modern bulk carriers.
- ❖ The majority of import ports suffer the same difficulty.

- ❖ Most ports have a draught of 14 metres or less, e.g. in Australia, India, Brazil, Africa and Middle Eastern countries.
- ❖ Dredging is very expensive and this cost increases exponentially when dredging hard materials, such as rock. Furthermore, environmental requirements/regulations are far reaching and challenging.
- ❖ Capesize bulk carriers require a draught of about 19 metres including clearance under the keel.
- ❖ Draught limitations constrain exports and imports

#### EXAMPLES OF COUNTRIES WITH CHALLENGING EXPORT/IMPORT:

##### AUSTRALIA (PORT HEDLAND)

The average vessel loading iron ore at Port Hedland is 180,000dwt with a 18.2m

draught. Port Hedland's inner harbour and channel have a draught of 14.3m at low tide.

Laden Capesize ships can only depart the inner harbour at high tide.

According to the Pilbara Ports Authority, the maximum throughput capacity of the port is 577mtpa (million tonnes) per year. This will be reached in approximately three years.

The Pilbara Port Authority does not have a solution on how to increase the port throughput at Port Hedland beyond 577mtpa.

The self-propelled Transmax opens up (24/7) the draught-limited port of Port Hedland to far greater tonnages with no dredging, capital expenditure, or change to materials handling process or equipment.

#### INDIA

With the exception of three ports, "In India none of the 12 ports owned by the Indian Government can handle Capesize ships at their berths because of lack of adequate depth, which averages 13 metres..."

Currently "Capesize ships loaded with coal would anchor in the mid-sea, some 31 nautical miles from Kandla. From there, floating cranes would unload the cargo into 2,000dwt barges that are taken to the port." This is a very inefficient and expensive process.

The Transmax will self-load the full cargo (180,000 tonnes) from the Capesize ships at anchor and self-unload it at the port of destination at the rate of up to 10,000tph.

#### BRAZIL

The distance from Brazil to the markets of China, Japan, Korea, and other South East Asian countries, is about three times more than its Australian competitors.

This represents a major additional shipping cost.

To mitigate the challenge of the extra distance in an effort to reduce the freight costs and allow Vale to compete with the Australian producers, Vale has built a fleet of very large bulk carriers (400,000dwt Valemax)

Very few ports in Brazil, China, Japan, Korea or other world countries are able to accommodate these mammoth 400,000dwt vessels.

Limited port accessibility constrains exports. By positioning the self-propelled Transmax in deep water near the port of destination, Vale can deliver its bulk commodities with its Valemax ships directly to any port in the world.

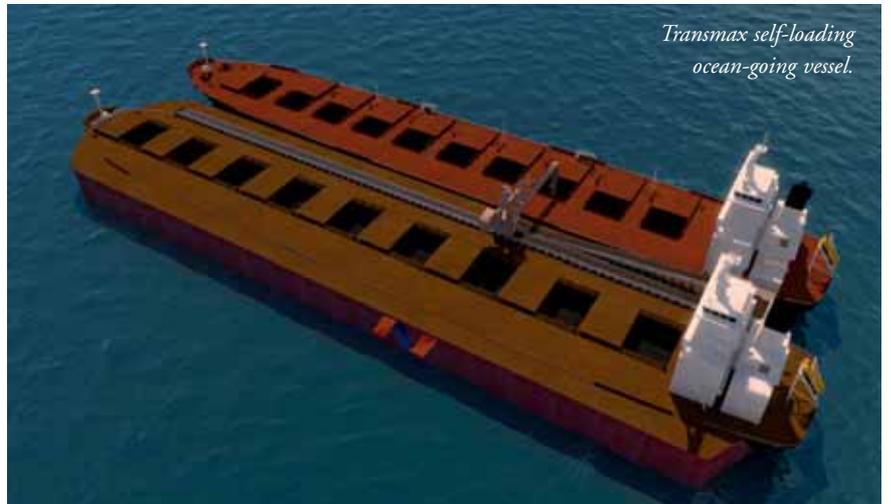
The Transmax can self-unload the cargo from the 400,000dwt vessel and self-



*Transmax self-unloading at the berth.*



*Transmax loading at an existing berth.*



*Transmax self-loading ocean-going vessel.*

discharge it directly at the port of destination at the rate of up to 10,000tph.

#### THE TRANSMAX CAN BE CHARTERED ON A PER TONNE BASIS

National Ports will be responsible for all operating and ports costs.

The Transshipment cost per tonne will be offset by the following saving:

- ❖ For exporting ports such as Port Hedland, the ocean going vessel will no longer enter the inner harbour, therefore the port cost will be massively reduced.

- ❖ Export/imports can now be undertaken by larger ocean going bulk carriers, therefore the freight cost per tonne will be far less.

- ❖ In some cases, because of tide restrictions, the ocean going vessels currently depart the berth NOT fully loaded, by operating the Transmax, the dead freight cost is removed.

- ❖ Reduction of demurrage cost.

The effective net result is that the client will be able to increase the cargo throughput at almost zero cost.



# Measure, monitor & manage

## RightShip is helping operators keep track of their emissions



Accurate measurement of scope 3 emissions relating to the movement of bulk cargoes has eluded most mining companies and manufacturers of dry commodities. But eminent maritime risk management and environmental assessment organization, RightShip, has now launched a process that quickly and easily gives a true indication of carbon emissions associated with moving bulk cargoes by sea.

Increasingly, investors and stakeholders want to understand how the companies they are associated with are impacting on the natural environment. But before emissions can be managed, they must be measured and monitored. Driven, in part, by the 2015 Paris Agreement (COP 21), responsible companies are now working much harder to fully understand and manage their emissions levels.

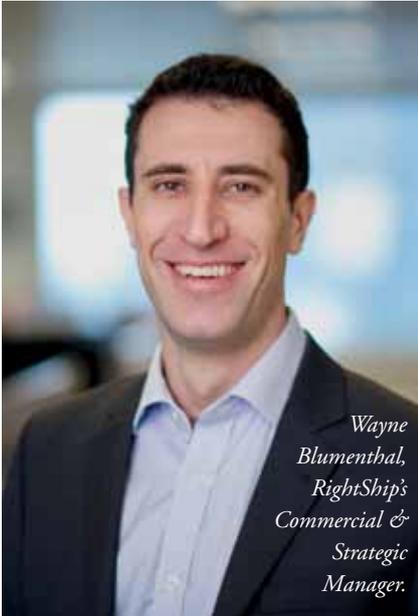
### IDENTIFYING SCOPE 3 EMISSIONS

Comparatively, measuring emissions that fall into the scope 1 and scope 2 categories is a fairly simple process. Scope 1 involves emissions directly associated with the core business processes (mining or manufacturing, for example) whereas scope 2 covers emissions related to the energy required to drive those processes — for example, or electricity taken from the grid. But it is the scope 3 emissions that are more difficult to identify and quantify. This group extends much wider than the other categories and encompasses all other sources such as emissions created by employees travelling to work, or flying overseas to attend a meeting. Also included here are emissions associated with maintaining a logistics chain. Most companies will require raw materials or

components and most will need to move their goods from source to their customers — and the emissions involved in this process must be captured under the scope 3 category.

### RIGHTSHIP'S PROCESS

RightShip recognizes that many blue-chip companies are placing increasing importance on being able to measure ship sourced emissions. In response, it has developed a carbon accounting process which allows charterers to achieve this simply and cheaply. RightShip's Commercial & Strategic Manager, Wayne Blumenthal, explains, "we take basic information such as vessel name, fuel-type, cargo and voyage details from the charterer which we marry with the proprietary environmental information contained within RightShip's



*Wayne  
Blumenthal,  
RightShip's  
Commercial &  
Strategic  
Manager.*

GHG Rating. This allows us to calculate the theoretical fuel consumption and the equivalent carbon emissions for each individual voyage. But more than this, our calculations include the full well-to-prop process. In other words, we are able to measure emissions associated with extracting the oil from the ground, moving it to the refinery, refining the crude oil, moving the fuel to the bunker tanks and then burning the fuel during the voyage. In general, we find that around 10% of total emissions result from the extraction and refining process leaving 90% attributable to the actual voyage of the ship itself."

#### **PRACTICAL MEASUREMENT**

One of the first companies to test RightShip's carbon accounting process was Australia-based diversified chemicals manufacturer, Incitec Pivot Ltd (IPL). This global company charters more than 200 bulkers and tankers each year to import raw materials and to move its products. It already monitors and reports its scope 1 and 2 emissions under the CDP (Carbon Disclosure Project) and wanted to expand its efforts to include those that fall under scope 3. As a major user of ocean transport, emissions from its shipping activities were considered significant. As IPL is a RightShip customer and a regular user of the GHG Rating, it was a logical step for it to ask RightShip to assist with this project.

Corporate Sustainability Manager for IPL, Karen Durand explains, "as a major manufacturer of fertilizers and explosives, we are conscious that our industrial processes use a significant amount of energy and, consequently, releases carbon into the atmosphere.

"We take our environmental obligations extremely seriously and recognize that the first step to being able to manage our emissions is to measure them accurately. We already measure, report and manage our scope 1 and scope 2 emissions but measuring scope 3 emissions is much harder. We simply don't have control over that data set. We were extremely keen to identify a robust and verifiable process that was also simple and flexible to implement.

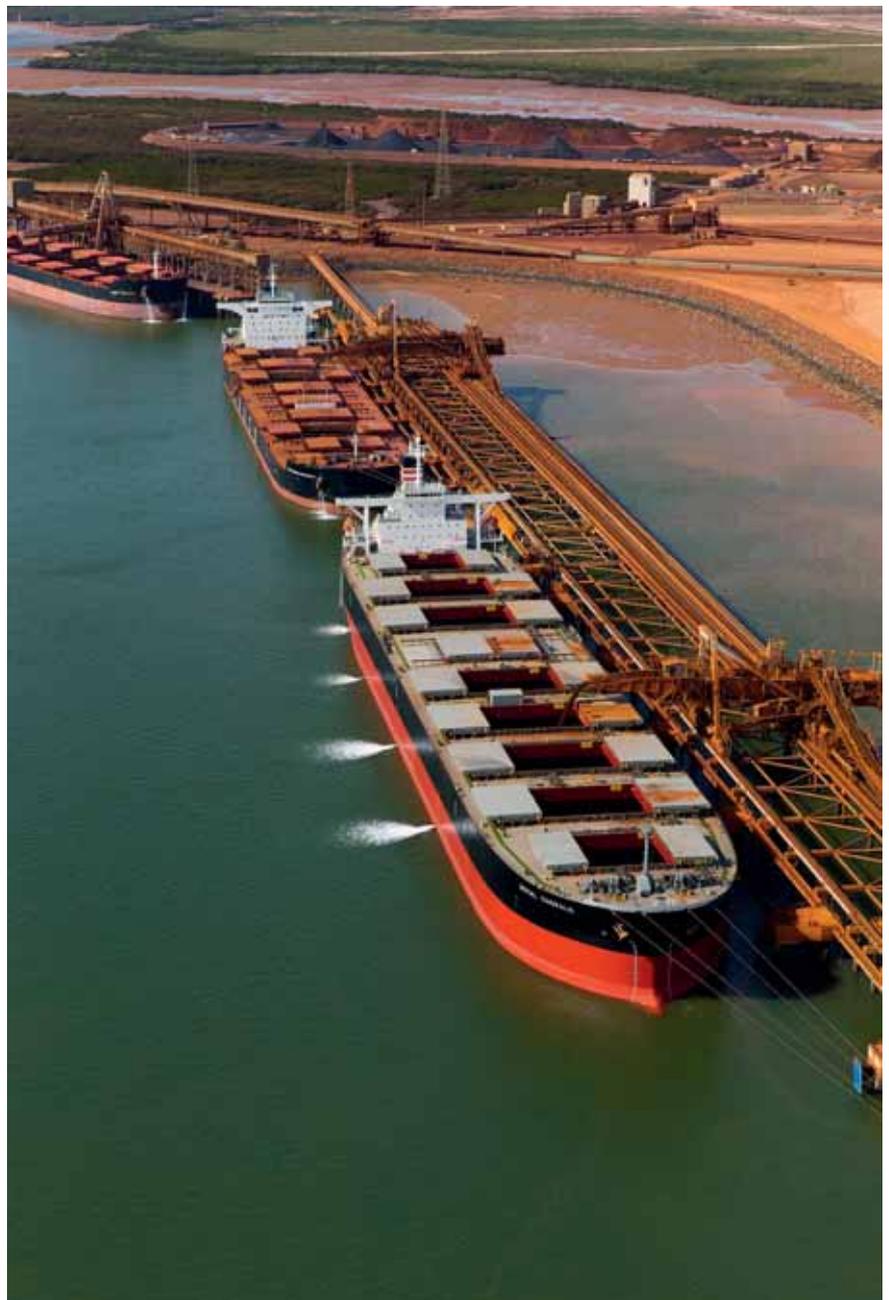
"Working with RightShip's carbon accounting process is very straightforward, and as they conform to the European Standard we have additional confidence in their ability to deliver robust and accurate results. Without them, we would have to estimate our environmental impact using average vessel efficiency data. In general, there are very few scope 3 data sources and, as far as we are aware, there is no other agency able to deliver this level of

accuracy for ocean transport," she said.

Working together, RightShip and IPL identified the IPL vessel charters over a 12 month period, taking basic details to combine with RightShip proprietary data to provide a calculation of emissions per voyage, as well as the total emissions for the year.

The result of this work is that IPL now understands that its shipping activities are responsible for generating around 74,000 tonnes of carbon emissions each year. Armed with this information, the company can take further steps to ensure it works actively to contain and reduce its emissions.

Using RightShip's GHG Rating, IPL also selects more efficient ships with lower greenhouse gas emissions wherever possible. IPL is now asking RightShip to calculate how much carbon has been saved by the company through using the rating to select more efficient vessels.



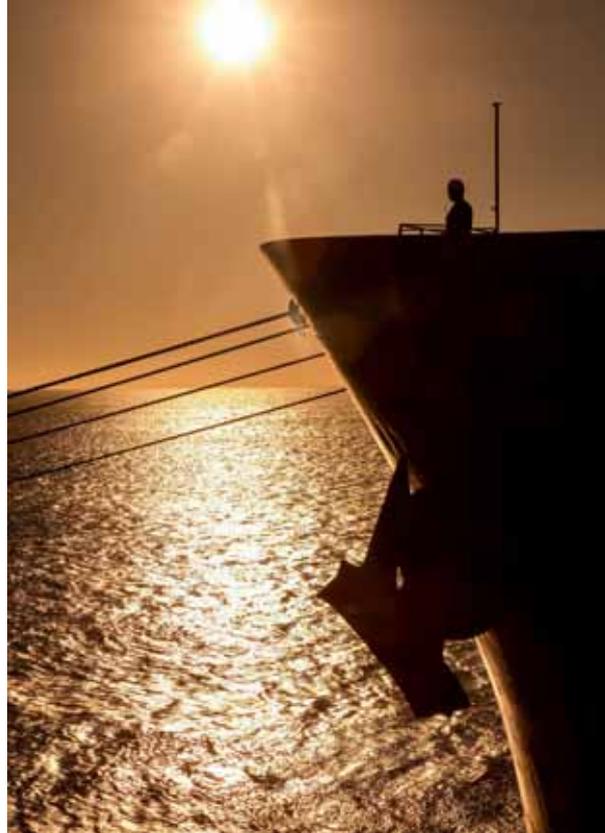
#### FURTHER REFINEMENTS

Whilst RightShip's carbon accounting calculations are robust and verifiable, the organization is planning further refinements. These include emissions resulting from time spent in port, as well as time spent engaged in cargo handling activities. Recognizing that not all charterers utilize entire ships, RightShip has already implemented a process to allow it to attribute emissions to part-cargoes and even to individual boxes carried on larger containerships. This has involved extensive research to understand average box numbers moved by certain types of vessel as well as separating emissions associated with moving the vessel itself and those resulting from moving the individual box. This will prove a valuable calculation for retailers who want to accurately measure their environmental footprint. It is also hugely important for all charterers who want to understand their theoretical carbon emissions before embarking on a voyage.

#### CARBON MANAGEMENT AND OFFSETTING

Measuring and monitoring is a vital first step, but what happens next? In IPL's case, the follow-up is to further enhance its policy of employing cleaner vessels to reduce its environmental impact. Other companies will want to investigate carbon offset programmes to counteract their carbon output. RightShip has also developed an initiative that will allow it to offer, directly, carbon offsetting projects to customers. Based on its carbon emission calculations, customers will be able to choose how much carbon they'd like to offset and by which programme. These could be forestry or marine initiatives, or community-based projects — all of which are Verified Carbon Standard (VCS).

In an increasingly transparent world, it is important to understand how individual businesses are impacting on the natural environment. Incidental emissions are the most challenging to manage and without a robust measurement process in place, they cannot be sensibly reduced. This innovation from RightShip — independently verified and in compliance with globally accepted international standards — is a significant step forward to help responsible companies fully understand and measure the environmental impact of their ocean transportation activities. DCi



*IPL charters more than 200 bulkers and tankers each year to import raw materials and to move its products.*

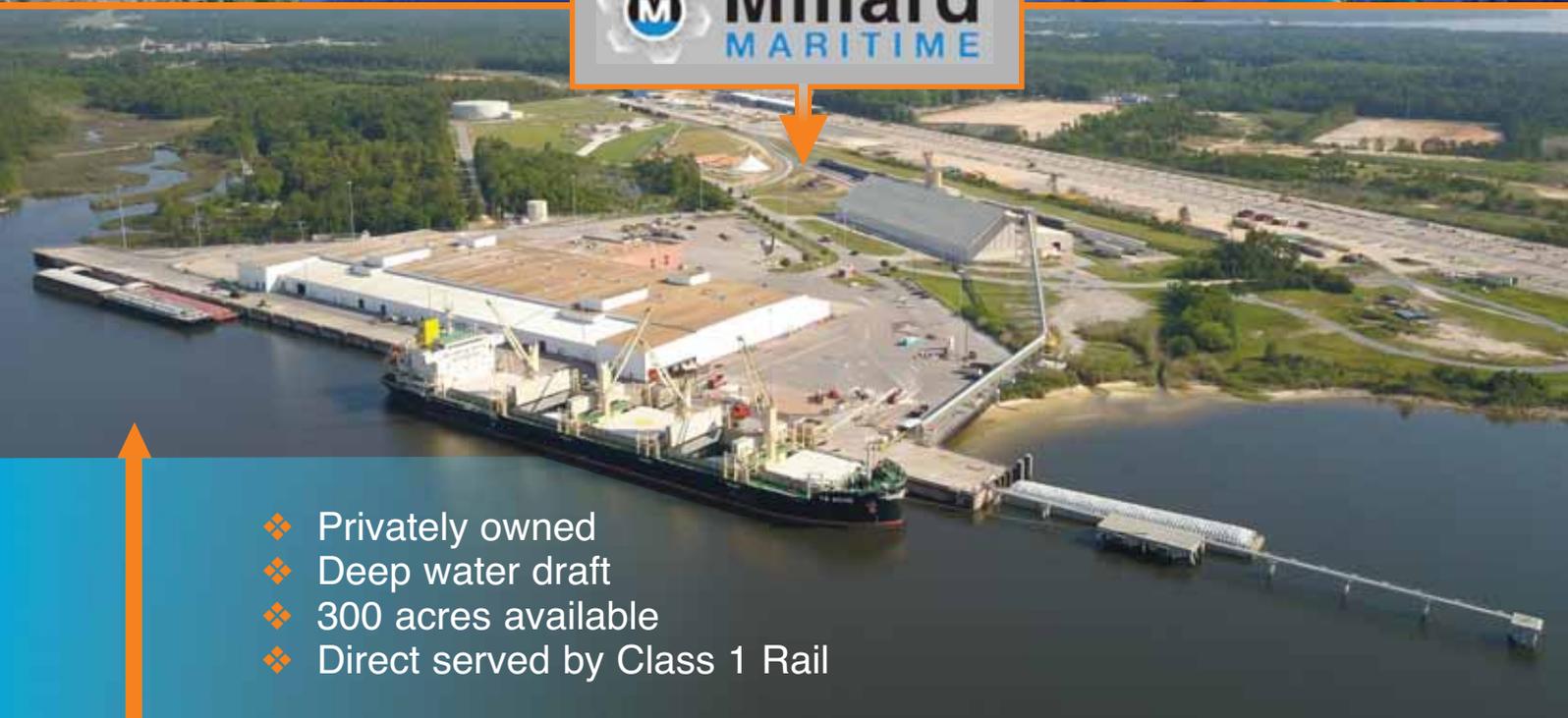


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# Port of Corpus Christi works with US Army Corps of Engineers

The Port of Corpus Christi Authority (PCCA) Commission and the US Army Corps of Engineers (USACE) have executed a Project Partnership Agreement (PPA) for the deepening and widening of the Corpus Christi Ship Channel (CC Ship Channel). The PPA, effective 9 September, was signed by John LaRue, PCCA Executive Director, and Colonel Lars N. Zetterstrom, Commander, USACE Galveston District. The CC Ship Channel Improvement Project (CIP) will widen the CC Ship Channel to 530 feet, plus additional barge shelves, to allow for two-way vessel and barge traffic, and deepen the CC Ship Channel to 54 feet MLLW (Mean Lower Low Water) to allow for safe passage of deep-draught vessels.

The PPA was recently approved unanimously at a special meeting of the Port of Corpus Christi Commission upon which Port Commissioners

also approved the acceleration of \$32 million in Port funds to the USACE to expedite initial construction phase of the Project.

“The Corpus Christi Ship Channel Improvement Project is of critical importance for the Texas energy sector and for the nation’s move toward energy independence. The Port of Corpus Christi has designated this project its number one priority. With the signing of this agreement, its merit is proven as a national infrastructure priority as well,” said Charles W. Zahn, Chairman of the Port Corpus Christi Commission.

The CC Ship Channel Improvement Project was initially authorized by Congress under the Water Resources Development Act (WRDA) of 2007. Congress re-authorized the CC Ship Channel Improvement Project in WRDA 2014, and reaffirmed its commitment to the Project under the WIIN 2016 Act (Water Infrastructure Improvements for the Nation Act).

“Our team has worked towards this momentous project for a very long time. It feels great to have co-signed this important agreement with Colonel Zetterstrom and the US Army Corps of Engineers. With our port’s accelerated funding we can get started on the deepening and widening of the Corpus Christi Ship Channel because of this important agreement, and look forward to future funding and construction of the remaining phases for this nationally critical infrastructure project,” said Port Corpus Christi Executive Director John LaRue.

The entire Project is estimated to cost \$327 million with the USACE proportionate cost-share projected to be \$225 million and the PCCA proportionate cost-share projected at \$102 million. The PPA allows the PCCA to accelerate its portion of the Project cost-share, thereby allowing construction to commence ahead of federal appropriations up to \$102 million. These funds are intended for use in the design and construction of the deepening of the CC Ship Channel from the Gulf of Mexico to Harbor Island.

This PPA is the first one to include several modernized agreement provisions following a comprehensive review and updating of partnership language by the USACE. The PPA was negotiated and approved on an expedited basis through a team effort between PCCA Staff and the USACE Galveston District, USACE Southwest Region Division Staff, and USACE Headquarters.

## ABOUT PORT CORPUS CHRISTI

As a major economic engine of the South Texas Coastal Bend, Port Corpus Christi is the fourth-largest port in the United States in total tonnage. Strategically located on the western Gulf of Mexico with a 36-mile, 47 foot (MLLW) deep channel, Port Corpus Christi is a major gateway to international and domestic marine commerce.

The port has excellent rail and highway network connectivity via three North American Class-I railroads and two major interstates. With an outstanding staff overseen by its seven member commission, Port Corpus Christi is clearly ‘Moving America’s Energy’.



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## India's Essar Ports to build Beira coal terminal

Indian terminal operator Essar Ports has signed a 30-year concession agreement with the Mozambican government to build a new coal terminal at the Port of Beira. It forms part of the state's private-public partnership programme, although the terminal concession is one of Design, Build, Own, Operate and Transfer, which will be undertaken by a

new subsidiary: New Coal Terminal Beira, SA. In this arrangement, Essar Ports will hold a 70% stake and Portos e Caminhos do Ferro de Moçambique (CFM) 30%.

Commenting on the deal, Rajiv Agarwal, CEO of Essar Ports, said he wanted to congratulate the government of Mozambique on this initiative and for

collaborating with Essar in such a prestigious project. Not only would it boost coal exports and strengthen the economy, but also bring both direct and indirect benefits to the country.

The terminal will have a 20mt (million tonne) annual capacity, although this will be implemented in two phases. Initially, the terminal will be built to handle 10mt

per annum, which will then be doubled as and when demand merits it. Phase I is costed at \$275 million.

New Coal Terminal Beira will also be a direct beneficiary of the existing rail link to Tete province. This has recently been upgraded by CFM to handle 20mt of cargo each year.

Mozambique has coal reserves in the region of 23 billion tonnes, making it one of the world's leading coal exporters, with major clients in China, Japan and South Korea.

*Barry Cross*



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## Ukraine's Commercial Sea Port Yuzhny: full-service stevedoring



The state enterprise Commercial Sea Port Yuzhny is the biggest state stevedoring company in Ukraine. It transhipped the highest volume of goods of all state stevedoring companies in 2016 and in the first half of 2017. The enterprise specializes in the transshipment of iron ore, coal, pellets, mineral raw material and others.

A total of 6.6mt (million tonnes) of cargo was handled at the state enterprise in the first six months in 2017. Of this turnover, 97% came from the SCM group; imported, coking and thermal coal made up 24%, ore and metal made up 76%. In 2017, the enterprise is supplying Ukrainian

thermal power plants with imported anthracite coal from the Republic of South Africa. The port has already sent 150,000 tonnes of coal to the power engineering specialists since the beginning of the year. It has been contracted to receive more than 500,000 tonnes of cargo within this year.

The process of handling shipments for export involves the car dumper complex, belt conveyors, stackers and a universal loading scheme using portal cranes. Open wagons with bulk cargo are discharged with two rotary car dumpers. The conveyor system (the total length of one conveyor belt route is 1,750m) transfers the cargo to open warehouses in the rear area of the berths, and the cargo is piled with two stackers. Gantry cranes are used for loading and unloading the cargo from vessels. The main cargo handling equipment at the state enterprise Commercial Sea Port Yuzhny is a Tukan portal crane. Producing power and hoisting capacity of this equipment ensure a loading rate of up to 1,500 tonnes per hour. In 2017 the maximum loading rate of the cranes reached 82,000 tonnes a day. The boom outreach enables uniform loading of Capesize vessels at the berths without needing to manoeuvre the vessel, reducing handling time. In addition to three Tukan cranes, there are 38 other cranes from Liebherr, Sokol, Kondor and Ganz, to ensure efficient cargo handling.

Portal cranes equipped with grabs are used to perform unloading operations for vessels that transport imported cargo. The



cargo is stacked up and loaded into open wagons. After weighing, open wagons are formed into a freight train and sent to consignees by rail.

The universal crane system makes it possible to transship various breakbulk (metal coils, equipment, etc) in both directions.

In 2016, total cargo turnover at the Commercial Sea Port Yuzhny was 12.3mt. The annual capacity of the enterprise is 15.07mt.

The enterprise development programme will ensure investment for the construction of a new coal ore terminal to increase cargo throughput and loading rate, and, eventually, to double capacity.



## Sims Metal Management and Peel Ports launch first scrap metal facility at London Medway

The Sims Metal Management UK Metals business unit (Sims UK), part of Sims Metal Management Limited, the world's leading publicly listed metals and electronics recycling company (Sims), is expanding its UK capabilities, with a new dedicated scrap metal handling facility at Peel Ports London Medway, through its sole UK trading subsidiary Sims Group UK Limited.

This new facility will grant Sims UK the ability to expand UK deep-sea shipments of scrap metal to markets across the world. Globally, Sims recycles and recovers 8.7mt (million tonnes) of scrap metal a year — nearly 1.6mt of which is handled in the UK.

The new facility at London Medway will have the capacity to handle 300,000 tonnes a year for Sims UK and is now fully operational.

Alistair Field, Group CEO and Managing Director, said: "This facility is a great opportunity and an integral part of Sims' strategy to grow in its current markets." With an annual turnover exceeding £3 billion in 2017, Sims operates from more than 200 sites spanning five continents, with over 35 metals recycling sites in the UK. Globally, the Sims business reflects 100 years of experience in metal recycling and leads the way in technological development to achieve higher recycling and recovery rates.

Paul Wright, Managing Director – Sims UK, said: "As a company we are committed to improving recycling and recovery rates for scrap metals and we've identified Peel Ports London Medway as a key partner to facilitate our growth.

"London Medway is ideally located to allow Sims UK access to our core markets in Turkey, Europe, Asia and the USA, as well as increase the volume of scrap metal we



are able to handle. We look forward to working with Peel Ports to support our latest investment and cement the position of Sims as a global leader."

The ports of Sheerness and Chatham form the core terminals of Peel Port's London Medway cluster, named to reflect their proximity to the UK's capital city. London Medway handles 3.1mt of cargo annually, across a range of commodities including steel, agribulks, forest products and automotive.

Paul Barker, Port Director at Peel Ports London Medway, said: "This newly formed partnership between Peel Ports and Sims Metal Management heralds a new direction for the business, with the launch of our first ever scrap metal facility at Sheerness.

"We look forward to working closely

with Sims to grow their business in the south east and across the wider Peel Ports Group network."

Sims is a renowned for the secure and sustainable management of recyclable metals from industry, trade and the wider community.

Globally, Sims specializes in turning vehicles, machinery, building materials and a whole host of other domestic and industrial items into specification-grade raw material commodities feeding steel mills and smelters, which turn those raw materials into the manufacture of new products. Recycling of metals saves energy and reduces the environmental costs usually associated with producing materials such as steel, copper, and aluminium from virgin sources.

## Port of Portland receives \$1.25m security grant

Port of Portland will receive \$1.25 million from the federal Port Security Grant Program to upgrade marine terminal security systems.

Through the Area Maritime Security Committee, the Port successfully applied for and received the funding to rebuild key components of security systems at marine Terminals 4 and 6. Specifically, the funding will go toward renewing antiquated closed circuit television cameras and systems, and overhauling access control systems at terminal gates.

Portland is one of 33 US ports to receive grant funds awarded by the Federal Emergency Management Agency.

The port's Terminal 4 on the Willamette River facilitates auto imports and shipping of mineral bulks. The multi-use Terminal 6 on the Columbia River facilitates auto imports and exports, and houses container facilities with five berths and eight rail tracks.

"We greatly appreciate this support from FEMA, allowing us to upgrade our marine security systems to protect these

vital business assets for our community," said Vince Granato, Port chief operating officer.

Funded at \$100 million, the FY 2017 Port Security Grant Program directly supports maritime transportation infrastructure security activities. The program is one tool in the comprehensive set of measures authorized by Congress and implemented by the Administration to strengthen the nation's critical infrastructure against risks associated with potential terrorist attacks.

# Coal traffic up at Hamburg & Le Havre

cereals down at Antwerp



Handling bulk at the Port of Hamburg (photo: Michael Lindner).

Barry Cross

In the Port of Hamburg, one outstanding feature of the first quarter of 2017 was the record figure for dry and solid bulk cargo throughput. While the port is perhaps best known for its container traffic, bulk cargoes amounted to 12.2mt (million tonnes) in the first three months, a rise of 6.7%.

“Hamburg was the only port in the Northern Range to report growth in this segment, underlying its position as a universal port for cargoes of all types,” says marketing manager Bengt van Beuningen.

Of the dry bulks, those moved by pneumatic equipment were up 0.4% to 2.3mt, while those handled by grab cranes rose 18% to 6.4mt.

The increased handling of coal, coke and ores (as imports) and grain and oil products (as exports) made a positive impact on the overall excellent first

quarter. Quizzed as to what the forecast would be for dry bulk traffic for the year as a whole, van Beuningen suggested that it would be in the region of 31mt.

In respect of coal, imports reached 2.2mt in Q1, an increase of 20.9% compared with the first quarter 2016.

“We expect demand from power plants and the steel industry, mainly in the German hinterland, will continue throughout this year, although the overall increase probably won’t be as much as 20% by year end,” he says.

As for capacity to handle more dry bulk, van Beuningen suggests that there remains spare capacity at the various Hamburg-based dry bulk terminals to accommodate additional traffic. Although no figures exist for individual terminals, the largest, such as HANSAPORT, ADM, GTH Getreide, KTG

Kaliterminal, HABEMA and L. Hagel, are yet to exceed their engineered capacity.

Questioned about any possible transfer towards containerization of commodities that have traditionally been moved by bulk carriers, he notes that around 60,000 TEU per year of fertilizer is now being transported in containers.

“Depending on the development of rates in the container business, the volume of dry bulk cargo in containers could further increase on special shipping routes,” he suggests.

In respect of new commodities that Hamburg might want to encourage, such as woodchip, van Beuningen points out that, unlike port authorities in some countries, those in Germany do not become involved in this type of sales and marketing activities, which are instead managed solely by the

various private terminal operators in the port.

As for scrap metal, some 1.1mt of this yearly flowed through the port in 2016, which was a rise of 8.6%. In Q1 this year, traffic amounted to 466,000 tonnes, a significant increase of 132%, with both Turkey and China remaining major customers.

Finally, in respect of landside movement, van Beuningen emphasized that commodities leaving or arriving mainly do so by either inland waterway or rail.

"In total, 46.4mt of freight was transported by rail in 2017, which was up 1.5% and contrary to the overall lower volumes moved by the country as a whole by rail," he says.

More than 200 freight trains arrive or leave what is Europe's largest rail port every day, linking it with all major hinterland economic centres. In comparison with other European ports, Hamburg has the highest number of connections and the greatest frequency of train departures.

Hamburg is also Germany's third-biggest port in terms of barge traffic, with around 11mt of bulk cargo despatched. Commodities include coal, agribulk and fertilizer. This is possible because the port is linked by the Elbe river and the Elbe-Seiten-Kanal to the German waterway and canal system.

"In our marketing efforts, we are very interested in promoting rail and barge transport to get importers and exporters to use this to try and shift more cargo transport away from the roads," explains van Beuningen.

In 2016, the Port of Antwerp handled some 12.6mt of dry bulk cargo. Furthermore, during the first five months of 2017, traffic registered an increase in volume of 8.8% compared with the same period last year.

"If this trend persists, this means we will end 2017 with around 13.7mt," says Wim Dillen, head of business development at Antwerp Port Authority.

He notes that reasons for this growth are to be found in the fact that the global economy and especially the US and the EU are currently "not doing that badly". Growth has manifested itself across various segments: ores (+28%), coal (+284%), grains & seeds (+19%) and metal scrap (+27%). In contrast, industrial minerals and fertilizers have either reported no growth or a slight decline.

"We still handle coal at the ABT-terminal, at Delwaiedock, and have seen a sharp increase compared to same period last year, thanks to new contracts

closed in the second half of last year. However, in absolute terms, volumes cannot be compared to what Antwerp was handling prior to 2008, when throughput was of millions of tonnes of metcoal," says Dillen.

He explains that the global financial crisis of 2008 resulted in the closure of many blast furnaces in the port's direct hinterland, and that this traffic will never come back. Also thermal coal volumes have decreased over the years as Belgium has no real captive volumes anymore and relies on other energy forms, such as nuclear, gas and renewables.

"We would love to get a larger market share today, but frankly speaking, in the long term, we think that future is not in fossil fuels..."

In the port, there are several investment projects related to dry bulk, of which Dillen highlights the most important. Cargill, for example, has signed a contract with Zuidnatie to build grain silos at its Churchill terminal. Manufert has invested in its sugar terminal — already the largest European sugar warehouse with capacity of 240,000 tonnes — to cope with increased export volumes, following the withdrawal later this year of the EU quota. Europoort has also made substantial renovations to its bulk terminals on the right bank, in order to attract more fertilizer and industrial minerals business.

Asked about containerization of traditionally bulk cargoes, he notes that there has been something of a trend in this direction of the last couple of years.

"This has to do with extremely low freight-levels being carried by the container lines. However, in the last couple of months, freight levels in that sector have gone up again, due to consolidation and increased demand, and we have noticed

some commodities returning to traditional dry bulk shipping," says Dillen.

Furthermore, in his opinion, it is of vital importance for the container industry to come back to a situation where it is making a sustainable return. If it doesn't, other shipping lines will follow Hanjin into bankruptcy, he suggests.

"We therefore think the future is turning a bit brighter for the dry bulk carriers," he says.

In terms of the Port of Antwerp's overall strategy, this is one of focusing on the "circular economy", and one in which it is very actively exploring concrete potential. What is considered today as waste by many, is the feedstock of tomorrow's industry, says Dillen.

"In this respect, we've already realized some projects: the recycling of metal and non-ferrous scrap; the recycling of glass-fragments; bio-waste to create energy; introducing a plant that creates hardwood from fast-growing soft wood, thereby protecting tropical forests); and so on. Increasingly, we are handling biomass (wood chips and pellets, palm kernel, etc), which can be co-fired with coal to create energy."

As for scrap metal, China is not the target market for the substantial quantities that Antwerp handles, since there are interesting markets closer nearby.

Finally, in terms of landside movement, the port actively promotes and supports the modal shift in favour of barge and rail.

"We have a dedicated department staffed by experts focusing on this subject. Our aim is to bring parties (shippers, operators, inland terminals) together and help facilitate the implementation of intermodal projects, in order to get as many trucks off the road as we possibly can. Indeed, our future growth plan is

*Unloading at Rouen Port.*



based on a stronger market share of rail and barge in the overall equation. Luckily, the majority of our dry bulk is already being transported by rail and barge,” says Dillen.

In the first half of 2017, HAROPA Ports reported dry bulk traffic of 4.2mt compared to 6.5mt in the same period in 2016, a decrease of 35%.

Cereals traffic dropped by 49%, from 5.1mt to 2.6mt. According a spokesperson for HAROPA, the 2016 harvest was one of the worst in the past 30 years, in terms of both quality and quantity, which explains the dramatic drop in traffic.

Fertilizer traffic, however, increased by 3.8% from 281,000 tonnes to 292,461 tonnes.

Other dry bulk commodities combined to make 1.08mt, compared to 838,852 tonnes last year, which is growth of 29%.

As for forecasts for the year as a whole, HAROPA notes that Rouen Port normally handles in the region of 9 to 11 mt. The goal is therefore to do as well this year.

“However, although the new cereal season looks better and other agricultural commodities such as rapeseed are very dynamic, the shortfall in the first half of the year will be difficult to make up and we should be in the bottom end of the usual traffic range,” said a spokesperson.

Coal traffic was in decline in the first half of the year at Rouen Port, totalling just 44,640 tonnes, down 42%. This is explained by a local shift towards renewables, such as burning urban waste or using woodchip.

On the other hand, the Havre coal plant (one of the last in France on the Atlantic and Channel coasts), has significantly increased its coal consumption since 2016, following major upgrades in 2015 that required the plant to be temporarily closed. In the first two quarters this year,



*Grab getting a grip at Rouen.*

coal used went up 78% to 643,000 tonnes.

However, voluntary policies towards the future closure of coal-fired power plants in France point to structural declines in the next few years in this sector.

As for possible capacity constraints at the Port of Rouen, it was pointed out that its dry bulk loading capacity is one of the most efficient in Europe. For cereals, for example, it can load 100,000 tonnes per day. At the same time, the handling companies continue to invest in new equipment and in acquiring new bulk cranes.

In 2016, HAROPA – Port of Rouen and private investors helped fund the renovation of quays and upgraded other infrastructure. In addition, work is ongoing to deepen the draught by one metre and therefore allow vessels to take on bigger loads.

Containerization has eaten into the traditional dry bulk market. Flour, for example, is now 100% containerized. The end of European quotas on sugar should also see this commodity moved by container.

“This already very strong trend will

continue, but may be limited by the availability of containers, or the rise in container freight rates compared to those of bulk vessels,” said the spokesperson.

HAROPA is definitely interested in new commodities, such as biomass, BTP, recycling products, minerals and so on. The objective is to use terminals in both Le Havre and Rouen to attract these growing commodities.

Apart from cereals trade, which will not grow this year, the outlook for oilseed and protein crops is much more positive. Similarly, agro-industrial products notably related to animal feed are currently under development.

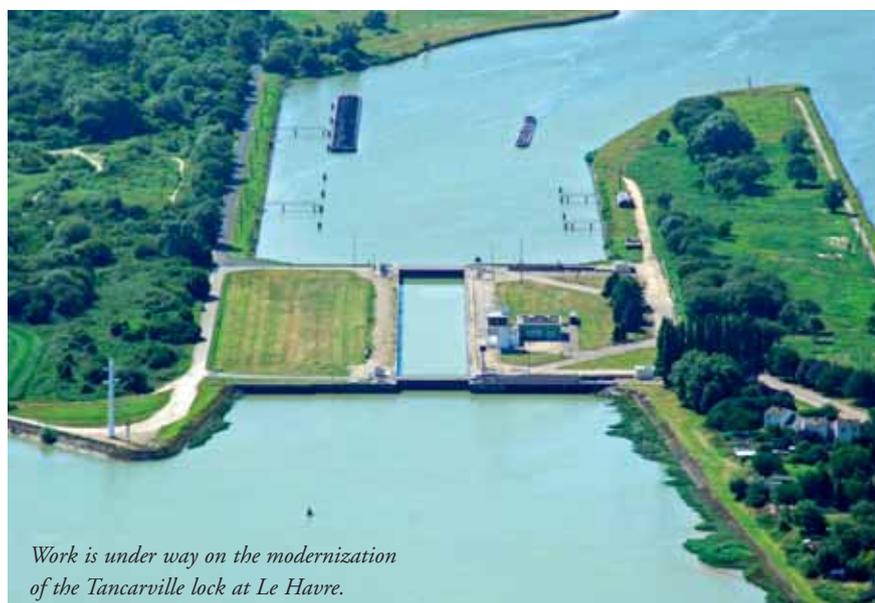
HAROPA’s strategy is to encourage and support these projects, as long as it has the capacity to accommodate them. In the future, there will be new developments both in terms of investment and new commodities in this sector.

