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JANUARY 2013 issue

featuring...

Grain import demand falters

Global dry bulk seaborne trade looks set to continue growing at a moderate rate during 2013. Some negative influences are very prominent, however, and there is great uncertainty about how other factors will evolve. Grain trade has weakened but may regain momentum later this year. Industrial commodity movements could benefit from any pick up in economic activity.

In recent weeks, a few positive signs have emerged among statistics providing clues to the health of key economies determining world import demand for dry bulk commodities. It is not yet clear yet entirely whether Europe is moving towards a slow improvement, and Japan's progress has been uneven. But indications for China in 2013 have begun to seem distinctly more encouraging.

Grain

Although forecasts of grain trade in the current crop year show a large decline, prospects are not quite as negative as predicted earlier. A few months ago, an 8% reduction seemed likely. The latest International Grains Council estimates suggest that world trade in wheat and coarse grains could be down by less than 6% in crop year 2012/13 ending June, compared with the previous twelve months, at 254.4mt (million tonnes) (table 1).

Much higher international grain prices, resulting from greatly curtailed supplies available in a number of key exporting countries, have caused a widespread weakening of import demand around the world. Among the very few importers likely to increase foreign purchases is the European Union, where the 2012/13 volume could rise by 11% to 15.3mt. This upturn follows a sharply reduced EU domestic corn harvest last summer.

Iron ore

Steel industry raw materials trade has derived strong support from China in the past year. During the January–November 2012 period, imports of iron ore into China (including some land movements, but mostly seaborne) increased by almost 52mt or 8%, reaching a total of 675mt.

This growth in iron ore trade's dominant component was especially beneficial at a time when there were only limited advances in other country's purchases and, apparently, a reduction in Europe. Over the next twelve months further expansion of Chinese imports is expected. Another increase could enable global iron ore trade to continue growing, despite probably not much additional demand elsewhere among other importers.

Coal

Positive factors affecting coal trade are more widely spread. In many countries rising electricity generation based on imported coal is a trend which could continue this year and well beyond. The focus is on Asia in particular, but in Europe also events during the past twelve months have demonstrated that there is potential for additional import demand to appear.

An updated forecast, published in mid-December by Australia's Bureau of Resources and Energy Economics, suggests that global metallurgical coal trade (coking coal plus steam coal grades used in the steel industry) could increase robustly in 2013. After an estimated 5% rise to 272mt last year, the total is predicted to grow again by a similar percentage, reaching 286mt. Much higher imports into India and China are foreseen

Minor bulks

Imports into the European Union, from external origins, form a large element of world trade in steel products. In 2012 these imports may have fallen very sharply from the 29mt total seen in the previous year. According to recent estimates by Eurofer (European Steel Association), this year could see a turnaround, resulting in a modest 3% rise.

Bulk carrier fleet

The Handysize (10-39,999dwt) bulk carrier fleet's expansion has been modest over the past two years, at about 3% annually, as shown by table 2. In 2012, higher newbuilding deliveries were accompanied by a large increase in scrapping. During the twelve months ahead, tentative indications point to slower growth, amid a sharp fall in newbuildings delivered.

TABLE 1: GLOBAL WHEAT & COARSE GRAINS IMPORTS (MILLION TONNES)

	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13*
Asia (excluding Japan)	44.3	45.2	50.1	55.4	58.3	53.6
Japan	23.4	23.8	25.4	24.7	23.6	23.9
Middle East	32.3	50.1	42.5	34.9	45.3	41.5
Africa	46.2	55.0	52.6	52.9	59.0	54.9
Others	93.2	75.4	69.7	74.7	84.0	80.5
World total	**239.4**	**249.5**	**240.3**	**242.6**	**270.2**	**254.4**

source: International Grains Council, 24 November 2012 **forecast* *July/June crop years*

TABLE 2: HANDYSIZE 10-39,999 DWT BULK CARRIER FLEET (MILLION DEADWEIGHT TONNES)

	2007	2008	2009	2010	2011	2012*
Newbuilding deliveries	2.3	3.0	5.0	8.3	9.2	10.0
Scrapping (sales)	0.3	1.7	5.6	2.7	5.3	7.5
Losses	0.1	0.0	0.2	0.0	0.2	0.1
Plus/minus adjustments		-0.1	0.2	0.1	-0.9	0.0
World fleet at end of year	**75.0**	**76.2**	**75.6**	**81.3**	**84.1**	**86.5**
% change from previous year-end	+2.4	+1.6	-0.9	+7.6	+3.4	+2.9

source: Clarksons (historical data) & Bulk Shipping Analysis 2012 forecast **forecast*

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Bulk export of coal from Botswana via

Grindrod Terminals was one of the four partners to have participated in the recent rail trial to export coal from Botswana via the Maputo corridor.

The Maputo Corridor is a major trade corridor which connects the Gauteng, Limpopo, and Mpumalanga provinces of South Africa with the Port of Maputo, port and the capital of Mozambique. The corridor comprises roads — including the new N4 highway — and railways, ports, and border facilities at Komatipoort which connect the industrial areas around Gauteng, and mines and agricultural districts to the east, with ports on the Mozambique coast. Maputo and Matola are both deepwater ports. Transport organizations and border control agencies are co-operating to improve transport and lower barriers to trade.

On 11 November a 34-wagon train loaded with 1,600 tonnes of coal arrived at Grindrod's coal terminal in Maputo Port, having covered the 1,300km from Francistown in Botswana in three days, travelling via Bulawayo in Zimbabwe.

The trial was sponsored by African Energy Resources, Morupule Coal Mine in Botswana, Vitol Coal South Africa (energy and raw commodities trader in which Grindrod has an interest) and Grindrod Mozambique. It involved the collaboration of three railway operations - Botswana, Zimbabwe and Mozambique.

A statement released by African Energy said, "Botswana Railways undertook assembly of the 400m-long train at Francistown Station. A Botswana Railways (BR) crew and locomotive then took the train to the Zimbabwean border, where a National Railways of Zimbabwe crew and locomotive took over. A further crew and locomotive change to Caminhos de Ferro de Mocambique was made at Chicualacuala in

Maputo corridor – a feasible option

Mozambique to take the train to the Matola Coal Terminal which is operated by port operator Grindrod Terminals and Vitol. African Energy, Morupule, Grindrod and Vitol shared the costs for the export trial.

"African Energy and Morupule Coal Mine have transferred ownership of the coal to Vitol at Maputo (at no cost). The coal has been unloaded at the Grindrod Coal Terminal in Maputo Port where Vitol and Grindrod will blend the cargo with other coal in their stockpiles. It will then be sold and subsequently loaded into bulk carriers at the terminal as part of routine coal export operations, marking the first time that Botswana coal has been exported to overseas markets.

"This trial not only proved conclusively that bulk export of coal from collieries in Botswana via the Maputo corridor is feasible, but also provided invaluable technical information on the operation of rail services to assist African Energy's feasibility study into coal exports from Botswana which is due to be discussed with the government of Botswana and other parties in early 2013.

"Of significance is that for much of the overall route the train was able to meet or exceed the anticipated operating speed of 50km/h, indicating that with appropriate maintenance budgets from increased traffic volumes, significant improvements in turnaround time will be possible."

Higher rate of planting leads to record

In Brazil, a record soya crop will allow 55mt (million tonnes) of beans, meal and oil to be exported this year. A total of 28mt of the beans will go to China.

It is anticipated that 83–85mt of soya beans will be harvested in Brazil this year, 20mt more than in 2012.

About 55mt of soya products will be exported, 6mt more than the previous record of 2011.

This will be the first time ever more than 80mt of soya has been harvested in Brazil and only the second time more than 70mt has been produced.

Spurred by the high prices and strong demand which followed news of the severe drought in the United States last year, farmers planted 9% more land to soya last year than in 2011, an extra 2.3 million hectares.

China is expected to buy 28mt of the beans, about 75% of the total. As in past years, most of the meal will go to countries in Europe, notably the Netherlands.

China may also be the leading market for the 2.7mt of soya oil to be shipped 2012/13.

An all time record 20.5mt of maize was shipped last year, almost twice as much as ever before, with high prices and strong demand for the grain was also spurred by the US drought.

Perhaps surprisingly, many farmers gave priority to soya rather than maize as a summer crop for 2012/13. This is because the oilseed is easier to grow and to sell than maize.

About 3.3mt less maize will be harvested this year than the record 72.3mt of 2012. The increasingly important winter crop, however, planted in the states of the centre west, as well as Parana immediately the early soya has been harvested, will be a repeat of last year's.

Maize is shipped from June onwards, after most of the soya has left and pressure at the ports has subsided. Although maize still has to compete with sugar, the export of which peaks in September and October.

China calls the shots

Back in 2002, only 4mt of Brazil's soya beans went to China, taking 45 days to travel the 11,000km which separate the Port of Santos from Shanghai.

But 28mt of the 35mt of beans to be shipped this year will go to China and about half the beans imported by China will be Brazilian.

Because transport facilities in Brazil are so poor, it costs about $75 more to get each tonne of beans from there to China than it does to get a tonne of the beans grown in the state of Iowa to Shanghai.

Beans grown in the US leave from Gulf ports and travel via the Panama canal.

Even though the Chinese economy is not expected to grow at the two digit levels of the past decade from now on, several million inhabitants continue to migrate from the countrywide to cities each year.

They eat more and better than they did in the countryside, notably more meat such as pork and chickens. Animals are fed mainly on soya meal and maize, so more grains will have to be imported by China each year from now on to keep pace with growing demand.

With the cost of transport rising steadily in Brazil, as wages rise and congestion increases, farmers in Brazil receive much less of the export price than do farmers in the United States.

Along with neighbour Argentina, Brazil is one of the few countries with the potential to produce much more soya and maize — that is, as long as the price is high enough to encourage farmers to plant.

About half of the soya beans shipped to China are grown in the south and south east of Brazil, on farms about 500–600km from the sea. The proximity of this region to ports means it costs about US $80 to get a tonne of the grains grown in the south to nearby Paranagua or Rio Grande.

But there is little spare land in the south of Brazil and most of extra comes from three states in the centre west, Mato Grosso, Mato Grosso do Sul and Goias, as well as from four states in the north east, far further from the sea.

It costs about $125 to carry each tonne of soya or maize the 2,500km from Mato Grosso to Santos and Paranagua, the ports most favoured by Chinese importers.

It takes two or three days less to get soya from ports such as Itaqui, or Ilheus in Brazil's north east, as well as from ports on the Amazon river, such as Itacoatiara and Santarem to China than from Santos. But the high tolls levied to on ships using the Parana Canal means the longer route from the ports in the south, via the Cape of Good Hope, is more attractive to the Chinese.

With farm commodities such as soya, maize, sugar, meats, coffee and cotton responsible for a steadily growing share of Brazils earnings from export, the government has launched an ambitious plan for improving logistics in the next ten years.

At the moment, 65% of all the goods moved in Brazil travel along increasingly congested and often poorly maintained roads.

The new plan envisages the share of goods going by road falling to about 30% by the mid 2020s.

By then, the share of goods carried by rail is planned to have risen from 25% to 35%, while that moved along waterway, the lowest cost mode of all, but handicapped by the fact that few rivers are navigable in Brazil as yet, is scheduled to increase from

crop — and exports — of Brazilian soya

Brazilian soyabeans ready for harvest.

13% of the total to 29%. 62 new locks are planned, mainly for rivers in Amazonia.

About $20 billions is also to be spent on upgrading ports, where trucks can now wait up to a week to unload. Ships loading soya, maize and sugar may have to queue for much longer than that for a berth, incurring high demurrage charges in the process.

Included in the plans are new routes which will allow the bloc trains of hopper wagons, able to carry soya, maize or sugar, which have been bought by the trading companies in the past few years to get grains to the ports faster, as well as to load and unload them much more rapidly than has been possible until now.

Most trains on their way to Santos now have to pass through the centre of Brazil's largest city, Sao Paulo, in the dead of night, when commuter services cease running. However, according to the plan, two new rail links will avoid the city altogether.

The north-south railway, which links with Vale's Carajas line, which terminates at the deep water port of Itaqui and run through half a dozen leading soya producing states to terminate west of Sao Paulo city on the way, is be completed next year.

Two brand new east-west lines to link the north-south railway, with Atlantic ports in the states of Pernambuco, Bahia, and Ceara, are also scheduled for completion by 2015 or so.

Unfortunately, precedents for the completion on time and on budget of infrastructure projects are not encouraging.

Building the north-south railway began 25 years ago, but even now, only about 20% of the planned track is open to traffic. Some faulty track has had to be re-laid at high cost.

Cost over runs are a major problem, and some infrastructure projects have ended up costing up to seven times as much as was originally budgeted, as well as taking at least three times as long to build as anticipated.

Largely because of bureaucratic difficulties and the lack of trained personnel able to supervise projects efficiently, less than 20% of the funds allocated to infrastructure projects each year has been actually spent in the past.

The shortage of trained and experienced manpower, as well as competent managers, is probably the greatest obstacle to the new projects coming to fruition as planned.

The need for a better transport system is becoming increasingly urgent, however, as the supply of many crucial commodities continues to increase far faster than the ability to get them on board ships.

Earnings from the exports by the farm sector, as well as of minerals, have prevented Brazil's trade balance from being negative in the past few years.

Because of the surge in costs, notably of wages, which have risen by 80% in the past 10 years, Brazil is no longer a competitive exporter of manufactured goods such as vehicles, footwear and machinery.

The unprecedented increase in production of grains this year shows that Brazil has the potential to grow much more of the food the world badly needs.

But for this to happen, the grains have to be got on board ships at a reasonable cost.

Patrick Knight

Dry bulk trade's healthy progress

Richard Scott, Bulk Shipping Analysis

Over the past year economic activity around the world slowed further and, in some countries, a return to recession was experienced. Yet global commodity import demand continued growing. Based on very provisional figures, world seaborne dry bulk trade seems to have expanded by 4% or more in 2012. This result represents a decent outcome amid decelerating growth in many of the industries which use these commodities.

Prospects for dry bulk trade in 2013 are heavily dependent on whether the world economy's performance weakens again or, as optimists argue, begins to pick up. Business and consumer spending in a number of countries may revive if confidence improves, although government spending is likely to remain constrained. Expectations of a revival in industrial output imply strengthening import demand for numerous commodities.

Recently there have been some clearer signs that another deterioration in global economic activity can be avoided, and a slowly improving trend may emerge. Evidence pointing to a turnaround towards stronger expansion in China has been especially notable. Elsewhere more convincing indications are still awaited, particularly in Europe where recession seems set to persist in the early months of this year, at least.

Seaborne dry bulk trade in 2013 could grow at a quite healthy pace, possibly at a 3–4% rate. Additional volumes in the minerals sector are likely to form a large part of the incremental overall quantity. Extra iron and coal shipments, in particular, may represent over two-thirds of the total increase in all cargoes.

Economic growth aspects

The latest half-yearly report of the Organisation for Economic Co-operation and Development, published at the end of November, underlined the very difficult circumstances facing the world economy. According to the authors, "after five years of crisis, the global economy is weakening again...the risk of a new major contraction cannot be ruled out".