Finally, in respect of inland links, the Port of Rouen is the leading facility in France for river traffic. Each year, it handles around a million tonnes of goods via the River Seine, most of which is dry bulk. Although river traffic in bulk fell slightly last year, around the Île-de-France, traffic continues to grow steadily due to the dynamic nature of construction and the number of work sites in the Paris metropolitan area.

Traffic sent up river to the Île-de-France is mainly cereals, aggregates, materials and off cuts, biomass and containers.

Rail is currently experiencing more difficulties, but HAROPA says that the development of mass transport modes is a priority. To this end, modernization work has begun on rail infrastructure between Le Havre and Paris.

Studies to improve river access to Port 2000 at Le Havre, which is the Seine access point for ocean going vessels, was launched in 2016 and will continue in 2017, being currently at the consultation phase. Work to modernize the François 1st and Tancarville locks is also under way. **DCi**



*Work is under way on the modernization of the Tancarville lock at Le Havre.*

## Turkish aggregates company has positive experience with Siwertell road-mobile delivery

Siwertell, part of Cargotec, has delivered a new road-mobile unloader for Turkish aggregates company, Güsey Bazalt Beton San Maden Ve Tic Sti Ltd. The order was booked in Cargotec's second quarter 2017 order intake.

"The customer required a mobile, high-throughput cement handling solution," explains Jörgen Ojeda, Director Mobile Unloaders.

"Crucially, Güsey Bazalt Beton only rents space at its jetty in Trabzon, Turkey, sharing it with various other operators," Ojeda continues. "As such, fixed assets such as turret-mounted gantries were out of the question, so the company had to find a solution that would allow it to easily relocate any unloading system once operations were complete. Operational success for this customer was dependent on the ability to deliver a mobile system with a quick set-up and stowing time."

Güsey Bazalt Beton chose a trailer-based, diesel-powered Siwertell 10,000 S next-generation road-mobile unloader to meet these requirements. It has previously used a similar Siwertell unit, owned by another Turkish customer for



*Siwertell road-mobile 10000S.*

unloading operations in Trabzon.

"The customer appreciated the short delivery time, competitive price and proven performance," he says. "In an application like this, it is not only the safety and profitability of the customer that is at stake, but those of other companies sharing the facilities. Therefore, it is absolutely essential to be able to respond to schedule conflicts or other contingencies as quickly as possible."

With a double-bellows system and a rated capacity of 300tph (tonnes per hour) for handling cement, the unloader offers extremely efficient operations. It has a short set-up time and can arrive on site and be operational within 30 to 45 minutes.

The totally-enclosed, screw-type handling system is fitted with dust filters and creates minimal cargo disturbance in the hold during the unloading process, keeping the jetty dust-free and ready for the next operation.

"Siwertell's road-mobile unloaders give customers the flexibility to adapt to change," notes Ojeda. "They can operate anywhere and handle almost all bulk cargo, ensuring that they can always be in the right place at the right time, and the right tool for the job."

Siwertell ship unloaders and loaders are based on unique screw conveyor technology, in combination with belt conveyors and aeroslides, and can handle virtually any dry bulk cargo, such as alumina, biomass, cement, coal, fertilizers, grain and sulphur. Siwertell's product portfolio includes ship-unloaders, mobile ship-unloaders, shiploaders, conveying systems and complete bulk terminal solutions, all of which are designed to ensure environmentally friendly and efficient cargo operations.

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## Dos Santos International to supply high angle conveyors for Buriticá Project

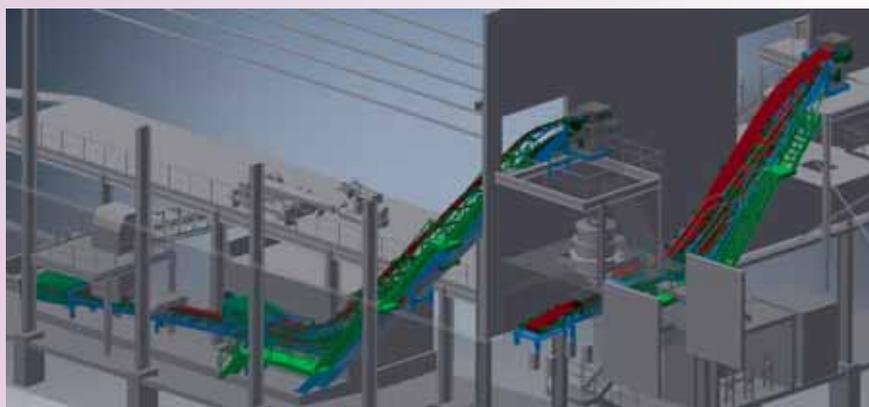
Dos Santos International has been awarded a contract to provide two DSI Sandwich belt high angle conveyors, in co-operation with M3 Engineering, Tuscon, AZ USA, for Continental Gold's Buriticá project in Antioquia, Colombia. The DSI Sandwich high angle conveyors will serve as transfer conveyors elevating crushed pebble ore, each at a rate of 135tph (tonnes per hour), and operating at an incline angle of 45°.

Buriticá is approximately a two-hour drive on the paved, Pan-American highway from Medellín, Colombia's second-largest city. Some highlights of the project are noted below:

- ❖ Maiden mineral reserve for the combined Yaraguá and Veta Sur vein systems total 3.7 million ounces of gold and 10.7 million ounces of silver (13.7 million tonnes grading 8.4 g/t gold and 24.3 g/t silver).
- ❖ Gold and silver recoveries of 94.1% and 59.9% are expected, respectively, over the life of the mine (LOM).
- ❖ A 14-year mine life will produce 3,492,000 ounces of recovered gold and 6,425,000 ounces of recovered silver

This is the second gold project on which DSI has co-operated with M3 Engineering. In 2010, DSI executed a contract through M3 for an overland conveyor system at Goldcorp's Los Filos Project in the Nukay mining district of central Guerrero State in Southern Mexico.

DSI Sandwich belt high angle conveyors take on many forms and offer many advantages. Each DSI Sandwich Conveyor



*The DSI Sandwich high angle conveyors will serve as transfer conveyors elevating crushed pebble ore, each at a rate of 135tph and a 45° incline for Continental Gold's Buriticá project in Antioquia, Colombia.*

uses two standard, smooth-surfaced conveyor belts, face-to-face, to gently but firmly contain the product being carried. This not only makes steep angles possible; it also offers a spillage free, environmentally sound operation because the material remains secured between the belts.

A DSI sandwich conveyor is capable of higher conveying speeds and greater capacities than other high angle conveying methods. With the availability of wider belts and accompanying hardware, capacities greater than 10,000tph can be easily achieved with a DSI Sandwich conveyor. High angles of 90° are typical, and lifts of 300m are easily accomplished.

The use of all conventional conveyor parts ensures high availability and low maintenance costs, as well as interchangeability of components and fast delivery of replacement parts.

Dos Santos International is an acknowledged authority on sandwich belt high angle conveyors. The company was founded and is currently led by the inventor of the system, Joseph Dos Santos. DSI is known for its extensive worldwide experience in sales, engineering, and construction of bulk materials handling systems and equipment. This has included major contributions that have expanded the range of bulk handling and transport solutions.

Most notably, advances in sandwich belt high angle conveyors have led to their worldwide utilization. The expertise of DSI spans a wide range of materials handling systems and equipment including high angle conveyors, high powered, high capacity, high lift slope conveyors and long overland conveyors utilizing the very latest technology.

## Vortex expands market reach to include Portugal

Vortex Global Limited, a solids and bulk handling components company, announces the appointment of Alpha Engenharia as its representative agent in Portugal. This partnership allows Vortex to formally extend its products and services to reach new markets, as the company has not previously held representation in Portugal.

A subsidiary of the company Ana Beco Malheiro, Lda., Alpha Engenharia began activities in 2015. Its main objective is to provide technical and commercial assistance across industries in regards to automation, instrumentation, valves and accessories. Through a rigorous selection of equipment from various suppliers, Alpha Engenharia's dynamic and competent team ensures ideal solutions for use in industrial applications.

By offering great technical support and after-sales service, Alpha Engenharia seeks to establish strong relationships with Vortex customers from day one.

"We have worked with Alpha Engenharia in the past on

other projects in the Portuguese market," said Laurence Millington, managing director of Vortex Global Limited. "They have proven to be an active sales group that fits very well with Vortex's ongoing vision for expanding services across Europe. Our expectation is Alpha Engenharia will grow Vortex's core and engineered business in this promising Portuguese market."

### ABOUT VORTEX:

For 40 years, Vortex has provided slide gates, diverter valves and loading solutions specifically designed for the handling of dry bulk solids in gravity, vacuum, dilute or dense phase applications. Vortex products are engineered for quality, dependability, durability, and ease of maintenance, making them proven material handling solutions for issues in process efficiency. Through the expertise of Vortex engineers, valves can be completely customized for individual applications or special installations.

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## Loading and unloading with grabs from Guven Grab

Guven Kepce Makine İç ve Dis Tic. Ltd (Guven Grab) was founded in 1984 at K.Maltepe/Istanbul under the name of Guven Grab.

It manufactures grabs for the loading and unloading of different products and exports these abroad. Production takes place at the company's plant in Cayirova/Kocaeli, Turkey.

Guven Grab has been exporting its products to more than 60 countries so far, including Greece, China, Hong Kong, Spain, Germany, Denmark, Romania, Bulgaria, Georgia, Tunisia, Russia, Egypt, Tanzania, Ivory Coast, Ghana, Nigeria, Algeria, UAE, Kuwait, Pakistan, Singapore, Bangladesh etc.

Its main activity is to supply grabs for the bulk carrier vessels of first class shipowners (Ultramax, Supramax, Handy-max, Handysize vessels).

Along with shipowners, its main customers are stevedores, ports and steel factories. Guven's grabs can meet the needs of its customers, in terms of competitive price, European quality, less maintenance, fewer spare parts and reliability.

The majority of Guven's products are delivered to Chinese and Japanese shipyards for newbuilding bulkers.

By combining technology with the creativity and the unique skills of human beings, Guven is always one step closer to its goal of catering to the requests and expectations of its customers at higher levels.

### FACTORY

There are four CNC milling machines, 11 CNC lathes and 28 crane units for various purposes and with differing capacities at Guven's machining centres available at its plant.

### Products

#### Radio remote control grab

This grab operates with a central cylinder and with its own gravity circulation of oil.

The grab is very popular for new-generation bulkers. Some operators prefer it to electro hydraulic grabs, because it enables them to avoid the cable drum system and grab stabilizer on the crane jib; without any additional electric supply and consumption of fuel by generators, it operates with a battery and a remote control unit, without any motor, pump, electricity supply, cable drum, stabilizer and so forth.

More than 3,000 units have been manufactured between the years of 2005



and 2016 and more than 95% of these have been exported.

This type of grab constitutes 75% of the total production capacity of Guven Grab.

It is produced in sizes ranging from 2m<sup>3</sup> up to 50m<sup>3</sup>. All the design and the patent is registered for Guven Grab

#### Electro hydraulic clamshell grab

This can be used for the handling of every type of bulk load. It operates through electricity at 380–440 Volts. It is produced in sizes ranging from 1m<sup>3</sup> up to 50m<sup>3</sup>.

#### Electro hydraulic orange peel grab

This is used for handling of scraps and for sea bed trawling. It operates through electricity at 380–440 Volts. It is produced in sizes ranging from 1m<sup>3</sup> up to 40m<sup>3</sup>.

#### Mechanical single wired touch down grab

This can be used for handling of every type of bulk load. It is used on single wire cranes. It opens by touching on the bunker or on the ground. It is produced in sizes ranging from 1m<sup>3</sup> up to 30m<sup>3</sup>.

#### Mechanic double wired clamshell grab

This can be used for handling and for loading of every type of bulk load. The digger can only be used on cranes with double drums. It is produced in sizes ranging from 1m<sup>3</sup> up to 50m<sup>3</sup>.

#### Mechanical single and Double wired polyp peel grab

This is used on single and double wire cranes. It can be used for handling and loading of materials like coal. It is produced in sizes ranging from 1m<sup>3</sup> up to 40m<sup>3</sup>.



#### Mechanical log grab

This is manufactured according to single and double wire cranes. It is used for loading and handling operations. It is produced in sizes ranging from 1m<sup>3</sup> up to 25m<sup>3</sup>.

#### Other grabs

Other grabs also manufactured by Guven Grab are mechanical single wired coal grabs, mechanical rock grabs, electro hydraulic orangepeel grabs, underwater dredging grabs, hydraulic orangepeel excavator grabs, mechanical double wired orangepeel grabs and mechanical hand-trip grabs.

#### SERVICES

Guven Grab provides 24-hour service facilities to its customers.

In order to save the transport cost to its customers, Guven Grab provides door to door service delivery and assembly on site.

# VIGAN celebrates 40-year relationship with Vietnam

VIGAN's business relationship with Vietnam started in 1978, when it sold its first portable grain pump to empty barges carrying rice.

Forty years and ten machines later, VIGAN became a privileged witness to the dazzling growth of this country, and was able to further seize the opportunity to accompany the growth of the market by offering tailor-made equipment.

## FROM RICE TO SOYA

Even if rice remains the main staple food in Vietnam, *per capita* rice consumption is falling. Vietnamese people are changing their food habits and now eat more animal protein.

Vietnam has a very dynamic agriculture sector and is not self-sufficient when it comes to agricultural raw materials destined for its animal feed industry. Therefore, the country has to import more than 50% of its need — such as corn, soy, cassava, wheat and other feed stuffs — to produce feed and meet the growing demand of the animal and aquaculture feed industries.

Twenty years ago, Proconco — one of the largest livestock and aqua feed manufacturers in Vietnam — chose VIGAN portable grain pumps to unload small barges of corn and soy bean meal.

## FROM PORTABLE GRAIN PUMPS TO HIGHER-CAPACITY PNEUMATIC BARGE UNLOADERS

Vietnam enjoys a dense river network. Besides the more than 3,000km of coastline, 8,000km of river are used for inland water transport, thanks to two large river deltas. Water-borne logistics are the second-most important transport mode besides road and captures around 20% share of the freight tonnage moved daily in Vietnam.

Barge transport not only covers containerized cargo to most of the mainline vessels at major container ports, it is also at the basis of many other types of cargo in bulk such as rice, soy bean (meal), wheat, and construction materials.

However, Vietnam's inland waterways



*One of three VIGAN pneumatic barge unloaders installed in Vietnam in 2016.*

have not yet reached their full potential. The vessels used on these waterways remain particularly small by international standards, Vietnam's inland ports are generally small and in poor condition, with loading and unloading mainly carried out on the river bank because few ports have proper handling facilities.

At the time of writing, investments are taking place and developments are under way to improve the existing infrastructures and facilitate the passage of bigger barges.

With one of the world's fastest-growing animal feed industries and with developments taking place recently in favour of inland waterway transport, Vietnam represents an undeniable market with great potential for barge unloading solutions.

In 2015/16, VIGAN completed the sales and commissioning of three pneumatic barge unloaders to Viet Thang Feed JSC and Hung Vuong Tay Nam JSC, producing and selling composed feed for fish, livestock and poultry in Vietnam. Being part of Hung Vuong Corporation, these companies supply the feed for Hung Vuong Corporation's own farms with annual capacity of 600,000 tonnes which has made it the leading feed company in Mekong Delta area.

Each VIGAN pneumatic barge unloading installation is designed for the handling of grain and animal feed cargo (namely soy bean at the rate of 200tph (tonnes per hour) on free-flowing grain, and is equipped with a three stages turbo blower with one 160kW electrical main motor.

The stationary gantry, locally manufactured, is 11.5m high. The machine is equipped with a 17.38m-long boom, allowing for the discharge of barges for the loading of trucks or conveyor.

## A BRIGHT FUTURE FOR BARGE PNEUMATIC UNLOADERS IN VIETNAM

This year, VIGAN signed a contract with another animal feed mill located in the North of Vietnam, which is currently building an inland waterway port.

A 250tph VIGAN pneumatic barge unloader will be installed in 2018, to handle raw materials for animal feed purchased in the southern provinces in order to serve effectively the group's feed mills as well as to supply the market. This will help to stabilize the availability of raw materials for the processing of domestic feed.

Other projects are in the pipeline in Vietnam and VIGAN is proud to support its clients in the development of projects that will certainly improve the efficiency of bulk feed raw materials and animal feed transportation by barge in the country.



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UNLOADER** up to 600 t/h

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## Yesterday, today, the day after tomorrow — 65 years of growth at SENNEBOGEN

In 1952, company founder Erich Sennebogen Sr. put his heart and soul into founding a company that, today, could not be more innovative, more international, or more interesting. Sixty-five years later, the company has an impressive employee headcount and the production facilities have also grown considerably. In 2017, SENNEBOGEN expanded the plant at the port in Straubing by 35,000m<sup>2</sup>. On the occasion of the company's 65th anniversary, the Straubing-based mechanical engineering company will celebrate the inauguration of the new production space while also presenting a showcase of innovative machines to international customers and dealers in the form of 10 completely new products.

Today, SENNEBOGEN has 1,400 employees worldwide at three sites in Bavaria, plus a production site in Hungary and branches in the USA and Singapore. An extensive sales and service network comprising 150 dealers around the world is responsible for selling the green cranes and material handlers. The original site in Pilling, Lower Bavaria, is just a few kilometers away from the current modern production facilities in Straubing. And Wackersdorf is only a stone's throw away. In recent years, the company has invested continuously in the plants in order to modernize and expand them, while turnover and employee numbers have seen dynamic growth to bring them to their current levels. But one thing has remained the same: SENNEBOGEN is and remains a family company — run today by Erich and Walter Sennebogen, the second generation of the founding family.

Managing Director Erich Sennebogen explains: "A lot has changed over the past 65 years. It is not just the machines that have kept getting bigger. Our portfolio is constantly growing and we always need to be thinking about future developments. At the same time, the economic conditions are changing. Our markets in the material handling and crane sectors have evolved. The business areas have become more diverse and the requirements our customers have with regard to quality products are constantly increasing. In today's globalized markets, we supply products to customers in over 100 countries on all continents. In order to stay ahead of the competition, we invest in our range and our sites every year and undertake modernization and expansion work."

### 35,000m<sup>2</sup> PLANT EXPANSION PROVIDES SPACE FOR SHIPPING AND PRODUCTION

The largest construction project in recent years began in 2015 at Straubing Plant 2. Less than ten years after the plant opened in the industrial port area in 2008, the production space has undergone extensive expansion work. Over the past two years, the expansion has seen the construction of new production and storage spaces spanning 35,000m<sup>2</sup> in total as well as a production hall covering 6,700m<sup>2</sup>. Machine shipping has been restructured, storage spaces extended, and shipping processes optimized. Trucks now drive directly under the specially developed SENNEBOGEN 5500 gantry crawler crane for loading. With the movable gantry, the crane is able to cover a storage area of 10,000m<sup>2</sup> very

effectively. Components with a length of up to 35m are given a high-quality protective coating in the new large-scale paint booth and space has also been made in the new halls for finishing and customizing to ensure that the facilities are well prepared for further growth in the field of large-machine production.

### CONTINUOUS DEVELOPMENT FOR 65 YEARS

Sixty-five years of tradition and experience go into the development, design, and production of SENNEBOGEN cranes and material handlers with operating weights of up to 350 tonnes. The company has always focused both on special customer-specific solutions and on individually configurable series machines. "There's no such thing as can't!" has been the SENNEBOGEN corporate philosophy right from the start; it is combined with the promise of creating something permanent, thinking ahead, and confronting even difficult challenges with innovative solutions. Early on, company founder Erich Sennebogen Sr. developed a keen sense for innovative solutions and new markets. Milestones included the founding of the plant in Straubing in 1959, made necessary by the rapid turnover development of the first seven years of the young company. The 1,000tph (tonnes per hour) material handler came off the assembly line in 1960 and was followed by many new developments, from the world's first fully hydraulic duty cycle crane to the GAUH articulated boom. Expansion into new markets, as early as 1973 in the Arabic counties and Africa, as well as the construction of the plant in Wackersdorf, were the fruits of a flourishing development.

With the integration of a Hungarian steelwork supplier in the SENNEBOGEN Group in 1996, the construction of Plant 2 in the Straubing Port industrial area in 2008, and the founding of the SENNEBOGEN Academy in 2014, the family company continued to add chapters to its success story. This was also followed by extensive expansion and modernization work at the sites in Hungary and Wackersdorf in 2015 and 2016. With the expansion of Straubing Plant 2, the company's development has reached another milestone. Managing Director Walter Sennebogen is optimistic about the future: "Our customers are amazed at the dynamic development of our company, and we are confident that our investment in the plant expansion will have a very positive impact on the company's development."

*Sennebogen Assembly Hall 1.*



# August Penkert supplies loading hoses to the bulk industry

For over 50 years, August Penkert GmbH has been a major manufacturer of high-quality occupational health and safety products in Germany.

Apart from manufacturing equipment/clothing designed to protect users – with a focus on EN-standard-compliant protective gloves — August Penkert GmbH additionally provides protective sheathing for movable machine parts with a focus on folded gaiters and loading hoses.

## LOADING HOSES

Loading hoses are used in factory halls and in the open, in dry and wet weather, in both summer and winter (–40°C).

This means that their ability to perform has to be guaranteed, regardless of the climatic and thermal stresses. Fast, smooth running, with no pollution, are important requirements when discharging, loading and conveying bulk material. So that loading hoses can meet the practical requirements placed on them, they need to meet a number of technological requirements. In detail, these are:

- ❖ assurance of a continuous discharging process
- ❖ dust-free conveying and/or loading;
- ❖ all-weather use;
- ❖ resistance to abrasion, even in the case of abrasive goods;
- ❖ avoidance of a static charge in the case of flammable materials;
- ❖ heat resistance in the case of conveyed goods;
- ❖ a large range, in order to fill small vehicles as well as containers; and
- ❖ a small construction height to ensure maximum overhead clearance.

Precise adaptation to the discharged good and the operating constraints ensure easy handling and extended



durability.

## MATERIALS

Products are only successful if they are maintenance free and durable. The material is selected according to the types of goods to be loaded. In general, the raw material is Aramid, textile fabric, polyurethane, neoprene or PVC sheeting. By coating with plastic or laminating with a film, the material properties can be adapted to the application accordingly. It is important that both the conveyed goods to be discharged as well as the operating conditions are taken into account.

## DIMENSIONS

August Penkert's loading hoses are manufactured in sizes ranging from a nominal width of approximately 200mm, and increase in increments of 50mm, up to a diameter of approximately 2,000mm. Upon request, different dimensions are possible.

## DESIGN

In order to ensure exact interfolding,

rings made from spring wire are sewn or welded in. Additional stabilization is provided by prorated coil springs; these return the hose back without any problems. A deviation ratio representing a minimum to a maximum elongation of up to 1:10 is possible.

## DOUBLE LOADING HOSES WITH A VENTILATION DEVICE

This type of design is used if, when filling closed containers, air that is full with dust represents a hindrance to the discharge procedure and cannot escape.

## SINGLE LOADING HOSE WITH A FILTER VENTILATION DEVICE

Where there is minimum dust, single loading hoses are sufficient. They represent an inexpensive solution. The air which has had its dust removed by a filter escapes into the open, just like the air of a vacuum cleaner.

## ASSEMBLY

A connection plate is mounted onto the silo and/or the conveyor system which has a support for fastening the loading hose. Installation is thus not complicated. At the lower end of the hose, it is possible to fit a filling cone which fits into the openings of the silo vehicles and the container.

## FIELDS OF APPLICATION

Small-sized, granular and powdered, hot and abrasive products can be discharged, loaded or conveyed using loading hoses. The main users are cement factories, chemical factories, mills, maltings, feed manufacturers, salt mines, coal mines, coal power stations, and companies in the food industry.

August Penkert GmbH is able to produce high performance loading hoses for different applications and competitive prices.

Well-known companies trust in August Penkert's long experience.

## CASE introduces CX750D excavator for maximum efficiency

**BIGGER, STRONGER AND FASTER — CASE STREAMLINES HEAVY EXCAVATION LINE WITH ALL-NEW STAGE IV/ TIER 4 FINAL MODEL THAT REPLACES CX700B AND CX800B.**

CASE Construction Equipment officially launched its new CX750D, the largest and most powerful machine in the CASE excavator range at Steinexpo, which took place in Europe's biggest basalt quarry near to Homberg in Germany, from 30 August to 2 September.

### BEST IN CLASS PRODUCTIVITY

Like all D Series excavators, the CX750D has been built to achieve faster cycle times and to maximize productivity.

An electronically controlled hydraulic pump and larger control and solenoid valves boost breakout forces, increase lifting strength and improve responsiveness. The CASE Intelligent Hydraulic System and its four integrated control systems make the best use of the machine's hydraulic power and momentum, resulting in added strength and fuel efficiency.

Operating at 512 horsepower, the CX750D is available in standard configuration with a 335kN bucket digging force (with Power Boost), and mass excavation configuration with a 366kN bucket digging force (with Power Boost), and features a shorter boom and arm that allows for greater breakout forces and is capable of handling larger buckets for added capacity.

The boom and arm, as well as the undercarriage, are all more robust to allow



for greater power and productivity, and arm and bucket cylinders are larger to help improve performance. And the machine can be operated in one of three operating modes — Automatic, Heavy and Speed Priority — to provide the optimal and most efficient use of hydraulic and engine power.

### MAXIMUM UPTIME

The CX750D achieves Tier 4 Final compliance through an innovative combination of selective catalytic reduction (SCR) and diesel oxidation catalyst (DOC) technologies, which helps maximize uptime and performance — all with minimal maintenance. There is no diesel particulate filter (DPF), no DPF regeneration or associated lifetime service costs. This guarantees maximum uptime for CASE's

customers.

The reinforced structure of the machine, especially of the retractable undercarriage and front attachment, ensures utmost reliability, even in the toughest and most demanding applications.

The CX750D has been developed with the customer in mind. It is extremely reliable and durable and uptime is maximized due to a number of new features. Maintenance and access to the machine are now easier because of the wider catwalks and new guardrails for safety. All filters are grouped in the pump compartment for simplicity and a new standard hydrostatic reversible fan responds to actual cooling demands and reduces power absorption and maintenance.



### COMFORT AND SAFETY

The new CX750D features an improved cab than previous CASE machines in this size class, and offers a fully adjustable workstation with a new high-back seat for optimal comfort and support. Standard rear- and side-view cameras feed a seven-inch widescreen monitor that also provides operators with real-time access to important performance parameters, including fuel consumption, operating hours and machine information. The optional CASE maximum view camera, an innovative three-camera system, further improve the visibility and safety around the machine.



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# Stockyard systems in the spotlight



Louise Dodds-Ely

## Fuchs material handlers offer fast cycle times, customized solutions

Highly flexible. Purpose-built. Fast load cycles. These are the hallmarks of Fuchs material handling equipment. Fuchs offers both mobile and stationary material handlers, built specifically to efficiently move tonnes of bulk material portside or at transfer stations to reduce loading/unloading times. Hydraulically elevated cab designs raise the operator's eye level to see over the walls of vessels and high-wall containers, further increasing efficiency.

Delivering fast load cycles, the flexible mobile equipment line features both wheeled and tracked undercarriages to meet the customer's needs at the site. A number of boom and stick combinations with reaches ranging from 8.8 to 24.4 metres deliver impressive lift capacities reaching 87 tonnes. Available cranked boom designs shift the reach arc toward the handler to simplify below-grade material offloading.

Beyond the standard mobile equipment, Fuchs engineering and design align to serve its customers best through customized equipment solutions. The process starts with a site visit where a Fuchs representative helps to determine site-specific material handling needs. The Fuchs design team at the Applications Center then customizes the modular handler design to fit the customer's needs. From cab pylon risers to stationary handlers to semi-mobile electric machines, Fuchs specialized handlers can be adapted to handle virtually any bulk material handling need.

From handling coal and aggregate to scrap and waste material, Fuchs machines come equipped with a number of different attachments to match virtually any bulk material handling need. Fuchs half-closed and open multi-tine grapples boast a sturdy design for effective, continuous deployment while grabbing material with capacities

ranging from 0.4 to 0.8m<sup>3</sup>. Load-lift magnetic plates efficiently handle ferrous material at storage facilities, while Fuchs hooks provide load ratings reaching 20 tonnes. When equipped with available clamshell buckets, Fuchs machines deliver quick and consistent handling of sand and gravel materials.

Fuchs Telematics system drives another solution to help operations get a handle on fleet management. With Fuchs Telematics, customers know exactly how and where the equipment is running. It communicates to fleet managers valuable information on the handler's operating status, providing machine location, details about a pending service check and if there is an issue with a machine.

### EFFICIENT COAL HANDLING

In South Africa's Mpumalanga province, the Makoya Group provides mobility services



to the steam coal business sector, for example, exporters, traders and South African power stations. Coal is transported from the mines to what the company terms 'Multi-User Terminals', where it is stockpiled prior to loading on rail cars to transport the fuel to the ports and power stations.

Makoya runs an extensive fleet of wheel loaders to stockpile and load coal. To optimize available spaces, material must be piled high. This required operating personnel to build ramps in aiding the stacking of the coal.



features are helping Makoya's machine operators to increase loading efficiency and boost machine uptime. The MHL 380 handler's spacious cab hydraulically adjusts to a 6.2m maximum eye level, allowing the operator to easily see over the sides of the rail wagons even when fully laden.

The machine's innovative cooler arrangement includes separate hydraulic oil and engine cooling systems, which maximizes cooling efficiencies of both systems. With its temperature-controlled fan speed, the MHL 380 reliably operates in ambient temperatures reaching 50°C, critical for operating in the extreme South African heat.

Once the pilot and test phase of the MHL 380 is complete, Makoya's strategy is

Makoya representatives worked with Fuchs and its dealer Supalift Trading CC to offer a more efficient solution for coal stockpiling. Fuchs recommended the 70-tonne class MHL 380 as a pilot in material handling. The unit, equipped with an optional short 9.6m boom and 8m stick, has a reach of 18.5m. This allowed operators to efficiently stockpile coal much higher than the wheel loader, enabling Makoya to safely maximize the use of available storage area and simultaneously rake in savings in time and fuel consumption.

Equipped with a 6m<sup>3</sup> two-clamshell attachment, the powerful MHL 380 pilot unit promises to replace at least two wheel loaders. This brings a certain savings on the company's staff costs.

"We are still evaluating, but early calculations show that it requires only 24 litres of diesel to move approximately 700 tonnes of coal with the MHL 380," says Kenny Malgas, CEO for Makoya Group.

"We are saving 75 litres of fuel per hour because of the reduction in the number of units per application."

Beyond the fuel savings, specific machine

to forward integrate its services by introducing the MHL 380 to power station and port operations because of its high efficiency in moving and handling materials.



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## Using dbd global's Dustcruster® in the stockyard minimizes dust emissions

Den Bakker Dustcrusting technology b.v., (dbd global), is an expert in dust control and prevention. Its Dustcruster® system is widely used in the bulk handling stockyards, handling a wide range of dry bulk commodities.

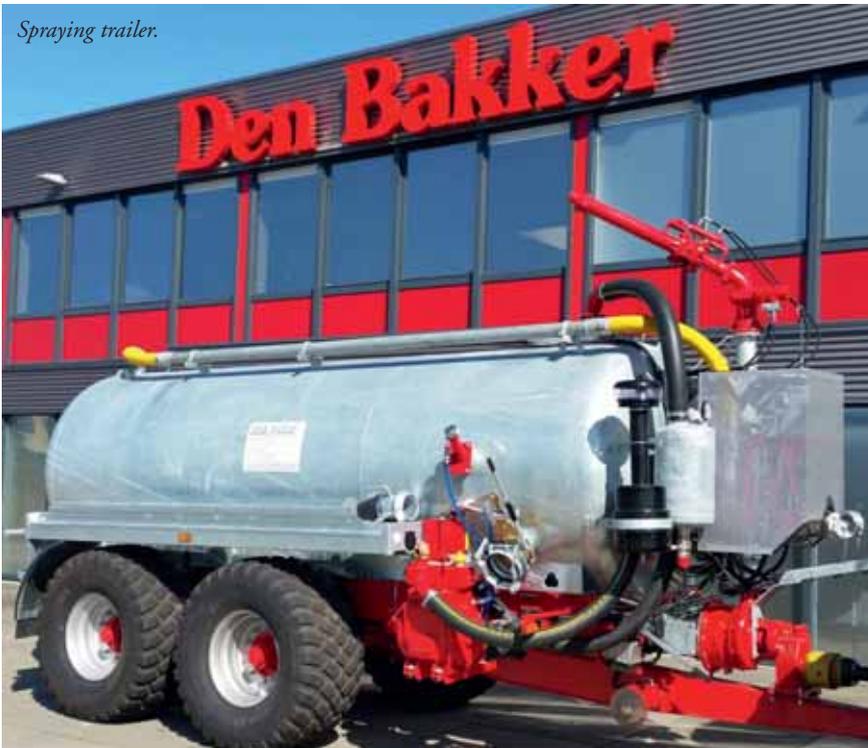
dbd global developed Dustcruster® to tackle dust problems commonly connected to storage and handling of large stockpiles of coal, coke, petcoke, iron ore and similar commodities.

Dustcruster dry® consists of a selected blend of several types of cellulose fibres pressed into pellets and delivered in FIBCs (Big Bags).

Once on site, Dustcruster dry® can then be dissolved into the sprayable product and transforms into Dustcruster liquid® by



*Spraying trailer.*



### SPRAYING TRAILER

The Dustcruster liquid® is transported to the actual site where needed by a tractor towed twin axle tank trailer, which has a capacity of 10,000 litres in its standard execution.

The trailer is equipped with a vacuum pump for fast filling with Dustcruster liquid® (or water) and a modified centrifugal pump which feeds the spraying monitor.

Both pump and spraying monitor are adapted to allow the use of Dustcruster liquid®. The tractor needs to have at least 135HP (100kW) and be equipped with suitable PTO and hydraulic connections.

### FIXED DUSTCRUSTER® INSTALLATION ON STACKER RECLAIMER

When access to the stockpiles with the tank trailer is problematic, an alternative solution is to mount the system onto the stacker reclaimer. In this case, each installation is different and requires an individual approach.

adding water and using dbd global's special mixing installation.

### MIXING INSTALLATION

The mixing installation, in its standard execution, has a capacity of approximately 45m<sup>3</sup>, and is equipped with an electric mixer of 7.5kW and a 2" water filling connection, with a float valve.

The system is operated from the platform beside the tank.

For fast, easy and safe handling of the FIBCs, containing the dustcruster dry®, an optional hydraulic crane, mounted alongside the mixing tank, is available.

Standard electrical connection is 3 x 400V/50Hz.



**WAGONCRUSTER®**  
CONTROLLING DUST ON COAL TRAINS



*Wagoncruster® in action (above) and pump.*



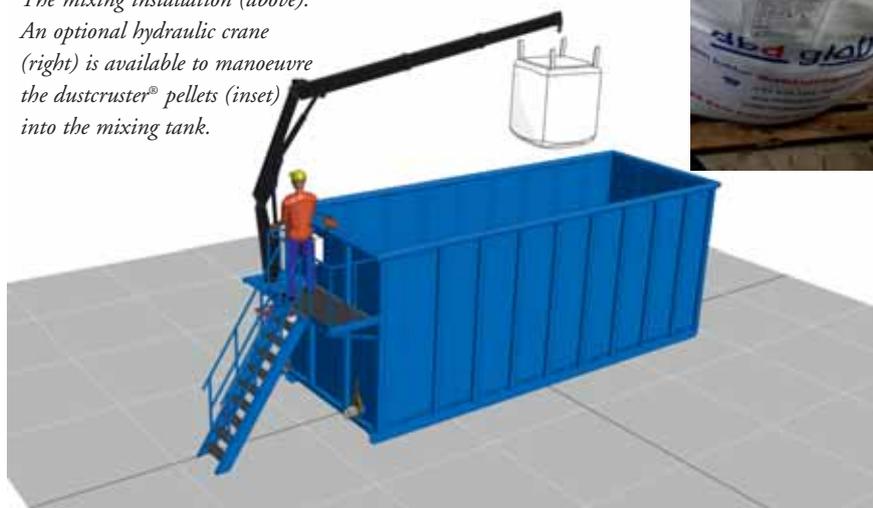
In a special foam generator, using two litres of dbd FO 312® and 98 litres of water, a staggering 5,000 litres of foam is created.

Foam has a larger surface, which envelops the dust particles more easily and keeps the area free of dust.

Depending on the actual circumstances, the foam can last anything from three to 12 days.

An additional benefit is that huge savings on water is achieved.

*The mixing installation (above). An optional hydraulic crane (right) is available to manoeuvre the dustcruster® pellets (inset) into the mixing tank.*



DBD global has developed a solution for solving dust problems on coal trains.

When coal is transported by train, there is a lot of dust due to the fact that the coal is mostly very dry because of the temperature in the lower layers in the belly of the wagons.

Spraying Dustcruster liquid® onto the surface of the coal during the loading process by dbd global's special spraying installation, creates a tough and long-lasting crust.

This crust safeguards the product from being lifted by the wind during transport.

**FOAM INSTALLATION**



*dbd FO 312® foam.*

With some dust-prone products it is not appropriate to use water, as this may affect the product quality or cause damaged to processing.

For such situations, dbd FO 312® was created.

**FOG CANNONS**

DBD Global has four types of Fog Cannons each with a different throw range.

- ❖ Fog Cannon Gun 15: range without wind about 15 to 20 metres.
- ❖ Fog Cannon Gun 30: range without wind about 20 to 30 metres.
- ❖ Fog Cannon Gun 50: range without wind about 40 to 50 metres.
- ❖ Fog Cannon Gun 70: range without wind about 60 to 70 metres.

Fog cannons are designed for large dust suppression jobs and waste water treatment plants, and reduce the health risk and improve air quality. They are also renowned for their high performance and low maintenance requirements.

Fog Cannons have been developed for all kinds of open stockyards and stock piles. They are most often used for coal, iron ore, pet coke and cement.

Very little energy and water is required to operate the Fog Cannons, which is an additional plus for the environment.

The dust control Cannons come complete with a high efficiency turbine and a high pressure water pump and are equipped with fine spraying nozzles, giving a

droplet size of 50 to 150 microns and can slew automatically between 0° and 350°.

Optional accessories/products include:

- ❖ wireless remote control;
- ❖ wheeled trailer;
- ❖ generator;
- ❖ 1,000-litre buffer tank;
- ❖ boost pump; and
- ❖ chemical additives (odour suppression).



*Fog Cannon.*

## VIBCO is shaking up material flow



*RailBoss, RB-6500, effectively clears rail road hopper cars quickly and completely with no loss of vibration transfer.*

Keeping bulk product moving in the stockyard, and to/from hoppers, railcars and so on, is a vital part of the handling process. Material flow can slow dramatically when problems such as ratholes, bridging and clogs are encountered.

### **MOVING WITH THE TIMES**

From bins and hoppers to conveyor systems and railroad cars, VIBCO manufactures a vibrator that makes material transfer a clean, fast, and more consistent process by improving the speed and efficiency of material flow. Available in pneumatic, electric, hydraulic or DC power, VIBCO's 1,600 vibration products are able to satisfy the needs of all users. VIBCO is the originator of silent pneumatic turbine vibrator technology and is a recognized market leader.

VIBCO's patented silent turbine

vibrators are ideal for bin and hopper applications. They prevent common material flow problems like ratholes, bridging and clogs whether operating a small transfer bin or a large silo. Vibrating a bin or hopper provides more consistent, reliable material flow, particularly in timed-cycle and weigh-batch systems.

Air cannons from VIBCO are available in a variety of sizes. They produce a super quiet blast of air that prevents ratholes, bridging, arching, and material sticking to the bin walls. VIBCO's revolutionary piston valve will work safely and effectively to blast out clogs using normal plant air — just 80 to 125PSI is required. It can handle many materials like wood chips, pellets, chemicals, clay, cattle feed and any fine, coarse, granular, spongy or stringy materials.

VIBCO manufactures standard and custom vibrating tables that are used for material compaction. Bulk handlers can

expect an average 7–10% of space reduction — allowing them to ship and store less air.

Other applications where VIBCO vibrators can improve material flow and efficiency are dump trucks, screens, feeders and crushers.

VIBCO railcar vibrators come in a variety of size, mounting and power options to suit any railcar application. Railcar vibrators eliminate clogs, thus speeding unloading and hopper car clean out, moving stubborn materials like cement, aggregates, food supplies and feed.