However, based on a crucial assumption that governments' policy actions will be sufficient to avert large adverse risks, the OECD expects recovery to begin during 2013. As shown by table 1, GDP growth within the OECD area (mainly comprising the advanced economies of USA, Europe, Japan and South Korea) this year is forecast at a very modest 1.4%, similar to last

TABLE 1: GDP GROWTH IN KEY ECONOMIES (% CHANGE FROM PREVIOUS YEAR)

	2007	2008	2009	2010	2011	2012*	2013*
OECD area#	2.7	0.2	–3.8	3.1	1.9	1.4	1.4
USA	1.9	–0.3	–3.1	2.4	1.8	2.2	2.0
Eurozone	3.0	0.4	–4.4	2.0	1.4	–0.4	–0.1
Japan	2.2	–1.0	–5.5	4.5	–0.8	1.6	0.7
China	14.2	9.6	9.2	10.4	9.2	7.5	8.5
India	10.0	6.9	5.9	10.1	6.8	4.4	6.5

source: IMF, OECD Economic Outlook (27 November 2012) ** forecast* *# mainly USA, Europe, Japan and Korea*

year's average increase, followed by an acceleration in the following twelve months.

This sluggish progress envisaged is described as a hesitant and uneven recovery with growth "struggling to accelerate through 2013". Even in the USA, where a relatively good performance may be seen, GDP growth may be only around 2% next year. The eurozone probably will remain in or near recession for some time. In Japan, after an improved performance last year when there was a bounce back from the impact of the natural disasters in the previous year, a slowdown is foreseen.

Why is activity among these highly-developed economies so sluggish? One key reason emphasized by the OECD's report is weak confidence, which deters spending, both by businesses and consumers. This is occurring against a background of deleveraging (paying down debt), fiscal consolidation (tax increases and cuts in public spending) by governments, and high and rising unemployment in some countries.

In China a rather better outlook is emerging. If this view proves accurate, it could greatly assist global economic activity as a whole. China's annual GDP growth has slackened by almost three percentage points over the past two years, from 10.4% in 2010, to an estimated 7.5% in 2012. But in 2013 an acceleration to 8.5% is forecast, aided by renewed emphasis on infrastructure and housing investment and looser monetary policy.

A World Bank report published last month focuses attention on the favourable impact in China of easing credit conditions and benefits from additional public spending on investment. The Chinese authorities recently accelerated approval of a large number of major projects including urban rail systems, highway construction, city infrastructure projects, and ports and waterway development, with a total value of more than Rmb 1,000 billion. These projects could provide a substantial boost for the economy.

Emerging market economies as a group — including China, India and others — look set to continue to outperform (compared with the advanced countries). In many emerging countries, there is greater scope for government monetary and fiscal policy action to support economic activity. There are already clear signs that growth is beginning to pick up after an extended period of softness.

Steel industry minerals

Economic progress and patterns can be directly related to the steel industry raw materials trades, primarily iron ore and coking coal. During the past twelve months these movements have been restrained by weakness or slower growth in steel demand and production in Europe, Japan and Korea.

By contrast China's imports of iron ore strengthened robustly last year, despite slowing economic growth and its adverse impact on steel requirements. Unlike other key importing countries, output from the large domestic iron ore mining industry is also a factor affecting Chinese purchases from

In 2013 world steel demand growth will become moderately stronger, at 3.2%, according to the WSA's figures.

TABLE 2: WORLD SEABORNE DRY BULK COMMODITY TRADE (MILLION TONNES)

	2007	2008	2009	2010	2011	2012*	2013*
iron ore	787.5	844.0	905.0	1,005.0	1,069.0	1,115.0	1,160.0
coal	810.6	823.6	841.7	951.0	1,012.8	1,080.0	1,140.0
grain (including soyabeans)	274.1	290.3	294.4	296.5	309.8	318.0	325.0
other dry bulk commodities	1,219.0	1,222.0	1,081.0	1,247.0	1,348.0	1,390.0	1,425.0
total dry bulk trade	3,091.2	3,179.9	3,122.1	3,499.5	3,739.6	3,903.0	4,050.0
% growth from previous year		2.9	–1.8	12.1	6.9	4.4	3.8

source: Bulk Shipping Analysis estimates and forecasts **forecast*

foreign suppliers. Greater proportional dependence on these foreign sources boosted import demand from Chinese buyers.

Estimates of steel demand in key countries, published by the World Steel Association last October, highlighted contrasting changes in steel demand taking place. After the robust 2011 year, when global apparent steel use rose by 6.2%, the 2012 increase was expected to be only 2.1%. A deteriorating trend in the European Union was especially marked, from a 5.9% increase in the previous twelve months, to an estimated 5.6% reduction last year.

In 2013 world steel demand growth will become moderately stronger, at 3.2%, according to the WSA's figures. This improvement could be assisted by resumed but modest expansion in Europe, together with slightly quicker 3.1% growth in China, although in Japan a slackening trend is expected. These forecasts still seem valid, but some signs in recent months point to prospects for China improving further.

Iron ore and coking coal movements associated with the steel industry together comprise over one-third of global seaborne trade in all dry bulk commodities, and are the largest element. Last year iron ore trade, which is the biggest part of that category, apparently grew by over 4% based on partial information, and a similar expansion rate seems achievable this year, as shown by table 2.

Forecasts of China's import demand are a key item, because these movements dominate global seaborne iron ore trade, comprising about two-thirds. The latest quarterly report by Australia's Bureau of Resources and Energy Economics (BREE), published in mid-December, suggests that China imported 730mt (million tonnes) in 2012, a 6% increase, and predicts a 5% rise to 769mt in 2013. These quantities include some land trade, but are mostly seaborne.

This positive view of China's iron ore imports is based on expectations of the country's steel consumption, during the year ahead, increasing again by about 4%. A similar percentage rise in crude steel production is forecast to result, raising the total to 732mt. Benefits from infrastructure projects and stimulus spending authorized by the Chinese government are envisaged, while higher steel products exports could also strengthen output volumes.

Coking coal imports into China are on a much smaller scale, but still sizeable. BREE estimates 49mt last year, followed by 58mt this year. Among other key steel producing countries importing coking coal, some additional volumes are foreseeable during 2013. A positive trend in India, where an upwards trend has been under way for several years, is a notable development.

Global seaborne coking coal trade as a whole evidently increased over the past twelve months and signs indicate further growth in the year ahead. Import demand prospects are not entirely bright, however. Sharply higher volumes in China and India could be accompanied by little or no growth in purchases by many European countries and Japan, reflecting fairly flat steel production trends in those areas.

Power station fuel

The second part of coal trade, much larger than coking coal, is steam coal which is used mainly in power stations but also in the cement and some other manufacturing industries. Seaborne trade in this sub-sector appears to have expanded quite rapidly by about 7% last year. Some estimates point to good prospects for sustained growth in 2013, possibly reaching 5–6%.

Strongly rising demand for electricity, expansion of coal-fired generation capacity, and greater reliance on foreign supplies in some countries which have domestic coal mines, are factors contributing to the upwards steam coal trade trend. Among Asian countries these features are especially prominent.

Despite environmental pressure encouraging switching to alternative, cleaner fuels, the economic advantages of coal remain compelling for many countries. Difficulties in the nuclear power industry have also reinforced a focus on steam coal, although competition from natural gas is intense. Two countries still emphasizing coal-fired power generation are India and China, and imported supplies seem set to have an expanding role in both.

Another positive influence affecting steam coal trade has been additional volumes following Japan's severe earthquake and tsunami in early 2011. Major nuclear generation plants were damaged and this disaster led to the shutdown of the country's entire nuclear capacity, only a small part of which has been re-opened subsequently. Coal consumption, based on imported supplies, as well as usage of other fuels, benefited.