### **KEY COMMODITIES HANDLED**

VIBCO vibrators are used to move a wide variety of bulk materials. Some key commodities include: coal; grain; bauxite; cement, chemicals and plastics; and all types of aggregates and minerals (sand, gravel, stone dust and crushed stone, asphalt,

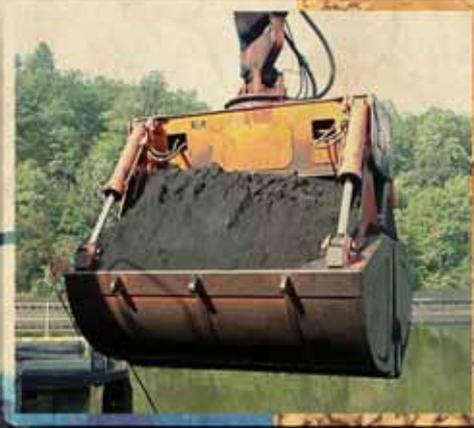
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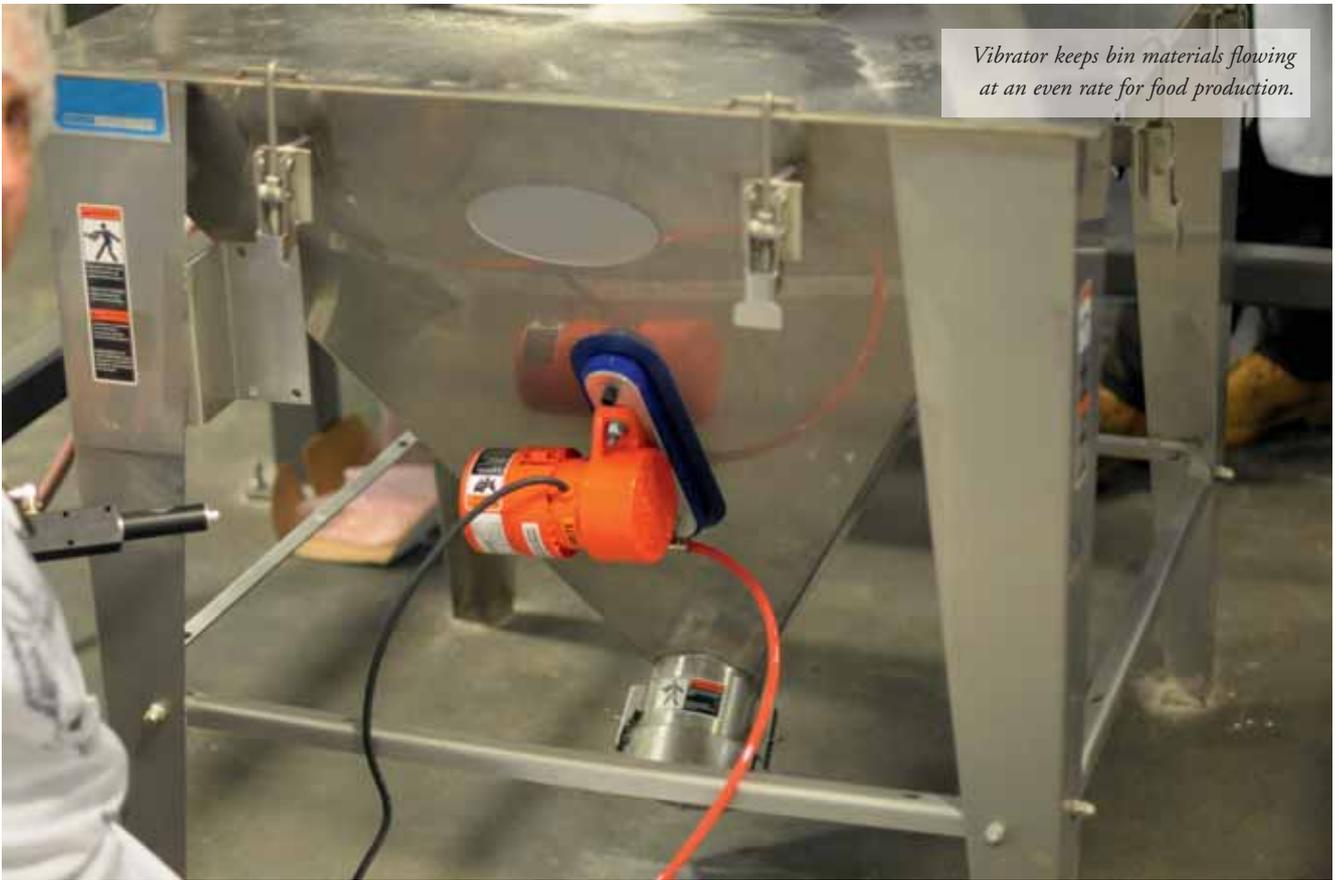


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*Vibrator keeps bin materials flowing at an even rate for food production.*

cement, gypsum, etc.).

#### CLIENTÈLE AND KEEPING COMPETITIVE

VIBCO works with the world's largest food and aggregate producers globally as well as small and medium-size companies. VIBCO's primary clients are original equipment manufacturers (OEMs) and its international network of dealers and distributors.

Vibration is an engineered solution and VIBCO's wealth of expertise and true customer focus, sets it apart as the market leader. The company features individually prescribed solutions from its off-the-shelf product line of over 1,600 diverse items.

The most important competitive advantage is responsiveness and customer focus. VIBCO offers live 12.5-hour tech support daily and provides Virtual Van Visits, or VVV. A VIBCO Virtual Van Visit is how the technical team can get a first hand look at its customers' vibrator applications. They can show customers exactly how to install a new vibrator or to improve upon a current installation. All customers need to do is send a picture of where they want or already have a vibrator and VIBCO will send simple illustrated solutions in a 1, 2, 3 format.

VIBCO recognizes that vibrators are often critical elements in a production operation, and because of that, ships most items same day or next day at no additional charge. When many competitors are seeing their lead times lengthen, VIBCO's are

shrinking.

VIBCO is committed to a lean manufacturing philosophy that allows it to manufacture highest-quality goods at competitive prices. It actively seeks and eliminates muda (waste) at every step of the process and every aspect of the operation, from the manufacturing facility to the reception desk to the accounting office, and constantly listens to the voice of the customer.

Because of its lean philosophy and responsive customer focus, VIBCO is an ideal supply chain partner for OEMs, dealers and distributors. VIBCO understands the importance and significance of strategic supply chain alliances and their positive impact on all parties.

VIBCO's long market history and position as the originator of silent pneumatic turbine technology are important aspects of its competitive advantage.

#### KEEPING AHEAD OF TECHNOLOGY

VIBCO continues to innovate and design products demanded by the marketplace including the addition of two new patents. Some recent innovations include:

- ❖ **Mini-B** rapid fire air cannon features a compact design capable of rapid air blasts to aerate fine powders and fluidize bin/hopper contents. With low air consumption and a size that will fit

anywhere, it is ideal for mobile applications where standard air cannons are not possible.

- ❖ **The Stik-It™** is a temporary vibrator mount that attaches to most surfaces without the need to weld, drill or perform other invasive work. It is perfect for any tote and day bin, chute, intermittent material flow problem area, experimental/laboratory setting including sanitary environments, and as a 'proof-of-concept' tool prior to installing a permanent vibrator mount. VIBCO Stik-It™ Vibrators even work on curved surfaces.

- ❖ **Advanced Air Cannon Nozzle** technology — VIBCO's Engineers have developed a free flowing piston, which eliminates 'backlash' and keeps valves operating effectively. (Backlash occurs after the cannon is fired when a vacuum is created which pulls a small amount of the bin material into the valve.) Also, the piston is not in contact with the metal cylinder so it is unaffected by temperature change. The new patented Piston Valve is mounted outside the tank allowing easy servicing at the mounting position without removing the air tank.

- ❖ **RailBoss RB-6500:** The RB-6500 Pressure Lock System secures the vibrator into the rail car's dovetail wedge bracket so that it simply will not move once it is in place. Field tests show that a typical railroad car vibrator

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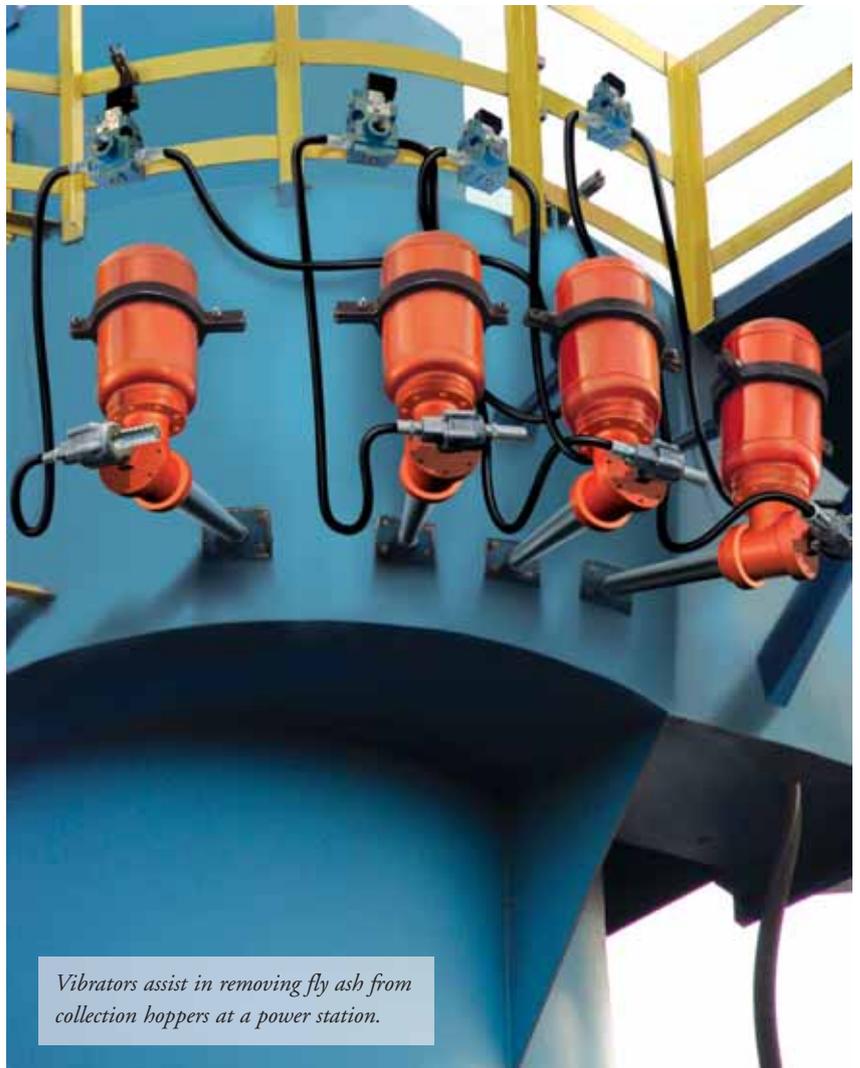
*Vibrators assist in removing fly ash from collection hoppers at a power station.*

can lose up to 60% of its vibration transfer and, due to rattling, produce noise up to 110dB. The positive contact of the RB-6500 provides 100% vibration transfer to the car, every time, and no loud shaking of a loose vibrator in the pocket. The RB-6500 uses the most powerful high frequency pneumatic vibrator in the VIBCO line with 6500 lbs. of force at 9000 VPM. Whether your load is coarse sand, stone and asphalt, or powdery flours and cement, they are no match for the RB-6500 vibration. A railroad car will be cleared quickly and completely so it is ready for the next load. It also works to compact the load so more material fits into the railcar.

#### **ABOUT VIBCO**

VIBCO is an industry leader and has been providing its customers with effective vibration solutions for material flow, efficiency and safety since 1962. It is the originator of the Silent Pneumatic Turbine Vibrator and has been awarded more than 30 US patents for its vibrator designs.

Building on the original foundation of quality, trust, and reliability, VIBCO continues to evolve its mission and philosophy to adapt to today's competitive marketplace. Embracing the principles of Lean and Six Sigma, VIBCO believes in continuous improvement and the elimination of muda (waste).



*Vibrators assist in removing fly ash from collection hoppers at a power station.*

# We offer courses covering different aspects of bulk materials handling:



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- Pneumatic Conveying of Bulk Materials
- Pneumatic Conveying System Design
- Rotary Valves; Design, Selection and Operational Issues
- Commissioning and Troubleshooting 'Hand's On' Pneumatic Conveying Systems (new for 2018)

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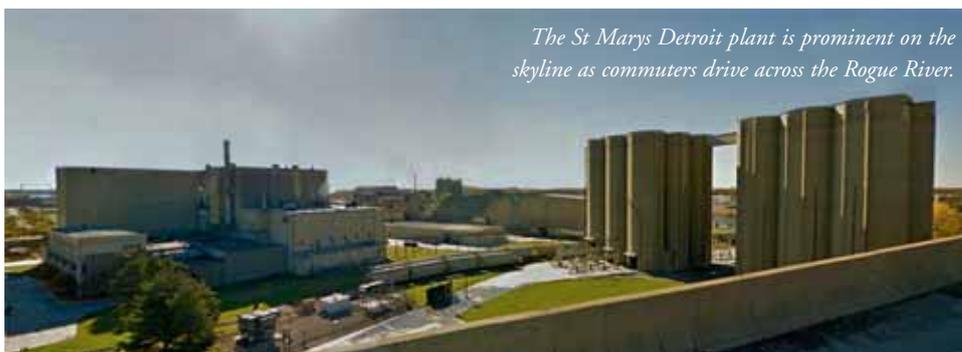
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## Innovative belt cleaning technology keeps stockyard safe at cement plant

A global provider of conveyor belt cleaning technology has helped a Detroit cement producer stop excessive carryback and equipment fouling by installing a revolutionary primary cleaner designed for punishing applications. With a significant reduction in carryback, spillage, and labour for cleanup, the plant was able to improve workplace safety, lower the cost of operation and see a quick return on investment.

The St Marys Cement plant — located along the Rogue River in Detroit —



*The St Marys Detroit plant is prominent on the skyline as commuters drive across the Rogue River.*

clean the belt. “The fines and mud take on the tacky consistency of toothpaste, causing it to cling to the belt along with

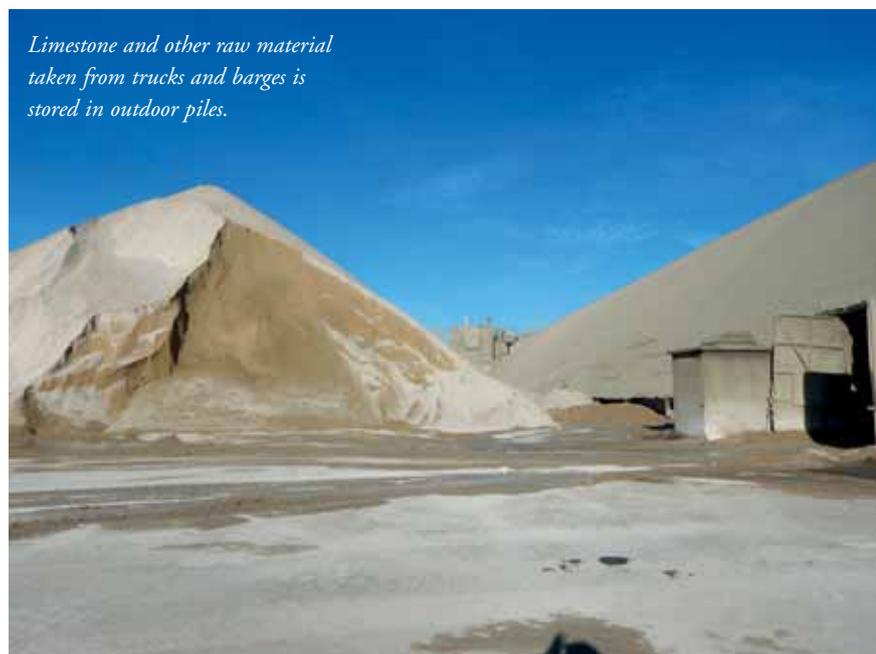
up so high under the loading zone that it would encapsulate the tail pulley.”

Maintenance technicians periodically had to stop other essential duties and shut down the system to replace frozen return idlers and prevent further damage. After digging out the tail pulley, workers needed to clean the face, which often had abrasive buildup that could reduce the belt life. The cleaner required regular tensioning and periodically needed to be removed, re-cut and shaped. In addition, two to three workers spent up to eight hours twice per month to clean the loading zone and the belt path using shovels and a vacuum truck.

### MARTIN® CLEANSCRAPE® INSTALLATION

Martin technicians concluded that the #14 conveyor was an excellent candidate for the Martin® CleanScrape® Primary Cleaner. It requires considerably less space than other primary cleaners, can be effective enough to eliminate the need for a secondary blade, and is proven to deliver as much as four times the lifespan of competing urethane blades.

The flexible cleaner is installed diagonally across the discharge pulley, forming a three-dimensional curve beneath the discharge area that conforms to the pulley’s shape. The unique design



*Limestone and other raw material taken from trucks and barges is stored in outdoor piles.*

produces 200 to 250tph (tonnes per hour) [181 to 226mtph] of Portland cement. Front loaders transfer dusty 1.5 to 2 inch (38 to 50mm) minus limestone and gypsum aggregate onto the 30in-wide #14 belt. Inclined approximately 20° at the point of loading, the belt conveys cargo for 20 feet up to ground level, moves horizontally for 200 feet (61m), then begins another long 30° incline into the top of a 50-foot-tall tower. The conveyor discharge zone, with only enough room to fit one primary cleaning blade, offloads into a chute.

Roughly 30,000 tonnes (27,215 metric tonnes) of raw material and clinker arrives weekly by truck and ship. The aggregate is offloaded to an outdoor storage area, where the material tends to get saturated when the Michigan weather turns wet and cold. This causes large amounts of mud and sludge.

Operators found that polyurethane cleaner blades were unable to completely

smaller pieces of aggregate and shale,” said David Accomando, Plant Maintenance Supervisor for St Marys Detroit. “This led to a lot of carryback spilled along the return path, where it fouled idlers and built



*The previous blade accumulated build-up and encrusted material, degrading cleaning performance.*

incorporates a matrix of tungsten carbide teeth and is tensioned lightly against the belt to prevent damage to the belt or splices. Despite extremely low contact pressure, it has been shown to remove as much as 95% of potential carryback material.

Designed for belt speeds up to 780rpm (4m/s) for mechanically spliced belts, pulley diameters up to 50in (1,270mm), and belt widths up to 96in (2,438mm), the CleanScrape is engineered to perform under the punishing conditions of cement applications and other bulk handling industries. The patented design requires very little maintenance. The tensioners are tightened during initial installation, and typically no further adjustment is required



*Mounted diagonally, commonly at a 17° angle, the CleanScrape spans the entire belt profile.*

over the life of the blade.

#### RESULTS

As cargo with a moisture level of 10–15% was loaded onto the belt, dust and fines were built up into a thick paste as usual, but ended up being fully removed from the belt.

“For this application, we were very surprised by how well it worked,” Accomando said. “The return side of the belt might have a little bit of wet material still on it, but nothing even remotely close to what it used to be.”

After a full year of punishing 24/7 operation with little downtime through conditions that included cold slush and mud, as well as hot and dry dusty material, the original CleanScrape cleaner continues to perform consistently well, without a single adjustment. The cleaning schedule has been altered from a two-to three-person crew over a full shift twice per month, to just a single worker hosing down critical areas for an hour or so, once per month.

“We haven’t touched the blade or tensioner once since they were installed a year ago,” Accomando pointed out. “That’s one of the great things about working with Martin, not only is their equipment top notch, but what stands out most to me is the service. They follow up regularly to make sure that we’re happy with the product, and we are.”

Martin Engineering is a global innovator in the bulk material handling industry, developing new solutions to common problems and participating in industry organizations to improve safety and productivity. The company’s series of *Foundations* books is an internationally-recognized resource for safety, maintenance and operations training — with an estimated 10,000 copies in circulation around the world — and employees take an active part in ASME, SME, VDI, CMA and CEMA. The firm also played a pivotal role in writing and producing the 7th edition of the CEMA reference book, *Belt Conveyors for Bulk Materials*. Martin Engineering products, sales, service and training are available from factory-owned business units in Australia, Brazil, China, France, Germany, India, Indonesia, Italy, Mexico, Peru, Russia, Spain, South Africa, Turkey and the UK.

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## Bedeschi comprehensive grain project for Turkmenistan seaport includes stockyard systems – and so much more



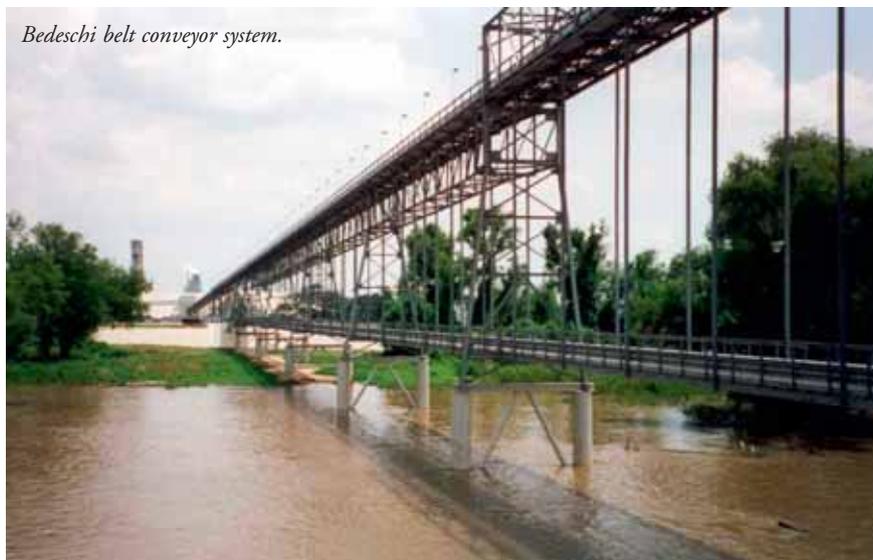
*Overview of the GAP Insaat International Seaport in Turkmenistan.*

### BEDESCHI FLEXES ITS MUSCLES IN THE GRAIN MARKET

In an environment where strides are being made to develop an ever-stronger collaboration between Turkey and Turkmenistan in terms of energy, economics and infrastructure, an extremely complex project for the development of an intermodal terminal in the Caspian Sea has been conceived.

The foundations of the Türkmenbashi International Seaport, which will be constructed by GAP Insaat by the seashore of the Caspian Sea, have been laid by Turkish President Recep Tayyip Erdogan and Gurbanguli Berdimuhamedov, President of Turkmenistan. The seaport, which is planned to be a significant logistic base connecting Europe to Asia, will be constructed on an area of 1,209,400m<sup>2</sup>. The budget is of \$1.5 billion, and the seaport will be completed within four years.

The scope of the 'Türkmenbashi Seaport' includes: the construction of a ferry and passenger terminal; a container terminal; a general cargo port; a bulk cargo port; and a ship building and repair facility. The existing ro-ro (roll-on, roll-off) and polypropylene terminals will be expanded. The project has a huge \$1.5 billion budget,



*Bedeschi belt conveyor system.*

and will be the biggest seaport on the Caspian Sea.

The major objective of this project is to develop a modern marine fleet, equipped with up-to-date technical facilities and capable of transporting import and export cargo, and handling coastal and transit traffic.

Equipment company Bedeschi is participating in a significant way to the project, and is the turnkey supplier of the Türkmenbashi bulk material handling section of the port. Bedeschi, despite its

growing size, is still proud to offer customized solutions to its customers.

The use of best engineering practices to optimize returns on investment results in well-designed installations and innovative mechanical solutions for the wide range of machinery that Bedeschi can offer.

Bedeschi's products rate highly in the market in terms of energy consumption, operational costs and pollution control — this due in great part to the company's commitment to environmental protection.

Bedeschi is a reliable partner, and

## PARALLEL LINES (A &amp; B) FOR GRAIN AND BULK HANDLING SYSTEM

Lines	Material	Density [t/mc]	Size [mm]	Relative humidity [%]	Angle of repose [°]
A	Grain	0.6–0.9	0–10	Dry	30–45
B	Minerals	0.4–1.6	0–100	20	28–45

*Mulmix grain and feedstuff silos.*



provides onshore and offshore shiploading and unloading solutions to its clients in full compliance with environmental standards, to guarantee the highest productivity and the lowest environmental impact not only for the bulk but also for food and grain sector.

Bedeschi was awarded the contract to supply the complete bulk material handling system, with two parallel lines (A and B), for grain and bulk materials (see table above).

The lorry and wagon unloading stations are in common. They consist of two underground pits (one for grain and one for other materials), divided into two hoppers each that can be loaded either by wagons (discharging from the bottom) or by lorries.

TABLE I

Equipment	Material	Capacity (m <sup>3</sup> /h)
Shiploader, jetty receiving hopper, conveyors, wagon/lorry-loading/unloading station, Tower silo total capacity	Group A	350–650
Shiploader, jetty receiving hopper, conveyors, wagon/lorry-loading/unloading station, Tower silo total capacity	Group B	350–650

The material will be discharged onto a concrete hopper (as per the client's specifications) loading an underground conveyor.

For unloading operations from the concrete hoppers, feeders will be installed.

Along with the two lines, the belt conveyor system is installed. One conveyor will be used to convey the grain to a set of 14 silos installed for grain and feedstuffs, supplied by the Italian Company Mulmix. Officine Facco SpA, Mulmix, which began

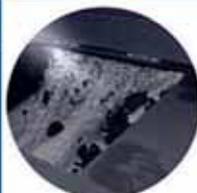
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- Complete Systems
- Chemical/ Surfactant
- Nozzles & Filters
- Pumps & Motors

**Wear Parts**

- Impact Bars
- Wear Liners
- Crown Bars
- Screen Media

operating in 1962, is dedicated to the production of machines for grain handling and cleaning, feed mill units and cereal storage for zoo-technical usage.

The other line conveys to a flat multi-material storage facility which will store fertilizer, cement, coke and salt.

As well as the unloading stations for wagons and lorries, Bedeschi has also supplied two shiploaders and two hoppers which will be installed on the quay.

The shiploader is of the long travel type, with a towed tripper to divert the product from a wharf conveyor onto a transfer belt, then to a loading boom belt, telescopic loading chute for minerals.

One bag filter is installed on the shiploader upper unit to reduce the dust pollution caused by material flow between subsequent points.

All parts which require supervision and/or maintenance will be accessible by ladders and gangways, with all equipment situated at the end of boom or at the top of the structure return pulleys and boom lifting mechanisms).

Particular care will be taken to correctly convey material flow and avoid spillages. Adjustable deflector plates will be installed inside the chutes to adjust the flow

The diverter position will be driven by a suitable thruster.

With the new filters, maximum dust emissions of 10mg/Nm<sup>3</sup> are guaranteed in any operating conditions.

This case study confirms Bedeschi's position as a major player in the food world, so much so that the company has just secured an order in Italy for a 800/29.5 rail-mounted continuous ship-unloader, which will be used to handle soya beans.



*Bedeschi shiploader.*



*Bedeschi three-tower shiploader.*



*Bedeschi receiving hopper.*



*New Bedeschi ship-unloader at cereal docks.*

Bedeschi has over 100 years' experience in the bulk handling market for the loading and unloading of many materials. This enables the company to offer efficient and flexible solutions to this new field.

Bedeschi's current position in the market is proof of the success of its traditional commitment to many fields. This success is due to an ongoing emphasis on improving technological and engineering skills, an accurate management of the company development and cashflow, an international approach, and the continued presence of a Bedeschi family member on the general management team.

In other words, the mixture of tradition and a focus on the future is a highly successful strategy.

## Kiruna Wagon's new and ultralight Side Dumper is tested in Spain

The new and ultralight Side Dumper developed by Kiruna Wagon in the EU-funded HERMES project is currently in Spain to undergo testing.

Prior to being shipped to Spain, the Side Dumper passed a series of unloading tests conducted in Kiruna Wagon's workshop in Kiruna in Sweden. In Catalonia in Spain, the wagon will undergo homologation tests followed by dynamic tests carried out by the FGC on the Llobregat-Anoia line.

The EU-funded HERMES project is coordinated by Spanish salt and potash producer ICL Iberia Súría & Sallent and involves nine partners from Spain, France, Denmark and Sweden.

The objective of the project is to develop smart and flexible freight wagons and facilities for improved transport of granular multi-materials. A logistics system that is expected to increase the competitiveness of rail freight relative to road transport services.

The HERMES project's new and ultralight Side Dumper is based on Kiruna Wagon's SD technology that has been used by Boliden since 2009, for sealed transport of copper concentrate in northern Sweden.

In the HERMES project, the proven SD technology has been upgraded to a higher level of efficiency and flexibility. The new-generation Side Dumper is an ultralight modular wagon, designed to deliver maximum payload and efficient integration in intermodal transport systems, and the



*The ultralight SD wagon's tipping angle is 60° (photo: Hans-Olof Utsi).*

associated unloading station has been developed into a simpler and less costly solution.

"As far as we know, this is the world's lightest Side Dumper. Given the high payload and fast unloading rate, it is probably also the world's most efficient wagon of this kind. We are very pleased with how the project is progressing and look forward to following the tests in Spain," said Fredrik Kangas, Managing Director of Kiruna Wagon.

The new-generation SD technology

forms part of Kiruna Wagon's patented modular logistics system, in which a standardized chassis is used together with different, tailor made load carriers that can easily be exchanged, depending on the type of cargo to be transported. The load carriers are designed for smooth transshipping between rail chassis made for different track gauges, and from trains to road trucks and ships. Loaded and unloaded load carriers can also be stored on the ground, while waiting to be shipped.

DCi



*The SD is optimized for high productivity transportation of valuable, hazardous and weather sensitive fine-grained goods (photo: Fredric Alm).*



# Mobile harbour crane on the move



*The Liebherr LHM 150 being loaded onto the Eemslift Dafne at the Port of Swinoujscie in Poland, destined for the Port of Leixões in Portugal.*

## Bendezu sells second-hand LIEBHERR LHM 150 mobile harbour crane

Bendezu Port Equipment GmbH, an international trading company specializing in the supply of second-hand harbour

equipment, recently sold one Liebherr LHM 150 harbour mobile crane, which will be transported from Poland to Portugal.

The crane, with a maximum lifting capacity of 40 tonnes and a maximum radius of 32 metres, has one remote



controlled rotator equipped with a double hook. This unit comes in a two-rope configuration.

Due to its travelling and supporting system, the parameters of the undercarriage in this crane can easily be adapted to comply with the most stringent quay load restrictions, which explains its perfect adaptation to most of the piers.

The loading operation took only one day and was carried out by two 275-tonne deck cranes. The crane left from the Port of Swinoujscie in Poland on 21 August this year, on the vessel *Eemslift Dafne*, heading



for the Port of Leixões in Portugal.

Bendezu Port Equipment specializes in purchasing, selling and marketing second-hand port equipment, providing customized technical advice to a variety of clients at an international level. With this recent achievement, Bendezu Port Equipment is reaffirming its wide experience and capabilities on port crane relocation and sea transport round the world. **DCi**

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## The Port range – material handling machines from Liebherr

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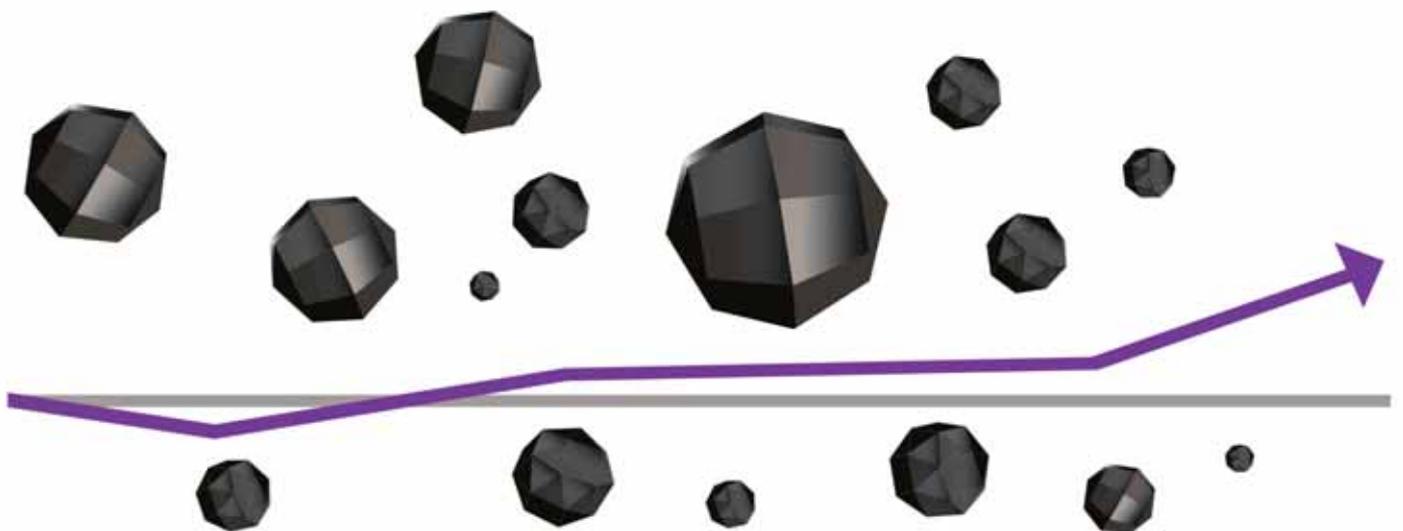
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# Keeping coal under control



## coal handling technologies

Louise Dodds-Ely

### Liebherr L 580 loaders integral to expansion at a Russian coal seaport

**SITUATION**

The coal seaport Shakhtersk OOO is part of the substantial Eastern Mining Company OOO, in Russia's Sakhalin region. The seaport dispatches coal from the Solntsevsky coal mine and from Udarnovskaya, which is one of the newest viable coal mines in Sakhalin. Today the

Eastern Mining Company OOO has around 435 employees. In 2012 and 2013 the seaport was extensively modernized. This modernization included the main conveyor belt, which moves coal from storage to the loading machine, and the purchase of new port vessels and new tow boats.

The company has special handling

machines and a vessel-loading machine with a capacity of 2,500 tonnes per hour.

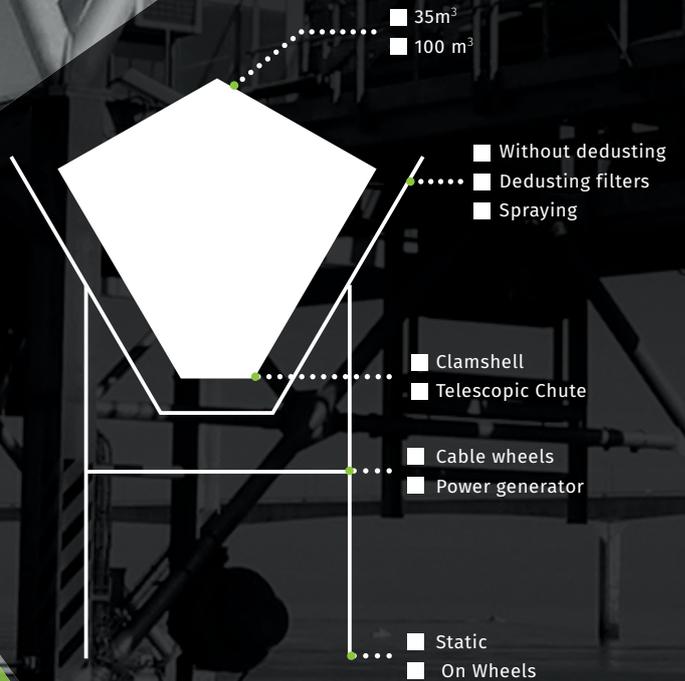
**TASK**

In 2014 the Eastern Mining Company OOO launched a production scale-up project to increase the seaport's coal loading volume. The total loading volume

TECHNICAL DATA			
Operating weight:	24,720kg	Bucket capacity:	7.5 m3
Tipping load, articulated : (equipped with standard 5.0m <sup>3</sup> bucket)	18,000kg	Fuel consumption:	13.2 litres/ hour
Engine output:	209kW/284 HP	Tyres:	Techking ETGA L3 26.5R25EM

# RBL REI BULK UNDER CONTROL MULTI-BULK HOPPER

GENERAL CHARACTERISTIC		
Util capacity	35m <sup>3</sup>	100m <sup>3</sup>
Feeding height without dedusting filters or with spraying	10m	11.5m
Feeding height with dedusting filters	12m	13m
Opening diameter without dedusting filters or with spraying	7m	9.5m
Opening diameter with dedusting filters	5.5m	8m



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increased from about 600,000 tonnes in 2012 to 2.8mt (million tonnes) in 2015, equating to a six-fold increase in handling capacity. Previously, the loading of ships had been carried out by the vessel-loading machine, which has two bins that were loaded by crawler material handling machines with 4.0 to 6.0m<sup>3</sup> grapples.

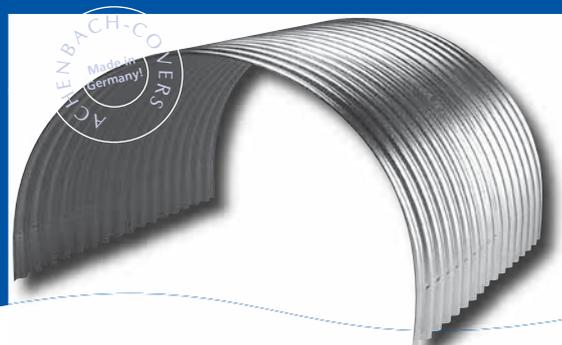
Due to a 4.3mt increase in the coal loading volume in 2016, a rise over 20% compared with the previous year, additional coal transportation solutions were needed to achieve the target flow rate.

#### SOLUTION

The seaport administration was tasked with selecting high-performance, cost-effective equipment capable of moving 35,000m<sup>3</sup> of material to the vessel-loading machine's receiving and measuring bins each day. After researching all the solutions that the market had to offer, and impressed by the excellent local Liebherr service network and high productivity levels of the Liebherr wheel loaders, in spring 2016 the decision was made to purchase two Stage II/Tier 2-compliant Liebherr L 580 wheel loaders with a 7.5m<sup>3</sup> bucket. Each wheel loader is in use for 22 hours per day and the daily required handling capacity of a single machine is approximately 17,500m<sup>3</sup>.

Both L 580 wheel loaders have now been working reliably for in excess of 1,500 operating hours and together have achieved the increased loading volume required without the need for a bulldozer. Liebherr wheel loaders, with their ability to move larger volumes of material with less fuel, make it easy to achieve more. The L 5803 average fuel consumption of 13.2 litres per hour is 30% lower than the fuel consumption of the previous machines in use at the seaport. Having experienced the reality of what the L 580 wheel loaders can achieve, seaport administration is looking forward to a new record of 4.3mt of coal handled in 2016.

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## DOCKSOLID hoppers: a familiar sight at mineral and coal-unloading operations

Buttimer Engineering's DOCKSOLID equipment is a brand of mobile and static bulk handling hoppers, shiploading and unloading equipment produced by Buttimer Group.

The DOCKSOLID hoppers are ideal for coal-unloading operations. They are both solid and reliable, while retaining excellent manoeuvrability and flexibility of use. Buttimer Engineering believes that they are the most manoeuvrable hoppers on the market. This means that they are highly suitable where space is at a premium, and have become increasingly used by smaller bulk terminals, non-permanent facilities and at multi-purpose ports, where quays may be used for handling a number of different types of commodities and cargoes. Changing supply chains, shifting trade flows of bulk commodities and the connection of new regions and geographies to international markets makes low capex port facilities, easily relocated equipment and flexible operations increasingly attractive. For example, new mining regions in remote sub-Saharan Africa, where port infrastructure is famously underdeveloped, are seeking faster access to international hubs and trade routes, making mobile handling equipment a risk-friendly investment. Mixed-use terminals necessitate getting equipment to and from the quayside quickly and effectively, in order to facilitate a variety of cargoes — containers, dry bulk, breakbulk — where quay space is limited and required throughput is high. Highly manoeuvrable dry bulk handling equipment will substantially contribute to this flexibility of use and versatility of port operations.

The DOCKSOLID hopper owes its manoeuvrability in great part to its innovative wheel-steering mechanism, designed by Buttimer Engineering's Technical Director, Sean O'Sullivan. The system, used on DOCKSOLID's wheel-mounted mobile hoppers, is an extendable mechanical axle design, which allows the equipment an extremely tight



*DOCKSOLID  
steering mechanism.*

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- Custom-configured

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turning radius and nimble driving capabilities. The hoppers have a surprising agility which belies their considerable size and 'chunky' aesthetic. DOCKSOLID's mechanical steering system gives the mobile grab-to-truck bulk loading units considerable flexibility of use.

The mechanical steering design used on the DOCKSOLID hoppers is somewhat unusual; for vehicles with such a gap between wheels on the same axle, computerized steering mechanisms are commonplace. O'Sullivan, however, asserts that a mechanical steering system makes the units much more reliable, accurate and agile. The proprietary design is also part of the innovative suspension system used on DOCKSOLID hoppers; the suspension system balances the static and dynamic loads exerted during the bulk unloading process across the structure and frame of the hopper. This design feature ensures the DOCKSOLID units are structurally sound and also protects the quay wall from damage; the hopper, if required, sits on large ground pads during the loading process ensuring that its weight — and the weight of the handled product — is spread evenly over a large area of the quay surface. With its mechanical steering mechanism, balancing of dynamic loads while handling dry bulk, and robust structural design, the DOCKSOLID mobile hopper units are built to last. They are built for reliability and longevity, with a

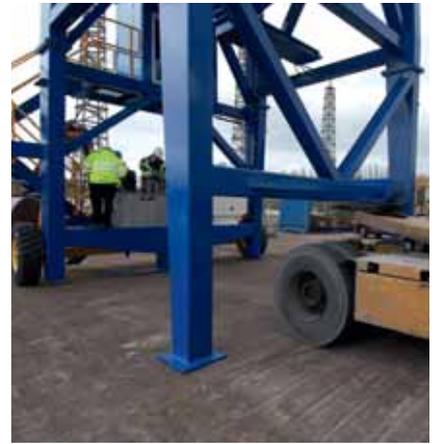
structure and frame engineered specifically for the static and dynamic loads exerted by moving bulk. DOCKSOLID units are also fitted with a patented suspension system that equalizes forces evenly across the hopper's frame and the quay wall; this system ensures long-lasting structural integrity and safe, reliable bulk loading.

All the hoppers are specifically designed to prevent torsion and stress in the structure even on uneven terrain. The range extends from the simple, reliable Standard hopper, to units with sophisticated environmental controls, self-driving mobile capability, or bespoke discharge options. The hoppers can be wheel-mounted, rail-mounted, or static. Units can be designed to handle any amount from a small throughput up to several thousand tonnes per hour, depending on the loading-grab size, height restrictions imposed by the crane, and the density of the product. Each hopper in the DOCKSOLID range is built to meet the client's requirements, and DOCKSOLID strives to meet the functionality required and offer an unloading solution tailored to each application. DOCKSOLID equipment is engineered to thrive in clients' facilities, and almost never requires specialized civil works for installation and operation.