India's upwards trend in steam coal imports reflects rising power output from expanding coal-fired generation capacity. Another factor contributing to a tight market is shortfalls in supplies from the huge domestic coal mining industry. Steam coal imports may have exceeded 100mt last year and further strong growth looks certain, although the exact pace of development is less clear. Several vast new coal-fired power stations are being built at coastal locations accessible for imports.

Steam coal imports into China also have grown rapidly in the past few years, possibly reaching around 170mt in 2012, and there is potential for further expansion. Domestic coal mines supply most of the market, but shortages are periodically apparent. Competitive delivered prices for international supplies are often attractive for many buyers, particularly those located at or near the coast in the southern provinces at a great distance from domestic mines.

Food and feed

Seaborne trade in grain, oilseeds and other bulk agricultural commodities is also influenced by variations in economic growth trends. Over the short term, however, changes in weather

patterns affecting domestic crops in importing countries, or harvests in exporting countries, are often the main determinants of global trade in this sector.

During the past twelve months as a whole, seaborne grain trade (usually defined as comprising wheat, corn and other coarse grains, plus soyabeans) evidently increased moderately. In the 2012 first half positive developments were prominent, followed by a weaker period in the second half. After mid-year reduced supplies available from a number of key exporters, coupled with higher international prices, began greatly restraining global import demand.

IGC forecasts suggest that world trade in wheat and coarse grains could decline by about 16mt or 6%, in crop year 2012/13 ending mid-3013.

Statistics prepared on a crop year basis emphasize the weakness now clearly visible. Forecasts published at the end of November by the International Grains Council suggest that world trade in wheat and coarse grains could decline by about 16mt or 6%, in crop year 2012/13 ending mid-3013. From 270.2mt in the previous 2011/12 year, the total is expected to fall to 254.4mt.

Grain imports into China, the Middle East area, North and sub-Saharan Africa, and Mexico could be sharply lower in 2012/13. Positive changes are very limited. While Europe's purchases may rise, the incremental volume is likely to offset only a small part of reductions elsewhere.

Dramatic changes among suppliers are evolving. IGC calculations show exports of wheat and coarse grains from the Black Sea region — Russia, Ukraine and Kazakhstan — falling by 19mt (31%) in the current crop year, down to 41.2mt. Exports from the USA are estimated at 62.4mt, a 14% decrease. Australia's volume could decline by 16%, to 25.3mt. These downturns result from adverse weather diminishing harvests.

Although overall global grain availability is greatly diminished, not all changes among suppliers are negative. In particular, corn exports from Brazil could more than double in 2012/13, reaching a record high 20.5mt. Much larger wheat and other grain shipments from India are also a feature, estimated at 8.1mt, a 47% increase.

Soya trade, by contrast, appears set to continue growing, mainly because China's import demand is still on an upwards trend. According to a recent US Dept of Agriculture forecast, world trade in soyabeans and meal during the 2012/13 marketing year ending September is likely to be over 4mt (3%) higher, at 154.6mt.

Rising soyabean imports into China reflect strong consumption trends. Usage of soyameal in livestock feed has been expanding rapidly, while soyaoil usage in food manufacturing and home cooking has also increased. Another influence is falling domestic soyabean production. Consequently, China's soyabean imports are now huge, reaching 59.3mt in the past marketing year, and forecast to grow by a further 6% to 63.1mt in 2012/13.

Prospects for grain and soya trade later in 2013 are unclear at present. The mid-2013 harvests in northern hemisphere importing countries will have a large impact on foreign purchases. New crop production among exporters also will be influential. Much depends upon weather conditions, which are largely unpredictable, in all these countries over the months ahead.

Minor bulks

The vast and diverse group of minor bulk trades comprises many commodities related to industrial and construction activity, plus a number of agricultural commodities. Altogether this group provides roughly one-third of total seaborne dry bulk movements.

Among the 'industrial' sub-group the most prominent, as measured by the largest volumes, are steel products and forest products. Bauxite and alumina, iron and steel scrap, cement, salt, petroleum coke, and nickel and other ores also are large elements. Within the 'agricultural' sub-sector, substantial quantities of sugar, rice, oilseed meals, phosphate rock plus other fertilizer raw materials and semi-finished fertilizer products, are components.

Growth rates in these trades vary widely, but an average of about 3% seems to have occurred last year, based on very tentative calculations. This increment is estimated to have raised the total seaborne volume to almost 1,400mt. Agricultural commodity movements growth probably was slower, because of reduced sugar shipments.

Import demand for industrial commodities during 2012 was restrained by slowing economic activity, or in some countries recession. Infrastructure and construction work, to which several elements are very closely linked, slackened or declined in a number of areas, with adverse effects on usage of inputs.

Over the next twelve months global seaborne imports of industrial commodities are expected to continue growing moderately. Additional purchases by Chinese buyers may be a sizeable part of this positive evolution. A pick up in China's economic activity, based partly on extra infrastructure spending, could benefit minor bulk import demand as well as iron ore and coal purchases.

One trade where only very limited growth may be seen during 2013 is bauxite/alumina, after an apparent weakening last year. The latest BREE report estimates that world aluminium production increased by 2% last year, and may increase by less than 1% in the twelve months ahead. Closure of several smelters in Europe, a key raw materials importing area, is a negative factor. Conversely, China's aluminium output is still expanding. DCi

Coeclerici Logistics: taking bulk commodity

Coeclerici Logistics is one of the world's leading bulk commodities transshipment companies with a history of more than 30 years in this specific field. Technical innovations, cross-disciplinary expertise, skill optimization, a long direct operational experience and a proven track record are the main strengths of Coeclerici' s logistics branch.

The FTS Bulk Pioneer *in Indonesia (©Coeclerici Logistics).*

Coeclerici Logistics has engineered and promoted the use of 'floating terminals' throughout the world. These carry out all the same functions as a port terminal but with far smaller investments, lower management costs and less environmental impact.

These logistic alternatives to fixed port infrastructures are cost-effective solutions for solving logistic bottlenecks, such as port restrictions, draught limitations or lack of port facilities, thus improving the flow of raw materials to industry.

Coeclerici is therefore able to provide its customers with up-to-date ships built to the highest technological and safety standards by the world's most advanced shipyards.

The FSTS Bulk Wayuù *in Venezuela (©Coeclerici Logistics).*

The 53,776dwt Bulk Zambesi *in Beira, Mozambique (©Coeclerici Logistics).*

The FTS Bulk Irony *during operations in Piombino, Italy (©Coeclerici Logistics).*

The FTS Bulk Borneo *du at Muara Pantai in Indon*

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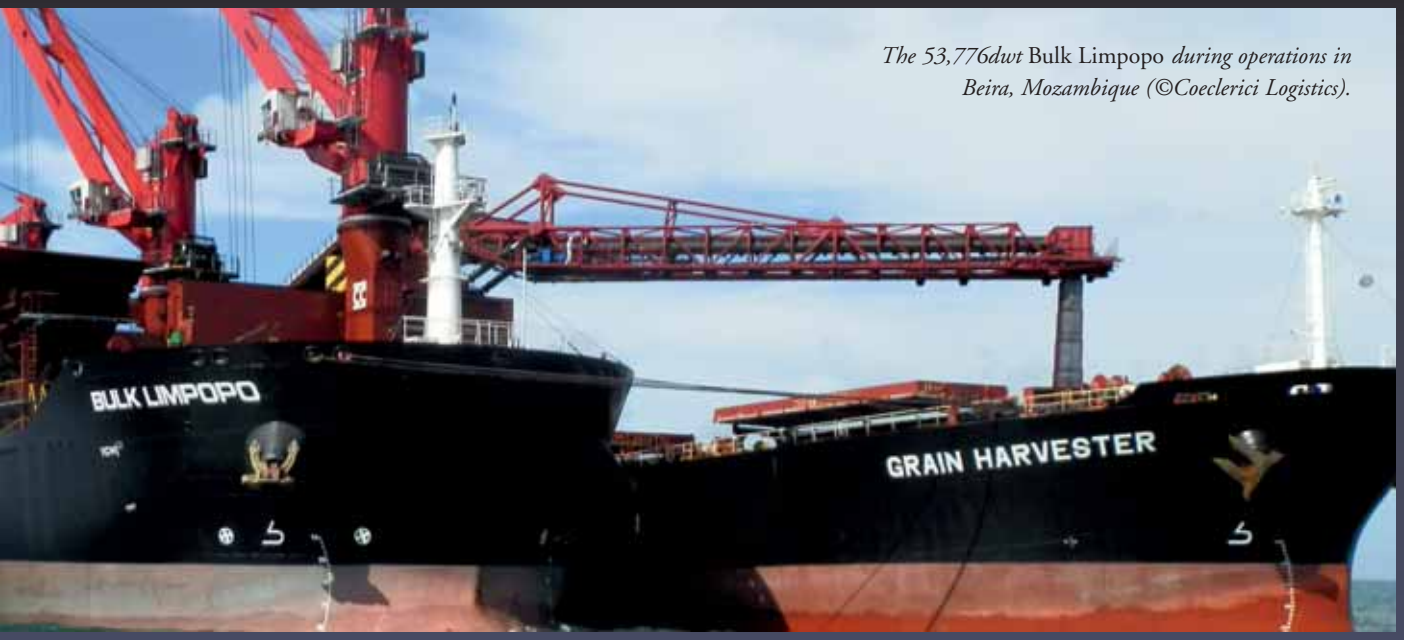

The 53,776dwt Bulk Limpopo *during operations in Beira, Mozambique (©Coeclerici Logistics).*

The upgraded Bulk Kremi I, *handling sulphur on the Black Sea (©Coeclerici Logistics).*

ring operations
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An aerial view of the FTS Bulk Java *in Indonesia (©Coeclerici Logistics).*

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Indian shipbuilding industry pushes for government subsidies

Chinese yards, such as Taizhou Kouan Shipbuilding of China, have long received government subsidies, especially in the early stages of growth.

Indian shipbuilders denied of government subsidy since 2007 suffer a cost disadvantage of up to 50% *vis-à-vis* their peers in China and to a lesser extent South Korea, which between them have a share of over 75% of global shipbuilding activity. In five years since the withdrawal of subsidy of 30% of ship cost, Indian industry's share of world order book for vessels shrank to 0.04% from 1.3%, wiping out all the gains that the incentive bequeathed during 2002/07. It is in this context and also because of slowing down in growth of international trade, euro zone slipping into recession for second time in four years and shipbuilders in China and South Korea competing hard for new orders, including offers of discount, the Indian shipping ministry's projection of the industry here raising its share of global ship construction market to 5% by 2020 looks unachievable. Shipping ministry officials, however, say that in case the government would accept its recommendation to reintroduce subsidy for shipbuilding though at a lower rate than earlier along with other fiscal incentives, conditions will be created for its rapid growth once again.

This is not the first time, however, that the ministry is making an attempt to convince the government of the compelling reasons for subsidy restoration though at half the earlier rate. While proposing a subsidy of 15% on prices of vessels built at local public and private sector yards, the ministry must have taken into account the untenable fiscal deficit that the country is facing and government resolution, therefore, to prune subsidy on many sensitive items like fertilizers and food. The ministry hopes to convince the government that unless local shipyards are enabled to compete with their counterparts in other two Asian countries, the industry here will not attract new investments and yards in operation will not have reasons to add capacity. In fact, during the shipping boom, which ended with the world getting hit by memory's most savage recession in 2008/09, India's shipbuilding industry received investment proposals amounting to well over $7 billion. While quite a few leading Indian business houses had their plans ready to build shipyards, only the engineering group Larsen & Toubro and SKIL Infrastructure have finally created facilities for shipbuilding in recent years. What held back others was their belief that without "adequate incentive that alone could create a level playing field in a fiercely competitive industry getting more and more concentrated in South Korea and China," their investments were more than likely to turn sour.

While the above shows investment stagnation in the industry, local shipyards denied of subsidy are remaining silent witness to Indian shipping companies placing orders for new vessels with builders in China and South Korea. According to the UK based Clarkson Research, in 2011 South Korea received orders for new ships worth $48 billion and China $19 billion in 2011. Against these, Indian shipyards managed to garner orders worth $250 million only. In justification of the need to improve the competitiveness of the Indian industry, shipping ministry says in a paper: "Since the growth in orders to Indian shipyards is lagging behind the growth in global orders and needs immediate impetus to improve the weak order-book position, it needs to be considered whether a renewed subsidy scheme providing initially about 15% subsidy on the price of the ship to Indian shipyards may be introduced. However, in order to promote indigenization in shipbuilding, the subsidy may be linked to sourcing of at least 50% materials and components in terms of cost from domestic suppliers, so that there is growth of ancillary industries as well."

A spokesperson of Confederation of Indian Industry (CII) told *DCI* that creating conditions for shipbuilding industry to achieve 50% local sourcing of components presents a "chicken and egg syndrome as we earlier saw in the case of automobile industry. Man, Rolls Royce and Wartsila of the world will create and expand their production base in India only when the mother shipbuilding industry here has attained ideal size and sophistication. Ideally, to start with the government should extend subsidy to ships built here irrespective of percentage of foreign origin components used. Maybe for the first five years of new subsidy regime, the industry should be exempted from the obligation of 50% local equipment use." Shipbuilders have, however, welcomed the ministry proposal to end duty free import of ships from foreign shipyards in favour of a suitable WTO complaint import duty. The ministry wants a 5% duty on import of ships.

The combination of subsidy and import duty on ships should boost shipbuilding activity in the country. Incidentally, in their early stages of growth, both South Korean and Chinese yards received many kinds of government support. They still are beneficiaries of generous government support. In the meantime, taking a leaf out of an established practice in some countries, including the US, Indian shipping ministry wants the government to make it a condition that only locally built ships and not just locally registered ships irrespective of their origin will be allowed to ferry cargoes on coastal routes. India having a long coastline of 7,516km, it is only natural that coastal trade will continue to grow rapidly.

By Kunal Bose in Calcutta

Missed opportunity to correct capital gains exchange rate distortions on ships

International accountant and shipping consultant Moore Stephens says it is regrettable that changes announced for inclusion in the UK Finance Bill 2013 have failed to remove exchange rate distortions from the calculation of capital gains on ships.

Currently, all capital gains and losses subject to UK corporation tax are calculated by reference to sterling, with the result that capital gains and losses arising on non-sterling assets, including certain ships, can be significantly distorted by exchange rate fluctuations.

In order to avoid such distortions, the UK government has now proposed changes to these rules so that capital gains and losses in some cases can be calculated in a currency other than sterling. Under the proposed changes, where a company has a non-sterling functional currency, capital gains and losses will in future be calculated in the company's functional currency. But this will only apply to shares and not to physical assets.

UK resident shipowning companies are subject to potentially very large distortions due to exchange rate fluctuations when calculating capital gains or losses on their ships. The rule changes are relevant for UK companies that are not in the UK tonnage tax regime, or that have some ships wholly or partly outside tonnage tax. They will also be relevant for companies owning chargeable assets other than ships which are subject to exchange rate fluctuations by reference to sterling.