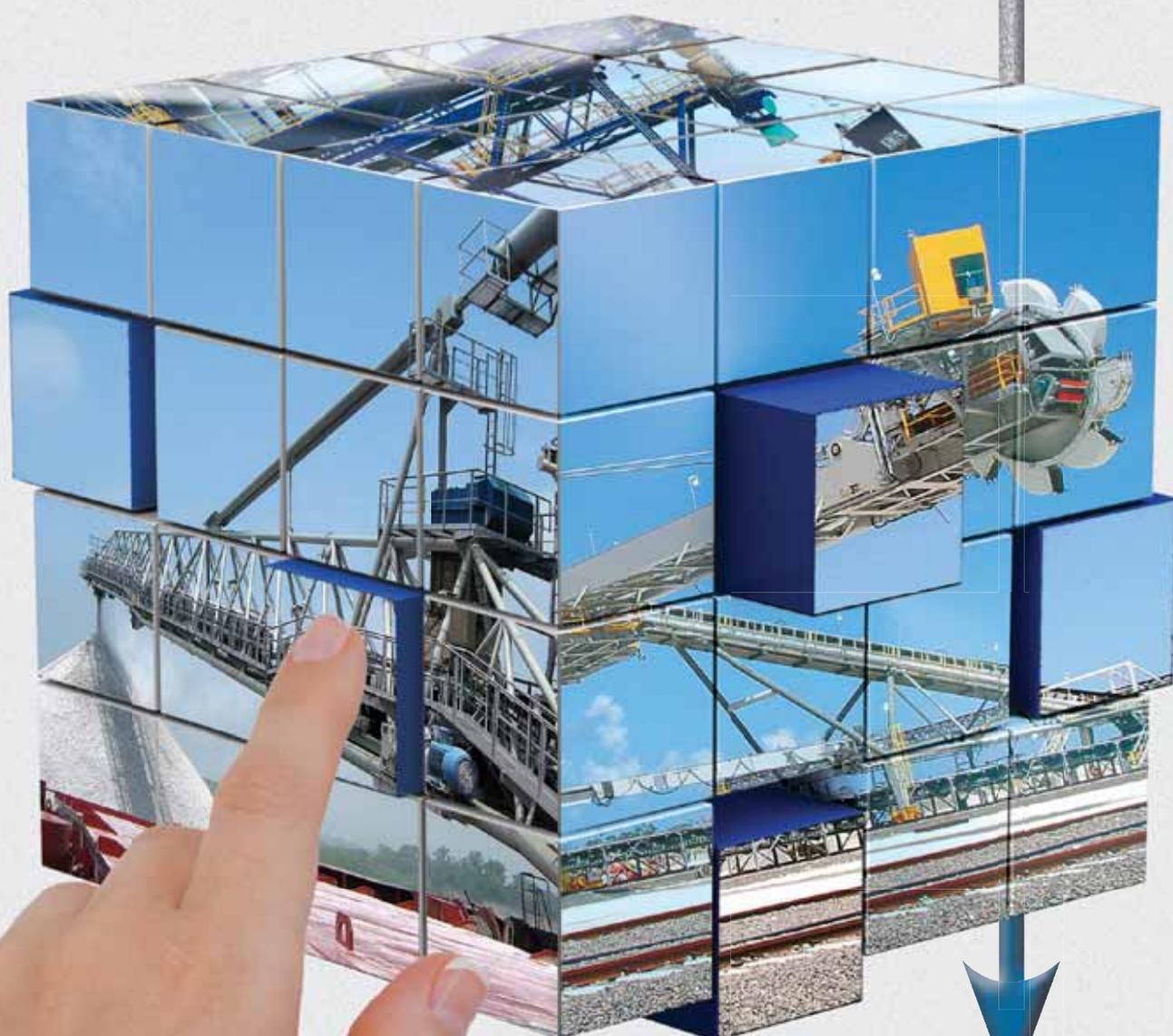
Buttimer Engineering also specializes in bespoke handling equipment such as mobile and static conveyors, ship unloading and loading conveyors and equipment, rail

mounted handling equipment as required by the customer. The company develops relationships with customers early, and can design its equipment to handle many types of dry bulk materials from coal, iron ore, fertilizer, biomass to cereals and pharmaceutical products.

Quality and reliability are key. Buttimer Engineering continues to be involved through the lifetime of the equipment to ensure that the equipment is always available for use. "We know that safety and reliability is vital for our dry bulk handling customers. Without that, production stops. We like to think that our cradle-to-grave customer support not only helps our customers realize their investment, but often allows them to exceed their production targets," says Alick MacAngus, Buttimer Engineering's UK Manager.



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## Managing coal dust with solutions from Wuvio

We all need to deal with dust. No question mark, no exclamation mark. Just a full stop.

Because that is simply what the dry bulk — and especially coal — industry has to do, and we all know it.

Legislation and licence-to-operate terms get tighter every year and, and the 'voice' of the environment surrounding coal handling sites is louder than ever. Workers are entitled to a healthy work environment, and happy staff results in a happy operation that makes money.

Dust also represents money being blown away; at a wind speed of just 18m/s, you can lose up to 1,040kg per 20 minutes.

This represents an annual mass loss of up to 5.5%.

### WUVIO TO THE RESCUE

Wuvio makes dealing with dust easier, by offering smart solutions that are cost effective and allow for implementation with minimized downtime. The company uses innovative proprietary additives, developed in-house, to combat dust. Various techniques can be used to either suppress or control dust. Wuvio's foaming, crust forming, agglomerating and moistening additives are used to reduce mass loss, lower (or maintain) moisture levels and lower water consumption.

### WUVIO DUST-CONTROL PRODUCTS

#### CRUST FORMING

Crust forming is used to seal stockpiles and forms a transparent and visible white or green layer on dust-emitting goods in storage or during transport of coal and other dry bulk material.

Wuvio's solutions are able to control dust for the short and long term and allow for optimal flexibility. The stability of the crust is unaffected by harsh weather conditions making it more effective compared with latex or cellulose pulp-based products.

The crust lasts anything from one to 90 days; application ratios can be adapted to match customers' site throughputs and turnaround times.



*Application of the EcoCrust Green*

#### FOAMING

Moisture content in materials used for energy production significantly influences overall system performance and can cause clogging.

When foam is sprayed on the materials (for example on the conveyer belt, screens, crusher and/or transfer points belt), the foam will make the dust particles moist and sticky so they can coagulate with bigger particle sizes within the material flow. It prevents the dust from spreading. To reduce water usage, Freko Foam can be applied with water and compressed air to form a dry blanket of foam.

#### WUVIO SOLUTION

Wuvio foam can be used in all weather conditions, and holds from two to 15 days

#### AGGLOMERATION

Agglomeration is a technique used for treating material during loading/unloading or inline and reduces during subsequent storage or handling. This allows for a single treatment even for stockpiles which are excavated and avoids the need for re-sealing open sides.

Wuvio's Freko-Bind easily mixes and can be used with various qualities of water and creates an adhesive layer with stability during drying and rehydration,

#### MOISTENING

In order to reduce the speed of the dust

particles, so that they can no longer float around, it is necessary to make them heavier.

Wuvio achieves this by adding a wetting agent to the water that is sprayed, atomized or sprinkled. Adding a tension-active substance is really the only solution to make dust absorb moisture.

The dust becomes wet more quickly and remains wet for a longer period. This means that less water needs to be used and material moisture levels can be reduced.

Water with Freko-Humidifier is up to ten times more effective than untreated water.

#### EQUIPMENT

Wuvio's focus is to provide a fully integrated solution which is built to be sufficiently rugged to withstand the harsh environments. The key is to have the equipment work for you, so typically Wuvio's spraying solutions are integrated with system automation to work in conjunction with the production line.

Wuvio offers a variety of spraying equipment:

- ❖ spraying cannons which can be used for spraying stockpiles — various tank sizes;
- ❖ automated foam and humidifier dosing units, spray bars, high pressure tank and atomizing systems; and
- ❖ a full range of automated mixing solutions including buffer tanks and silos.

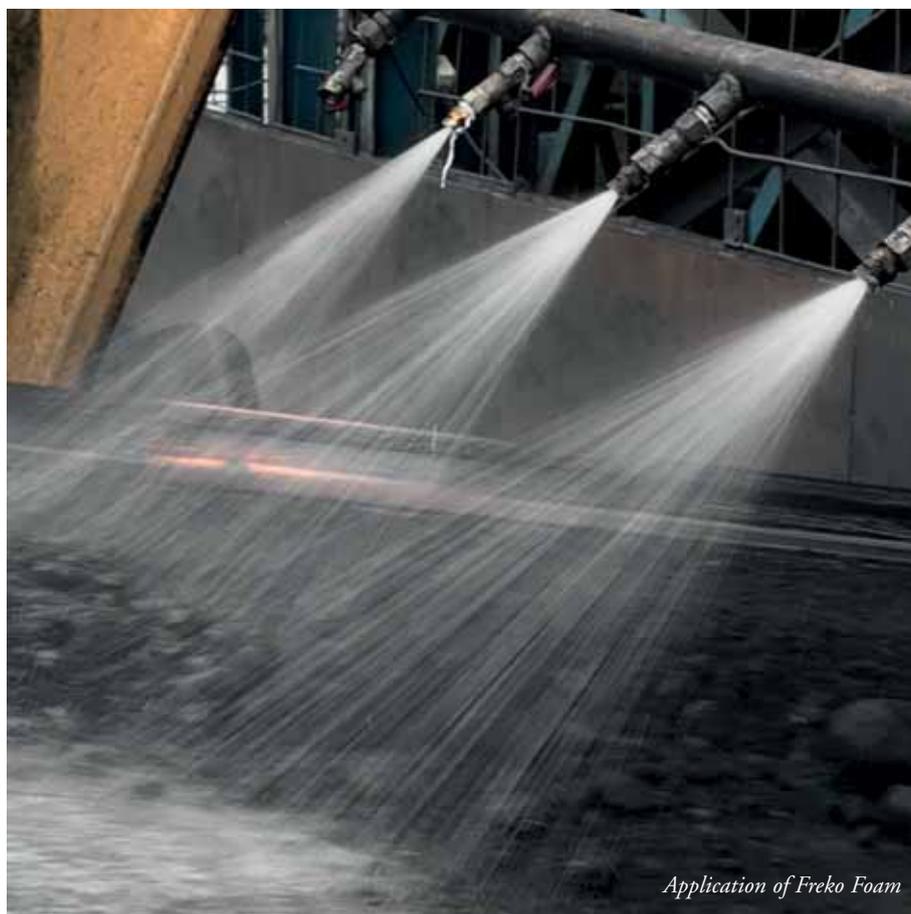
**RECENT TECHNOLOGICAL DEVELOPMENTS**

Freko-Bind is a new stockpile sealer developed for fine iron ores such as Moirana, Carajas and Tubarao. When loading, unloading and stored in stockpiles even very low windspeed makes the material to become airborne causing dust issues. Wuvio's R&D team has extensively tested with these powder-like ores and Freko-Bind is an easy-to-use solution.

Wuvio EcoCrust is able to keep moisture from penetrating stockpiles. Its water-repellent properties force water to run down the stockpile. The crust remains flexible even during heavy rainfall. Less water in coal means a higher caloric value and more production when uses in energy production.

**ABOUT WUVIO**

Wuvio is a Netherlands-based high tech company established in 2007 with a single mission: 'a clean and healthy environment for all'. Integrity, accountability and confidentiality are key pillars of the company. Its team of experts is available to help; they analyse dust problems on site together with the clients and work towards an optimized and sustainable solution from both an economical and an operational perspective.



*Application of Freko Foam*

**AMECO: the power of know-how**

AMECO delivers the latest-generation, robust quality bulk handling equipment. Its products include, for example, stackers, reclaimers, and shiploaders. Manufacturing in Europe, the company has over 380 references on every continent in the cement, commodity food, fertilizer, mining, power generation and pulp and paper industries.

AMECO was founded in 1932 in Alsace, a French region that lies in between the Vosges Mountains and the Rhine River, bordering both Germany and Switzerland.

Having closely worked with the Alsatian potash mines, AMECO went from providing maintenance services, to the supply of conveyors, to delivering all types of equipment to fulfill material handling needs. This technology allowed AMECO to develop into different markets, such as glass factories and electricity power plants where bigger storage facilities were required at the time.

In the 1950s, AMECO was well known in France and the surrounding countries. At this time, it was one of the first Western European companies providing machinery to Russia and the Eastern bloc. This early

international focus, not usual at the time, is the origin of AMECO's global presence today.

**COAL HANDLING SYSTEMS**

AMECO has a strong presence in the coal industry. Many power plants run on hard coal and lignite. These power stations employ strategic bulk material storage facilities, in which coal of different origins and diverse quality levels is temporarily stored. AMECO also offers export solutions for handling coal.

Portal reclaimers have been historically the star product of AMECO since 1932 and are at the heart of the cement and mining industry for coal handling systems. AMECO has great expertise in this type of longitudinal stockyard, and its reclaimers handle a wide range of bulk materials, including woodchips, urea, ammonium nitrates, gypsum, iron ore and more.

AMECO reclaimers can be combined with a stacker, creating a full storage system. Its stackers also combine slewing, luffing and travelling movements to create piles with as little dust emission as possible. AMECO machines can be specially adapted

in order to be able to work with corrosive, abrasive or very humid materials.

AMECO portal reclaimers can be installed inside or outside a storage building. For outside applications, a single boom portal reclaimer (PS1) is the normal choice. For this type of machine, the scraper arm is long enough to reach across the pile. For inside applications, double-boom portal reclaimers (PS2) provide the advantage of being more compact.

The bucketwheel reclaimer is used in applications where high reclaiming rates are required, such as power plants, mines and steel mills. The storage system operates with independent stacking and reclaiming functions. Bucketwheel stacker-reclaimers are available in both circular and longitudinal design. The most essential element of a bucketwheel excavator is the large wheel fitted with a series of buckets used to scoop material as the wheel turns.

AMECO is a major manufacturer of shiploaders for a wide range of industries. This fits in well with its focus on providing equipment to handle bulk material for sea transportation. AMECO shiploaders are used to load coal, all types of grains,

woodchips, urea or potash. Depending on customer requirements, AMECO can provide a fit-for-purpose shiploader model, for example endowed with anti-collision features:

- ❖ shiploaders on rails (travelling shiploaders), which can move along the jetty alongside the vessel, in order to reach the full loading area of the ship's hatches.
- ❖ stationary shiploaders, which are generally used when environmentally hazardous material is to be loaded. The premium encapsulation of a stationary shiploader feed route prevents the release of hazardous bulk material into the environment.

The boom of AMECO's shiploaders can rotate clockwise and anti-clockwise (slewing motion of the boom) and go up and down (luffing motion of the boom) to perfectly load the ship hold and to adjust according to the water elevation, to the ship size, and to the ship's increasing draught as it is loaded.

AMECO also offers blending beds that homogenize the coal. This ensures that the product has a consistent quality, which in turn increases the efficiency of the power production process.

#### **AMECO PORTAL RECLAIMERS AT JORF LASFAR ENERGY COMPANY (JLEC), MOROCCO**

AMECO successfully supplied two single boom portal reclaimers to handle coal at a rate of 1,000tph (tonnes per hour) to the Mitsui-Daewoo Consortium in 2011. These two reclaimers are currently in operation on Jorf Lasfar Electricity Company's new



*Portal reclaimer at Jorf Lasfar in Morocco.*

units 5 and 6 in Morocco, creating a third of Morocco's total power output.

#### **AMECO SHIPLOADER (TSL) AT STORE NORSKE SPITSBERGEN KULKOMPANI (SNSK), NORWAY**

A project AMECO is particularly proud of is the delivery of a shiploader to load coal onto sea vessels at a capacity of 2,000tph to Store Norske Spitsbergen Kulkompani.

This Norwegian company operates the world's northernmost mine in Svea, Svalbard. Due to the polar weather conditions, AMECO had to respect very strict delivery dates, completely re-examine its design, and ship the machine fully assembled. AMECO took all these challenges in its stride and the project was completed to the client's satisfaction.

#### **AMECO BUCKETWHEEL STACKER/RECLAIMER AT NIKOLA TESLA POWER PLANT, SERBIA**

Equipment which is still in operation today is the installation of a bucketwheel reclaimer in 1970 at TPP Nikola Tesla Power Plant, Obrenovac, Serbia. The key advantage of a bucketwheel system is the ability to efficiently move large volumes of dense material.

By far the largest power plant in Serbia, TPP Nikola Tesla generates around 16TWh annually which covers almost half of Serbia's needs for electricity.

#### **MAJOR CUSTOMERS**

Other major customers for AMECO include AMEC Foster Wheeler, Toyo Engineering Corporation, Kiewit Corp-

*Portal reclaimer at Jorf Lasfar in Morocco.*



oration, Samsung E&C, Mitsubishi Heavy Industries, and Technip. End users include SIAM, LG&E, Cellulose, Qatar Fertiliser Company, SABIC, Holcim, Rio Tinto to name a few.

**SERVICES**

Design, engineering and manufacturing for customers, is at the heart of AMECO's operations. It is committed to supplying its clients with excellent after-sales services, wherever they may be in the world. Its service offering includes the following:

- ❖ Oversee, organize and coordinate the erection, commissioning and/or start-up of AMECO supplied equipment by a third party contractor.
- ❖ Complete erection, installation, and commissioning of equipment from unpacking to the handover.
- ❖ Maintenance services by a multilingual team of inspectors and engineers, covering all its customers worldwide, including inspections, refurbishment, preventive maintenance and repairs.
- ❖ Ensuring clients always have the right spare parts available, not only at the right time and place, but also at the right price.
- ❖ Keeping long lead items in storage for emergency parts.

**STAYING COMPETITIVE**

Close collaboration with customers and

*Shiploader at Store Norske Spitsbergen Kulkompani in Norway.*



feedback on their experience is crucial to AMECO and helps it to improve design based on what customers have to say. The company values its customer expertise and opinions in order to enhance its operations and services. AMECO follows the customer through its journey from the initial installation phase to the lifecycle of the machine.

**KEEPING UP WITH TECHNOLOGY**

Remote maintenance is just one aspect of AMECO's belief in keeping up with

technological developments. This user-friendly and foolproof software and interface allows AMECO machines to be monitored remotely for detecting malfunctions, better informing its customers.

AMECO recently completed the commissioning of one fit-for-purpose portal reclaimer handling urea at 480tph, with a rail span of 54 metres for a nitrogen operations facility in Texas.

AMECO team designed and supplied an innovative urea storage solution with a portal reclaimer able to drag urea up to 20° below ground. Storage capacity was thus increased by 50% in comparison to the standard solution available from other suppliers on the market. Power consumption has also been reduced by re-injecting electricity back into the grid, in turn reducing operational expenses.

This first-of-a-kind piece of equipment demonstrates AMECO's superior product delivery and dedication to serve clients' needs in fertilizer, pulp, biomass as well as coal power plants and port terminals leveraging 85 years' experience in machine design combined with best-in-class predictive maintenance.

Last but not least, AMECO knows that its customers operate in sensitive industries and it is one step ahead of its competitors in terms of machine safety and protection against external intrusions attempts.

*AMECO was undeterred by the polar conditions when designing and installing the shiploader at Store Norske Spitsbergen Kulkompani in Norway*



**NOTABLE PROJECTS INCLUDE:**

Equipment	Capacity	End customer	Country	Industry
Single boom portal reclaimer (PS1)	1,000tph	Jorf Lasfar Energy Company (JLEC)	Morocco	Power generation
Shiploader (TSL)	2,000tph	Store Norske Spitsbergen Kulkompani (SNSK)	Norway	Mining
Bucketwheel reclaimer	3,000tph	TPP Nikola Tesla	Serbia	Power generation

## Customers in Thailand rely on proven products from RULMECA

At the end of 2016, RULMECA Germany GmbH was awarded the contract to supply rollers and garlands to equip the new conveyor belt systems of the overburden project No. 8 in opencast mine MAE MOH in northern Thailand. Approximately 18km of belt system in the widths 2,600mm, 2,200mm and 1,800mm are equipped with RULMECA's technology for the upper and lower belt, as well as the transfer stations.

SAHAKOL Equipment Public Company Ltd. is the contracting partner for the procurement of the rollers and garlands. SAHAKOL operates conveyor belt systems for the EGAT (Energy Generating Authority of Thailand).

RULMECA has a long-term relationship with the owner of the opencast mine, as well as with the service provider for the overburden excavation, and their positive experience with RULMECA products made SAHAKOL's decision easy to make. With very well-maintained belt systems, a service life of ten years or longer is common.

In Thailand, too, the use of conveyor systems is increasingly popular from an ecological point of view.

Low energy consumption and low noise emissions are also an important part of bearing rollers, such as long life and associated material and cost savings. SAHAKOL chose to use rollers with a diameter of 194mm. Compared to the diameter of 159mm used in older belt

systems; there is a considerable advantage in terms of energy consumption due to the considerably smaller pushing rolling resistance. With a belt width of 2,000mm and a belt length of 1,887m, a reduction in the pushing rolling resistance of up to 300kW is achieved. Taking into account the fact that the energy is generated in a coal-fired power plant, this means a CO<sub>2</sub> saving of approximately 2,400 tonnes per year.

This data convinced the owner of open pit mining and the operator of the conveyor systems. In the peripheral equipment such as excavators, crushing plants or spreaders, the operator requested RULMECA rollers of the same type, which significantly improves spare parts stock and availability.

Energy generation from coal is an important part of the energy mix for the emerging economies in Southeast Asia. With advanced technologies, such as those from RULMECA, this can help to limit the

emission of climate-damaging CO<sub>2</sub>. Until renewable energies have increased their share so that CO<sub>2</sub> emissions can be reduced, Thai energy supplier EGAT is focusing on the efficiency improvement of existing plants.

Also in other industries and regions of the world, the energy-saving and noise-reduced roles of RULMECA are being widely used. Whether in bulk port installations, iron ore or copper mining, building material production or the transport of other bulk materials RULMECA rollers are enjoying a strongly growing demand. The roller types developed in the RULMECA laboratory can be largely adapted to the customers' requirements and thus provide maximum efficiency for the operator. The modern and powerful RULMECA test bench is specially designed for tests and developments in order to adapt the products to the ever-increasing market requirements.



## Bedeschi completes commissioning of three-tower shiploader at CMT

### ROBUST AND EFFICIENT SHIPLOADING AT CONVENT MARINE TERMINAL

By the end of December 2016, Bedeschi had successfully completed the commissioning of a three-tower shiploader with a design rate of 6,000tph (tonnes per hour), to load vessels ranging in size from 50,000dwt up to 180,000dwt. The coal terminal plant of CMT, Convent Marine Terminal, is located on the Mississippi river near Convent (Louisiana) and has been owned since 2015 by SunCoke Energy.

Bedeschi, founded in 1908, is a respected supplier of machinery and services to bulk material handling and mining industries. It has a specific focus on handling difficult materials such as sticky coal and clay or dry mining and abrasive materials like iron ore and other minerals. In addition to traditional brick and tile manufacturing equipment, Bedeschi's products cover a full range of bulk handling solutions, offshore transshipment, marine logistics and a complete line of crushing equipment.

The shiploader consists of these following major elements: three slewing tower loaders with telescopic shuttles: tower three (SHL-3) receives the coal from storage and controls the distribution to the two loading towers downstream (SHL-2 and SHL-1) by means of a diverting hopper. Tower two (SHL-2) can also divert the coal to tower one (SHL-1) or direct load all of the coal received from tower three (SHL-3). The three towers are connected by means of two link conveyors (LC-2 and LC-1) for the distribution of coal according to the operational requirements. Each

STATISTICS	
Material	Coal
Bulk density for volumetric design, normal dry basis (belt calculations)	55 pcf
Bulk density for structural and power design, wet and compacted	65 pcf
Angle of repose	35 - 40
Angle of surcharge	~30
Moisture (by weight)	varying
Size	<100" (assumed)
Abrasiveness	Low

loader has at the shuttle tip a telescopic chute with trimming spoon, which allows the operator to direct the flow of material into the ship hold. All the conveyors have been equipped with suppression dedusting water spray/mist system and belt washing system.

The advantages of this type of installation, when compared for instance to a classical A-frame ship loader travelling on rails and with luffing boom, are basically **low maintenance costs** and **efficiency**.

**Low maintenance costs** depend on the fact that there are no rails on concrete foundations and therefore no settlements or displacements due to quay deflections as the years go by. Therefore, there will be no costs due to wear of wheels and especially for civil works of rails realignment.

Basic motions of the three shiploaders, i.e. boom slewing of 150° and shuttle travelling with outreach from 20m (65ft) to 52m (150ft), are respectively with geared slewing ring or pinion-rack, gearboxes and electric drive units, which need very low maintenance effort, when compared for

instance to periodic inspections required by winch ropes.

**Efficiency** is achieved by means of the three tower design: this makes it possible to position one loader while the other one is running, so downtime is avoided when changing from one ship hold to the other; the design of this three-tower shiploader makes it possible to load all compartments of a Capesize ship without needing to move the vessel.

Moreover some types of ships have cranes or other onboard structures which require downtime due to the luffing boom positioning; with this type of design for booms, which is very high in terms of the ship holds, it is much faster and easier to jump over obstacles on the ship.

The shiploader also has built-in 'redundancy', so in case of a sudden failure of one of the three loaders, it will be possible to finish loading operations with the other two, without having to wait for repairs: this is a very important convenience, especially in marine terminals, where 'time is money'.



## Coal handling with iSAM's advanced terminal automation solutions

Coal mines as well as export and import terminals typically have extreme levels of equipment utilization. At most locations, the equipment is utilized 24/7 and waiting times create a considerable impact on the profit margin. To ensure the best interaction of the available machinery, perfect timing and a high level of co-ordination has to be realized.

To fulfill those requirements, iSAM has developed and implemented technology packages for fully automated operation of either individual equipment or — as a combination of individual systems — of entire coal handling facilities.

### AUTONOMOUS GRAB SHIP-UNLOADERS, SHIP AND BARGE LOADERS

iSAM's sensor and evaluation package for autonomous grab ship-unloaders and ship and barge loaders consists of an advanced collision protection system, a solution using latest 3D LiDAR and GPS technology which enables a control system to obtain complete information about its own position and of all other objects in the vicinity. For the first time this ensures the effective protection of a ship-unloader boom as well as of the boom and telescopic chute of ship loaders. It also creates the foundation for remote and even fully autonomous operation by enabling the system to 'see' its environment and make its own, situation-specific decisions as an operator would do. For grab ship-unloaders, the same technology is also utilized for tracking the load in real-time to allow for a safe and collision free unloading. Smart algorithms decide for the best loading and unloading strategy focusing on an optimized material distribution to keep the ships balanced at all times.

### AUTONOMOUS TRAIN LOADING AND UNLOADING STATIONS

Autonomous train loading and unloading systems use 2D laser scanning for train positioning, car type verification and detection of residual quantities inside rail cars either entering or exiting the station.

Utilizing this data the system ensures a fast and consistent automated operation of train loading and unloading equipment and also reliably prevents accidental dumping or loading of mid-train or end-train locomotives. The system is also able to wirelessly control unmanned locomotives to automatically pull a train through the station, always maintaining an optimum train speed and making a voice radio communication to a loco driver unnecessary.

All systems supplied for batch loading applications have achieved a load utilization better than 99 % (i.e. +0/-1%) when loading gravimetrically limited materials and a 98 % load rate (i.e. +0/-2%) for volumetric loading. For train unloading stations, an optimized flow control of the hopper systems using radar level sensors additionally shortens the unloading cycle and avoids dropping material directly onto the belts through an empty hopper.

### SCALABLE ADVANCED CONVEYOR LOAD CONTROLLER (ACLIC)

The scalable advanced conveyor load controller offers an optimized equipment utilization and a maximum of comfort to the operator when tracking and controlling complex blending orders in today's busy bulk export and import terminals. The ACLIC also has a hatch and train loading module to automatically pause the material flow according to the loading plan allowing the ship loader to change hatches or the train loadout to receive the next train. In fully automated mode, the individual machines will first be set to pause and then automatically continue the material feed without any operator action required. For non-automated machines, the ACLIC provides the necessary information feedback to the machine operator. It represents the perfect link between individual automation solutions of the iSAM coal handling automation portfolio like the fully automated train loadout or ship



loading. It helps reduce human interaction to the process to a bare minimum and hence makes it not only possible to control the entire loading process from a remote location but also to provide an unprecedented level of automation, enabling one operator to feed several ship or train loaders from multiple, blending capable sources easily from a central control room.

### AUTONOMOUS OPERATION IN PORTS — REFERENCES

To date, iSAM has equipped five grab ship-unloaders, two shiploaders, five train loaders, three train unloaders and more than 40 stacker/reclaimers with these technology packages. Four autonomous grab ship unloader systems are fully operational at the Port of Hamburg and one system at the Port of Rotterdam. The operational and safety procedures are approved by public authorities.

### ABOUT THE COMPANY

iSAM AG, Gesellschaft fuer angewandte Kybernetik, located in Muelheim an der Ruhr, Germany, develops and implements automation solutions that enable industry, commerce and service suppliers to increase their performance. iSAM's team includes specialists from the engineering, computer science and physics sectors as well as from business economics, focusing on increasing customer value. The company's customers can be found all over the world and in almost every industry, such as mining, bulk materials handling, transport and logistics, steel and metal manufacturing and processing, tube welding and pipeline construction, mechanical engineering and plant building, electronics and aerospace.

iSAM AG is well prepared for future challenges and iSAM experts are constantly developing, upgrading and adapting their technology to other applications and markets, finding unique solutions for each customer request.



## BossTek: dust-control systems for coal operations



BossTek is a global supplier of equipment for dust suppression, odour control and factory cooling. The firm offers a wide range of designs, from large-scale fan-driven units that can cover more than 280,000ft<sup>2</sup> (25,000m<sup>2</sup>) to small, source-point designs that focus on a single target location. Equipment can be trailer-mounted for easy mobility and equipped with a dedicated generator and water storage for remote sites.

The company's major clients include bulk handlers of coal, as well as clinker, grain, petcoke, biomass, slag, scrap, C&D debris, fly ash, gypsum and other materials, as well as food processors, landfills and outdoor event promoters.

In addition to continuously innovating and developing new equipment designs, BossTek maintains close relationships with customers to understand their needs and challenges, customizing solutions to suit

an extremely broad array of applications and operating conditions. The company maintains a large fleet of rental equipment to serve customers with periodic requirements, setting up warehouse distribution centers to deliver easier access and shorter lead times. BossTek is also extending its engineering capabilities to

further broaden the ability to meet specific application requirements and deliver faster access to replacement parts and service.

In addition, the firm has begun supplying chemicals to enhance the performance of its equipment, maximizing the performance of customers' dust suppression and odour control systems.



## Optimal coal management with systems from IHI

IHI Transport Machinery Co., Ltd, a major affiliate of IHI Corporation Group in Japan, is renowned for providing a wide range of cranes and material handling systems. In bulk handling market, IHI is the Japan's top supplier of total coal handling systems that include ship unloaders, stackers, reclaimers and conveyor systems with various auxiliary equipment. IHI's total coal handling systems have been chosen for many major coal fired power plants and coal terminals in Japan, and have been contributing to their safe and high efficient operation over a long time. And today, IHI is not only developing designs of the equipment itself, but is also providing total engineering and consultation for safe and optimal management of coal handling equipment.

It is said that more and more low-rank coal such as sub-bituminous and a sort of bituminous coal are traded globally today because of its recoverable reserves and production cost. On the other hand, low-rank coal brings a difficulty in management, especially in storage due to its spontaneous heating, and it is very important for plant

owner to know the heating situation in stored coal in stock pile, silo etc. Therefore, IHI is developing a new system which makes it possible to predict spontaneous heating in stored coal to provide guidance for safe operation and effective storage planning of low-rank coal.

The permissible storage duration under optimized management control in a coal storage facility can be predicted by using the IHI's original simulation technology. The simulation is based on the information and data of the actual storage facility, climatic condition, expected storage period and coal sample which are provided by plant owner.

IHI conducts particular analysis of spontaneous heating of the provided coal sample using IHI-original and unique numerical simulation tool which consists of models for oxygen adsorption, heating, moisture evaporation etc. based on the rate of low-temperature oxidation of coal. With the results of the analysis, IHI can provide practical guidance for management and planning of low-rank coal storage which fit the coal storage facility for the

owner. In cases of high propensity for spontaneous heating, the predicted time limit for reaching a specified temperature and its location in the bed can be advised. The prediction does not only include the heating behaviour of a single coal type but also the comparison with other coal types.

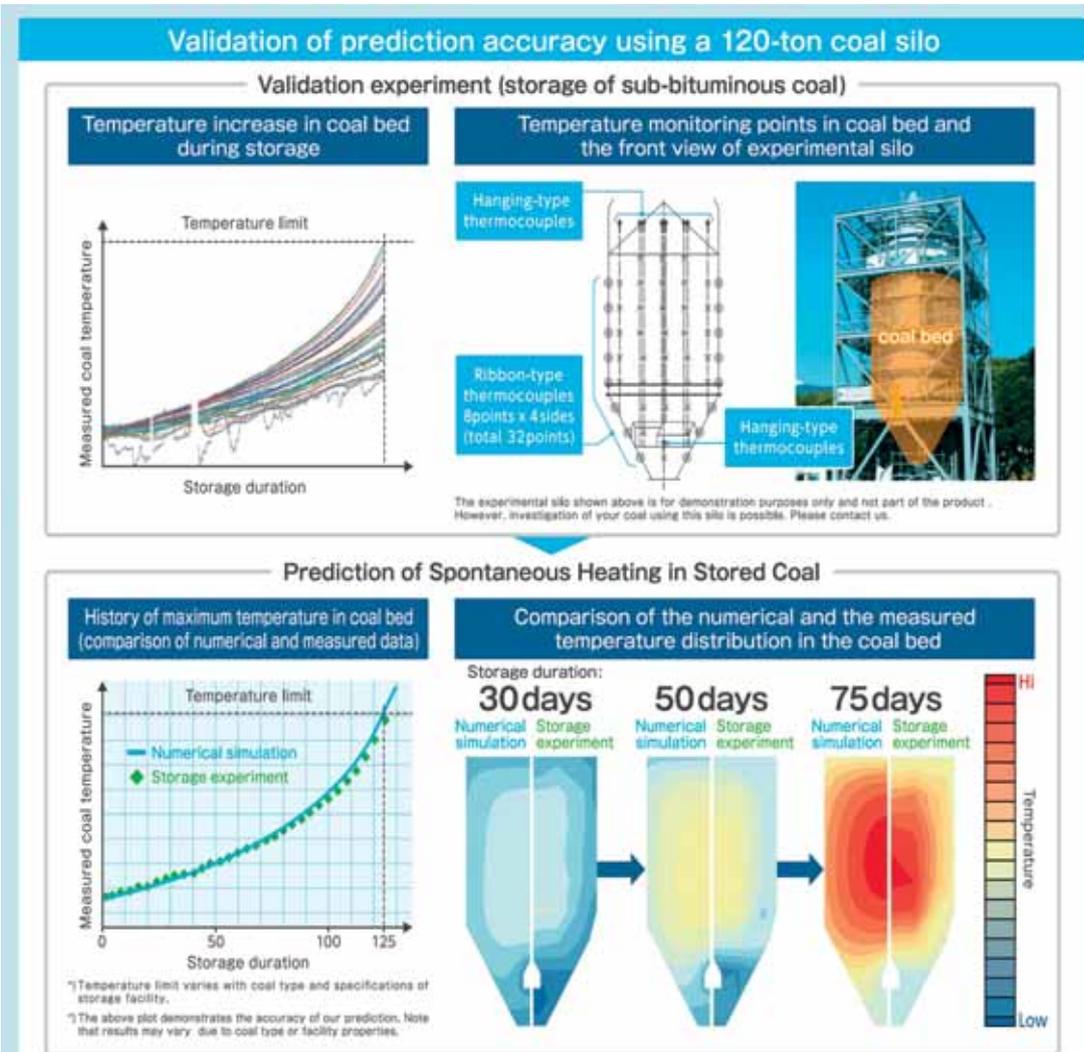
High accuracy of the prediction was proved by using a demonstration coal silo with 120-tonne capacity. The demonstration coal silo was equipped with a large number of thermocouples to monitor the trend of temperature rise and position of heating spot.

The demonstration was made repetitively by using different types of coal and it took several months each round. Through the continuous demonstration, IHI studied the mechanism of spontaneous heating, and a simulation programme was developed at the same time. Finally, the actual temperature rise detected in the demonstration silo was found following the prediction which had been simulated by the simulation programme.

The technology is applicable for both new and existing coal facilities. The

information that is included in IHI's guidance may be reflected in the design development for optimization for a new facility, while it may help operator of an existing plant achieve safer and more effective storage operation with low-rank coal.

Having a considerable amount of experience in coal handling systems and advanced technology, IHI is not just an equipment supplier but is also able to act as a technical advisor for its customers. Safe and effective operation of reliable coal handling systems which is supported by IHI will contribute to better fuel supply for power generation and various industries in the world. **DCi**





**Telestack**  
Mobile Bulk Material Handling



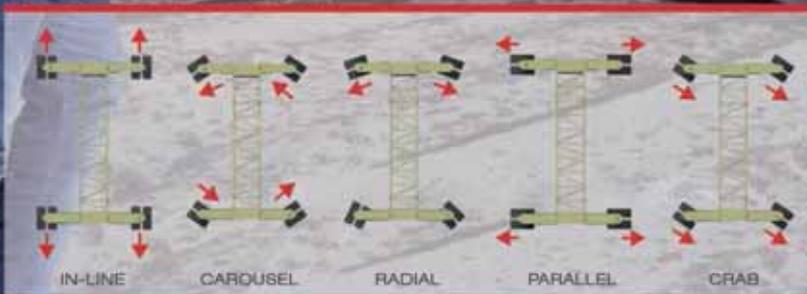
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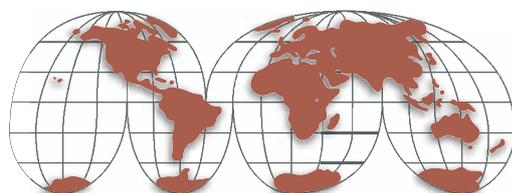


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IN-HOUSE CONVEYOR ANALYSIS  
ENGINEERING CONSULTING

**THE GREATER  
THE LOAD  
THE HIGHER  
THE LIFT  
THE BETTER  
WE LOOK**

## **DSI SANDWICH BELT HIGH ANGLE CONVEYOR**

The DSI Sandwich Belt High Angle Conveyor is **PROVEN** in over 100 installations worldwide. It's **RELIABLE** for rugged mining conditions, yet gentle enough for friable materials. It's **ECONOMICAL**, fitting into tight spaces and small footprints. Elevating millions of tons of material at various installations all around the world, users have agreed it's the most reliable, low cost and low maintenance conveyor system available. **LET US PROVE IT TO YOU.**





# High-angle material handling solutions from Dos Santos International

Founded in 1997, on the experience and accomplishments of its name sake, Joseph A. Dos Santos, Dos Santos International (DSI) celebrates its 20th anniversary this year. DSI is highly experienced in sales, engineering, and construction of bulk materials handling systems and equipment. This has included major contributions that have expanded the range of bulk handling and transport solutions. Most notably, advances in sandwich belt high angle conveyors have led to their worldwide utilization. The expertise of DSI spans a wide range of materials handling systems and equipment including high angle conveyors, high-powered, high-capacity, high-lift slope conveyors and long overland conveyors utilizing the very latest technology.

## Products & Services

### SANDWICH BELT HIGH ANGLE CONVEYORS

DSI Sandwich belt high angle conveyors take on many forms and offer many advantages. Each DSI Sandwich Conveyor uses two standard, smooth-surfaced conveyor belts, face-to-face, to gently but firmly contain the product being carried.

This not only makes steep angles possible. It also offers a spillage free, environmentally sound operation because the material remains secured between the carrying and cover belts. The use of all conventional conveyor parts ensures high availability and low maintenance costs, as well as interchangeability of components and fast delivery of replacement parts. A DSI sandwich conveyor is capable of higher conveying speeds and greater capacity than other high angle conveying methods. The availability of wide belts and hardware makes capacities greater than 10,000 t/h easily achieved with a DSI Sandwich conveyor. High angles of 90° are typical, and lifts of 300m are easily accomplished

### DSI SANDWICH CONVEYORS OFFER THE FOLLOWING ADVANTAGES:

- ❖ Unlimited conveying capacity
- ❖ A system suitable for the most rugged mine applications, yet gentle on sensitive and friable materials.
- ❖ High availability and low operating and maintenance costs.
- ❖ Smooth surfaced belts allow for continuous belt cleaning by scrapers and plows. This also facilitates

intermediate material discharge by belt plows, as appropriate, before and/or beyond the sandwiched part of the profile.

- ❖ All conventional conveyor hardware ensures economy and fast delivery of replacement parts.

Dos Santos-design sandwich belt conveyors have been proven in more than 100 successful systems throughout the world over the past 30 years. DSI will continue to advance the state of the art and assure the company's clients of the finest conveyor systems available today.

### DSI ADDER SNAKE, LOW ANGLES TO HIGH ANGLES AND BACK WITH NO TRANSFERS

In cases where the shiploader is at a considerably higher elevation than the dock conveyor, a standard tripper would require that the dock conveyor and dock be much longer than otherwise necessary, as its uplift would extend quite far back from its discharge pulley. Historically, the solution in this case would be to design a much lower-lift tripper, which would then feed on to a Sandwich Belt High Angle Conveyor. While this is a perfectly viable solution, which has been executed in the



past, it would be preferable to eliminate the conventional-to-sandwich transfer if possible.

The DSI Adder Snake, which is currently patent pending, solves the problem by swallowing the narrower conventional belt, along with its material, into the two wider sandwich belts. This allows the material to enter the sandwich belts with minimal disturbance and without the energy loss and additional equipment required for a standard transfer.