Moore Stephens tax partner Sue Bill explains, "To its credit, the UK government has acted to remove exchange rate distortions in respect of capital gains on shares. It has also acknowledged representations made in respect of oil industry assets, engines, and aircraft, as well as ships and has noted that this is an area which could form the basis of further work. But it has not yet acted to remove exchange rate distortions when calculating capital gains on ships. Moore Stephens made representation to the government that the proposed changes to the existing rules should apply to ships as well as to shares, so that any calculations are made in the company's functional currency. Despite this, the proposed rules for the Finance Bill 2013, published on 11 December, still only relate to shares."

Moore Stephens LLP is noted for a number of industry specializations and is widely acknowledged as a leading shipping and insurance adviser. Moore Stephens LLP is a member firm of Moore Stephens International Limited, one of the world's leading accounting and consulting associations, with 636 offices of independent member firms in 100 countries, employing 21,197 people and generating revenues in 2011 of $2.3 billion.

Industry supports London International Shipping Week

London International Shipping Week (LISW) 2013 is growing significantly as the shipping industry steams ahead to support September's inaugural event.

Within a week of this London milestone being announced, more than 17 international trade and maritime associations and shipping companies had already pledged their support with others planning supplementary events and offering sponsorship.

Those on board include The Baltic Exchange, TheCityUK, Maritime London, Maritime UK, International Chamber of Shipping, CIRM, Gafta, IBIA, Intercargo, InterManager, ISSA, Seafarers Rights International, UK Chamber of Shipping, Lloyd's Register and Wista UK who have all confirmed their support with a view to hosting their own events throughout the week.

'London International Shipping Week — Propelling World Trade' will take place between 9–13 September 2013 and will offer key networking opportunities as well as a day-long government and industry conference and gala dinner to be held on Thursday 12 September. More details about the conference speaker line-up will be released in due course.

The event is being organized by Shipping Innovation, a joint venture between Elaborate Communications and Petrospot.

With the LISW diary filling up, organizations scheduling key meetings include the International Chamber of Shipping, the principal international trade association for ship owners, representing all sectors and trades and over 80% of world merchant tonnage. ICS will hold a number of its own events during the week, including its Maritime Law and its Shipping Policy Committee meetings on Monday 9 September followed by its board meeting the day after. The annual ICS International Shipping Conference will be one of the highlights of the week and will be held on Wednesday 11 September.

The UK is the leading worldwide centre for the supply of a broad range of professional and business services to the international maritime community, accounting for 21% of premiums in international marine insurance, over $64bn in committed ship finance (or 15% of the world loan book) and it has the largest concentration of legal service firms specializing in the sector.

London is also the predominant supplier of shipbroking services worldwide and is the major player when it comes to maritime dispute resolution.

Welcoming the announcement of London International Shipping Week, Jeremy Penn, CEO of the Baltic Exchange and Vice Chairman of Maritime UK, said: "London has a wide range of influential international shipping trade associations headquartered here as well as being a centre of excellence for shipbroking, maritime insurance and finance.

"We look forward to welcoming all sectors of the international maritime community to London during the week. The industry is undergoing difficult times but we hope that this week will provide real impetus in propelling world trade and driving the recovery of world shipping."

Doug Barrow, Chief Executive of Maritime London, said London International Shipping Week was the right vehicle to underline London's role in maritime services and to promote London's position as a maritime leader. It is an opportunity for great networking with representatives across all maritime sectors, he said.

Mark Brownrigg, Director General of the UK Chamber of Shipping, echoed these sentiments, saying the week of events would showcase the crucial role London plays in promoting and growing world trade.

Defying the odds

global ambitions for newly established Rocktree Logistics

Photo courtesy of Rocktree Logistics Pte Ltd.

When Daniele Pratolongo established shipping and logistics provider Rocktree Logistics in 2011, his goal was to establish a logistics solutions provider that would defy the odds. Now, as Rocktree passes its one-year anniversary, the company has done just that.

"The name 'Rocktree' came to me while away at sea, when I noticed a tree growing on the top of a rock in the ocean," said Pratolongo. "It was such a phenomenon to see this, a tree able to grow in such extreme conditions. This made me think about the idea of resilience and defying the odds. We bring this mentality to our company every day as we look to make our mark on the industry."

In its first full year of operation under the Rocktree brand, the company has fully embodied this ethos.

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

Rocktree has grown quickly despite the global slowdown in the shipping and logistics industries. In 2012, the company increased its total cargo volume, successfully handling 16 million metric tonnes in volume for the year, a 25% increase from 2011.

The company's goal is to build upon this recent success as it enters 2013.

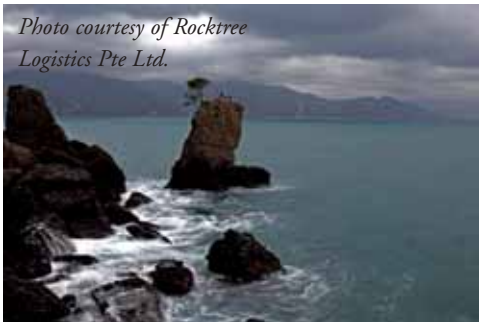


Photo courtesy of Rocktree Logistics Pte Ltd.

"The name 'Rocktree' came to me while away at sea, when I noticed a tree growing on the top of a rock in the ocean," said Pratolongo.

Fleet and operations

In commodity-producing regions around the world, the need for sophisticated and reliable supply chain solutions is essential. For Rocktree, the company's goal is to offer modern, highly customized logistics solutions for their clients dealing in the transport of dry bulk commodities, specifically coal. Rocktree's fleet supports coal companies throughout the supply chain, offering solutions to producers, end-users, and logistics providers.

Rocktree's OFT vessels provide the standard transshipment and storage services that many service providers offer clients in such markets; however, according to Pratolongo, Rocktree offers one key differentiating service.

"How we add value is by undertaking our clients' commodity blending operations at sea, directly on board Rocktree's vessels, rather than in port," said Pratolongo.

"This simplifies the supply chain process a great deal. For

example, if a client operates in a country where ports and infrastructure are inadequate, they can undertake blending and other conventional port operations directly on board one of our vessels, which will save significant time and resources in the coal transshipment process."

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

Rocktree has two assets for such operations, *Zeus* and *Mara*. Designed to withstand higher loading volumes, these vessels enable clients to load greater quantities of cargo on board in a time-effective manner, significantly reducing daily operating costs and time spent at sea.

Zeus and *Mara* have a combined average net loading rate of 100,000 metric tonnes per day, and are capable of handling over 17 million metric tonnes of cargo per year.

Asian expertise — global ambitions

As economic conditions in the US and Europe have led to a global slowdown across the shipping and logistics industries, few regions have proven to be as favourable for logistics companies as Southeast Asia. With resource-rich countries such as Indonesia, Myanmar, Vietnam — and neighbouring Australia — all posting strong, consistent GDP figures, combined with an increase in demand for energy across the region, Southeast Asia has been relatively stable for industry players while operations in the rest of the world have slowed significantly.

The regional growth and stability of Southeast Asia were factors in Pratolongo's decision to base Rocktree in Singapore,

Rocktree fleet

Mara

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

Zeus

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

Photo courtesy of Rocktree Logistics Pte Ltd.

Photo courtesy of Rocktree Logistics Pte Ltd.

and to make the region the starting point in the company's journey forward.

Benefiting from Singapore's favourable business policies and longstanding reputation as an international shipping hub, Pratolongo understands the unique opportunity that the country poses for young logistics players as a gateway to Asia.

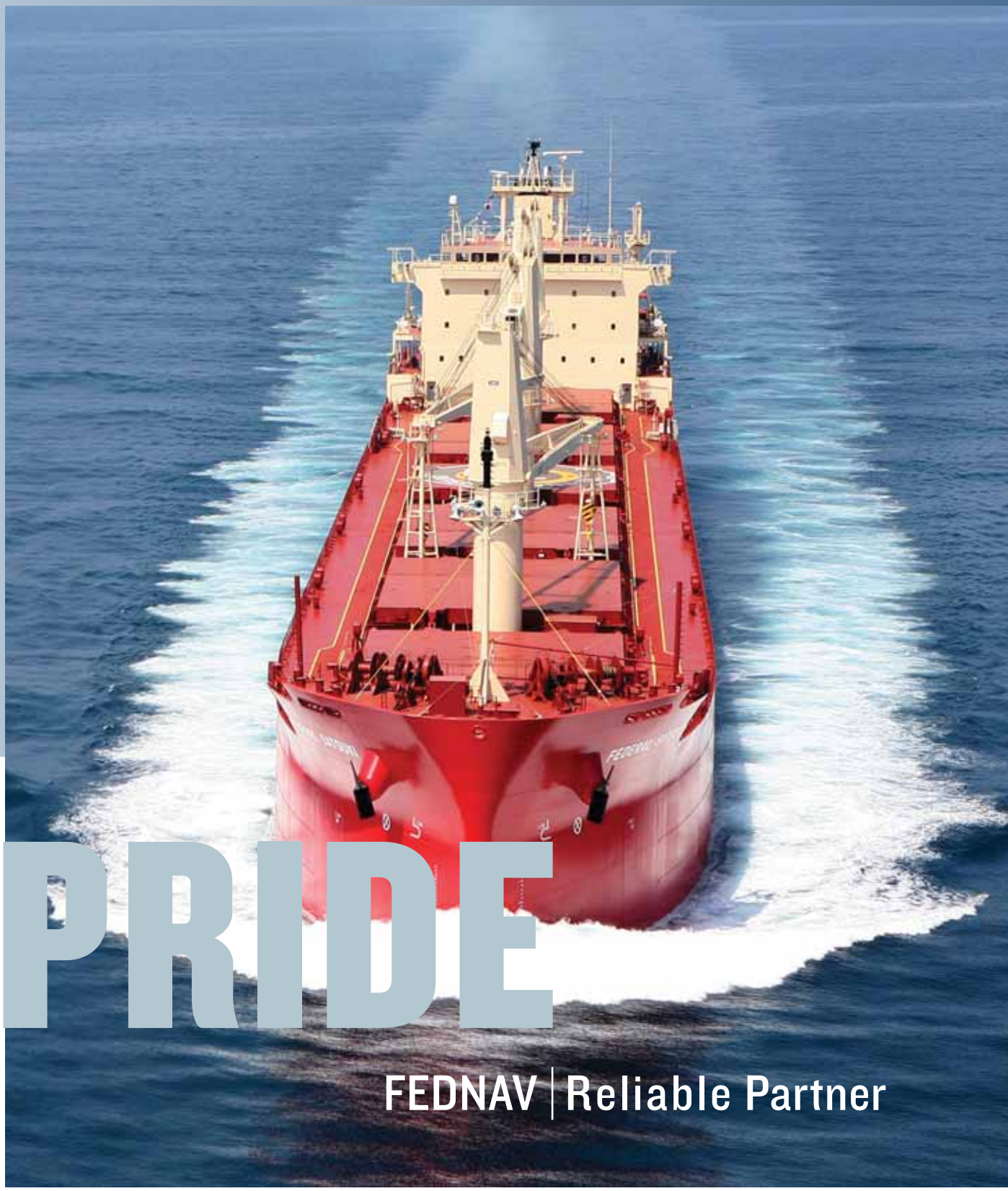
"With Singapore being a business-friendly shipping hub in proximity to so many emerging markets, it was the most logical location to start our business," said Pratolongo. "From Singapore, we are close to many resource-rich countries that are in need of logistics support. "Indonesia is the perfect example. We chose Indonesia as the first country for our company's operations in part because it is the world's largest thermal coal exporter. We understand that coal is vital to Indonesia's economy and is a major industry in the country. We also understand that there are many infrastructure challenges that complicate the supply chain process, both for coal producers and end-users. Immediately, we saw this as an opportunity for Rocktree to add value to companies with operations in that market. Today, we now handle approximately 16 million metric tonnes of coal in the country per year."

While Southeast Asia has proven to be a good starting point for Rocktree, Pratolongo isn't satisfied with being an exclusively Asian logistics player. The company sees its future growth opportunities in emerging markets around the world due to global demand for dry bulk commodities, and the need companies have for customized logistics solutions in the markets where such commodities are sourced. And, while the demand for coal and other dry bulk commodities slowed in 2012, Pratolongo feels that demand will eventually grow again as the global economic climate improves.

For Rocktree, it is essential to be ready for when that day comes. Therefore, the company is setting its sight on establishing truly global operations, potentially as early as in 2013.

"We have been very successful in establishing operations in Southeast Asia. Now, we need to look beyond the region in order to compete on a global scale," said Pratolongo.

"To be truly relevant in this industry, you must be able to serve clients around the world and offer them unique solutions specific to each market. Rocktree's goal is to become a global logistics solutions provider, able to serve clients on any continent in the world." DCi



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Freight rates – what we can expect in 2013

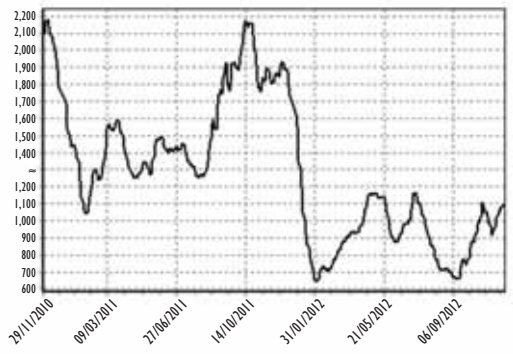
Bulk carrier freight rates are still being dictated by excess vessel supply. However, some analysts believe new operational strategies forged at the darkest depths of this year's shipping market will help support utilization rates next year and beyond, writes Michael King.

Two-thousand-and-twelve was never forecast to be anything but a tough year for bulk carrier owners. Even so, it turned out be even more challenging than many had predicted. From a peak of almost 2,200 in October 2011, the Baltic Dry Index collapsed to near 650 at the end of January. For most of 2012 it fluctuated violently but, by mid-December of that year, it had not once surpassed 1,200 points and looked set to average around 928 points for the year, down from 1,549 in 2011.

"The current state of the dry bulk market is dire," said Petter Haugen, a dry bulk analyst at DNB Markets. "Apart from the obvious fleet growth, we believe that one of the major contributors to this is the lack of growth in the tonne-mile demand for Brazilian iron ore exports which was down in the first three quarters of 2012 by around 9%. The fact that Australian exports were up 7% in the same period does not help much when the distance is about one third of that from Brazil to China."

Yet following the desolation of 2012, there is cause for long-suffering owners to hope that 2013 will prove slightly more lucrative. DNB Markets predicts that tonne-mile year-on-year demand growth (see chart on p22) will increase from an estimated 4% in 2012, to 11% next year and in 2014. This growth will be driven by growth on round voyage Pacific lanes and Pacific–Atlantic trades.