#### CONVENTIONAL, OVERLAND & PLANT CONVEYORS

##### LONG OVERLAND HIGH LIFT, AND HIGH CAPACITY CONVEYORS

DSI offers conventional conveyor systems of simple or complex profile to high capacities and high lifts.

The company's overland conveyor projects have featured intermediate booster drives of the fixed tripper type as well as the belt-on-belt type. These have been effective in achieving great transport lengths with belts of only modest strength. Booster drives also allow the control of belt tension facilitating horizontal curves with minimal belt wander.

DSI's conveyor systems will exploit the latest in equipment and technology to deliver optimal solutions.

#### CONVENTIONAL, OVERLAND & PLANT CONVEYORS

DSI's experience in integrated design, coordinating the best in equipment with the most efficient structural systems is exploited to produce clean, attractive plant conveyor solutions.

- ❖ Take-up systems
  - Fully Automatic
  - Semi Automatic

- ❖ Transfers
  - Discharge chutes
  - Receiving skirts
- ❖ Belt trippers
  - Fixed
  - Travelling
- ❖ Consulting Services
- ❖ Heavy Belt Feeders

#### CONSULTING AND ENGINEERING:

Consulting and engineering services are offered for various industries including:

- ❖ Materials handling systems and equipment
- ❖ Power plant maintenance
- ❖ Steel mill equipment

Additionally, all industries may benefit from DSI's discipline oriented engineering services. Such services are offered in mechanical and structural engineering.

#### EXPANDED CONVEYOR TECHNOLOGY

##### CONVEYOR ANALYSIS AND DEVELOPMENT

Dos Santos International has designed and developed conveyors for many challenging material handling applications.

Each project has its own unique challenges, but with the experience of the DSI staff, the company has developed in-house software utilizing analysis models that allow prediction of load equivalents and stresses of new and existing conveyor applications. Utilizing this software package allows DSI to engineer the best conveyor

solution for each specific application's needs.

#### RIGGING, REEVING, AND HOISTING

Dos Santos International offers special expertise in wire rope rigging, reeving and hoisting systems. This expertise has been gained through extensive experience with such systems related to remote take-up systems for conveyors, hoisting systems for stackers, loaders and other large yard and dock equipment. Rigging procedures and logistics have been worked in detail for special power plant maintenance projects.



## Dos Santos International to supply high angle conveyor for Yara Sluiskil project



*An aerial view of the Yara production site, located at Sluiskil, the Netherlands, where the DSI Sandwich belt will be installed.*

Dos Santos International is pleased to announce that it has been awarded a contract to provide its DSI Sandwich belt high angle conveyor to Bedeschi S.p.A. for the Yara Sluiskil project in the Netherlands.

The DSI Sandwich high angle conveyor will transfer urea and amidas prills at a rate of 600tph (tonnes per hour) at a 40° angle. The material will be transferred from the tripped dock conveyor and elevated to the shiploader boom conveyor.

The sandwich conveyor discharge is centred on the bridge rotation axis of the boom, allowing the boom to rotate freely. DSI was awarded supply of the sandwich conveyor by Bedeschi, which was awarded the contract for the supply of the shiploader for the plant in January 2017.

DCi



*Dos Santos International will provide a DSI Sandwich belt high angle conveyor to Bedeschi S.p.A. for the Yara Sluiskil project in the Netherlands where it will transfer urea and amidas prills at a rate of 600tph at a 40° angle.*

# Scandinavia takes centre stage

## bulk handling in the region



*Side tippler unloading railcars.*

Louise Dodds-Ely

## Oy M. Rauanheimo Ab leads the way in turnkey bulk operations

### COMPANY IN A NUTSHELL

Oy M. Rauanheimo Ab is major bulk and transit cargo operator in Finland with a history that goes back over 130 years. Formed in 1884, the company now belongs to the successful KWH-Group.

It provides a full range of customer-tailored services, such as stevedoring, shipping, forwarding, bulk handling, project cargo handling, agency services, door-to-door services world-wide, rail transportation, road haulage, container services, transit services, warehousing and mill services.

The company operates three major ports in Finland — Kokkola, HaminaKotka and Helsinki-Vuosaari.

### BULK OPERATIONS

The main bulk cargoes handled by Rauanheimo at the Port of Kokkola include iron ore, iron oxide, pyrites, pyrite ashes, zinc concentrate, zinc products, limestone, salt, peat, energy wood, alumina clay, steel billets, stone, fertilizers and big bags. In the other ports, it handles mainly pulp, coal, grain, timber and other dry bulk commodities

### NEW INNOVATIVE WAY OF HANDLING BREAKBULK

In 2016, Rauanheimo was selected by a Finnish forest industry group that operates in international markets, to be a partner for taking care of the export logistics from the a new next-generation bio-product mill in Finland.

This was a great opportunity for Rauanheimo to implement something new in breakbulk handling in Finland. The aim was both to develop operations to meet the requirements of variable ship sizes and to increase efficiency with lower operating costs. The long distance between the

*Mantsinen 300 new-generation material handling crane: Rauanheimo's crane will be equipped with fully automatic, 100% mechanical lifting frame.*



terminal and loading quay added pressure for cargo delivery during shiploading. Therefore, Rauanheimo acquired a new generation material handling crane — a Mantsinen 300 equipped with fully automatic, 100% mechanical lifting frame and, in co-operation with a Finnish manufacturer, has developed a new type of transportation platform, the 'PULPHAULER'. This development breaks with traditional methods, and makes it possible to double the efficiency of moving cargo from the terminal to the quay.

#### THE IRON ORE STORY

Joakim Laxåback, CEO of Rauanheimo, explains that during 2004, after intensive negotiations with a leading Russian mining company, Rauanheimo entered into an agreement for an iron ore transit service. This includes cargo rail transportation from a mine in Russia, via the Russian–Finnish

*The 'PULPHAULER'.*



border, to the Port of Kokkola for further cargo handling and shiploading.

To ensure the successful implementation of the project, a VOK-railcar unloading method — entirely new for

Russia — was developed. This method, in combination with the Port of Kokkola's infrastructure and deep-water capabilities, contributed to an increase volumes in Kokkola Port to over eight million tonnes a year in 2014

Significant investments were made by the company in order to meet the client's requirements and to achieve a minimum mechanical impact on iron ore pellets during transportation and handling. These investments included: Metso screens, with a capacity of 1,400tph (tonnes per hour), tailored for the handling of iron ore pellets; and two brand-new Telestack conveyor system to load vessels of up to Panamax sizes and for building stockpiles in trapezoidal shapes. These stackers are

*Metso screen.*





equipped with two hoppers, one for feeding with a wheel loader and one with dump trucks. These units can also be connected together to move the material from the train unloading facility directly under the crane, avoiding the processing phase. The conveyor system is also suitable for different type of solid bulk cargo.

**TOOLS**

All the ports in which the company operates are equipped with modern state-of-the-art facilities and supported by excellent infrastructure. This includes a safe deep fairway that accommodates Panamax and Capesize vessels.

The railway wagon tipper terminal efficiently and carefully unloads wagons at a

rate of 1,300tph. The tipper terminal consists of two devices — the transfer device automatically moves the wagons to the unloading point, and the tippler empties them by turning them upside down.

**COMPETENCE**

Rauanheimo is driven by a strong sense of accountability in terms of safety and the environment. It is proud that all stevedores in the company have passed a special qualification.

This impressive result in stevedoring and forwarding companies in Finland is achieved through careful and systematic work and continuous training of people for more than ten years.

Quality systems and health and safety

principles are developed on the basis of relevant standards and regulations, experience and needs, in order to gain an understanding of how to handle a variety of cargoes safely and to operate heavy equipment in accordance with safety regulations.

**FUTURE**

The long-term bulk cargo forecast looks very promising for all ports in which Rauanheimo operates.

Intensive investments in tools and competence pays off. As CEO Joakim Laxåback states: “Future looks open for further Good Stories as our slogan says. We might be heading towards new record years in bulk handling.”



## Better service for NORDEN's dry cargo customers

With a new set-up, NORDEN's Dry Cargo Department will become even better at servicing its customers. The department, which has offices all over the world, has been organized into smaller and more specialized teams which can act faster, more easily and more smoothly. The new teams also have greater authority, as the responsibility in the Dry Cargo Department, containing more than 150 employees, has been spread out further. "We will simplify, strengthen and empower our whole organization," says Head of Dry Cargo Christian Vinther Christensen.

"The purpose of this new set-up is to become even better at servicing our customers. We will simplify, strengthen and empower our whole organization. Based on our strategy 'Focus & Simplicity', we are making our processes more efficient and transparent. At the same time, we are assigning authority to the front line, where our many motivated employees meet the customers and the market. I have a strong belief in management through involvement, presence and recognition," says Head of Dry Cargo Christian Vinther Christensen.

### ALWAYS MONEY TO BE MADE

The aim of the new set-up is to carry out NORDEN's strategic decision that the Dry Cargo Department in significant scale and through organic growth is to increase its operating activities, where cargoes are combined with chartering of available vessels in the market for a single trip – or more.

Usually, money can be made on operating activities in both times of prosperity and times of decline. Focus is on the margins and the difference between cargo rates and the price of chartered vessels.

As a general rule, operating activities are therefore, in terms of earnings, characterized by being less dependent on market rates compared to the part of NORDEN's dry cargo business which is based on use of the core fleet of owned or long-term chartered vessels.

The increased efforts related to operating activities are taking place at the same time as NORDEN continues its usual business activities on the spot market (day-to-day market) at full speed based on the use of its core fleet. NORDEN also continues the fulfilment of its many long-term contracts, just as there is focus on attracting new long-term industrial cargo contracts.



*Christian Vinther Christensen, Head of Dry Cargo at NORDEN.*

### THE NINE NEW TEAMS

- These nine teams have been set up:
- ❖ Panamax – worldwide
  - ❖ Supramax
    - ❑ North America
    - ❑ South Atlantic
    - ❑ Continent & Med
    - ❑ China
    - ❑ Asia and North Pacific
  - ❖ Handysize
    - ❑ Worldwide
    - ❑ North America
  - ❖ Period tonnage and industrial bulk – worldwide

### THE BENEFITS TO THE CUSTOMERS

The Head of Dry Cargo Christian Vinther Christensen highlights the following benefits of the new set-up to NORDEN's dry cargo customers:

- ❖ NORDEN improves its response times;
- ❖ NORDEN improves its knowledge on customer requirements and requests;
- ❖ NORDEN increases its knowledge on the market;
- ❖ NORDEN becomes better at thinking big and at the same time always acting in such a way as to meet each customer's requirements regionally — no matter the scope;
- ❖ NORDEN increases its competitiveness through increased activity;
- ❖ NORDEN becomes capable of assisting more customers with their spot requirements;
- ❖ NORDEN becomes more focused on each customer's business and needs; and
- ❖ NORDEN will have a dedicated ambition to grow with its cargo

customers through commercial innovation.

### THE OPERATORS PLAY A KEY ROLE

However, it is one thing to obtain cargo for the vessels to transport. It is quite another to deal with the handling operations from loading port to discharge port.

It is the operators' job to ensure that this is done in the most optimal way.

"Consequently, our operators play a more central role in the new set-up," says Christian Vinther Christensen.

NORDEN's Dry Cargo Department has a staff of skilled and experienced operators, who operate from the many offices within NORDEN's global network. They have thorough knowledge of the many challenges which the vessels face on their voyages.

"They can make the famous difference to our customers. We need to be able to deliver genuine and value-creating service, and we do this better when we have thorough local knowledge," says the Head of Dry Cargo.

### SERVICE PROVIDER

Christian Vinther Christensen adds: "To boil it all down to a few words: deep down inside, NORDEN is a provider of value-creating service to our customers — a kind of service which also contributes to more efficient and sustainable world trade and with that increased global prosperity. We need to combine this with a reasonable and risk-adjusted result for NORDEN's owners."

## New initiatives for port equipment and maintenance from N-service ApS

N-service ApS is a Danish manufacturer of equipment used in the bulk handling market.

The company has reported on a recent delivery, of a 2.5m<sup>3</sup> orange peel grab, which was manufactured with a never previously installed maintenance system.

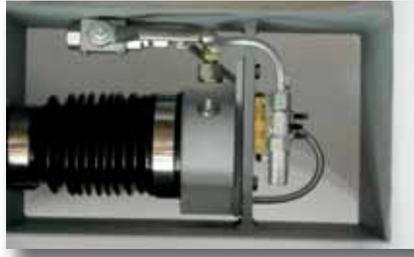
The grab has been in full-time operation for three years, loading all types of steel scrap to vessels.

This grab, and its design, have provided optimal and constant loads. The dead weight and load capacity was designed from the outset to work with the Multidocker CH65/CH74. Unique penetrating and holding power ensure capacity and supported load and machine efficiency.

With its volume of 2.5m<sup>3</sup>, the grab has a deadweight of 3,400kg. It has been built with 90mm main bearings, which affords the longest lifetime and zero downtime for maintenance.

All connections was secured and protected from damage during work. This also ensures efficiency: the crane operator can focus fully on the bulk product, due to his complete confidence in the design of the grab.

There has been no



unique hydraulic self lubrication system uses the grab's working pressure to drive the self-lubrication grease pump. The system pressurizes grease up to 250 bar and injects grease to all main bearing and cylinder bearings —15 bearings in total.

A progressive distributor block links the grease optimally to all bearings, with regard to function and load. A pre-defined quantity of grease is released in continuous cycles, driven by the main actions of the grab. For one grab opening, one portion of grease is released.

The system is a refilling system with the usage of own preferable grease. This makes the system independent and profitable for the operator.

Lubrication and maintenance of the whole grab occurs while working and always leaves the equipment ready for the next task. Maintained and greased.

damage to the grab in three years of operation.

The unique laminated tooth-sets have remained sharp, with a strong grab, throughout.

The revolutionary self-lubricating system was a key factor to the success of the grab. The

“A man who stops advertising to save money is like a man who stops a clock to save time”

– Henry Ford

To find out how you can benefit from advertising in the world's only monthly dry bulk publication contact Jason Chinnock or Andrew Hucker-Brown on:  
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## Two internationally experienced men join NORDEN's Board of Directors

**BOTH NEW NORDEN BOARD MEMBERS HAVE A SKILL SET THAT WILL SUPPORT THE BOARD OF DIRECTORS' STRATEGIC AND GROWTH-RELATED INITIATIVES, AND BOTH HAVE EXPERIENCE IN RELATION TO RISK MANAGEMENT.**

Two experienced men from the global world of shipping were elected into NORDEN's Board of Directors at the annual general meeting held on 5 April this year at Hotel Scandinavia in Copenhagen. Tom Intrator is former CEO of Cargill International SA and is a Swiss citizen. Hans Feringa is CEO of the chemical tanker company Team Tankers International Ltd. and a Dutch citizen living in the USA.

At the annual general meeting — with final approval at an extraordinary general meeting on 19 April at NORDEN's head office in Hellerup — it was also approved that NORDEN's corporate language be changed from Danish to English. This i.e. means that from now on English is the working language in the Board of Directors which, until now, has not had any members not versed in a Scandinavian language. With the change into English, the Board of Directors can be internationalized as needed.

### HIGHLY QUALIFIED

In his report, Chairman of the Board Klaus Nyborg described the two new board members as "highly talented".

In his speech prior to the election of Tom Intrator, Chairman Klaus Nyborg emphasized that Tom Intrator has experience as head of one of the world's



*Tom Intrator.*

largest trading houses, that he has an international background and that he is significantly knowledgeable within energy, shipping and metals. At the same time, Tom Intrator will add to the Board's qualifications within management, strategy, investment, customer relations and service, financial matters and risk management, said the Chairman.

Klaus Nyborg substantiated the appointment of Hans Feringa for election to the Board with his experience as head of global, listed shipping companies, in-depth knowledge of global shipping as well as an international background from the Netherlands, Singapore and the USA. In



*Hans Feringa.*

addition, Hans Feringa will add to the Board's qualifications within tankers, management, strategy and growth, investment, purchase and sale of vessels, financial matters and risk management.

### FAREWELL AFTER 28 YEARS

At the annual general meeting, Erling Højsgaard stepped down from the Board of Directors due to the age limit of 72 years. He sat on the Board for 28 years, two of which as vice chairman. The new vice chairman is Johanne Riegels Østergaard, who represents the major shareholder Motortramp.

The Board of Directors now constitutes six general meeting-elected members and three employee-elected members.

### UP FOR ELECTION EVERY YEAR

At the annual general meeting — with final approval at the extraordinary general meeting — it was also approved that from now on, all six general meeting-elected board members are up for election every year instead of every second year. The employee-elected members continue with a term of three years.

Tom Intrator, newly elected board member, says: "NORDEN has held a leading position in the business for more than a century and is positioned to continue holding this position in future."

Hans Feringa, newly elected board member, says: "NORDEN has a strong balance sheet as well as strong management and organization. These are the prerequisites for being able to seize the opportunities that arise in the market."



## Scandinavian company leads antifouling revolution

Sit in the heart of Scandinavia, Swedish biotech innovators I-Tech AB has been shaking things up in the paints and coatings sector of the maritime industry over the past few years. The company was founded upon a unique discovery made by Gothenburg scientists that is revolutionizing hard biofouling prevention on ship hulls. The team of scientists proved the efficacy of an active substance, which at extremely low concentrations, can neurologically scramble a barnacle larva making it hyperactive, with reversible effects, preventing it from being able to attach to any coated ship wetted hard surface. This bio-repellent innovation is unique within its application in marine coatings and has attracted great interest from marine coatings manufacturers and ship owners. For the owners of dry bulk carrying ships, this Scandinavian innovation could offer a solution to the growing problem of hull fouling, particularly for idling bulk carriers.

Companies that transport dry bulk, iron ore, coal and other bulk commodities are weathering the downturn in a market. Under current market conditions, idle bulk carriers, in addition to other ship types, are inhabiting coastlines across the globe. Ship owners are increasingly demanding solutions that are both well-suited to specific ship trading patterns, and varying activity levels. When looking at the future

trading potential, they need to ensure that their ship is protected whether it be in constant active service, idle for long periods of time, or have the risk of fluctuating between the two. This future-proofing approach to antifouling coating selection, without any certainty of future trade, is exerting great pressure on the coatings suppliers, prospering great innovation and new approaches to the development of fouling prevention technology.

A great number of ships frequently lay idle in biofouling hotspots. Average global sea temperatures are warming meaning that biofouling risk within these areas is increasing year-on-year. A fouled hull is an issue for any ship operator as it directly impacts the fuel consumption of a ship due to increased drag. The different types of fouling can also present differing issues in addition to immediate fuel consumption impact. Some soft fouling may be 'washed off' when an idling ship once again becomes active at a certain speed. Soft fouling can also be removed by less impactful hull cleaning practices. Hard fouling, however, is a trickier guest to get rid of. Hard fouling, including barnacle growth, will not be removed when a vessel is travelling at speed. Also, the hull cleaning methods required to remove hard fouling can be more impactful to the coating than those effective for the removal of soft fouling.

This means that ship owners are placing great importance on selecting coating products that can cope with conditions in the 'red zones' in which their ships operate, where water temperature can be high and hard fouling can be problematic if a ship is at anchorage for three to four weeks, for example.

The issue of biofouling is also becoming an increasingly dominant issue on the agenda of some Asian shipyards, with newly launched vessels laying idle in warming waters, suffering the effects of intense fouling during the three to four months fitting out process. This accumulation of biofouling on the hull can impact both the newly applied coating and the ship performance of a newbuild leaving the yard. This means the shipyards are also pushing for antifouling solutions that ensure static performance of ships during outfitting.

Gothenburg-based I-Tech AB has thus far dedicated over a decade of research and development work to these current aforementioned issues. Its quest to find, develop and commercialize a fouling prevention technology alternative for hard fouling prevention commenced in the wake of the IMO decision to ban the application of tributyltin (TBT)-based paints on vessels as of 1 January 2003.

The resulting Selektope® story about I-Tech's biotech approach to fouling prevention is one that involves chemists,

*The entire hull of the Calypso is coated with Selektope®.*



## The Selektope® difference



Without  
Selektope®.



With  
Selektope®.



Coastal vessel: the Selektope patch is still clearly visible after one year.

marine biologists and engineers and a 'Eureka' moment which yielded an organic, non-metal compound named Selektope®; this agent is effective at 0.1% of an antifouling coating's overall constituency. This innovation milestone for the industry was subsequently followed by 15 years of trials, and exhaustive regulatory hurdles for the technology.

What the Swedish scientists discovered was a unique pharmacological mode of action that works to prevent barnacle larvae from settling on ship structures by inducing hyperactivity in the barnacle larvae. Selektope®'s fouling prevention mechanism works by temporarily stimulating the cyprid larvae octopamine receptor and activating swimming behaviour. The effects of this neurological scrambling are temporary, with the larvae returning to normal functional capacity shortly after encountering the Selektope® present in the ship's hull coating.

With an efficacy that requires just 0.1% of Selektope® in an antifouling coating's overall constituency, this technology offers the opportunity for coatings suppliers to use just a fraction of the active substance needed to achieve comparable performance if traditional copper-based biocides are used. In fact, Selektope® is flexible enough to boost copper-based formulations, but is also powerful enough to replace copper in copper-free formulations.

Due to the powerful effects demonstrated, this first-of-its-kind coatings technology rapidly caught the attention of coatings suppliers in the early stages of its research and development. To this date, the testing of Selektope®-containing formulations by coatings suppliers continues to accelerate at a rapid pace, with a multitude of commercial products being launched onto the market.

The all-important green light for global market deployment was signalled in 2015 when I-Tech received EC recognition for Selektope®, enabling it to be included in anti-fouling products sold throughout the EU as of 1 January 2016, in accordance with the terms of the EU Biocidal Products Regulation. This came in addition to the already secured approvals for the use of active agent in Japan, China and South Korea.

The first commercial, Selektope®-containing coating products for use on ocean going vessels (OGVs) were launched in the market in 2016. That same year, a 12-month trial of a tanker coated with copper-free, Selektope®-containing paint yielded fantastic performance results. This six-year 2010-built, 46,067dwt IMO II chemical and products tanker vessel *Calypso*, due to enter into its second year of active service since the Selektope®-containing hull coating was applied in November 2016, is still showing extremely low development rates of added resistance on the hull. Scandinavian ship owner, Laurin Maritime, applied the coating inclusive of I-Tech's bio-repellent technology during the ship's first five-year survey at the Singapore yard Sembcorp.

Another Scandinavian owner, Stena RoRo signed a contract to coat the hulls of four newbuild RoPax ferries with paint that incorporates Selektope®. The delivery of the newbuild Stena RoPax ferries is scheduled for 2019/2020. They will be built at the AVIC yard in Weihai, China.

"We are honoured that a pioneer of sustainability in commercial shipping such

as Stena RoRo has chosen a Selektope®-containing hull coating product for its newbuild programme. Their investment in a premium antifouling product that contains Selektope® will deliver strong antifouling performance with the additional benefit that their high-activity vessels will have the best protection from barnacle invasion," says Philip Chaabane, CEO I-Tech AB.

I-Tech has also celebrated success with the launching of brand new products into the market this year. The increasing diversification in the range of Selektope®-containing products available to ship owners suitable for different vessel requirements demonstrates the unrivalled versatility of the antifouling ingredient. It also demonstrates a growing commitment to the technology as demand from ship owners for antifouling coatings comprising Selektope® intensifies.

SEA GRANDPRIX 880HS PLUS is the third product Chugoku Marine Paints (CMP) has launched that contains Selektope®. It joins CMP's SEAFLO NEO CF Premium; and SEAFLO NEO-S PREMIUM Selektope® products.

The new antifouling coating is based on hydrolysing technology and can be applied

to deep sea-going vessels trading worldwide in-service periods for up to 90 months. Uniquely, CMP guarantees extended static performance of up to 45 days, thanks to the barnacle-repellent boost enabled by Selektope®-combating barnacle settlement on the ship's hull by temporarily stimulating the barnacle larvae's swimming behaviour.

To date, marine coating products containing Selektope® have been applied to over 150 vessels including many bulk carriers.

"As demand for Selektope® soars, the number of antifouling products that contain our unique bio-repellent ingredients is expanding. This ensures that ship owners and operators have a selection of products to choose from, and confirms the flexibility and compatibility of our product with a range of different antifouling ingredients," says Philip Chaabane, CEO I-Tech AB.

For Selektope®, the future is promising as an ingredient for marine coating that can enable superior static performance in addition to supporting the reduction of invasive species transfer and emissions by contributing to cleaner, more efficient hulls.



Philip  
Chaabane, CEO  
I-Tech AB.

## Port of Grenaa expands its bulk handling expertise

In close collaboration with its customers, the Port of Grenaa plays an active role within the bulk market.

The Port of Grenaa is very good at handling large bulk orders. However, that alone is not enough for the large commercial port right on the 'nose' of Jutland — right by the Kattegat' in the middle of Denmark.

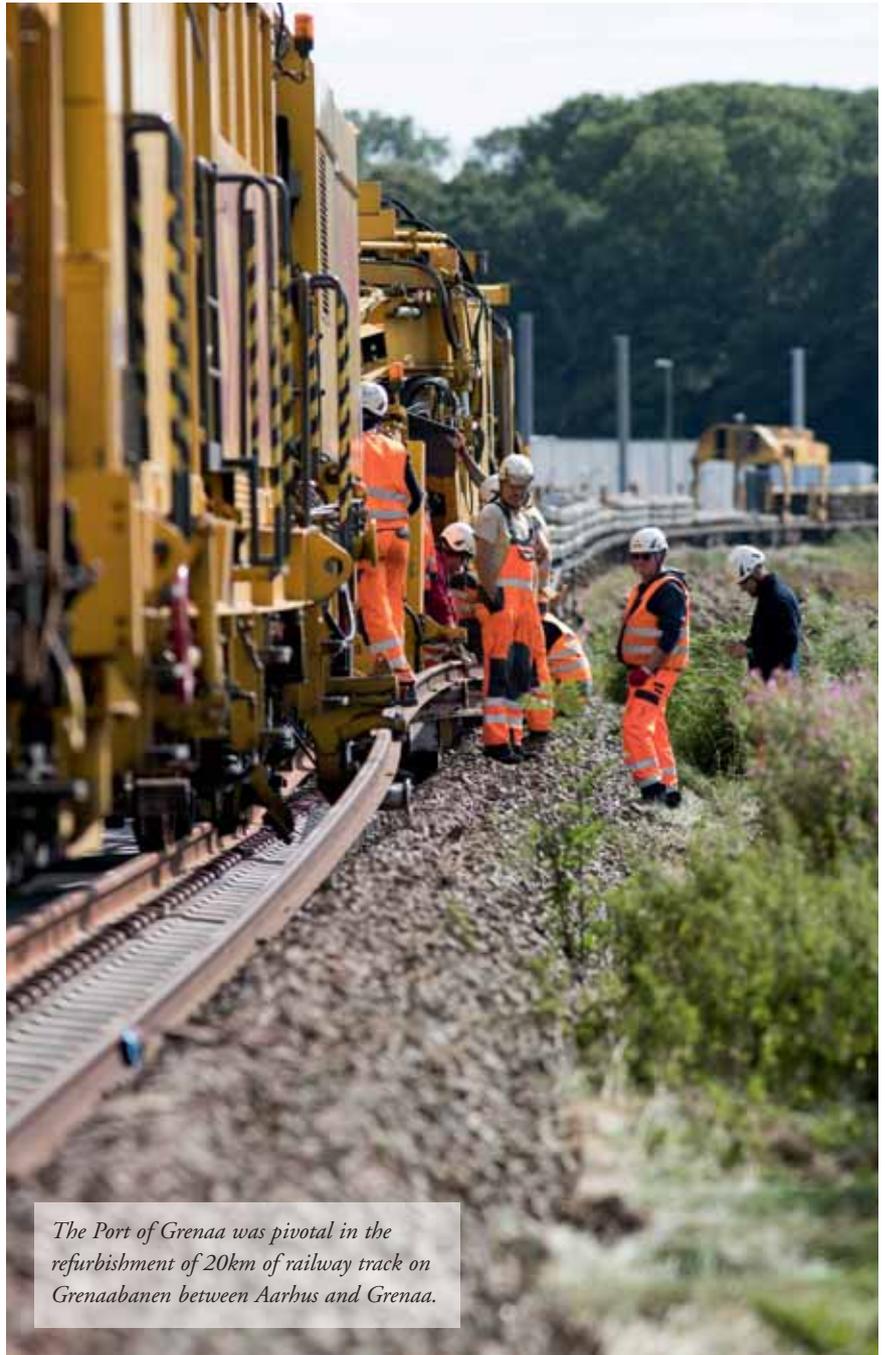
"Bulk cargo is always part of a bigger logistics task where many factors must come together to solve the job in an optimal way. For us here at Port of Grenaa, the most important thing is of course to get the actual cargo off the quay here in Grenaa — but we would like to play a bigger part in the overall job, whenever it seems natural," says Theis Gisselbæk, business developer at Port of Grenaa.

The Port of Grenaa enjoys a wide range of benefits as a commercial port. The most central deep water port in Denmark is placed beneficially close to international sailing routes in the Kattegat, and a water depth of up to 11 metres are just some of the most important benefits.

"Besides the natural benefits, we construct new ones all the time. We believe that it is important to constantly develop our expertise in collaboration between the port and our customers.

"Port of Grenaa is known for being very flexible. We are a small and very dedicated organization that can adapt and comply quickly to solve current jobs.

"Furthermore, we continuously invest in the facilities that are necessary if we want to be more than just a port that can receive and ship bulk cargo. We see Port of Grenaa as being an actively contributing collaborator for customers that need to solve a more complex logistics job," says Gisselbæk.



*The Port of Grenaa was pivotal in the refurbishment of 20km of railway track on Grenaabanen between Aarhus and Grenaa.*



*Handling granite.*

### BIG INVESTMENTS

Significant investments in equipment, warehouses, and large base areas around the port during the last few years have broadened the range of services that the Port of Grenaa can offer its customers in the bulk segment. Warehouses and large areas of land enable the Port of Grenaa to offer storage of cargo that might need to be redistributed over a period of time.

"We want to invest time and effort in

1. The Kattegat ("cat's throat" in Danish) is a 30,000km<sup>2</sup> sea area bounded by the Jutlandic peninsula in the west, the Danish straits islands of Denmark to the south and the provinces of Västergötland, Scania, Halland and Bohuslän in Sweden in the east



quality of the fertilizer product that is left over after gasification.

The biggest part by far of this specific biomass is imported from other countries, and for Bioman, sending the fairly big loads by sea is an obvious solution. The two tank yards at the Port of Grenaa increase Bioman's storage capacity by 32,000 tonnes spread across 18 tanks. From the port, the biomass is taken by lorry to a range of biogas plants. It is expected that 50,000 tonnes of biomass will come in yearly via

becoming even better within this field. That is why we are adding a learning process to the jobs we solve, in order to gather experience that can be used for jobs later on," says Gisselbæk. "This happens in close dialogue with our customers who appreciate that we, as a port, actively step in and relate to the overall transport job."

#### INCREASING ACTIVITY

The bulk segment is part of the Port of Grenaa's strategic plan for the development of the port's activities, and the port has started to reap the benefits of the investments that have been made.

During the summer, Port of Grenaa has been a pivotal element in the refurbishment of 20km of railway track on Grenaabanen between Aarhus and Grenaa.

The port in Grenaa has received approximately 30,000 tonnes of granite body to be put on the new tracks. The granite arrived in several orders by ship from Norway, and had to be distributed from the Port of Grenaa to the building sites that the contractor had built along the 20km-long stretch that was getting new tracks.

The Port of Grenaa arranged contact with a local carrier who was in charge of the distribution of the many tonnes of granite. The vehicles then brought back surplus soil from the track refurbishment

to Port of Grenaa that must stock 20,000 tonnes of soil for a possible later expansion of the port.

"The replacement of the tracks was performed to a very tight schedule with delivery in seven stages. For this, the flexibility of the port was important, as well as the carrier's local knowledge which was obviously of crucial importance for the logistics to all come together," says Gisselbæk.

#### BIOMASS CENTRE

The Port of Grenaa has also become newly active in the biomass market.

The company Bioman has bought two of the Port of Grenaa's tank yards and wants to use them for, among other things, the storage of biomass for Danish biogas plants in the future. The sale of the tank yards is a consequence of the Port of Grenaa's strategy for the coming years of development.

At the same time, Bioman will move its company headquarters to Grenaa where administration will also be housed in the future.

#### 'IT WILL GET EVEN BIGGER'

The biomass that comes in via the port in Grenaa is to be used as, among other things, an addition to the biogas production to boost the process and optimize the



*Theis Gisselbæk, business developer at Port of Grenaa.*

the quay in Port of Grenaa.

"In this case, the customer has also indicated that the choice of Grenaa is due to a mix of location and our great flexibility. This proves that with a dynamic focus on the bulk area, we are onto something that can grow even bigger," says Gisselbæk. He adds that Port of Grenaa in general sees more interesting requests regarding new bio products that fit in well with the type of cargo that is handled at Port of Grenaa otherwise.

*Bioman has bought two of the Port of Grenaa's tank yards and wants to use them for, among other things, the storage of biomass for Danish biogas plants in the future.*



## Port of Kalundborg expands and increases draught to handle largest bulkers



The Port of Kalundborg in Denmark is the country's biggest port for grain export. Bulk activities at the port are primarily handled by Kalundborg Bulk Terminal, owned by Schultz Shipping, which has warehouses in the port. The bulk terminal mainly handles grains, feedstuffs, wood pellets, and fertilizers.

At the moment, the Port of Kalundborg is investing in a large expansion of the port area. This month (October), work is beginning on the construction of a new 330,000m<sup>2</sup> port area — an addition to the existing port area of approximately 800,000m<sup>2</sup>. The new port area, which will be called the New West Port, will be ready

for operations in February 2019. In the new port area there will be a 500m-long quay, and the water depth will be 15 metres. The water depth of 15 metres is important, as the Port of Kalundborg is the only deep-water port at Zealand and only one out of three ports in Denmark with such a water depth.

Bulk handling will also be one of the main business areas in the New West Port. At the moment, dry cargo vessels can call the port at a quay, where the water depth is only 12 metres. This means that the biggest dry cargo vessels now calling at the port cannot be loaded to the maximum.

This will, however, change with the new

port area, with a water depth of 15 metres, and a quay length of 500 metres. This makes it possible for the port to accommodate even the largest dry cargo vessels, and they can be loaded to the maximum amount. This means that bulk will remain one of the port's most important business areas, and Kalundborg will keep its position as the biggest port for grain export in Denmark.

The Port of Kalundborg has had tenders regarding the construction of the New West Port. Tender A — won by NCC Industry A/S is for the work on land, and Tender B — won by Wasa Dredging Ltd — covers the dredging work. **DC**



## Bulk grain bagging: essential part of the supply chain

Packaging is an integral part of every supply chain — including the grain market — but finding the right producers of suitable products is not as straightforward as it may seem at first glance. Identifying reliable manufacturers in locations across the world, communicating with them effectively, arranging transport at both origin and destination and dealing with the logistics of import and export regulations are only some of the challenges. Interjute B.V. provides an ideal solution for firms which use polypropylene and polyethylene bags for distributing their bulk dry goods.

Known as ‘the Intelligent Bag Provider’, Interjute does not simply deliver bags to its customers. It manages the entire supply chain to ensure that clients receive appropriate packaging for their needs. Packaging may not have a sexy image, but it is essential in every supply chain.

Interjute specializes in managing the



whole process and ensuring that its clients

receive exactly what they need, when they need it. It is a family owned business led by the second generation — Ron Wessels is the CEO and owns the company. Interjute was founded in 1958 and, as its name suggests, originally supplied bags made from jute. Polypropylene and polyethylene bags were added to the portfolio in the early 1980s. Interjute currently has

multiple partnerships with manufacturers of (BO)PP woven bags, FFS and big bags (one- and four-loop) and container liners across the globe, as well as closer to home in Eastern Europe. All bags are manufactured in accordance with the specification the client requires.

The company's headquarters is located in Kapellebrug, the Netherlands, only 20 minutes away from the Port of Antwerp. At its premises, Interjute has 30,000m<sup>2</sup> of warehouse and a capacity of nine printing machines. All this combined make it a very competitive player in the world of PP woven bags for grain, but also for other dry bulk industries.

Moreover, Interjute has international sales offices in France, Germany, Romania as well as a subsidiary company in Spain, located in Cadiz. Interjute's added value is the service it provides, using its personal contacts and its experience in dealing with the local markets.

Interjute has vast experience in international trading. Within the company the staff speaks many languages, has the know how to deal with the producers and can deal with complex logistical issues. Recently, Interjute appointed Ron Segboer as its Chief Commercial Officer, to be even more focused on new sales and marketing initiatives. The company is aiming for continued expansion in the coming years and it definitely has its sights set on growth in the grain sector.



*Interjute's Netherlands headquarters is only 20 minutes from the Port of Antwerp in Belgium.*



# INDEX OF ADVERTISERS

Company	Page	Company	Page
Achenbach GmbH Metalltechnik	71	J & B Grabs b.v.	Inside Front Cover
Alex Stewart International Corporation Ltd	46	KRANUNION GmbH	72
Applied Conveyor Technology, Inc. DBA The ACT Group	62	Liebherr-Hydraulikbagger GmbH	67
B.V. BECO	106	Mack Manufacturing Inc	53
Beumer Group GmbH & Co KG	107	Marcor Stevedoring BV Rotterdam	30
BLUG Credeblug S.L.	36	Maritime Bulk Terminal Gdynia Ltd	10
BossTek	108	Maschinen und Mühlenbau Erhard Muhr GmbH	119
Buttimer Engineering	109	MegaDome® Buildings by Harnois	120
Carbo One Limited	15, Back Cover	Millard Maritime	28
Cimbria Unigrain A/S	55	Negrini Srl	121
Civettini Italo & c sas (CFS Handling)	7	ORTS GmbH Maschinenfabrik	124, 125
Coaltrans Conferences Ltd	68	PHB Weserhütte, S.A.	122
Coeclerici Logistics S.p.A.	Front Cover	PINTSCH BUBENZER GmbH	55
Conductix-Wampfler	73	RBL-REI France	70
Damen Shipyards Gorinchem	21	RULMECA HOLDING S.P.A.	128
DCL, Incorporated	112	SCHADE Lagertechnik (AUMUND Group)	53
Den Bakker Dustcrusting Technology b.v. (dbd global b.v.)	113	SIA "TTS" (Transportation Technology Systems)	8
Doppelmayr Transport Technology GmbH	58	Stemm Equipos Industriales, S.L.	3, Inside Back Cover
Dos Santos International, LLC	86	Telestack Limited	85
e-coal.com	4	Terex Deutschland GmbH	49
EMS-Tech Inc	75	The Wolfson Centre for Bulk Solids Handling Technology	57
Fednav Ltd	19	thyssenkrupp Industrial Solutions AG	132
Getriebebau NORD GmbH & Co. KG	6	TMPB – Poço Bispo Multipurpose Terminal	29
Güven Grab and Machine Ltd. Co	38, Coal Directory Covers	Van Aalst Bulk Handling BV	42
Hapman	116	Verstegen Grijpers BV	135
Igus GmbH	60	VIGAN	41



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www.guvengrab.com



*Guven Grabs manufactures a wide range of grabs. The company custom-designs grabs especially for new-generation bulkers. Seen here, Guven's grabs handling coal.*

**Guven Grab & Machine Ltd Co**  
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536.Sk. No:9  
Akse Koyu Cayirova  
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A leading manufacturer of material handling components for the agricultural and industrial sectors. We provide components for bucket elevators and conveyors, such as steel and plastic elevator buckets, elevator bolts, elevator belting, drop forged chains as well as electronic monitoring equipment, such as level monitors, misalignment switches, bearing temperature monitors, etc.

## A. FRIEDR FLENDER AG

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Cimbria is one of the world's leaders within handling and storage of grain & seed and other products. The business areas cover project engineering and process control - and development, production, sales and installation of equipment, special installations and complete turn key projects.

## ABB AB

Crane Systems  
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W: www.abb.com/cranes  
GPO for fully automatic unloading. Electrical drive and control systems for harbour cranes, including fully digital AC and DC powered drives.

## ABB EY ROLLERS LIMITED

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## ACHENBACH GMBH METALLTECHNIK



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W: www.achenbach-siegen.de  
Conveyor covers - Achenbach is manufacturing hoods made of metal (steel, aluminium, stainless) for covering standard or special belts. Hoods made of hard-PVC and fixings round up the Achenbach range.

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E: Info@AntiEmission.de  
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Fog cannon  
Fog mast  
Air nozzles for material flow enhancement in silos, bunkers, transfer points.  
Dust control for  
- bulk material handling and processing  
- lignite, hard coal & biomass power plants, waste processing, mining, quarries, construction & demolition sites, harbors  
- haul roads  
Engineering & Consultancy

## AE AUTOMATION (M) SDN BHD

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Taman Cheras Mas  
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World leader in steel cord belting technologies. Inventor of high angle Autostable Belt® and fully enclosed Square Belt®. Special elastic steel cords, with rubber covers, offer unique solutions to bulk handling problems, eg impact, ripping, high angle troughing, tracking, flexibility, elongation etc.

## AGRICO SALES, INC.

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New Orleans  
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70129  
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**Contact:** Mr Bob Rieck  
**Job Title:** Vice President - Sales  
T: + 1 504 436 9400  
E: brieck@agricosales.com  
W: www.agricosales.com  
Design and build turnkey projects for handling a wide range of bulk commodities. Specializes in the manufacture of shiploaders, conveyor systems and storage facilities.

## AJ EDMOND COMPANY

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## ALEX STEWART INTERNATIONAL CORPORATION LTD



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The Alex Stewart International network of companies provides inspection and delivers fast, reliable and accurate analytical services covering base metals, non ferrous ores and concentrates, minor and precious metals, ferro-alloys, recycled scrap metal, complex materials and plastics, fuels, agricultural commodities and also for the environment. Alex Stewart International's inspections include trustworthy supervision, weighing, and sampling services.

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V6B 5W3  
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## AMECO SA

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F-68720

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E: info@ameco.eu.com  
W: http://www.ameco.eu.com  
Founded in 1932, AMECO focuses on the advanced and robust quality design of bulk handling equipment including stackers, reclaimers, and shiploaders. Manufacturing in Europe, we have extensive references on every continent in the cement, commodity food, fertilizer, mining, power generation and pulp and paper industry - AMECO The Power of Know-How.

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Kemayoran  
Jakarta  
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PT. Anindya Wiraputra Konsult (Anindya) is an Indonesian independent surveying company specializing in Coal Commodity with branches in Jambi, Bengkulu, South Sumatra, South Kalimantan (Banjarbaru and Batulicin), East Kalimantan, North Kalimantan, Central Kalimantan and Jakarta. Our Head Office is located in Bandung, West Java. Anindya is supported by experts in Coal Sampling, Lab Analysis, Marine Survey and Geology. We are confident to deliver superb services to our clients.

## ANVIL ATTACHMENTS

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**W:** www.AnvilAttachments.com  
*Manufacturer of grabs, grapples and clamshell buckets for cable, hydraulic and electro-hydraulic operation. Models for ships-gear, gantry, crawler cranes, and hydraulic equilibrium cranes. Brands include Pro-line, Hawco, Anvil, Owen, Yaun, Williams & Drott. New, used, rebuilds, repairs, parts and service since 1905.*

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14644 El Molino Street  
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 92335-6205  
 USA

**Contact:** Mr Edward Sunseri  
**T:** + 1 909 350 4703  
**F:** + 1 909 350 4982  
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*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.*

**ARLONA ENGINEERING**  
 PO Box 41125  
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*Established in 1975, Arlona Engineering is the largest manufacturer and supplier of stevedoring equipment in South Africa. Products are designed and manufactured to suit the arduous conditions experienced on the African continent.*

**AS RIKON**

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 USA  
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**F:** + 1 610 778 8991  
**E:** info@asgco.com  
**W:** http://www.asgco.com/  
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**ATLAS MANUFACTURING Co. INC**

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**W:** www.atlasmanufacturing.net  
*Custom designed one, two, three, four rope and hydraulic Clamshells / Grapples and Continuous Unloader Buckets. Best seller Atlas 4-rope clamshell buckets for large stevedoring and mobile harbor cranes. These buckets are built to maximize production and equipment service life.*

**AUGUST PENKERT GMBH**

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**AUMUND FOERDERTECHNIK (AUMUND Group)**



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*Planning, consulting, engineering, manufacture and supply of bulk materials handling equipment such as Bucket Elevators, Pan and Chain Conveyors, Samson® Feeders, silo discharge machines (Rotary Discharge Machine, Silo Discharge CENTREX®). Services also include field assembly, site supervision, commissioning, after sales service, refurbishment and upgrading of existing equipment.*

**AURECON**

PT Aurecon Indonesia  
 Alamanda Towers 24th Floor, Unit C-D  
 Jl.T.B. Simatupang Kav. 23-24,  
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*Aurecon provides engineering, management and specialist technical services for support infrastructure solutions for international and local coal and mineral clients in full or partial 'Pit to Port' projects.*

**B.V. BECO**

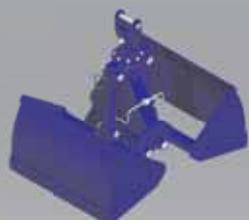


Industrieterrein "De Biezen"  
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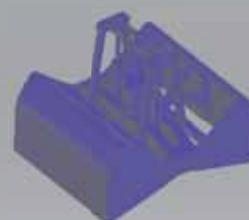
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## BABCOCK & WILCOX LOIBL

### GMBH

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## BAUER GEAR MOTOR

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## BEDESCHI MID-WEST CONVEYOR

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Products include motorized trippers, telescopic chutes, rotary plow feeders, barge loading and unloading systems, pipe conveyors, air supported conveyors, Silo storage and reclaiming systems. Materials handling systems are furnished for terminals, power plants, cement plants, fertilizer plants, steel mills and mines.

## BEDESCHI SpA

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## BEKAERT NV

Product Group Steelcord  
Bekaert Street 2  
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**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.

## BENDEZU PORT EQUIPMENT GMBH

C/Camino Padre Cura, 15  
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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

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Manufacturer of equilibrated cranes, selling to the international market.

## BEUMER GROUP GmbH & Co KG



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**F:** + 49 2521 24 280  
**E:** beumer@beumergroup.com  
**W:** www.beumergroup.com

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2913 LV  
The Netherlands

**Contact:** Ms Martina Hermans  
**T:** + 31 180 317838  
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**W:** www.bgsholland.nl  
Dust free loading chutes for shiploaders, truck and railcar loaders.

## BINDER + Co AG

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A-8200  
Austria  
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## BLUE WATER MISTING

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South Australia  
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**E:** sales@bluewatermisting.com  
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## BLUG CREDEBLUG S.L.



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**W:** www.blug.es  
*BLUG has over 40 years experience, more than 5,000 grabs delivered worldwide and 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)

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**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.

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**E:** cylinders@boschrexroth.nl  
**W:** www.boschrexroth.nl  
*Has a worldwide responsibility for turnkey 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  
Mellansel  
890 42  
Sweden

**Contact:** Mr Gunnar Ivarsson  
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Manager  
**T:** + 46 660 87000  
**F:** + 46 660 87160  
**E:** gunnar.ivarsson@boschrexroth.se  
**W:** www.boschrexroth.com

## BOSSTEK



1607 W. Chanute Rd.  
Peoria  
IL  
61615  
USA  
**Contact:** Mr Mike Lewis  
**Job Title:** Sales Manager  
**T:** + 1 309 693 8600  
**F:** + 1 309 693 8605  
**E:** info@bosstek.com  
**W:** http://bosstek.com  
*The DustBoss line of portable dust suppression equipment uses atomized mist technology, a more effective and less wasteful alternative to traditional methods such as hoses and sprinklers. BossTek also offers OdorBoss products for odour control.*

## BOYNE AREA MANUFACTURING (BAM)

1 Altair Drive  
Boyne City  
MI 49712  
USA  
**Contact:** Mr Michael Ryan  
**Job Title:** Director of Sales &  
Marketing  
**T:** + 1 231 459 4242  
**F:** + 1 231 459 4243  
**E:** jiaursen@boyneara-mfg.com  
**W:** www.boyneara-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 fillers.*

## BRELKO CONVEYOR PRODUCTS

PO Box 62392  
Marshalltown  
Johannesburg  
Gauteng 2107  
South Africa  
**Contact:** Mr Peter Ellis  
**Job Title:** Sales & Marketing  
Director  
**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  
Melbourne  
Derbyshire DE73 8HJ  
UK  
**Contact:** Mr Gary Wain  
**Job Title:** General Manager  
**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

Berliner Ring 89  
Bensheim  
64625  
Germany  
**Contact:** Mr John Hanson  
**T:** + 49 6251 690 396  
**F:** + 49 6251 690 397  
**E:** hanson.j@bridgestone-industrial.de  
**W:** www.bridgestoneindustrial.com

## BRIDON INTERNATIONAL LTD

Balby Carr Bank  
Doncaster  
South Yorkshire DN4 5JQ  
UK  
**Contact:** Ms Jenny Ferguson  
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**T:** + 44 1302 565100  
**F:** + 44 1302 382 263  
**E:** fergusonj@bridon.com  
**W:** www.bridon.com

## BRUKS AB

Sjögatan 1L  
Örnköldsvik

Sweden  
SE-89160  
**Contact:** Mr Pontus Westrup  
**E:** pwp@bruks.com  
**W:** http://www.bruks.com/

## BRUKS ROCKWOOD INCORPORATION

5975 Shiloh Road  
Suite 109  
Alpharetta  
GA  
30005  
USA  
**Contact:** Mr Ken Upchurch  
**Job Title:** Vice President of Sales  
& Marketing  
**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/Dragnet/Log Skooop/Misc. buckets for sale, rent or lease. Supplying Material Handling Service Companies Worldwide around the clock, 24/7!*

## BULK CARGO HANDLING BVBA

Nijverheidskaai 28  
Bus 9  
Brussels  
1080  
Belgium  
**Contact:** Mr Nicola Samyn  
**Job Title:** CEO  
**T:** + 32 477 44 98 81  
**E:** bch.belgium@gmail.com

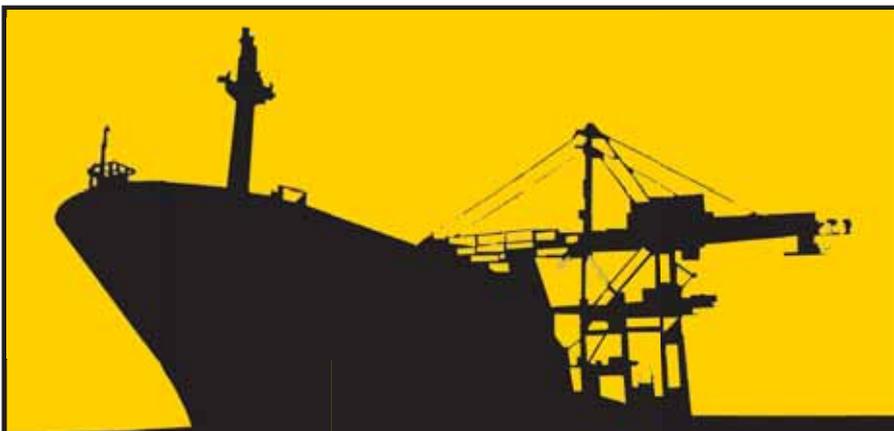
## BULK.ID

Oude Kasseei 16  
Waregem  
B-8791  
Belgium  
**Contact:** Mr Bart Vanpoucke  
**T:** + 32 56 71 53 85  
**F:** + 32 56 75 62 13  
**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*

## BUTTIMER ENGINEERING



Carriage Industrial Estate  
Cahir  
Co. Tipperary  
Ireland  
**Contact:** Mr Fergal Buttimer  
**Job Title:** Director  
**T:** + 353 52 744 1377  
**F:** + 353 52 744 1087  
**E:** info@buttimer.ie  
**W:** http://buttimer.com  
*Buttimer Bulk Engineering are experts in the mechanical handling of dry bulk materials -*



# Control Dust From Hold To Yard

A single dust control solution that moves easily  
between terminals and storage yards.

- Broad coverage
- Targeted suppression
- Onboard generator optional

## DustBoss® Reaches Across the Beam



**bosstek.com**  
**309.216.6482**



# DOCKSOLID BESPOKE BULK PORT EQUIPMENT

**FULL RANGE OF HOPPERS AVAILABLE FROM  
STANDARD TO HIGH SPECIFICATION UNITS**

**DOCKSOLID** Towed, Rail Mounted, Shore Power or Self Driven units.

**DOCKSOLID** Patented Steering and Suspension Systems for High Mobility and to accommodate uneven quay walls.

**DOCKSOLID** State-of-the-art Dust Suppression Systems.

**DOCKSOLID** Built for Reliability and Longevity: Structures Designed for Dynamic and Static Loads.

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.

### C SPENCER LTD

One Humber Quays  
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Hull  
HU1 2BN  
UK  
**Contact:** Mr Ian Atkinson  
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T: +44 113 815 0015  
E: engineering@spencerltd.co.uk  
W: thespencergroup.co.uk

### C. CHRISTOPHEL GMBH

Taschenmacherstr. 31-33  
Lübeck  
SH  
23556  
Germany  
**Contact:** Mr Matthias Dammer  
**Job Title:** Sales  
T: +49 43 66 88 48 20  
F: +49 43 66 88 88 75  
E: mail@christophel.com  
W: www.christophel.com

### CABLE ARM INC

3452 W Jefferson Avenue  
Trenton  
Michigan  
48183 2939  
USA  
**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 BILANCIAL GROUP

Parque Industrial de Sobreposta  
Apartado 2012  
Braga  
Braga  
4701-952  
Portugal  
**Contact:** Mr Nuno Matos  
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T: +351 253 603 480  
F: +351 253 603 485  
E: info@cachapuz.com  
W: www.cachapuz.com

### CALIM GRAB INDUSTRY

Piri Reis Cad  
Çınar San.  
Sitesi No:46 Maltepe  
Istanbul  
81540  
Turkey  
**Contact:** Mr Murat Calim  
T: +90 533 226 4923  
F: +90 216 399 79 71  
E: info@calimkepce.com  
W: 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

2820 W Directors Row  
Salt Lake City  
Utah  
84104  
USA  
**Contact:** Mr Dave Hansen  
**Job Title:** Vice President  
T: +1 801 972 5511 ext 205  
F: +1 801 972 5522  
E: info@cambelt.com  
W: www.cambelt.com  
Cambelt International has been manufacturing dry bulk materials handling systems for the past fifty (50) years, specializing in steep-incline belt conveyors, utilizing its unique one-piece, fully-molded corrugated sidewall, cleated conveyor belting. Typical angles from 25° to 90° (vertical).

### CAPOTEX

Colombia 1  
Majadahonda  
Madrid  
28220  
Spain  
**Contact:** Ms Eva Barrilero  
T: +34 91 634 71 92  
F: +34 91 636 21 15  
E: barrilero@capotex.com  
W: www.capotex.com

### CARBONSER, S. A. DE C. V.

Guillermo Gonzalez Camarena  
No. 1200 Piso 7  
Centro Ciudad Santa Fe  
DF  
01210  
Mexico  
**Contact:** Ing. Thomas Cortes Petersen  
**Job Title:** Director  
T: +52 55 5246 7360  
F: +52 55 5246 7391  
E: tcortes@techtint.com.mx  
W: www.techtint.com.mx  
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  
Enköping  
SE-745 25  
Sweden  
**Contact:** Mr Johan Ericson  
T: +46 171 232 00  
F: +46 171 232 99  
E: susales.enk@cargotec.com  
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

Van Polanenweg 2  
Krimpen aan de IJssel  
The Netherlands  
2921 LT  
**Contact:** Mr Cor de Kwant  
T: +31 180 440 720  
E: cdk@carlssengroup.com  
W: www.carlssengroup.com

### CATERPILLAR (UK) LTD.

Peckleton Lane  
Leicester

LE9 9JT  
UK

**Contact:** Ms Francine Shore  
**Job Title:** Trade Press Relations Specialist  
T: +44 1456 826651  
E: Shore\_Francine\_M@cat.com

### CATERPILLAR BELGIUM

Ave des Etats Unis  
Charleroi  
B6041  
Belgium  
**Contact:** Mr Philippe Michaux  
**Job Title:** Marketing  
F: +32 71 25 29 56  
E: michaux\_philippe@cat.com

### CATERPILLAR INC

100 NE Adams Street  
Peoria  
IL  
616-6335  
USA  
**Contact:** Mrs Sharon Holling  
**Job Title:** PR  
T: +1 309 675 8995  
F: +1 309 675 4757  
E: Holling\_Sharon\_L@Cat.com  
W: www.cat.com

Offers five models of wheeled material handlers and six models of tracked material handlers. The diesel powered, hydraulic machines feature efficient Caterpillar engines, powerful hydraulics, fast cycle times and great mobility and versatility. Capacities range from a few tons to more than 20 tons.

### CATERPILLAR SARL

Route de Frontenex 76  
Geneva  
1207  
Switzerland  
**Contact:** Mr Nicolas Gomez  
**Job Title:** Segment Specialist  
T: +41 22 849 4085  
F: +41 22 849 4986  
E: gomez\_nicolas@cat.com  
W: www.cat.com  
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

Via S. Balestra 27  
Lugano  
CH-6900  
Switzerland  
**Contact:** Mr Lorene Grandier  
**Job Title:** Marcom Manager  
T: +41 91 911 4010  
F: +41 91 922 54 00  
E: Lorene.grandier@cavotec.com  
W: www.cavotec.com  
**Other equipment:** Electrical Equipment.  
Cavotec is a leading engineering group that designs and manufactures automated connection and electrification systems for ports, airports and industrial applications worldwide. Our innovative engineering ensures safe, efficient and sustainable operations. To know more, visit: Cavotec.com

### CDM SYSTEMS, INC

6002 East N Avenue  
Kalamazoo  
MI  
49048  
USA  
**Contact:** Mr Andrew Parker  
T: +1 763 428 9700  
F: +1 763 428 9701  
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.

### CHANGSHA KAIYAN INSTRUMENTS CO. LTD

172 Juyuan Road  
Changsha Economic & Technological Development Zone  
Changsha  
410100  
China  
**Contact:** Ms Susan Wang  
**Job Title:** Overseas Director  
T: +86 731 4012074 / +86-731-84021617  
F: +86 731 4012074  
E: susanky@chs5e.com  
W: www.kcic.net

### CHIA ESPIRALES.ES

Poligono Industrial El Sotillo S/N  
La Puebla de Cazalla  
Seville  
41540  
Spain  
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T: +34 629 340 472 / +34 695 402 000  
E: info@espirales.es  
W: http://www.espirales.es/eng/

### CHINA SONANGOL INTERNATIONAL (S) PTE LTD

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Suntec Tower 2  
Singapore  
038989  
Singapore  
**Contact:** Mr Eugene Tan  
T: +65 6808 1880  
F: +65 6808 1881  
E: sg@chinasonangol.com  
W: www.chinasonangol.com

### CHL EQUIPMENT LTD (INCORP. VERSTEGEN GRABS UK)

24 Shilhill Road  
Solihull  
West Midlands  
B90 3HD  
UK  
**Contact:** Mr John Hinder  
**Job Title:** General Manager  
T: +44 121 733 8100  
F: +44 121 733 2796  
E: sales@chlequipment.com  
W: www.chlequipment.com

### CIMBRIA UNIGRAIN A/S



Praestjorden 6  
Thisted  
DK- 7700  
Denmark  
**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.

### CINTASA S.A.

Ctra. N-232 - Km. 252a Utebo  
Zaragoza  
50180  
Spain  
**Contact:** Mr Jamie Simon  
**Job Title:** Sales Manager  
T: +34 976 770 656  
E: cintasa@cintasa.com  
W: http://www.cintasa.com

### CITA LOGISTICS LLC

Suite 708/1 Newland Street  
Bondi Junction

Sydney  
NSW  
2022

Australia

**Contact:** Ms Julie Forster  
**Job Title:** Agency Manager  
T: +61 289 646 250  
E: cita-aust@citalogistics.com  
W: www.citalogistics.com  
CITA Logistics LLC provides a range of bulk materials services in USA and Australia: sourcing, logistics management including laytime calculations, Shipping Agency, sampling and analysis.

### CITA LOGISTICS LLC

3 Commercial Place Suite 150  
Norfolk  
Virginia  
23510  
USA

**Contact:** Mr Cedric Daenens  
**Job Title:** Logistics Manager  
T: +1 757 623 6900  
F: +1 757 623 6911  
E: cita@citalogistics.com  
CITA offers under one umbrella: Bulk Logistics services management including cargo loading and vessel inspection, solid fuels sampling and analysis, Freight forwarding, full shipping agency in the USA (Hampton Roads, Baltimore and Mobile) as well as husbandry and protective agency services.

### GIVETTINI ITALO & C SAS (CFS HANDLING)



Via Golgi, 7  
Calvisano  
BS  
25012  
Italy  
**Contact:** Mr Italo Civettini  
**Job Title:** Owner  
T: +39 340 135 8822  
F: +39 030 207 2026  
E: civettini@cfshandling.it  
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.

### CLAUDIUS PETERS TECHNOLOGIES S.A.S

34 Rue de Suisse  
BP 269  
Illzach  
Cedex  
F-68316  
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**Contact:** Mr Jean Christophe Holfert  
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T: +33 389 31 33 19  
F: +33 389 61 95 25  
E: technologiessa@claudiuspeters.com  
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 Dukeway  
Teesside Industrial Estate  
Thornaby  
Stockton on Tees  
TS17 9LT  
UK  
**Contact:** Mr Ian Barnard

**Job Title:** Managing Director  
T: +44 1642 753260  
F: +44 1642 753270  
E: enquiries@clevelandcascades.co.uk  
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

58 Mounts Bay Road  
Perth  
Western Australia  
6000  
Australia  
**Contact:** Mr Max Bergomi  
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T: +61 8 9281 9281  
F: +61 8 9281 9943  
E: clough@clough.com.au  
W: 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.

19th Floor, Building 4  
Interwest Business Center  
NO.9 Shouti South Road  
Beijing  
100044  
China  
**Contact:** Mr Wang Lin  
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F: +86 10 68796029  
E: wanglin@cnbmie.com  
W: www.cnbmengineering.com

### CNK INTERNATIONAL LIMITED

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E: sales@cnkcorporation.com  
W: www.cnkcorporation.com

### GOAL & MINERAL TECHNOLOGIES (SABS)

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Pretoria  
Gauteng  
0001  
South Africa  
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### COBRA EUROPE SA

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BP 40081  
Luxeuil les Bains Cedex  
70300  
France  
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**Job Title:** President  
T: +33 671 58 72 56  
F: +33 384 40 44 92  
E: emphone@cobra-cs.com  
W: www.cobra-cs.com  
The COBRA group is specialized in the manufacturing and distribution of conveyor components for the

material handling industry, COBRA group combines five businesses: Conveyor belts (Depreux, Transco, Indj), Components for conveyor (Go Smart) and Vulcanising presses (Mossier). Headquartered in France with the following sales subsidiaries: Russia and Central Asia (Kazakhstan, Ouzbekistan, Tajikistan): COBRA EURASIA Tel: 73 84 25 85 598, Email: cobraeurasia@bk.ru North and Central America: COBRA AMERICA Tel: 1423 968 9700, Email: bambi@cobraamerica.com Australia & New Zealand: COBRA SOUTH PACIFIC Tel: +61 2 4722 5633, Email: info@cobrasp.com.au

## COECLERICI LOGISTICS S.P.A.



Piazza A. Diaz, 7  
Milano  
20123  
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**Contact:** Captain Giordano Scotto d'Aniello

**Job Title:** Head of Commercial Department  
**T:** + 39 02 6246 9453  
**F:** + 39 02 6246 9444  
**E:** gscotto@coeclerici.com  
**W:** www.coeclerici.com  
**Additional equipment:** Offshore transloading operations One of the best known and most reputed companies in the field of offshore transloading operations. This achievement is based on the dedication and commitment of the company towards its clients as well as being an integral part of the production chain with a view to long term relationships.

## COLES ASSOCIATES

PO Box 5096  
Dalkeith  
Western Australia  
6009  
Australia

**Contact:** Mr Richard Coles  
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**T:** + 61 8 9389 8484  
**F:** + 61 8 9386 5700  
**E:** rcoles@colesassociates.com.au  
**W:** www.shiploader.com.au  
Specialising in acquisition, divestment and relocation and of pre-owned mining and infrastructure equipment worldwide.

## COMERCIAL TAURO S.A.

Merced 380 Of. 71  
Santiago  
Metropolitana  
8320310  
Chile

**Contact:** Mr Matias Leyton  
**Job Title:** General Manager  
**T:** + 56 2 23621177  
**F:** + 56 2 23621177  
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**W:** www.vibrafloor-latam.com

## CONDUCTIX - WAMPLER AUSTRALIA

14 England St  
Dandenong  
VIC  
3175  
Australia

**Contact:** Mr Mark Howlett  
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**T:** + 61 3 9706 8844  
**F:** + 61 3 9794 9298  
**E:** sales-australia@conductix.com  
**W:** www.conductix.com  
Conductix-Wampfler is a manufacturer and supplier of Power and Data Transfer equipment including conductor bar, festoon, cable and hose reels, Kabelschlepp cable chain and flexible cable, slip ring assemblies, radio controls, Kiepe conveyor belt monitoring equipment, UEE high voltage

connectors and buffers.

## CONDUCTIX-WAMPLER



Rheinstrasse 27 + 33  
Weil am Rhein  
79576  
Germany

**Contact:**  
**T:** + 49 7621 662 0  
**F:** + 49 7621 662 144  
**E:** info.de@conductix.com  
**W:** www.conductix.com  
Conductix-Wampfler's core competency is in the development, production, consulting, and installation of tailor made, engineered solutions like festoon systems, conductor rails, cable chains, slip ring assemblies or spring and motorized cable reels that provide energy supply and data transmission for moving machinery.  
**Other equipment/services:** Energy & Data Transmission Systems

## CONDUCTIX-WAMPLER AMERICAS

10102 F Street  
Omaha  
Nebraska  
USA  
NE 68127

**Contact:** Mr Mark Zuroske  
**Job Title:** Market Development Manager, Americas  
**T:** + 1 402 952 9325  
**F:** + 1 402 339 9627  
**E:** mark.zuroske@conductix.com  
**W:** www.conductix.us  
Leading global supplier of motorized cable reels, cable festoon systems, energy chains, conductor bar, and slip rings to the bulk materials handling and mining industries. We specialize in reliable, customized electrification systems for the most demanding applications. ISO9001:2008 certified.

## CONTINENTAL CONSTRUCTION (MEMPHIS)

5646 Shelby Oaks Drive  
Memphis  
Tennessee  
38134  
USA

**Contact:** Mr Brian Morphis  
**Job Title:** Marketing  
**T:** + 1 901 382 4070  
**F:** + 1 901 388 2534  
**E:** mail@continentalconst.com  
**W:** www.continentalconst.com  
Continental Construction Company, Inc. is a general contractor specializing in slip form concrete construction, pile driving, structural steel erection, millwright work, marine construction, heavy concrete foundations, industrial buildings, and material handling systems.

## CONTINENTAL CONVEYOR & EQUIPMENT CO INC

PO Box 400  
438 Industrial Drive  
Winfield  
Alabama  
35594  
USA

**Contact:** Lou Boltik  
**Job Title:** Director Marketing & Communications  
**T:** + 1 205 487 6492  
**F:** + 1 205 487 4233  
**E:** info@continentalconveyor.com  
**W:** www.continentalconveyor.com  
The company's High Angle Conveyor (HAC) system employs standard conveyor components and belts to utilise a simple but unique 'sandwich belt' approach to steep and even vertical conveyor



Coeclerici's Bulk Borneo operating in Indonesia.

elevations.

## CONTINENTAL MATADOR RUBBER, S.R.O.

Terezie Vansovej 1054  
Puchov  
020 01  
Slovakia

**Contact:** Mr Pavol Martinko  
**T:** + 421 42 461 3365  
**F:** + 421 42 461 3365  
**E:** pavol.martinko@matador.sk  
**W:** www.matador.sk  
One of the biggest companies in the chemical and rubber industry in the Slovak Republic. Up to 85% of its production of tyres and conveyor belts is exported. Producer and supplier of textile and steel cord conveyor belts for the mining and construction industries worldwide.

## CONTITECH TRANSPORTBANDSYSTEME GmbH

Breslauer Strasse 14  
Nörtheim  
D-37154  
Germany

**Contact:** Ms Marion Braun  
**Job Title:** Assistant to General Manager  
**T:** + 49 5551 702 207  
**F:** + 49 5551 702 504  
**E:** transportbandysteme@contitech.de  
**W:** www.contitech.de/conveyorbelts  
ContiTech Conveyor Belt Group is a leading development partner, manufacturer and system supplier of steel-cable and textile-ply conveyor belts, service materials and special products. In addition, ContiTech provides a worldwide installation and maintenance service.

## CONTROL SYSTEMS TECHNOLOGY PTY LTD

47 Fitzpatrick Street  
Revesby  
NSW  
2212  
Australia

**Contact:** Mr Leonard Ian Burrell  
**T:** + 612 8708 0200  
**F:** + 612 8708 0280  
**E:** lburrell@controlsystems.com.au  
**W:** www.controlsystems.com.au  
CST design and manufacturer high accuracy belt scale

systems designed to provide the customers specified accuracy "in conveyor". CST say "Different Scales for Different Conveyors to achieve the Same Accuracy". Since 1984, CST has remained committed to high integrity, shunning short term commercial game for long term customer satisfaction.

## CONVEYOR DYNAMICS, INC.

3633 Alderwood Avenue  
Bellingham  
Washington  
98225  
USA

**Contact:** Mr Andrew Jennings  
**Job Title:** President  
**T:** + 1 360 671 2200  
**F:** + 1 360 671 8450  
**E:** cdi@conveyor-dynamics.com  
**W:** http://conveyor-dynamics.com/  
CDI designs the longest, strongest, and most advanced belt conveyor systems in the world. Last year we commissioned the world's longest belt conveyor: a 27km conveyor in South Africa. We specialize in detailed mechanical design, software development, and control system.

## COTECNA INSPECTION SA

Calle 103 No.14A-43  
Oficina 20  
Edificio Gemedco  
Santafe  
Bogota  
Colombia

**Contact:** Mr Alfredo Garcia  
**Job Title:** VP Area manager  
**T:** + 57 1 7427655  
**F:** + 57 1 7550100  
**E:** cotecna.colombia@cotecna.com.co  
**W:** www.cotecna.com/

## CPS PROJECTS (PTY) LTD

PO Box 47261  
Greyville  
Durban  
KZN  
4023  
South Africa

**Contact:** Mr Banzi Majola  
**Job Title:** Managing Director  
**T:** + 27 31 466 4396  
**F:** + 27 31 466 4399  
**E:** banzi@cpsprojects.co.za

Port related services offered by CPS Projects as ff:

- Maintenance Contracts (including labour supply) \_x000D\_
- Electrical and automation services \_x000D\_
- Structural repairs, equipment overhauls and upgrades \_x000D\_
- Ad-hoc repairs (accident damage and component failure) \_x000D\_
- Supply of Spare Parts \_x000D\_
- Erection and Commissioning of new equipment

## CRANES MACHINERY Co., Ltd(CMC)

CMI China Office  
No.8-20 Shunyuan Road  
Xinchen Industrial Park  
Xuejia  
Changzhou  
Jiangsu  
China

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**T:** + 86 519 8516 3887  
**F:** + 86 519 8188 6887  
**E:** info@craneschina.cn  
**W:** www.craneschina.cn

## CST COVERS

498 N Loop 336 E  
Conroe  
Texas  
77301  
USA

**Contact:** Mrs Kimberly Mathis  
**Job Title:** Global Marketing Director  
**T:** + 1 936 539 1747  
**F:** + 1 936 539 5355  
**E:** kmathis@cstindustries.com  
**W:** www.cstcovers.com  
Founded in 1964 the company designs, manufactures and erects architectural and environmental enclosures. These are primarily clear-span domes and related space frames fabricated mostly from aluminium. Structures are used for covering tankage and bulk storage facilities of all types and shapes.

## CST STORAGE

903 E 104th Street, Suite 900  
Kansas City  
MO  
64131  
USA

**Contact:** Mr David Wheat  
**Job Title:** Director  
**T:** + 1 913 621 3700

**F:** + 1 913 621 2145  
**E:** sales@cst-storage.com  
**W:** www.cstindustries.com  
Formerly Columbian TecTank, the world's largest manufacturer of factory-coated bolted and welded tanks for dry bulk storage. Flat-bottomed tanks and hopper bottom silos with capacities up to 13,200 cubic meters. ISO Certified.

## CWA ENGINEERS Inc.

#380 - 2925 Virtual Way  
Vancouver  
BC  
V5M 4X5  
Canada

**Contact:** Ms Nadine Clark  
**Job Title:** Marketing & Proposal Coordinator  
**T:** + 1 604 637 2275  
**F:** + 1 604 637 2276  
**E:** nadine.clark@cwaengineers.com  
**W:** www.cwaengineers.com

CWA is a multidisciplinary EPCM firm that provides professional services including planning, engineering, procurement, construction management, and maintenance and operations support to industry-leading clients in the bulk materials handling, mining and mineral processing, and ports and marine terminals sectors.

## DALIAN HUARUI HEAVY INDUSTRY INTERNATIONAL CO. LTD

No 169 Bayi Road  
Xigang District  
Dalian  
Liaoning  
116013  
China

**Contact:** Mr Wang Chang  
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**E:** wangchang@dhidcw.com  
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DUST CONTROL AND LOADING SYSTEMS, INC.

[WWW.DCLINC.COM](http://WWW.DCLINC.COM)

# LOAD WITH A LEADER

## DCL, INCORPORATED



08660 Ance Road  
Charlevoix  
MI  
49720  
USA  
**Contact:** Mr Kyle Smith  
T: + 1 231 547 5600 Ext 3124  
F: + 1 231 547 3343  
E: sales@dclinc.com  
W: www.dclinc.com  
Provides full dust control loading systems and partial components to the bulk material handling industry and designs custom equipment. A complete Research/Development team is located on site. Single source manufacturing from ship loading systems to valves and dust collectors can be provided.

## DE REGT CONVEYOR SYSTEMS

Ijzendijkseweg 5  
Biervliet  
Zeeland  
4521 GX  
The Netherlands  
**Contact:** Mr Peter De Regt  
**Job Title:** Director  
T: + 31 115 481238  
F: + 31 115 481234  
E: peter@deregt.com  
W: www.deregt.com  
De Regt is a company specialized in developing, building and installing conveyor systems and structures needed to achieve a partial or total project.

## DEMARCO INDUSTRIAL VACUUM CORPORATION

PO Box 1138  
Crystal Lake

IL  
60039-1138  
USA  
**Contact:** Mr Thomas DeMarco  
**Job Title:** President  
T: + 1 815 344 2222  
F: + 1 815 344 2223  
E: Sales@DeMarcoVacuums.com  
W: www.DeMarcoVacuums.com  
Manufactures a complete line of heavy duty DEMARCO Industrial Vacuum Systems and for all flowable materials, wet or dry, etc. Units are available in portable, stationary, towable, central turnkey installed systems, canister vacuums, and custom engineered systems.

## DEMCO TECH ENGINEERING

Modderhouse  
Moddercrest Office Park  
1 High Street  
Modderfontein  
Gauteng  
1645  
South Africa  
**Contact:** Mr Paul van de Vyver  
**Job Title:** General Manager  
T: + 27 11 608 4355  
F: + 27 11 608 4251  
E: ipaul@demcotech.com  
W: www.demcotech.com

## DEN BAKKER DUSTCRUSTING TECHNOLOGY B.V. (DBD GLOBAL B.V.)

  
Christiaan Huygensweg 2  
Hellevoetsluis  
Zuid Holland  
3225 LD  
The Netherlands  
**Contact:** Mr J.A.A. den Bakker  
**Job Title:** CEO  
T: + 31 181 399 632



E: j.d.bakker@denbakker.nl  
W: www.dbdglobal.com  
Den Bakker Dustcrusting technology b.v. (dbd global), is an expert in dust control and prevention with the Dustcruster® technology. Dustcruster is far better than continuously spraying and waste pure water. Dustcruster® creates a long-lasting and clearly visible white crust which will last for a long time. Even in tough atmospheric conditions

## DEUTSCHE GROBWÄZLAGER GMBH

Marieneher Strasse 17  
Rostock  
MV18069  
Germany  
**Contact:** Mr Andreas Wiedenhoef  
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T: + 49 1621088866  
W: www.deutsche-grosswaelzager.de

## DMN-WESTINGHOUSE

Gieterij 3  
PO Box 6  
Noordwijkerhout  
Zuid-Holland  
NL-2210 AA  
The Netherlands

**Contact:** Mrs Tonneke Krempel  
**Job Title:** Manager Marketing Services and PR  
T: + 31 252 361 800  
F: + 31 252 375 934  
E: dmn@dmn-nwh.nl  
W: www.dmnwestinghouse.com  
**Other equipment:** Rotary Valves, Diverter Valves. Designs and manufactures rotary valves, diverter valves and other components. Optionally pressure shock resistant to 10 bar, flame proof also suitable for handling St2 powders, ATEX compliant to Directive 2014/34/EU. Extensive sales and distribution network, ensures global service and support.

## DOME CORP OF NORTH AMERICA

5450 East Street  
Saginaw  
Michigan  
48601  
USA  
**Contact:** Mr Ross Lake  
**Job Title:** President  
T: + 1 989 777 2050  
F: + 1 517 777 3477  
E: sales@dome-corp-na.com  
W: www.dome-corp-na.com

## DOME TECHNOLOGY, LLC

4946 North 29th East  
Idaho Falls  
ID  
83401  
USA  
**Contact:** Mr Jason Miller  
**Job Title:** Vice President of Marketing  
T: + 1 208 529 0833  
F: + 1 208 529 0854  
E: jason.miller@dometechnology.com  
W: www.dometechnology.com  
**Other equipment:** Serve the biomass, power, mining, cement, fertilizer, and grain markets. We provide geotechnical analysis, deep foundation solutions, engineered tunnels. Integrate material handling safety protocols with dome design. Concrete domes are designed to contain volatile products as well as cover products.

## DOMTEC INTERNATIONAL LLC

4355 N Haroldsen Drive  
Idaho Falls  
83401  
USA  
**Contact:** Mr Mike Hunter  
**Job Title:** General Manager  
T: + 1 208 522 5520  
F: + 1 208 522 5344  
E: domtec@domtec.com  
W: www.domtec.com  
World class, high quality concrete dome builder for storage of a multitude of dry bulk materials, including coal. DOMTEC has broad experience with reclaim systems. Projects are delivered around the world on time and within budget.

## DONALDSON FILTRATION DEUTSCHLAND GMBH

Industriestraße 11  
Dülmen  
48249  
Germany  
**Contact:**  
T: + 49 2594 781 0  
F: + 49 2594 781 21  
E: IAF-de@donaldson.com  
W: www.DonaldsonToritDCE.com  
Donaldson is a leading worldwide provider of filtration systems that improve people's lives, enhance our Customers' equipment performance, and protect our environment. We are committed to satisfying our Customers' needs for filtration solutions through innovative research and development, application expertise, and global presence.

## DOOSAN BENELUX SA

Drève Richelle 167  
Waterloo  
B-1410  
Belgium  
**Contact:** Mr George Schmalzried  
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T: + 32 2 371 6811  
F: + 32 2 371 6900  
E: george.schmalzried@doosan.com  
W: www.bobcat.eu; www.doosanequipment.eu  
World leader in compact loaders. Offers a line of skid-steer and compact-tracked loader models used in shiptrimming, shiphold and railroad box car unloading operations. The compact loaders have rated operating capacities ranging from 343-1600 kg and operating weights from 1.2 - 4.6 tonnes.

# DUST!

## The headache of each terminal operator!

### We have the solution:

# Dustcruster®!

For more details, contact:



den bakker dustcrusting technology b.v.  
Rijksstraatweg 167a  
3222 KD Hellevoetsluis  
The Netherlands  
**Phone:** +31 (0)181-399632  
**Fax:** +31 (0)181-399634  
**E-mail:** info@denbakker.nl  
**Contact:** J.A.A. den Bakker (CEO)  
**E-mail:** j.d.bakker@denbakker.nl  
**Mobile:** +316 51566863  
**Web:** www.dbdglobal.com

Partner:



Tunnellaan 117  
B-9060 Zelzate, Belgium  
**Phone:** +32 9 372 63 77  
**Fax:** +32 9 372 41 88  
**Contact:** Marc Verschaeve  
**E-mail:** marc@bpcinternational.be  
**Mobile:** +32 475 69 68 73  
**Web:** www.bpc-international.com



## DOPPELMAYR TRANSPORT TECHNOLOGY GMBH



Konrad-Doppelmayr-Str. 1  
Wolfurt  
6922  
Austria  
**Contact:**  
T: + 43 5574 604 1800  
E: dti@doppelmayr.com  
W: www.doppelmayr-mts.com  
Doppelmayr Transport Technology solves all transport issues in the field of bulk materials and unit loads with a range of sophisticated material transport systems - from well-proven material ropeways to innovative long-distance conveyor systems for high capacities.

## DOS SANTOS INTERNATIONAL, LLC



531 Roselane Street  
Suite 810  
Marietta  
Georgia  
30060  
USA  
**Contact:** Mrs Amy D. Duncan  
**Job Title:** Marketing Manager  
T: + 1 770 423 9895  
F: Text: + 1 916 US SNAKE  
E: info@dossantosintl.com  
W: www.dossantosintl.com  
**Other equipment:** DSI ExConTec - conveyor analysis software.

Dos Santos International is the world's foremost authority on high-angle conveying technology. We offer the DSI Snake, the most reliable high-angle and vertical conveying means for your high tonnage, high lift requirements. DSI also offers engineering consulting and provides in house software for load analysis.

## DOSCO OVERSEAS ENGINEERING LTD

Ollerton Road  
Tuxford  
Newark  
Nottinghamshire  
NG22 0PQ  
UK  
**Contact:** Mr Phillip Adrych  
**Job Title:** Export Sales  
T: + 44 1777 870 621  
F: + 44 1777 871 580  
E: padrych@dosco.co.uk  
W: www.dosco.co.uk  
Manufacture twin roll crushers. The range can process from 100-5000 tph with installed powers of 100kW-500kW. Manufacture economic and environmentally friendly pipe conveyor.

## DOUBRAVA GES GMBH

Industriestrasse 17-20  
Attnang-Puchheim  
A-4600  
Austria  
**Contact:** Mr Stefan Wenninger  
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Dry Mortar Plants  
T: + 43 7242 9022 759  
F: + 43 7674 601499  
E: office@doubrava.at  
W: www.doubrava.at

## DRY-BAG A/S

Dalagarde 1  
Aarhus C  
DK 8000  
Denmark  
**Contact:** Mr Soren  
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T: + 45 86 19 0500  
F: + 45 86 19 0577  
E: production@dry-bag.dk  
W: www.desiccant.com

## DUNLOP CONVEYOR BELTING

Oliemolenstraat 2  
PO Box 14  
Drachten  
9200 AA  
The Netherlands  
**Contact:** Mr Andries Smilda  
**Job Title:** Sales & Marketing Director  
T: + 31 512 585 446  
F: + 31 512 585 433  
E: marketing.drachten@dunlopbc.com  
W: www.dunlopconveyorbelting.com  
Manufactures a full range of textile, aramid and steelcord conveyor belting systems.

## DURO FELGUERA, S.A.

Parque Científico y Tecnológico de Gijón  
c/ Ada Byron, 90  
Gijón  
Asturias  
33203  
Spain  
**Contact:** Mr Angel Pelegruy  
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T: + 34 985 199 201  
F: + 34 985 199 059  
E: dfmh@durofelguera.com  
W: www.dfurofelguera.com  
DF Mining & Handling is the DF division specialised in turnkey projects for Mineral Processing and Bulk Material Handling Facilities, mainly Concentration Plant and Loading and Unloading Terminals at Ports. The company assists customers and investors in all phases of a project: feasibility studies, design, detailed engineering, procurement, construction, commissioning and operation and maintenance of the facility and it's recognised on a global scale as a reputable EPC contractor.

## DUST SOLUTIONS INC

130 Bay Pines Road  
Beaufort  
South Carolina  
29906  
USA  
**Contact:** Mr Richard Posner  
**Job Title:** President  
T: + 1 843 846 3700  
F: + 1 843 846 3701  
E: sales@nodust.com  
W: www.nodust.com  
Manufacturers Dry Fog Dust Suppression Systems for bulk material handling - conveyors, truck & rail dumps, hoppers, feeders, crushers, ship loaders/unloaders. Modular systems produce fog droplets that attach to like size airborne dust particles. Functions in below freezing temperatures. DustTamer Windfence Systems for stockpiles.

## E-CRANE WORLD WIDE

Koekoeklaan 53  
Adegem  
B-9991  
Belgium  
**Contact:** Mr Bas Tolhuizen  
**Job Title:** International Sales Manager  
T: + 31 165 320100  
F: + 31 165 320759  
E: bas.tolhuizen@e-crane.com  
W: www.e-crane.com  
Main activity is the sale and support of the E-Crane, a multifunctional crane designed for bulk material handling, storage, process feeding at ports etc.

## E-CRANE WORLD WIDE / E-CRANE INTERNATIONAL USA

1332 Freeze Works Place  
Gallon  
Ohio  
44833  
USA  
**Contact:** Mr Mark W Osborne  
**Job Title:** President

T: + 1 419 468 0090  
F: + 1 419 468 0074  
E: mark.osborne@e-crane.com  
W: www.e-crane.com  
E-Crane International USA offers the E-Crane (Equilibrium Crane) in capacities ranging from 5.5 to 39 (metric) tons and outreach ranging from 24.8 to 47.8 metres (82 to 157 feet) for efficient offloading of bulk commodities.

## EDGE INNOVATE. (NI) LTD

30 Farlow Road  
Newmills  
Dungannon  
County Tyrone  
BT71 4DT  
Northern Ireland  
**Contact:** Mr Lee Williamson  
**Job Title:** Sales Manager  
T: + 44 2887 740525  
F: + 44 2887 747244  
E: info@edgeinnovate.com  
W: https://edgeinnovate.com/  
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 PORTS

Place des Freres Montgolfier  
Guyancourt  
78286  
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**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 Pellet  
**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 Sijitra 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  
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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:** Mr Kyle Sorensen  
**Job Title:** Assistant Manager, Global Sales & Market Research  
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, transhippers, self-unloading ships.

## EMS-TECH INC.

Vlaardingengstraat 3  
Ijmuiden  
1976 AS  
The Netherlands  
**Contact:** Mr Luke Huitema  
**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.

## ENGINCON 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

Karl Grankvist 1C  
Pitea  
SE-941 52  
Sweden  
**Contact:** Mr Mattias Öman  
**Job Title:** Managing Director  
T: + 46 70 371 15 30  
E: mattias.oman@epnsolutions.se  
W: http://epnsolutions.se/

## EQUIPO LLC

Salahudeen Road  
Dubai  
64624  
UAE  
**Contact:** Mr Mohamad Yasar Aboobackar  
**Job Title:** Operations & Sales Manager  
T: + 971 4 268 2216  
F: + 971 426 822 17  
E: sales@equipo.ae  
W: http://www.equipollc.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.

## ESCH GROUP BV

Veerweg 14  
Hoom  
5145 NS  
The Netherlands  
**Contact:** Mr Rob ver Doren  
**Job Title:** Managing Director  
T: + 31 229 282 940  
F: + 31 229 233 177  
E: info@eschgroup.nl  
W: www.stas-nl.com  
Stas is a manufacturer (production) of transport rollers, drive and tension drums and import bearings and bearing blocks.

## ESI EUROSILO BV

Newtonstraat 26-28  
Purmerend  
1446 VR  
The Netherlands  
**Contact:** Mr Richard Spaargaren  
**Job Title:** Commercial Director  
T: + 31 299 630 730  
F: + 31 299 630 737  
E: esi@eurosilos.com  
W: www.eurosilos.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 (Eurosilos) can range from 1,000 up to 100,000 m<sup>3</sup> per unit

## ESSAR INDUSTRIES

15/B, Manjushree, 1st Floor, 2nd Floor  
Sri MVC Hanumanthiah Road  
Nrupathunga Extension  
R.T. Nagar  
Bengaluru  
Karnataka  
560032  
India  
**Contact:** Mr A.M. Shrif  
**Job Title:** CEO  
T: + 91 844 7531774  
W: www.essarmaterialhandling.com

## EUROMECC 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.info  
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 Plekkenpol  
T: + 31 33 4567033  
F: + 31 33 4558149  
E: hans@tramco-europe.com  
W: www.tramcoinc.com  
Manufactures chain, screw and bucket conveyors and 'Aerobelt' air-supported belt conveyor systems.

## F E SCHULTE STRATHAUS GMBH & Co KG

Runtestrasse 42  
Wertl  
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, Frifo  
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, fertiliser  
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 MAGDEBURGER FÖRDERANLAGEN UND BAUMASCHINEN GmbH

Sudenburger Wuhne 47  
Magdeburg  
D-39112  
Germany  
**Contact:** Mr Michael Kutza  
**Job Title:** Director, Sales &  
Marketing  
T: + 49 391 6380 10 1 03  
F: + 49 391 6380 10 1 99  
E: sales@fam.de  
W: www.fam.de  
FAM successfully plans,  
designs, constructs and  
manufactures turnkey  
equipment for extracting,  
producing, loading and storing  
bulk materials. FAM combines  
know-how of series and  
customized production  
processes and offers a  
complete range of  
manufacturing services  
including after-sales services  
along with engineering.

## 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.com.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  
Lentignone 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 Stueckardt  
T: + 49 2368 98890  
F: + 49 2368 9889 27  
E: Andre.Stueckardt@  
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 BELTING 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  
UK  
**Contact:** Mr Mark Wood  
**Job Title:** Business Development  
Manager  
T: + 44 1462 444 740  
F: + 44 1462 444 789  
E: sales@ffeuk.com  
W: http://www.ffeuk.com/

## FIGEE 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 Figee harbour  
cranes. Founded in 1836, Figee  
designs and manufactures a  
complete range of bulk  
handling cranes including the  
unique and well proven  
Limniscate 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  
**Contact:**  
T: + 1 610 814 2400  
F: + 1 610 814 0600  
E: sales@flexicon.com  
W: http://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@flexoveyor.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 Egatour  
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.

## FRANZ WÖLFER ELEKTROMASCHINENFA BRIK OSNABRÜCK GmbH

Industriestraße 14  
Osnabrück  
49082  
Germany  
**Contact:** Dipl.-Wirt-Ing Kahlen  
Helge  
**Job Title:** Managing Director  
T: + 49 541 9022 13  
F: + 49 541 990 220  
E: h.kahlen@  
woelfer-motoren.com  
W: www.woelfer-motoren.com

## FRIGATE TEKNOLOGIES PRIVATE LIMITED

Block Floor, No. 9,  
Gr. 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,  
Bucker Elevator, Deep Pan  
Conveyor, Marine Vessels

## GAMA ENDUSTRI TESISLERI İMALAT 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 Mastrococco  
**Job Title:** Sales Manager  
T: + 39 0461 920403  
F: + 39 0461 933391  
E: gambarotta@gambarotta.it  
W: www.gambarotta.it  
Manufacture of bucket

elevators, pan conveyors, drag  
chain conveyors, extractors and  
feeders, palletised product  
loaders, flap valves, cell  
feeders, gate valves and screw  
conveyors used in  
petrochemical, cement, coal,  
waste to energy plants and for  
power generation, steel and  
heavy industry applications.

## 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.net.in  
W: www.geochem.net.in

## 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 dome 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: gerrit@gertech.co.za  
W: www.gertech.co.za

## GF MHS Srl

Via Guido Rossa, 11  
Paderno Dugnano (MI)  
Milan  
20037  
Italy  
**Contact:** Mr Francesco Tummillo  
**Job Title:** Managing Director  
T: + 39 0 2 91 08 20 02  
F: + 39 0 2 91 84 31 47  
E: info@gfms.it  
W: www.gfms.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  
Leegstroat 1  
Zelzate

B-9060  
Belgium  
**Contact:** Mr Patrick Bosschaert  
**Job Title:** Operation Manager  
T: + 32 3 328 05 49  
F: + 32 3 328 16 54  
E: patrick.bosschaert@stewartgroupglobal.com  
W: www.gordinne.be

**GRAVILoad LIMITED**

Easter Shian  
Glen Quaich  
Amulree  
Perthshire PH8 0DB  
UK  
**Contact:** Mr Malcolm Gresty  
**Job Title:** International Sales Director  
T: + 44 7817 573 144  
E: malcolm@graviload.com  
W: www.graviload.com  
*GraviLoad builds on the success of LoadFast Systems bulk materials handling as the Alternative, Innovative and Smarter Move. 3D-designed and in-house DEM (Discrete Element Modeling) optimised, GraviLoad products are purpose-made for efficiency and quality in a timely and cost-effective manner.*

**GUTTRIDGE LIMITED**

Wardentree Park  
Pinchbeck  
Spalding  
Lincolnshire PE11 3UU  
UK  
**Contact:** Mr Doug Anderson  
**Job Title:** Sales and Marketing 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.

**GUVEN GRAB AND MACHINE LTD. Co**



Nazim Hikmet Cad 536. sk. No: 3  
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 it's own manufacturing facilities, Guven Grab and Machine supplies it's 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: http://www.ship-unloader.com

**HANS TURCK GmbH & Co. KG**

Witzlebenstraße 7  
Mülheim an der Ruhr  
D-45472  
Germany  
**Contact:** Mr Klaus Albers  
**Job Title:** PR Manager  
T: + 49 208 495249  
F: + 49 160 93950359  
E: klaus.albers@turck.com  
W: www.turck.com

**HANSEN INDUSTRIAL TRANSMISSIONS (HIT) LTD**

Nile Street  
Huddersfield  
West Yorkshire HD1 3LW  
UK  
**Contact:** Mr Terry Drayton  
T: + 44 1484 431414  
F: + 44 1484 431426  
E: info.uk@hansentransmissions.com  
W: www.hansenindustrialgearboxes.com  
*Hansen Transmissions design, manufacture, install and service industrial gearing. Our range spans from 80 Nm to 800 KNm (0.12 KW to 12MW) and is available in many configurations and drive packages.*

**HANSEN INDUSTRIAL TRANSMISSIONS (HIT) nv**

Leonardo da Vincilaan 1  
Edegem  
Antwerp 2650  
Belgium  
**Contact:** Ms Lena De Wachter

**Job Title:** Marketing Communications Manager  
T: + 32 345 01200 / + 32 345 01306  
F: + 32 345 01220  
E: info@hansenindustrialgearboxes.com  
W: www.hansenindustrialgearboxes.com  
*Hansen Industrial Transmissions is at the pinnacle in innovation and durable drives for a wide range of industrial applications throughout the world, especially in sectors where low noise levels, minimum weight and high reliability are essential (including cooling towers, material handling, water treatment, etc.)*

**HAPMAN**



5944 East N Avenue  
Kalamazoo  
MI  
49048  
USA  
**Contact:** Mr Keith Rouse  
**Job Title:** Marketing Director  
T: + 1 269 343 1675  
F: + 1 269 349 2477  
E: k.rouse@hapman.com  
W: www.hapman.com  
*You can trust our experience and quality to deliver equipment and systems for the effective movement of all types of coal.*

**HASEL MACHINERY INC**

Cumhuriyet Mh. Nr 15 E5  
Karayolu Uzeri  
Yakacik Kartal  
Istanbul 81100  
Turkey  
**Contact:** Mr Osman Nuri Mete  
**Job Title:** Manager

T: + 90 216 452 9787  
F: + 90 216 452 9790  
E: osman.mete@hasel.com  
W: www.hasel.com

**HASKONING INDIA PVT LTD**

13th Floor, Maithiii's Signet  
Plot - 39/4, Sector 30A  
Vashi  
Navi Mumbai 400 705  
India  
**Contact:** Mr Hareld van den Brink  
**Job Title:** Director of Business - India  
T: + 91 22 4161 5004  
E: hareld.van.den.brink@rdvhv.com  
W: www.royalhaskoningdhv.com

**HASLER GROUP SAS**

Z.I. De l'Abbaye  
46 rue Louis Bréguet  
Pont-Evêque  
38780  
France  
**Contact:** Mr Michel Jamey  
**Job Title:** CAO  
T: + 33 474 161151  
F: + 33 474 161155  
E: sales.fr@hasler-gp.com  
W: www.hasler-gp.com  
*Technological innovation is imprinted in the DNA of the HASLER Group, and has been our driving force for over a century. Dosing, mixing, filtration, processing - our diverse activities are empowered by the development of our expertise.*

**Haugen System AB**

Fersens väg 12  
Malmö  
211 42  
Sweden  
**Contact:** Mr Malik Minhaj  
**Job Title:** Marketing Manager

T: +46 40 30 64 00  
F: +46 40 30 63 30  
E: malik.minhaj@haugensystem.com  
W: www.haugensystem.com  
*HAUGEN System AB is responsible for the marketing of mobile and stationary vacuum systems manufactured by DISAB Group in the MENA region. We also offer ATEX compliant systems, which can be used for handling combustible materials like coal and petcoke in the safest possible way.*

**HITACHI CONSTRUCTION MACHINERY (EUROPE) NV**

Siciliëweg 5  
Amsterdam  
1045 AT  
The Netherlands  
**Contact:** Ms Ghislaine Jonker  
**Job Title:** Manager, Corporate Communication  
T: + 31 20 44 76 700  
F: + 31 20 33 44 045  
E: marketing@hcme.com  
W: www.hcme.com  
*Hitachi Construction Machinery (Europe) NV's (HCME) main products are hydraulic crawler and wheeled excavators, crawler cranes, wheel loaders, rigid dump trucks and light compaction equipment. HCME provides a broad product line-up that has earned an excellent reputation for performance, reliability and safety.*

**HORIZON CONVEYOR EQUIPMENT**

Unit 1, Haysech Road  
Halesowen  
West Midlands B63 3PD  
UK  
**Contact:** Mr Alan Bowler

**HAPMAN**

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**Job Title:** Managing Director  
**T:** + 44 121 550 2218  
**F:** + 44 121 550 2243  
**E:** info@horizonconveyors.co.uk  
**W:** www.horizonconveyors.co.uk  
*Manufacturers of Steel, Plastic & Aluminium Idler rollers, Conveyor Belt Scrapers and Conveyor Components & Equipment.*

## HOSCH-FÖRDERTECHNIK RECKLINGHAUSEN GmbH

Am Stadion 36  
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D-45659  
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**Contact:** Mr Giancarlo Leombruno  
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**F:** + 49 2361 5898 40  
**E:** sales@hosch.de  
**W:** www.hosch.de  
*HOSCH has been manufacturing and distributing Sprung Blade Scrapers and accessories for high precision belt cleaning for more than 30 years. The innovative design principle of its C-series, which is patented world-wide, utilises modular components and guarantees total belt cleaning efficiency for all types of installations.*

## HUADIAN HEAVY INDUSTRIES Co., Ltd.

No. 6 Auto Museum  
East Road  
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Beijing  
10070  
China  
**Contact:** Ms Chen Qiao  
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**T:** + 86 10 6391 9524  
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**E:** chenq@chec.com.cn  
**W:** www.hhi.com.cn;  
www.chec.com.cn  
*With the engineering system design and EPC as the principal business and the R&D and manufacturing of core products and relevant high-end products and investment operations as the support, HHI is committed to providing the clients with integrated solutions in terms of material handling engineering, thermal power engineering, industrial noise treatment engineering, clean & effective coal utilization engineering and offshore wind power engineering etc.*

## HYCONTROL LIMITED

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B98 7DP  
UK  
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## HYUNDAI HEAVY INDUSTRIES Co

1000 Bangeojinsunhwan-doro  
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## IBAU HAMBURG

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**W:** www.ibauhamburg.de  
*IBAU HAMBURG supplies installations and components for the transfer, storage and conveying of dry products, including among others fly ash and coal. Our scope includes the engineering and supply of plant components such as ship loaders and unloaders, as well as storage silos.*

## IGUS GmbH



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**T:** + 49 2203 9649 0  
**F:** + 49 2203 9649 222  
**E:** cranes@igus.de  
**W:** www.igus-cranes.com  
*Products include E-ChainSystems - in operation on Ship to Shore Cranes, RTGs, RMGs, Goliath Cranes, Spreaders, Reach Stackers etc. More than 3,000 port equipment applications are running world-wide with igus® E-ChainSystems.*

## IHI TRANSPORT MACHINERY COVAN., LTD. (IUK)

8-1 Seiroka Tower  
Akashi Cho  
Chuo-Ku  
Tokyo  
104-0044 MZ  
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**T:** + 81 3 5550 5375  
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**E:** Tadashi.ito@iuk.co.jp  
**W:** www.iuk.co.jp  
*In addition: Multi-purpose gantry cranes  
IUK has supplied a lot of coal handling equipment and systems with cutting edge technology for world-wide customers and has had a world leading delivery record of the continuous ship unloaders.*

## IMASA

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## IMGS

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## IMO GERMANY

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## IMPERIAL TECHNOLOGIES, INC.

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44705  
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**Job Title:** VP Gen Sales & Marketing  
**T:** + 1 330 491 3200  
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**E:** rontschantz@imperial-technologies.com  
**W:** www.imperial-technologies.com  
*Imperial Technologies designs and supplies bulk material equipment including our enclosed "environmentally friendly" conveyors under Multi-Fold and Flexi-Cleat belt designs. We also provide conventional trough conveyors, fixed and radial stackers, sidewall conveyors, tripper conveyors, reversing shuttle conveyors, drag conveyors, related bulk materials handling equipment and our coal "variable speed vertical impact breaker" for dry coal processing called the Accelerator to improve raw coal from the mine.*

## INCOLAB SERVICES BV

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Oud-Beijerland  
BB  
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**Contact:** Mr Leo Van Tour  
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**F:** + 31 1866 10552  
**E:** leo@incolab.com  
**W:** www.incolab.com  
*Incolab Services main target is to serve the solid fuel industry with own office and laboratories. Most of our laboratories are 17025 accredited. Present in Europe, former USSR, North and South Africa and North and South Africa.*

## INSPECTORATE INTERNATIONAL LTD

2 Perry Road  
Witham  
Essex  
CM8 3TU  
UK  
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**T:** + 31 10.5937234  
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**W:** www.inspectorate.com  
*Inspectorate offers a full range of inspection, analytical and specialist testing services to the solid fuels and biomass industries and has coal-handling coordination offices and ISO 17025 accredited laboratories in all the major coal producing/consuming countries worldwide.*

## INSTRAL B.V.

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**E:** info@instral.com  
**W:** http://www.instral.com/  
*Instral BV is a specialized and leading company in the world of dust protection and dust control. We offer dosing and spraying equipment/systems for dust control treatment (conveyor belts, stockpiles, yards, roads etc) Our C-Force® control additives are applicable for bulk storage and transhipment (coal, sand, iron ore pellets etc.) and at mining sites.*

## INTERMODAL SOLUTIONS PTY LTD

The Zhen Building  
210/33 Lexington Drive  
Bella Vista  
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## INTERNATIONAL BULK HANDLING TECHNOLOGY BV

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5730 AA  
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**T:** + 31 492 664 885  
**F:** + 31 492 664 695  
**E:** info@ibbulk.nl  
**W:** www.ibbulk.nl  
*IBT offers over 40 years of expertise in the field of complex bulk handling systems. Capacity up to 6,000tph. Systems include high capacity steep incline conveyors, pipe conveyors, semi mobile large overland conveyors etc.*

## INTERSYSTEMS

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*Intersystems reaches a worldwide market and numerous industries with expertise in the engineer and manufacture of bulk material handling and industrial sampling systems.*

## ISAM AG GESELLSCHAFT FUER ANGEWANDTE KYBERNETIK

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**W:** www.isam-ag.de  
*ISAM delivers the full range of products and services for advanced automation of bulk material handling and port operations. We handle turn-key solutions for new automation projects as well as the upgrading of existing equipment including project management, electrical engineering and commissioning.*

## ISOMONTE SA

Rua Cristiano Franca Teixeira  
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Bairro Cinco  
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**E:** info@isomont.com  
**W:** www.isomont.com.br  
*Specialises in the design and construction of turnkey systems for materials handling, including shiploaders/unloaders, grabs,*

stacker/reclaimers and conveyor systems.

## ITALGRU S.R.L.

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## J & B GRABS B.V.



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**W:** www.jb-grabs.com  
*Designs, engineers and manufactures mechanical and hydraulic grabs for all kinds of bulk material.*

## JAMES A. REDDING COMPANY

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## JANSEN & HEUNING

Bulk Handling Systems  
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## JENIKE & JOHANSON INC.

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*Jenike & Johanson is the world's leading company in powder and bulk solids handling, processing, and storage technology. Over the past 55 years, we've tested over 10,000 unique powders and bulk solids and worked on more than 7,500 projects, giving our team the broadest real-world and in-depth experience in the industry to address a wide variety of bulk material handling and engineering needs.*

## JFE ENGINEERING CORPORATION

Marunouchi Trust Tower North  
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Chiyoda-ku  
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## JIANGSU ZHENDONG PORT MACHINERY MANUFACTURING Co., LTD.

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## JIM WAY ENTERPRISE Co., LTD

No. 17 Chang Tai Street  
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**E:** jw@roller.com.tw  
**W:** www.roller.com.tw  
*Since its establishment in 1982, Jim Way is an expert belt conveyor accessories manufacturer and meets the ISO 9001 quality standard. Our goal is to achieve total quality in everything we do and to give customers the best performance.*

## JOHANNES HUBNER FABRIK ELEKTRISCHER MASCHINEN GmbH

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*Hübner Giessen is considered a market leader in encoder and drive technology with activities in the following industrial sectors: Steelworks and rolling mills, mining, cranes, railways, marine, oil and gas, traction technology, hydroelectric power plants and energy systems.*

## JOY GLOBAL INC

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## KALENBORN KALPROTECT GmbH & Co. KG

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**W:** www.kalenborn.com  
*Wear-protection materials and services. Engineering, production, and worldwide installation of highly wear-resistant linings and components made of ceramic, metallic and plastic materials for protecting all kinds of bulk handling equipment.*

### KCT GRAB INDUSTRY

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 34980  
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### KINERGY CORPORATION

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**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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 Overend Road  
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**W:** www.kingfisher-industrial.co.uk  
*Kingfisher specialise in protecting process plant and equipment against wear and abrasion. Offering a complete range of systems to cater for the harshest of operational environments, priding ourselves on offering industry an unbiased solution to the problems encountered when handling or processing bulk solid materials.*

### KINSHOFER GMBH

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**T:** + 49 8021 8899 2520  
**F:** + 49 8021 8899 37  
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**W:** www.kinshofer.com  
**Other equipment:** Open and closed Rehandling Buckets, Special Grabs for Timber and Tubes, for Ballast, Rails and Sleepers, Hydraulic Hooks, Big Bag Handlers, Manipulators.

### KIRUNA WAGON AB

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### KLEEMANN GMBH

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### KNIGHT ENERGY SERVICES LIMITED

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### KOCKS ARDELT KRANBAU GMBH

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*Crane manufacturer (designing, fabrication, assembling, commissioning, training, after sales service in one hand for harbour cranes, shipyard cranes, balancer cranes - refurbishment, inspection, repair service for own and third party cranes).*

### KOMATSU MINING CORP.

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*Joy crushing and conveying solutions serve the ports, power, surface aggregates, tunnelling, construction and mining industries. Komatsu Mining Corp. also manufactures, sells and services other products and services that help make customer operations safer and more productive.*

### KONECRANES (FRANCE)

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 B.P. 727  
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**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

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**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

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*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

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 South Dakota  
 57078  
 USA  
**Contact:** Mr Mike Johnson  
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**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



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**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 lifting cranes. Kocks is the world market leader for Goliath cranes and innovator for STS container cranes.*  
**KRECH OJARD & ASSOC**  
 227 W 1st St  
 Suite 200  
 Duluth  
 Minnesota  
 55082  
 USA  
**Contact:** Mr Kevin Ehrenreich  
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### KRÖGER GREIFERTECHNIK GMBH & Co. KG

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**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

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**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

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### LASSING DIBBEN CONSULTING ENGINEERS LTD

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 Ontario  
 K8V 5R6  
 Canada  
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**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.

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 Fort Wayne  
 Indiana  
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 USA  
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**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.*

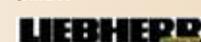
### LEGACY BUILDING SOLUTIONS, INC.

19500 County Road 142  
 South Haven  
 Minnesota  
 55382-9240  
 USA  
**Contact:** Ms Sarah Cords  
**Job Title:** Director of Marketing  
**T:** + 1 320 258 0500  
**F:** + 1 320 259 0087  
**E:** marketing@legacybuildingsolutions.com  
**W:** www.legacybuildingsolutions.com  
*Legacy Building Solutions designs, manufactures, engineers, and installs large-scale custom fabric structures for a wide range of industries. A pioneer in the use of a rigid steel frame for fabric structures, the company has achieved ISO 9001:2008 and CSA-A660 certifications.*

### 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-HYDRAULIKBAGGER GMBH



Liebherrstrasse 12  
 Kirchdorf  
 88457  
 Germany  
**Contact:** Mr Thomas Baeuerle  
**T:** + 49 7354 80 0  
**F:** + 49 7354 80 7294  
**E:** info@lhb.liebherr.com  
**W:** mathias.stasius@liebherr.com  
*A member of the Liebherr Group and manufacturer of hydraulic material handlers.*

### LIEBHERR-MCCTEC ROSTOCK GMBH



(Liebherr Mobile Harbour Cranes)  
 Liebherrstr. 1  
 Rostock  
 18147  
 Germany  
**Contact:** Mr Leopold Berthold  
**Job Title:** Sales Director  
**T:** + 43 50809 41725

F: + 43 50809 41447  
 E: mobile.harbour.crane@liebher.com  
 W: www.liebher.com  
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Global Headquarters  
 Noord 101  
 Krimpen aan de Lek  
 Amsterdam  
 2931 SJ  
 The Netherlands  
**Contact:** Mr Marcel van Rangelrooij  
**Job Title:** CEO  
 T: + 31 180 440 720  
 F: + 31 180 516 064  
 E: news@lionbulkhandling.com  
 W: www.lionbulkhandling.com

### 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 Liri, 27  
 Genova

16145  
 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.

### 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:** VP Business Development  
 T: + 1 800 433 2213  
 F: + 1 865 984 5286  
 E: sales@macawber.com  
 W: www.macawber.com

### MACGREGOR SWE AB

Sjöгатan 4G  
 Örnsköldsvik  
 SE-891 85  
 Sweden  
**Contact:** Mr Mikael Hägglund  
 T: + 46 660 294000  
 F: + 46 660 12455  
 E: Mikael.Haggglund@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 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  
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Valikankaantie 3  
 Ylamylly  
 FIN-80400  
 Finland  
**Contact:** Ms Mia Mantsinen  
**Job Title:** Vice President  
 T: + 358 20 755 1230  
 F: + 358 13 252 5555  
 E: mia.mantsinen@mantsinen.com  
 W: www.mantsinen.com  
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**Other equipment/expertise:** Wood handling, Subcontracting.

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621 North Carrollton Avenue  
 New Orleans  
 LA  
 70119  
 USA  
**Contact:** Mr Robert Drew  
**Job Title:** Managing Partner  
 T: + 1 504 866 0014  
 F: + 1 504 866 0016  
 E: rdrew@marineinspection.com  
 W: www.marineinspection.com

### MARTIN ENGINEERING

One Martin Place  
 Neponset  
 Illinois  
 IL 61345  
 USA  
**Contact:** Mrs Chelsea Blake  
**Job Title:** Marketing  
 T: + 1 309 852 2384  
 F: + 1 800 814 1533  
 E: chelseab@martin-eng.com  
 W: www.martin-eng.com  
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### 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.  
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Grafenstraße 27  
 Brannenburg  
 D-83098  
 Germany  
**Contact:** Mr Roland Muhr  
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 W: www.muhr.com  
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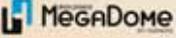
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**MATRIX PDM**

**ENGINEERING**  
 5100 E Skelly Drive  
 Suite 100  
 Tulsa  
 OK  
 74135  
 USA  
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**F:** + 1918 838 8810  
**E:** katherinesmith@matrixpdm.com  
**W:** www.matrixpdm.com  
*Matrix PDM Engineering, a subsidiary of Matrix Service Company (Nasdaq: MTRX) provides multi-disciplinary engineering, procurement and construction management services to the energy, power and industrial markets in North America and around the world.*

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**T:** + 1 450 756 1041  
**F:** + 1 450 756 8389  
**E:** G.Hetu@harnois.com  
**W:** www.megadomebuildings.com  
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 Canberra

WA 6163  
 Australia  
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**Job Title:** Director  
**T:** + 61 8 9314 5000  
**F:** + 61 8 9314 5500  
**E:** sales@megaroller.com.au  
**W:** www.megaroller.com.au

**MENTOR DYNAMICS**

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 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.*

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10 Arthur Drive  
 Lynn Haven  
 FL  
 32444  
 USA  
**Contact:** Mr Tommy Lynch  
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**T:** + 1 850 265 3611  
**F:** + 1 850 265 9768  
**E:** info@merrick-inc.com  
**W:** www.merrick-inc.com  
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Bulk Materials Handling  
 2715 Pleasant Valley Road  
 York

PA  
 17402  
 USA  
**Contact:** Mr Tom Lippencott  
**Job Title:** VP, Mineral Process Solutions Sales, USA  
**T:** + 1 412 999 8552  
**F:** + 1 717 849 7148  
**E:** Tom.Lippencott@metso.com  
**W:** www.metso.com  
*Products include stacker/reclaimers; railcar dumpers/wagon tippers; grab, continuous and balance unloaders; bargeship loaders; barge and train positioning systems; mechanical ash handling systems; coal preparation equipment; apron feeders and overland conveyor systems.*

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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.*

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 MI  
 49720-0438  
 USA  
**Contact:** Mr Walter Pair  
**Job Title:** President and CEO

**T:** + 1 231 547 4000  
**F:** + 1 231 547 9453  
**E:** sales@midwestinternational.com  
**W:** www.midwestmag.com  
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 Tokyo  
 103-0022  
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**Contact:** Mr Hachiro Naito  
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 Material Handling Machinery  
**T:** + 81 3 3270 2001  
**F:** + 81 3 3245 0203  
**E:** soumu@mitsuimike.co.jp  
**W:** www.mitsuimike.co.jp

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**W:** www.mobileconveyors.com.au

**MOFFATT & NICHOL**

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 EC3M 7AT  
 UK  
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**E:** tbertola@moffattnichol.com  
**W:** www.moffattnichol.com

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 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.*

**MONOLITHIC DOME**  
**INSTITUTE**

177 Dome Park Place  
 Italy  
 Texas  
 76651  
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**E:** sales@monolithic.com  
**W:** www.monolithic.org/

**MOTHERWELL**  
**AUTOMATION**

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 WA  
 6017  
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**F:** + 61 8 9212 4479  
**E:** ttownsend@motherwell.net.au  
**W:** www.motherwell.net.au

**MOTRIDAL SPA**

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 Piacenza  
 29122

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**Job Title:** Sales Director  
**T:** + 39 0523 59 66 11  
**F:** + 39 0523 59 01 28  
**E:** motridal@motridal.com  
**W:** www.motridal.com  
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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.*

**NATURAL GRABS**

Toros Caddesi Fethi bey sokak no 11  
 Natural Business Center  
 Maltepe  
 Istanbul  
 Turkey  
**Contact:** Mr Hayrettin Yakut  
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F: + 1 832 467 3800  
E: ben@navco.us  
W: www.navco.us

## NEGRINI SRL



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Italy

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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  
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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

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D-49324  
Germany

Contact: Eng. Andreas Haeuser  
Job Title: Sales & Project Manager  
T: + 49 5422 9503 26  
F: + 49 5422 9503 50  
E: a.haeuser@neuroero.de  
W: www.neuroero.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.

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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.

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120Z Dzēlavas Street  
Riga  
LV-1021  
Latvia

Contact: Ms Veronika Kartisova  
Job Title: Marketing & Publications  
T: + 371 67271092  
F: + 371 67271038  
E: nkteh@nkteh.lv  
W: www.nkteh.lv

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## NM HEILIG BV

Newtonstraat 17  
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1704 SB  
The Netherlands

Contact: Mr G. S. Dwarsweerd  
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Department  
T: + 31 72 571 6688

F: + 31 72 571 6020  
E: info@heiligbv.com  
W: www.heiligbv.com  
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## NMH S.R.O.

Priemyselná 4608/10  
Sereď  
926 01  
Slovakia

Contact: Ms Veronika Kremľ  
Job Title: Marketing Manager  
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F: + 46 90 1330 69  
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W: www.nordstroems.se

## NORDSTRONG EQUIPMENT LTD

5895 Ambler Drive  
Mississauga  
Ontario  
L4W 5B7  
Canada

Contact: Mr Glenn Bowles

Job Title: Branch Manager  
T: + 1 289 562 6402  
F: + 1 289 562 6445  
E: gbowles@nordstrongltd.com  
W: www.nordstrongequipment.com  
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Contact: Mr Gilbert Wright  
T: + 1 504 866 0014  
F: + 1 504 866 0016  
E: gwright@nacslc.com  
W: www.nacslc.com  
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Contact: Mr Niels Jørgen Truelsen  
T: + 45 53 28 32 90

## NSL ENGINEERING PTE LTD

117 Dalhousie St  
Haberfield  
Sydney  
NSW  
2045  
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Contact: Mr Cameron Hay  
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F: + 65 626 11300  
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W: www.ramspreaders.com

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HENNLICH s.r.o.  
Ceskokollpá 9  
Litoměřice  
412 01  
Czech Republic

Contact: Mr Jan Petruzalek  
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Sales Director  
T: + 420 416 711 357  
F: + 420 416 711 999  
E: engineering@hennlich.cz  
W: www.hennlich-engineering.com

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50, Collyer Quay  
QUE Bayfront, #06-04  
Singapore  
049321  
Singapore

Contact: Ms Lohita Ellysianna  
E: lohita.ellysianna@obt-group.com  
W: http://www.obt-group.com

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[www.grupotsk.com](http://www.grupotsk.com)

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  
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## ORTS GmbH MASCHINENFABRIK



Schwartauer Strasse 99  
Sereetz  
D-23611  
Germany  
**Contact:** Herr Sigvard Orts  
T: + 49 451 3988515  
F: + 49 451 392374  
E: soj@orts-gmbh.de  
W: www.orts-grabs.de  
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## OXBOW ENGINEERING SOLUTIONS BV

PO Box 51060  
Rotterdam  
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## PAGE MACRAE ENGINEERING

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**Contact:** Mr Bruce Ennis  
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Equipment Manager  
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With over 50 years of engineering experience, Page Macrae Engineering is regarded as Australasia's leading manufacturer of ship cargo handling equipment. The company's bulk handling expertise covers the complete concept, design, build and

commission process. The company has a reputation for delivering high quality equipment that is robust, low maintenance and highly productive, regardless of conditions and loads.

## PAKJET

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## PARKER PLANT LTD

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**Job Title:** Marketing Manager  
T: + 44 116 266 5999  
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E: sales@parkerplant.com  
W: www.parkerplant.com  
Manufactures a complete range of conveyor systems and components.

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225 North 4th Street (42001)  
Paducah  
KY  
42002-7506  
USA  
**Contact:** Mr David Finke  
**Job Title:** VP, Sales and Marketing  
T: + 1 270 442 1996  
F: + 1 270 442 5214  
E: sales@pebco.com  
W: www.pebco.com  
PEBCO® is acknowledged throughout the world in the field of moving, controlling and loading dry bulk materials. Resources and responsibilities include customized gates and valves, mass flow feeders, dustless loading spouts, telescopic chutes, PEBCO® Cascade® chutes and truck, ship, railcar and barge loaders.

## PEINEMANN CRANES

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W: www.peinemann.nl

## PEINER SMAG LIFTING TECHNOLOGIES GmbH

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Salzgitter  
D-38259  
Germany  
**Contact:** Mr Arnulf Köhnemann  
**Job Title:** Area Sales Manager  
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F: + 49 5341 302 424 or 606  
E: arnulf.koehnemann@peiner-smag.com  
W: www.peiner-smag.com  
Other equipment: Container Spreader  
Manufacturer and supplier of a wide range of grabs and other lifting equipment, e.g. motor grabs, single-, two- and four-rope grabs, scissor grabs, hydraulic grabs as well as rotators and special grabs for all kinds of bulk materials in a variety of industries, such as ports, ships, steel mills, waste-to-energy plants and recycling businesses.

## PETERSON AGRICARE & BULK LOGISTICS BV

Boompjes 270  
Rotterdam  
3011 XZ  
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## PFISTER WAAGEN BILANCIAL GmbH

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F: + 49 82 07 9 58 99 29  
E: marketing@pfisterwaagen.de  
W: www.pfisterwaagen.de  
Founded in 1894 as a manufacturer of mechanical weighbridges. Suppliers of innovative, high quality, fully electronic weighing systems, incorporated in data networks, capturing and processing weighing data in cost-efficient control systems. Specialized in truck weighbridges, railway scales, weighing software.

## PHB WESERHÜTTE, S.A.



Parque Científico y Tecnológico de Gijón  
C/Ada Byron, 220  
Gijón  
Asturias  
33203  
Spain  
**Contact:** Dr Jose Ramón Prado  
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T: + 34 984 49 56 40  
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E: jose.ramon.prado@pwh.es  
W: http://en.grupotsk.com/  
Efficient port systems, handling all types of bulk solids such as coal, iron ore, bauxite, fertilizers, clinker, cement and general cargo, with different solutions for maritime or river ports. Design of circular or longitudinal stockyards combining a wide range of reclaimers and different types of stackers.

## PHOENIX CONVEYOR BELT SYSTEMS GmbH

Hannoversche Strasse 100  
Hamburg  
21079  
Germany  
**Contact:** Mr Danny Slonka  
T: + 49 40 7667 03  
F: + 49 40 7667 2413  
E: info@phoenix-cbs.com  
W: www.phoenix-conveyorbelts.com  
With 110 years experience, the world leader for high performance heavy-duty conveyor belts, serving the worldwide bulk handling industry. The programme includes textile and steel cord conveyor belts for underground and surface applications.

## PINTSCH BUBENZER GmbH



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Kirchen-Wehbach  
RLP  
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**Contact:** Ms Tanja Zimmermann

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W: www.pintschbubenz.de  
PINTSCH BUBENZER is focused on the design, production and service of high quality braking systems for both static and dynamic applications which involve the precise control of small to very large amounts of kinetic energy. The challenge is to control that energy in the most efficient, cost-effective way.

## PIRS SAS

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Var  
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France  
**Contact:** Mr Firki El Mourabet  
**Job Title:** International Sales  
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F: + 33 4 98 10 6768  
E: info@domepirs.com  
W: www.domepirs.com  
Storage solutions for dry bulk commodities, including coal.

## PIV DRIVES GmbH - A BREVINI POWER TRANSMISSION Co.

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E: Christoph.Hoehr@brevini.com  
W: www.piv-drives.com or www.brevini.com  
PIV Drives, a company of Brevini Power Transmission, has over 80 years experience in providing quality power transmission solutions for every industry sector. PIV Drives developed modular concepts for its comprehensive product range, providing the flexibility to deliver high-quality optimised solutions, both standard and bespoke, quickly and at competitive cost.

## PLM CRANES B.V.

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**Contact:** Mr Pieter Puleman  
**Job Title:** Managing Director  
T: + 31 167 528510  
F: + 31 167 524444  
E: info@plmcranes.com  
W: www.plmcranes.com  
We build hydraulic and electric cranes from 50 to 2000 tm with a transhipment capacity up to approx. 2000 ton/hour. We are specialized in shipboard cranes, mobile cranes and harbour cranes for dredging, transhipping, hoisting and pile-driving.

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110 Mohr Dr  
Mankato  
MN  
56001  
USA  
**Contact:** Mr Sam Cebula  
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Manager  
T: + 1 507 345 4553  
F: + 1 507 345 3639  
E: info@pneumat.com  
W: http://pneumat.com/  
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2404 Center Street  
Tacoma  
WA  
98409-7638  
USA  
**Contact:** Mr Bryan Olin  
T: + 1 253 272 1217  
F: + 1 253 272 1457  
E: bryan.olin@polymerindustries.com  
W: www.polymerindustries.com  
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Huntington  
York  
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UK  
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T: + 44 1904 624 872  
F: + 44 1904 611 760  
E: bulk@portasillo.co.uk  
W: www.portasillo.co.uk  
Designs, manufactures and installs bulk handling equipment for the storage and handling of powdered and granular materials. Equipment supplied includes silos, hoppers, mechanical conveyors, lean phase and dense phase pneumatic conveying systems. Full turn key solutions can be offered.

## PORT-TRADE AS

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W: www.port-trade.com  
Port-Trade is a Danish company with more than thirty years of experience with cargo handling systems, including mobile harbour cranes, container spreaders, bulk handling grabs, and loading equipment. Port-Trade provides analyses of customer requirements and proposes and delivers complete equipment solutions.

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F: + 44 288 77 47231  
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W: www.powerscreen.com  
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F: + 31 76 522 8039  
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W: www.preciamol.nl  
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Penrith  
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**Job Title:** Managing Director  
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F: + 44 17684 80374  
E: sound@primasonics.com  
W: www.primasonics.com; www.quattrosonics.com  
Primasonics Audiosonic Acoustic Cleaners are air operated devices which produce high energy, low frequency sound waves and will significantly aid material flow and eliminate particulate build up wherever soot, dust, powders or granular materials are processed, generated, stored or transported.

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Oxford Road  
Sevenoaks  
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TN14 5EL  
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**Job Title:** Sales Manager - Beltweighers  
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F: + 44 1732 781 311  
E: joe.naylor@proconeng.com  
W: www.proconeng.com  
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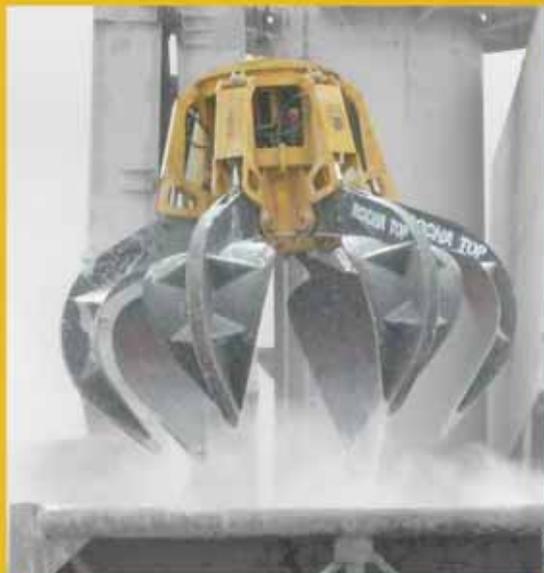
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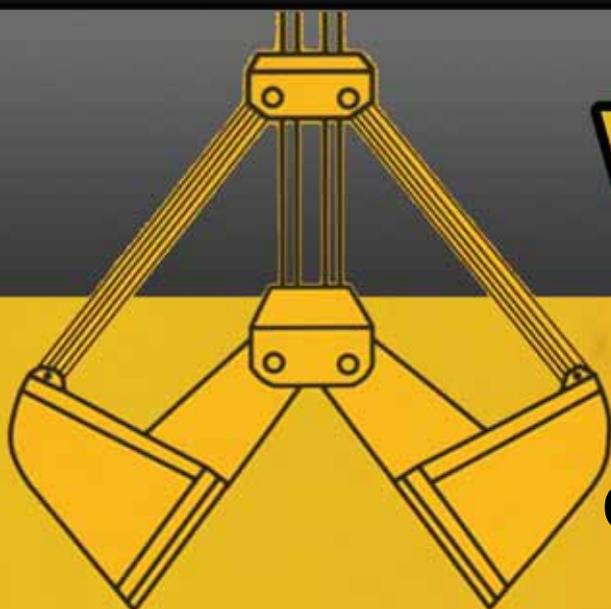
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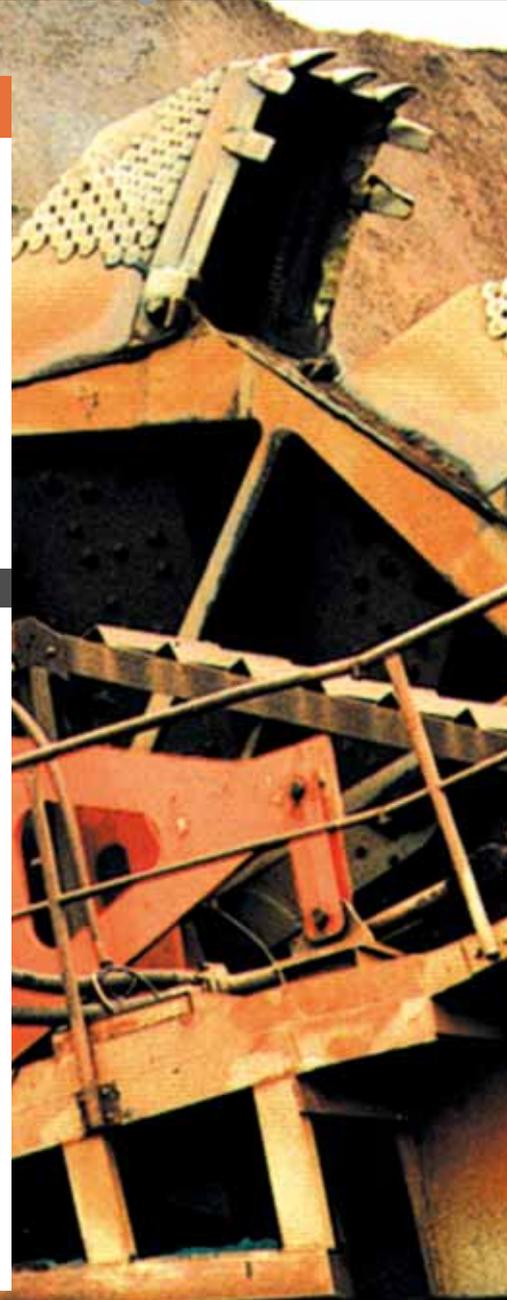
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PT SpanSet Indonesia as one of the authorized distributor for Bridon, Kiewit, Usha Martin and Verope is the member of Association of Wire Rope Fabricators (AWRF). We always provide the highest quality product and services in wire rope applications.

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E: vbelt.dv@bandoindonesia.com  
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PT. Bando, established in 1987, is one of the leading automotive and industrial power transmission belt manufacturers in Indonesia. It has one main plant located in Tangerang and its marketing office located in Central Jakarta.

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W: www.huaxiarubber.cn  
Qingdao Huaxia Rubber Industry Co., Ltd. is listed among the top 3 Chinese conveyor belt manufacturers since 1985. The Company's three Brands: HUAXIA® conventional belting Global® sidewall belting FlexCon™ solution HHE steel cord conveyor belt

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**Contact:** Mr Ron Mesing  
**Job Title:** Project Development Manager  
T: + 1 412 384 5592  
F: + 1 412 384 8910  
E: ron.mesing@qplas.com  
W: www.systemtivar.com  
Polymer liners for self-unloading ships, hoppers, chutes, bins, railcars, silos. System TIVAR Engineering designs, fabricates and installs lining systems worldwide to promote bulk material flow, featuring industry-leading low coefficient of friction and abrasion-resistant TIVAR® family of products.

## QUALITY HANDLING SYSTEMS PTY LTD

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**Contact:** Mr Peter Taylor  
**Job Title:** Project Manager  
T: + 61 2 9756 1921  
F: + 61 2 9756 4212  
E: playlor@qhs.com.au  
W: www.qhs.com.au  
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**Contact:** Mr Paul White  
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T: + 61 2 9005 1100  
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E: paul.white@qube.com.au  
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## R & S S.R.L.

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**Job Title:** Marketing Communications Manager  
T: + 39 0535 61 81 11  
F: + 39 0544 41 10 99  
E: Michael.Grass@wamgroup.com  
W: www.roncuzzi.com  
Designs and builds green hoppers, belt conveyors and transhipment plant for coal, cereals, mineral.

## RAM SMAG LIFTING TECHNOLOGIES

6 Selby Place Stanley Skelmersdale Lancashire UK WN8 8EF

**Contact:** Mr Patrick Draper  
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T: + 44 1695 556355  
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E: p.draper@ramspreaders.com  
W: www.ramspreaders.com/  
RAM Spreaders, one of the leading manufacturers and suppliers of container handling equipment for over 40 years have developed their environmental friendly RAM Revolver® for dust free containerized bulk handling solutions in association with specialist container suppliers.

## RAPAT ASIA

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**Contact:** Mr Craig Stall  
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## RAPAT CORPORATION

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## RAPIDPACK CORPORATION

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## RBL-REI FRANCE



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F: + 33 2 41 21 19 59  
E: s.bouhours@rblrei-france.com  
W: www.rblrei-france.com  
Designs, builds and supplies continuous bulk handling belt conveyor systems and associated equipment, stackers up to 10,000 tph, reclaimers up to 15,000 tph and shiploaders up to 3,000 tph.

## RC INSPECTION B.V

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W: www.rc-inspection.com/  
RC inspection is an independent inspection company for quality and quantity control in the market of Solid Fuels, Metals-Minerals, Scrap and Marine Surveys with offices all over the globe.

## RDS TECHNOLOGY

Cirencester Road Minchinhampton Stroud Gloucestershire GL6 9BH UK

**Contact:** Mr Mark Evans  
**Job Title:** Business Development Manager  
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RDS Technology (Topcon Positioning Group) was formed in 1969 and specialises in the design and manufacture of on-board weighing scales for loaders (LOADMASTER 100, LOADMASTER 50), excavators (LOADEX 100) and rigid dump trucks (WEIGHLOG 10).

## REDAELLI TECNA S.P.A.

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**Job Title:** General Manager  
T: + 86 21 5839 6666  
F: + 86 21 5839 9555  
E: mail@zpmc.com  
W: www.zpmc.com  
World-famous manufacturer of cranes and large steel structures. Products include quayside container cranes, gantry cranes, shiploader/unloaders, bucketwheel stackers and reclaimers, portal and floating cranes, engineering vessels and big steel bridge structures etc.

## SHANTHI INTERNATIONAL

21, Center Point  
Indira Gandhi Road  
Jamnagar  
Gujarat  
361008  
India  
**Contact:** Mr Sanjay Masuria  
**Job Title:** Director - Marketing - International  
T: + 91 288 255 6671 / + 91 288 2555 867  
F: + 91 288 255 4254  
E: sanjay@servoday.in  
W: www.servodaygrabs.com  
Our manufacturing range of Four Rope Mechanical Grabs, Orange Peel Grabs, Radio Remote Control Grabs includes the capacity from 6.0CBM to 52.0CBM and is suitable to handle many types of bulk materials. Please visit our website [www.servodaygrabs.com](http://www.servodaygrabs.com) for further information about our company and products.

## SHAW ALMEX CANADA

PO Box 430  
Parry Sound  
Ontario  
P2A 2X4  
Canada  
**Contact:** Ms Pamela Mc George  
**Job Title:** Sales Manager  
T: + 1 705 746 5884 / +1 9053317177  
F: + 1 705 746 9484  
E: Pamela\_mcgeorge@almex.com  
W: www.almex.com

## SIBRE - SIEGERLAND BREMSEN GMBH

Auf der Stucke 1-5  
Haiger  
Hessen  
D-35708  
Germany  
**Contact:** Ms Tabitha Kuhn  
T: + 49 2774 911 3411 (direct)  
E: tabitha.kuhn@sibre.de  
W: www.sibre.de  
SIBRE-Siegerland Bremsen manufactures industrial brakes (drum-, disc-, caliper- and storm brakes) and drive components (e.g. drum couplings) and offer an optimum combination of innovative high quality products, easy usage and minimized life-cycle costs, by employing latest manufacturing and quality assurance technologies.

## SIDERAR / TERNIUM

Centro de Informacion  
Ave. Cordoba 320, Piso 4  
Ciudad Autonoma de Buenos Aires  
Buenos Aires  
C1054AAP  
Argentina  
**Contact:** Mr Ariel Fabrè  
**Job Title:** Engineer

T: + 54 11 4018 6538  
F: + 54 11 4018 1005  
E: BAIAFATA@techint.net  
W: www.siderar.com  
Engineering Manufacturer Steel Plants, group of companies.

## SIEBTECHNIK GMBH

Platanenallee 46  
Mülheim an der Ruhr  
D-45478  
Germany  
**Contact:** Mr G Liefke  
T: + 49 208 580 100  
F: + 49 208 580 1300  
E: sales@siebtechnik.com  
W: www.siebtechnik.com  
Wormscreen, pusher-type and vibratory centrifuges, centrifuges for granular products; decanters for continuous separation of solids from liquids; laboratory centrifugal, size-reduction machines, especially vibratory mills for grinding to ultimate fineness, machines and plants for taking and preparing samples. Horizontal, elliptical and circular motion screening machines, jigs.

## SIEMENS AG INTERNATIONAL

Frauenauracherstrasse 80  
Erlangen  
91050  
Germany  
**Contact:** Mr Hans Hertogh  
**Job Title:** Marketing Manager  
T: + 49 9 131 984 299  
E: cranes@siemens.com  
W: www.siemens.com/cranes

## SIEMENS NEDERLAND NV

PO Box 16068  
The Hague  
2500 BB  
The Netherlands  
**Contact:** Mr Hans Hertogh  
T: + 31 70 33 33 333  
F: + 31 70 33 33 534  
E: hans.hertogh@siemens.com  
W: www.siemens.com

## SIG SOCIETÀ ITALIANA GOMMA SPA

Via Colombo 144  
Gorla Minore  
Varese  
21055  
Italy  
**Contact:** Mr Gerardo Frizzati  
T: + 39 0331 365135  
F: + 39 0331 365215  
E: sig@sig.it  
W: www.sig.it

## SIMPLICITY PROJECTS PVT LTD

17 Community Centre  
Maya Puri, Phase 1  
New Delhi  
110064  
India  
**Contact:** Mr R K Makhija  
**Job Title:** President  
T: + 91 11 2811 5093  
F: + 91 11 2811 6744  
E: sppl@simplicityprojects.com  
W: www.simplicityprojects.com

## SIWERTELL AB

PO Box 566  
Gunnarstorp  
Bjvv  
SE-267 25  
Sweden  
**Contact:** Mr Juha Huovilainen  
**Job Title:** Sales Director, Bulk Handling  
T: + 46 42 85800  
F: + 46 42 85899  
E: blksales@siwertell.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.

## SLV INCORPORATED

8300 Dow Circle  
Suite 600  
Strongsville  
OH  
44136  
USA  
**Contact:** Mr Bill Kurz  
**Job Title:** Vice President/Regional Sales Manager  
T: + 1 440 274 0150  
F: + 1 440 891 3210  
E: sales@slvinc.com  
W: www.slvinc.com  
Designs and manufactures industrial air pollution control equipment, including baghouse dust collectors, cartridge collectors, wet scrubbers (plate, venturi and eductor) and retractable loading spouts. The company manufacturing facility fabricates in carbon steel, stainless and duplex steels. Production also includes cages.

## 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:** 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 METALOMECANICAS SA

Quinta da Fonte  
Edifício 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  
Beloeil  
Quebec  
J3G 5R8  
Canada  
**Contact:** Ms Isabelle Coutu  
**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](http://www.sotecma.com).

## STAG AG

Industriestrasse 11  
Maienfelle  
7304  
Switzerland  
**Contact:** Mr Martin Adam  
**Job Title:** Sales/Marketing  
T: + 41 81 3035841 / 5800  
F: + 41 81 3035899  
E: office@stag.net  
W: www.stag.net  
STAG bulk material technology for mechanical and pneumatic conveying technology. We are also the ideal partner as a general company for complex assignments for nearly all bulk materials in plant construction.

## STEMM EQUIPOS INDUSTRIALES, S.L.

**Stemm**  
Grabs, Tongs & Beams

Polygono Ibarluze  
PAB. B-9  
Hernani  
20120  
Spain  
**Contact:** Mr Martin Amesti  
**Job Title:** General Manager  
T: + 34 609 403 120  
F: + 34 943 333 506  
E: info@stemm.com  
W: www.stemm.com  
With extensive experience in the bulk handling sector, STEMM manufactures a wide range of grabs for harbour and industrial cranes, especially electrohydraulic clamshell and orange peel grabs and single-rope radio-controlled clamshell grabs with state-of-the-art construction and service concepts. STEMM is your partner for consulting, manufacturing and servicing around the grab world. For further information, kindly check our website [www.stemm.com](http://www.stemm.com).

## 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 Scalco  
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  
STM is specialized in the engineering and supply of belt cover systems for bulk materials handling facilities. Since 1975 we provide worldwide innovative integrated solutions in order to increase efficiency, reliability and cost savings for the customers' production processes.

## STOCK EQUIPMENT COMPANY

16490 Chillicothe Road  
Chagrin Falls  
Ohio  
44023  
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 Nowodworski  
**Job Title:** President  
T: + 1 514 731 6951 x 123  
F: + 1 514 737 4146  
E: h.nowodworski@strudes.ca  
W: www.strudes.ca  
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 6891 2164 / + 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 Corey Poppe  
**Job Title:** Marketing 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:** http://www.synergy-eng.com

## TAIM WESER GMBH

Koenigstrasse 45  
Bad Oeynhausen  
Germany  
32547  
**Contact:** Mr Frank Herrmann  
**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

## 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.

## TANK CONNECTION

3609 North 16th Street  
Parsons  
Kansas  
KS 67357  
USA  
**Contact:**  
**T:** + 1 620 423 3010  
**E:** sales@tankconnection.com  
**W:** www.tankconnection.com/

## TBA DONCASTER

4 Railway Court  
Ten Pound Walk  
Doncaster  
South Yorkshire  
UK  
DN4 5FB  
**Contact:** Mr David Trueman  
**Job Title:** Sales Director  
**T:** + 44 1302 330 837  
**F:** + 44 1302 724 731  
**E:** david.trueman@dbis.biz  
**W:** www.tba.group  
DBIS provides real time  
terminal management systems to  
over 25 terminals around the  
world.

## 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 - TENOVAKRAF 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, 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

**TEREX.FUCHS**  
Industrie str. 3  
Bad Schönborn  
76669  
Germany  
**Contact:** Mr Maik Schemberg  
**Job Title:** Global Marketing  
Manager  
**T:** +49 7253 84 431  
**E:** maik.schemberg@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

Port Solutions  
Forststrasse 16  
Düsseldorf  
D-40597  
Germany  
**Contact:** Mr Giuseppe Di Lisa  
**Job Title:** Vice President Sales  
**T:** + 49 211 7102 3771  
**F:** + 49 211 7102 3651  
**E:** tps.info@terex.com  
**W:** www.terexportsolutions.com  
Terex Port Solutions (TPS)  
supplies customers in ports  
with a unique combination of  
machines, software and  
services under the Terex and  
Terex Gotwald brands. TPS  
provides various types of  
harbour cranes and integrated  
systems for rapid, safe, efficient  
handling of all kind of bulk  
materials.

## TEUFELBERGER SEIL GES.M.B.H

Böhmervaldstraße 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  
TEUFELBERGER is a globally  
successful enterprise  
specialized in manufacturing  
high performance wire ropes  
for various crane applications  
such as bulk handling for more  
than 225 years.  
TEUFELBERGER operates six  
manufacturing sites worldwide  
and possess a close-knit  
network of distribution partners  
worldwide.

## 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/electro-hydraulic/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:** drating@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.thermofisher.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 Norbert Hinkelmann  
**Job Title:** Director Sales -Bulk  
Material/Project Engineering  
**T:** + 49 2371 947 0  
**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.



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When it comes to bulk materials handling and transportation, our customers can count on more than a century of experience in both individual machines and turnkey plants. We have many accomplishments to our name: for example, the world's largest grab-type ship unloader with a lifting capacity of 85 tons, supplied to EMO, Europe's largest dry bulk terminal for coal and ore in the Netherlands. Get in touch with us: [info-mh@thyssenkrupp.com](mailto:info-mh@thyssenkrupp.com)  
[www.thyssenkrupp-industrial-solutions.com](http://www.thyssenkrupp-industrial-solutions.com)

engineering.tomorrow.together.



thyssenkrupp

## THYSSENKRUPP INDUSTRIAL SOLUTIONS AG



Mining Technologies -OU  
Materials Handling Germany  
Ernst-Heckel-Strasse 1  
St Ingbert-Rohrbach  
Saarland  
D-66386  
Germany  
**Contact:**  
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 Hessemann  
**Job Title:** Managing Director  
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E: info.tkr@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

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8000 AD  
The Netherlands  
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E: i.tollenaar@tme.nl

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## TMEIC

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**Job Title:** Marketing  
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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 Eduardo Duro  
Garcia  
**Job Title:** Marketing Manager  
T: + 55 51 2131 3333  
F: + 55 51 2131 3330  
E: marketing@tmsa.ind.br  
W: www.tmsa.ind.br  
*The TMSA group, headquartered in Brazil with offices in LATAM and the USA, is one of the largest suppliers for bulk material handling equipment for Port Terminals, Agro Industries and Oilseed Processing Plants under turn-key, EPCM and Partnership Contract Agreements.*

## TRAMCO, Inc

1020 East 19th Street  
Wichita  
KS  
67214  
USA  
**Contact:** Mr Ben Cott  
**Job Title:** Sales Product Manager  
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

Spuiweg 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.

5255 N Twin City Hwy  
Nederland  
TX  
77627  
USA  
**Contact:** Mr William Scott  
**Job Title:** Vice President  
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F: + 1 409 729 1132  
E: wfscott@tsgsgroup.com  
W: www.tsgsgroup.com

## TRANSSHIP LTD

Marazievskaya Str, 8  
Odessa  
65014  
Ukraine  
**Contact:** Mr Eugene Mashtakov  
T: + 380 482 33 33 32

F: + 38 482 34 74 07  
E: e.mashtakov@transship.ua  
W: www.transship.com.ua

## TRF LIMITED (TATA)

11 Station Road  
Burma Mines  
Jamsheedpur  
Jharkhand  
831 007  
India  
**Contact:** Mr D.C. Jha  
**Job Title:** Chief Marketing (BMHB)  
T: + 91 657 30 46242  
F: + 91 657 2345733  
E: dcjha@trf.co.in  
W: www.trf.co.in / www.tata.com/company/profile/TRF  
**Other equipment:** Plough feeders, Trippers, Side discharge loaders, Barrel reclaimers, Port crane, Special duty crane, Steep inclined conveyor.  
*A TATA Group company providing service to all sectors in bulk material handling & processing system on EPC basis or EP basis.*

## TRIODETIC

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Amrior  
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  
*Geodesic Domes and longitudinal covers for dust control and to protect against material loss. New or existing stockpiles where dust issues are a problem. Triodetic Domes can be installed over operation Stockpile without downtime.*

## TRIPLE POINT TECHNOLOGY

PO Box 495  
Newcastle  
NSW  
2300  
Australia  
**Contact:** Mr Steve Maxwell  
**Job Title:** G/Vice 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

Ryokuchieki Building 7F,  
2-4-1, Terauchi,  
Toyonaka  
Toyonaka  
Osaka  
561-0872  
Japan  
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T: + 81 6 6862 2329  
F: + 81 6 6862 8516  
E: sales@tsubakimoto-bulk.com  
W: http://tsubakimoto.com/tbs/  
*Produces bulk handling systems equipment, bucket, flow and pan conveyors.*

## TTS (TRANSPORTATION TECHNOLOGY SYSTEMS) LLC

 TTS  
LINK INDUSTRIES  
60F Darzciema Street  
Riga  
LV-1073

Latvia  
**Contact:** Mr Alex Menschikov  
**Job Title:** Sales Europe  
T: + 371 671 38267  
F: + 371 6713 8365  
E: alex.menschikov@tts.lv  
W: www.tts.lv  
*TTS is a production company which has 25 years of experience in production of non-standard material handling equipment and large steel frames. Our core products are conveyors of different kinds, mobile stackers/shiploaders for vast types of materials, supporting steel structures.*

## TTS HUAHAI SHIPS EQUIPMENT

18th Floor  
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Shanghai  
200093  
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F: + 86 21 6539 7400  
E: info@tts-huahai.com

## TTS MARINE AS

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Kristiansand  
4606  
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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.*

## UNITED BULK TERMINALS USA, Inc.

Three Allen Center,  
333 Clay Street, Suite 2400  
Houston  
Texas  
77002  
USA  
**Contact:** Mr Fredrik Knutsen  
**Job Title:** Commercial Manager  
T: + 1 281 457 7957

E: fredrik.knutsen@unitedbulkterminals.com  
W: www.unitedbulkterminals.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 12 664 2902  
E: admin@vddb.co.za  
W: www.vddb.co.za  
*Manufactures air-supported belt conveyors. Low-pressure air is blown in, replacing roller-riders on the carrying side. The aeroconveyor is a bulk 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  
7741KC  
The Netherlands  
**Contact:** Mr Paul Kuiper  
T: + 31 524 599 333  
F: + 31 524 599 330  
E: mach@veenstra-coevorden.nl  
W: www.veenstragroup.nl

## VENTYX

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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

## VERACHTERT NEDERLAND B.V.

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EC's Hertogenbosch  
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**Contact:** Mr Rudy van Leeuwen  
**Job Title:** Director  
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F: + 31 36 529 85 94  
E: Info@dcc-grabs.nl  
W: www.verachttert.nl



## VERSTEGEN GRIJPEERS BV



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**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 reclaimers 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  
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**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.*

## VORTEX GLOBAL

Building 1J  
Enterprise House  
Valley North Street  
Darlington  
DL1 1GY  
UK  
**Contact:** Ms Lisa Johnson  
**Job Title:** Media & Communications Manager  
**T:** + 44 1325 728 577  
**E:** ljohnson@vortexglobal.com  
**W:** www.vortexglobal.com  
*Vortex manufactures slide gates, diverters, and loading spouts for dry bulk solids in gravity flow or pneumatic conveying systems. Our products are bespoke for individual applications. Vortex is the brand choice among agriculture, cement, chemical, coal, milling, and mineral industries.*

## VOSSLOH KIEPE GmbH

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**Contact:** Mr Rainer Luehring  
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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 INDUSTRIE-TECHNIK 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  
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**W:** www.weathersolve.com

## WELLASIANA TECHNOLOGY Co, Ltd

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Keelung City  
Taiwan  
22184  
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## WIRTECH AG

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**E:** info@wirtech.ch  
**W:** www.wirtech.ch

## WOLF POINT ENGINEERS & CONTRACTORS

One North LaSalle Street  
Suite 4000  
Chicago  
IL

60602  
USA

**Contact:** Mr Robert Williams  
**Job Title:** Vice President of Sales and Marketing  
**T:** + 1 312 508 5550  
**E:** bob.williams@wpengrs.com  
**W:** www.wolfpointengineers.com/  
*Wolf Point Engineers & Contractors (a Division of North Alabama Fabricating Company, Inc.) is a leading EPC Firm specializing in the implementation of Bulk Material Handling Systems for numerous industries including but not limited to the Power Mining, Pulp and Paper Industries.*

## WORLEY PARSONS CANADA (WESTMAR)

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**E:** info@westmar.com  
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## WSP

1600 Boul. Rene-Levesque West  
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H3H 1P9  
Canada  
**Contact:** Ms Isabelle Adjahi  
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**F:** + 1 514 340 1337  
**W:** www.wsp.com

## WUVIO CHEMICALS INTERNATIONAL

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**Contact:** Mr Marck Hagen  
**Job Title:** Director  
**T:** + 31 1745 200 01  
**F:** + 31 1745 200 03  
**E:** info@wuvio.com  
**W:** www.wuvio.com  
*Wuvio supplies innovative and proprietary products to combat dust during handling and storage of dry bulk. Our aim is to suppress dust in an effective and sustainable way. Our solutions are tailor-made for your specific situation.*

## VERNAUX-PASAGE

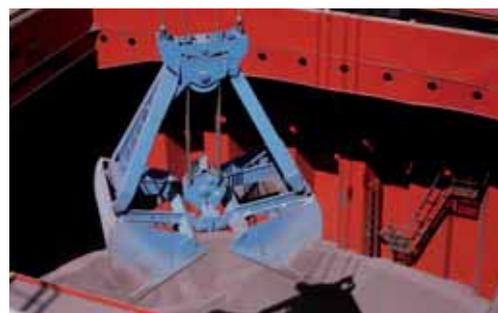
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552  
Brive Cedex  
19107  
France  
**Contact:** Mr Willy Banc  
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**F:** + 33 555 860 563  
**E:** willy.banc@preciamolen.fr

## ZAO SMM

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Russia  
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**Job Title:** Commercial Director  
**T:** + 792 19373311  
**E:** sergey@zaosmm.ru  
**W:** www.zaosmm.ru/



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KEY	=	
SL	=	shiploaders
SUL	=	ship-unloaders
GL	=	grab loaders
GUL	=	grab unloaders
G	=	grabs
CSU	=	continuous ship-unloaders
BL	=	barge loaders
BU	=	barge unloaders
SU	=	self-unloaders & equipment
BE/L	=	belt conveyors/loaders
S	=	stackers
R	=	reclaimers
S/R	=	stacker/reclaimers
C	=	conveyors & accessories
F-E L	=	front-end loaders
H	=	hoppers
MHE	=	mobile bulk handling equipment
Cr	=	crushing
Sc	=	screening
Bln	=	blending
Wg	=	weighing
S&I	=	sampling & inspection
DC	=	dust control & suppression
DC&A	=	drives, controls & automation
ES	=	enclosed storage
SS	=	stockyard systems
RL/U	=	railcar loaders/unloaders
EC	=	engineering consultants
O	=	other



	SL	SUL	GL	GUL	G	CSU	BL	BU	SU	BE/L	S	R	S/R	C	F-E L	H	MHE	Cr	Sc	Bln	Wg	S&I	DC	DC&A	ES	SS	RL/U	EC	O
2000 Engineering																													
4B BRAIME Components																													
A. Friedr Flender AG																													
A/S Cimbria																													
ABB AB																													
Abbey Rollers Limited																													
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Achenbach GmbH Metalltechnik																													
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Alex Stewart International Corporation Ltd																													
Amec Foster Wheeler																													
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Anindya																													
Anvil Attachments																													
Applied Conveyor Technology, Inc. DBA The ACT Group																													
Arlona Engineering																													
AS RIKON																													
ASGCO "Complete Conveyor Solutions"																													
ASGCO Manufacturing																													
Ashton Bulk Ltd																													
ATIC Services																													
Atlas Manufacturing Co. Inc																													
August Penkert GmbH																													
AUMUND Foerdertechnik (AUMUND Group)																													
Aurecon																													
Aurecon																													
B.V. BECO																													
Babcock & Wilcox Loibl GmbH																													
Bauer Gear Motor																													
Bedeschi Mid-West Conveyor																													
Bedeschi SpA																													
Bekaert NV																													
Bendezu Port Equipment GmbH																													
Benetech GmbH																													
Benetech USA																													



	SL	SUL	GL	GUL	G	CSU	BL	BU	SU	BE/L	S	R	S/R	C	F-E L	H	MHE	Cr	Sc	BIn	Wg	S&I	DC	DC&A	ES	SS	RL/U	EC	O
CPS Projects (Pty) Ltd	✓																												
Cranes Machinery Co., Ltd (CMC)	✓																												
CST Covers	✓																												
CST Storage	✓																												
CWA Engineers Inc.	✓																												
Dalian Huarui Heavy Industry International CO. LTD	✓																												
DCL, Incorporated	✓																												
De Regt Conveyor Systems	✓																												
DeMarco Industrial Vacuum Corporation	✓																												
DemcoTECH Engineering	✓																												
Den Bakker Dustcrusting Technology b.v. (dbd global b.v.)	✓																												
Deutsche Großwälzler GmbH 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 Solutions Inc	✓																												
E-Crane World Wide	✓																												
E-Crane World Wide / E-Crane International USA	✓																												
EDGE INNOVATE. (NI) LTD	✓																												
Egis Ports	✓																												
EIFFEL Etablissement SOMDEL	✓																												
Elecon Engineering Company Ltd	✓																												
Elecon Singapore PTE Ltd.	✓																												
Elgin Engineering and Construction	✓																												
EMS-Tech Inc	✓																												
EMTICI Engineering Co Ltd	✓																												
Enco Engineering Inc	✓																												
Engicon nv	✓																												
Enviro Abrasion Resistant Engineers Pvt. Ltd	✓																												
EPN Solutions	✓																												
EQUIPO LLC	✓																												
Eriez Europe	✓																												
Esch Group bv	✓																												
ESI Eurosilco BV	✓																												
Essar Industries	✓																												
Euromec Srl	✓																												
Euro-Tranco BV	✓																												
F E Schulte Strathaus GmbH & Co KG	✓																												
F L Smidth A/S	✓																												
Fairport Engineering	✓																												
FAM Magdeburger Förderanlagen und Baumaschinen GmbH	✓																												
Famak SA	✓																												
Fantuzzi Reggiane S.p.a	✓																												
FELD Maschinen-und Industriebau GmbH	✓																												
Fenner Dunlop Conveyor Belting Europe	✓																												
Fenner plc	✓																												
FFE Ltd	✓																												
Figeo Crane Services BV	✓																												
Flexco	✓																												
Flexco Europe GmbH	✓																												
Flexicon Corporation	✓																												
Flexoveyor Conveyor	✓																												
FLSmidth GmbH	✓																												
FLSmidth Minerals Pvt. Ltd	✓																												
FLSmidth Wadgassen GmbH	✓																												
Franz Wölfer Elektromaschinenfabrik Osnabrück GmbH	✓																												

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Frigate Teknologies Private Limited																														
Gama Endustri Tesisleri																														
Imalat Ve Montaj AS																														
Gambarotta Gschwendt																														
Ganz Danubius Trading Co Ltd																														
Garwood Consulting Ltd																														
General Kinematics Corp.																														
Geo - Chem Laboratories Pvt. Ltd																														
Geometrica Inc																														
Gertech Handling Systems cc																														
GGT Goldengrain Trading SA																														
Golden West Industries																														
Goodman Conveyor Company																														
Gordinne & Co NV/SA																														
Graviload Limited																														
Guttridge Limited																														
Guyen Grab and Machine Ltd. Co																														
Hangzhou Huaxin Mechanical & Electrical Engineering Co., Ltd																														
Hans Turck GmbH & Co. KG																														
Hansen Industrial Transmissions (HIT) Ltd																														
Hansen Industrial Transmissions (HIT) nv																														
Hapman																														
Hasel Machinery Inc																														
Haskoning India Pvt Ltd																														
HASLER GROUP SAS																														
HAUGEN System AB																														
Hitachi Construction Machinery (Europe) NV																														
Horizon Conveyor Equipment																														
HOSCH-Fördertechnik																														
Recklinghausen GmbH																														
Huadian Heavy Industries Co., Ltd.																														
Hycontrol Limited																														
Hyundai Heavy Industries Co																														
IBAU HAMBURG																														
Igus GmbH																														
IHI Transport Machinery																														
Covan., Ltd. (IUK)																														
IMASA																														
IMGS																														
IMO Germany																														
Imperial Technologies, Inc.																														
Incolab Services BV																														
Inspectorate International Ltd																														
Instral B.V.																														
Intermodal Solutions Pty Ltd																														
International Bulk Handling Technology BV																														
Intersystems																														
iSAM AG Gesellschaft fuer angewandte Kybernetik																														
Isomonte SA																														
Italgru S.r.l																														
J & B Grabs b.v.																														
James A. Redding Company																														
Jansen & Heuning																														
Jenike & Johanson Inc.																														
JFE Engineering Corporation																														
Jiangsu Zhendong Port Machinery Manufacturing Co., Ltd																														
Jim Way Enterprise Co., Ltd																														
Johannes Hubner Fabrik elektrischer Maschinen GmbH																														
Joy Global Inc																														
JSC Tehnoros																														
Kalenborn Kalprotect GmbH & Co. KG																														
KCT Grab Industry																														
Kinergy Corporation																														
Kingfisher Industrial Ltd																														
KINSHOFER GmbH																														
Kiruna Wagon AB																														
Kleemann GmbH																														
Knight Energy Services Limited																														
Kocks ARDEL																														

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Komatsu Mining Corp.																													
Konecranes (France)																													
Konecranes Finland Corporation																													
Konecranes Hafertechnik GmbH																													
KPI-JCI and Astec																													
Mobile Screens																													
KRANUNION GmbH																													
Krech Ojard & Assoc																													
Kröger Greifertechnik GmbH & Co. KG																													
Laing O'Rourke																													
Larsen & Toubro Limited																													
Lassing Dibben Consulting Engineers Ltd																													
Lawrence Industries, Inc.																													
Legacy Building Solutions, Inc.																													
Libran Engineering and Services																													
Liebherr-Hydraulikkbagger GmbH																													
Liebherr-MCCtec Rostock GmbH																													
Lion Bulk Handling b.v.																													
Listenow GmbH & Co.																													
Logmarin Advisors Srl																													
Lycopodium																													
Macawber Engineering, Inc																													
MacGregor SWE AB																													
Mack Manufacturing Inc																													
Mactenn Systems Ltd.																													
Mantsinen Group Ltd Oy																													
Marine Inspection LLC																													
Martin Engineering																													
Martin Engineering GmbH																													
Maschinen und Mühlenbau Erhard Muhr GmbH																													
Matrix PDM Engineering																													
MegaDome® Buildings by Harnois																													
MegaRoller																													
Mentor Dynamics																													
Merrick Industries																													
Metso Minerals Industries, Inc.																													
Midwest Industrial Supply Inc																													
Midwest International Standard Products, Inc.																													
Mitsui Miike Machinery Co., Ltd.																													
Mobile Conveying Systems																													
Moffatt & Nichol																													
MoleMaster Services Corporation™																													
Monolithic Dome Institute																													
Motherwell Automation																													
Motridal SpA																													
MRS Greifer GmbH																													
Natural Grabs																													
NAVCO (National Air Vibrator Co)																													
Negrini Srl																													
Nemag BV																													
NERAK GmbH Fördertechnik																													
Neuro Industrieteknik GmbH																													
NILOS GmbH & Co KG																													
NK Tehnologija SIA																													
NM Heilig BV																													
NMH s.r.o																													
Nordströms Konstruktionsbyrå																													
Nordstrong Equipment Ltd																													
North American Crushing & Screening, LLC																													
N-service ApS.																													
NSL Engineering Pte Ltd																													
o.z. HENNLICH ENGINEERING																													
Offshore Bulk Terminal Pte Ltd																													
Orthos Projects Ltd.																													
ORTS GmbH Maschinenfabrik																													
Oxbow Energy Solutions BV																													
P.T. Mitra S.K. Analisa testama																													
PAGE MACRAE ENGINEERING																													
Paket																													
Parker Plant Ltd																													
PEBCO®																													
Peinemann Cranes																													
PEINER SMAG Lifting Technologies GmbH																													



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SENNEBOGEN																														
Maschinenfabrik GmbH																														
Sensor Technology Ltd																														
SERAM GROUP																														
SESCOTRANS For																														
Developed Logistics (SAE)																														
SEW-EURODRIVE GmbH & Co KG																														
SGS (Nederland) BV																														
SGS Australia Pty Ltd																														
SGS Minerals Services																														
SGS Minerals Services																														
Shanghai Global Machinery. Co., Ltd (SGMC)																														
Shanghai Guan Hai Engineering Co.,Ltd																														
Shanghai Janus Grab Co., Ltd.																														
Shanghai Peiner Smag Machinery Co.,Ltd																														
Shanghai Qifan Co., Ltd.																														
Shanghai Yo-Pi Port Machinery Co. LTD																														
Shanghai Zhenhua Port Machinery Co (ZPMC) Ltd																														
Shanthi International																														
Shaw Almix Canada																														
SIBRE - Siegerland Bremsen GmbH																														
SIDERAR / TERNIUM																														
Siebertech GmbH																														
Siemens AG International																														
Siemens Nederland NV																														
SIG Società Italiana Gomma Spa																														
Simplicity Projects Pvt Ltd																														
Swertell AB																														
Sly Incorporated																														
SMB International GmbH																														
Smiley Monroe Ltd																														
SMM-UM Sociedade de Montagens Metalomecnicas SA																														
Solitec Engineering Ltd																														
Sotecma inc																														
STAG AG																														
Stemm Equipos Industriales, S.L.																														
Stewart Inspection and Analysis (Pty) Ltd																														
STM srl																														
Stock Equipment Company																														
Stokman BV																														
Strudes Inc																														
STUDIO TECNICO MALNATI SAS																														
Sucofindo																														
Sumitomo Heavy Industries Material Handling Systems Co.																														
Superior Industries, Inc.																														
Swire CTM Bulk Logistics																														
Synergy Engineering Ltd																														
TAIM WESER GmbH																														
TAKRAF GmbH																														
Tank Connection																														
TBA Doncaster																														
TBS Shipping Services																														
Tebodin Consultants & Engineers																														
techNaero aps																														
Telestack Limited																														
Tema BV																														
TEMA Systems Inc.																														
TENOVA S.p.A - Tenova Takraf Italy																														
Tenova TAKRAF Africa																														
Terex Deutschland GmbH																														
Terex MHPS GmbH																														
Teufelberger Seil Ges.m.b.H																														
The China Navigation Co. Pte. Ltd																														
The Grab Specialist b.v.																														
The Raring Corporation																														
Thermo Fisher Scientific																														
THIELE GmbH & Co KG																														
ThyssenKrupp Canada																														
thyssenkrupp Industrial																														

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Solutions AG	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
ThyssenKrupp Industrial Solutions South Africa - Resource Technologies	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
ThyssenKrupp Robins, Inc.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
TME BV	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
TMEIC	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
TMSA Tecnologia em Movimentação S/A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Tranco, Inc	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Trans Elektro	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Trans-Global Solutions, Inc.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Transship LTD	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
TRF Limited (TATA)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Triodetic	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Triple Point Technology	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Tsubaki Kabelschlepp GmbH	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Tsubakimoto Bulk Systems Corporation	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
TTS (Transportation Technology Systems) LLC	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
TTS HuaHai Ships Equipment	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
TTS Marine AS	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
United Bulk Terminals USA, Inc.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
V D D B (Pty) Ltd	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Veenstra Machinefabriek B.V.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Ventyx	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Verachtert Nederland B.V.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Verstegen Grijpers BV	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Vibrafloor	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Vollert Anlagenbau GmbH	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Vortex Global	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Vossloh Kiepe GmbH	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
VSR Industrietechnik GmbH	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
WeatherSolve Structures	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Wellasiana Technology Co, Ltd	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Wirtech AG	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Wolf Point Engineers & Contractors	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Worley Parsons Canada (Westmar)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
WSP	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Wuvio Chemicals International	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Yemaux-Passage	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
ZAO SMM	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓



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