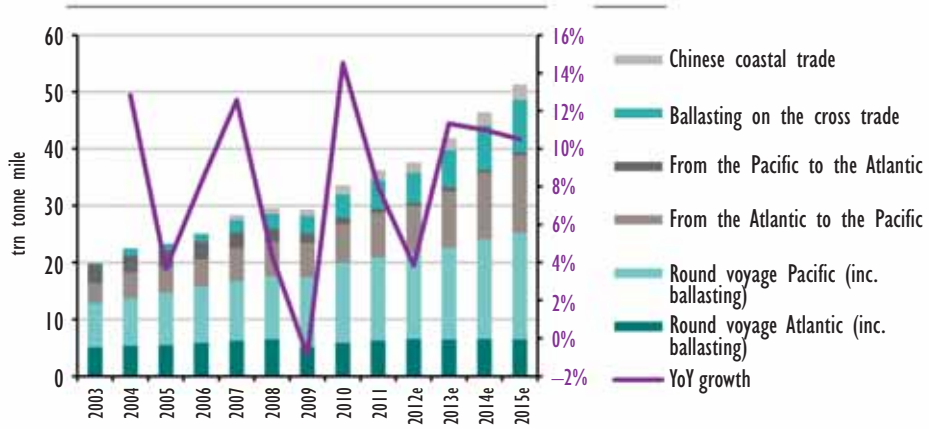
Baltic Exchange Dry Index



Indeed, DNB Markets expects tonne-mile demand growth of 11% over 2013–2015 — higher than the nine per annual growth recorded during the freight rates boom of 2004–2007.

Haugen said the key to the demand side of the bulk carrier equation next year will, as ever, be the coal iron and iron ore sectors, in particularly expansions of export capacity in Australia and Brazil which are moving forward at some speed despite lower commodity prices.

With major producers of coal and iron ore pushing forward with huge capacity enhancement projects, DNB believes that even if some projects are cancelled due to low prices, global



source: DNB Markets

exports will still grow at healthy rates because the lion's share of expansions will materialize. "We continue to believe that coal and iron ore mined and transported to port will be sold, simply because the cash-cost of that production, including freight costs, will be lower than the locally produced iron ore and coal in China and India," said Haugen.

While Australian producers have won market share off Brazil's Vale in 2012, in the coming years shipments from both countries will expand significantly. This will see the iron ore trade grow by over 12% next year, from just 4% in 2012, and surge by over 14% over 2014-2015. "Lack of Indian iron ore exports are no longer a significant threat as the incoming coal makes India a net dry bulk importer and iron ore is not a back-haul route," he added.

Growth in the coal trade will also increase over 2013–2015 to average around 7%, up from 5% in 2012. However, Haugen said the role of Indonesian coal exporters next year was hard to quantify with so much ongoing regulatory uncertainty over the availability of exports, not least after the Indonesia Supreme Court overturned a ban on raw mineral ore exports on 5 November. "But," he added, "in the very short term we think of it as negative, while it should have a positive longer term effect as coal into Asia would need to travel longer.

"When we have spoken with the Indonesian coal industry, we find them confident that authorities will not impose drastic measures, but we still highlight this as a significant risk."

As has been the case for more than a decade now, the accuracy of trade growth forecasts will be bound to the strength of demand from China. "Lack of Chinese demand is very, very devastating for dry bulk demand," said Haugen. "The biggest risk, as we see it, is that Chinese authorities subsidize domestic mining and/or yard capacity; each of which has the potential to curb a meaningful dry bulk recovery."

Good news for owners can be found in owners' representative Bimco's analysis of Chinese demand. This predicts that iron ore imports for the steel industry and coal imports will both rise next year. "As we are heading into 2013, iron ore demand from the world's largest consumer, China, is likely to provide a solid lift in demand alongside coal imports in Asia," said Bimco's Chief Shipping Analyst Peter Sand.

Bimco forecasts that Chinese iron ore imports will grow at a rate of 7.5% in 2013, up from 6.4% in 2012, driven by higher steel demand and the cost of lower quality domestic ore. The forecast is predicated on two key factors. Firstly, that China's imports of iron ore in September reached 65 million tonnes, the largest total since the record high of January 2011, suggesting that the steel industry is still reliant on imports. And secondly, growing signs that the iron ore content of domestic production is falling, which should improve demand for imports further during 2013. Indeed, while imported iron ore has an average iron content of 63%, Bimco believes the iron content of domestic ore fell below 10% in September, while average iron content for Chinese iron ore in 2012 is estimated at around 14%.

"Bimco's calculations show that Chinese iron ore content has declined since early 2008," said the organization. "This is good news for the dry bulk market, as it implies that the real cost of using domestically produced iron ore has increased.

"It is this issue that presents a strong case for growing imports going forward at the expense of domestic production alongside a general growth in steel demand."

On the supply side of the bulk shipping market, DNB forecasts net fleet growth excluding slow steaming of 6% in 2013, down from 13% in 2012. Fleet growth will then further slow to just 3% in 2014.

"While we do not believe yards will be able to convince

Petter Haugen, a dry bulk analyst at DNB Markets, does not expect scrapping to be a major factor on the supply-side in the coming years.

vessel owners to order significant new tonnage, as new orders are strongly correlated to spot earnings, we have assumed contracting of 20 million dwt each year in 2013 and 2014, and due to increasing rates we model 40m dwt of new orders in 2015," said Haugen.

He does not expect scrapping to be a major factor on the supply-side in the coming years. "In our modelling we take delivery of the whole orderbook as it stands now, but allow for a 10% slippage – that is, no cancellations," he said. "This is done in order to be conservative; our best guess would be that there will be some cancellations, but not very significant. We forecast scrapping of 20m dwt in 2013."

A critical factor in terms of the supply-demand balance in the coming years will be slower average speeds. Haugen expects 2012 to prove the nadir of bulk fleet utilization with freight rates set to improve as operators and owners learn the lessons of the lean years and continue to control excess capacity through slow steaming.

DNB analysis found that if all bulk carrier vessels steamed at full speed through 2012 then utilization would be a lowly 68%. However, slow steaming strategies, encouraged by low time charter rates and higher bunker costs, drastically altered that equation.

"The average speed of the fleet continues to slow, and we now estimate 83% utilization of the fleet in 2012 when we adjust for this slower speed," said Haugen.

DNB's utilization forecasts use a 'hybrid' approach to ship speed weighted towards 'full-speed' utilization with optimal speeds to be determined by bunker price and time charter rates. Using this analysis, DNB now expects utilization to rise to 84% next year and 87% in 2014.

"The main determinant of ship speed is bunker prices and charter rates. In our modelling we 'solve' our forecast of the speed and rates simultaneously as speed is directly influencing supply which obviously is affecting rates," said Haugen.

"As a 10% speed reduction gives a around 30% reduction in fuel used per day — about 20% less fuel per mile — high bunker prices will make it cost efficient to keep sailings speeds low even if time charter rates come up. A slower speed obviously implies less availability of transport capacity which should provide support for rates."

Indeed, DNB believes speed will become the marginal factor in the supply of dry bulk services. Haugen said that over 2013–2015 a declining orderbook, longer sailing distances and slower ship speeds will aid owners and operators in securing higher charter and freight rate returns.

"On balance, we now forecast significant growth in dry bulk fleet utilization, both on full- and reduced speeds," he added. "We expect both to increase in the range of 6–10 percentage points from 2012 to 2015, with rates also rising from US$16,000 per day in 2013 to US$25,000 per day in 2015 for Capes, and from US$13,000 per day in 2013 to US$19,000 per day in 2015 for Panamaxes." DCi

Chinese iron ore imports and own production

source: Bloomberg, DNB Markets

LMO

Quality Process for Coal Handling on the Lower Mississippi River

Louisiana Mid-Stream Terminals

Louisiana Mid-Stream Terminals has moved to the forefront of mid-stream coal and petroleum coke transfer services on the Lower Mississippi River by developing and operating a hybrid system, Louisiana Mid-Stream One (LMO), combining the cost effectiveness of crane transfer with the quality control services of a traditional land-based terminal. Located just north of New Orleans at Cooper/Consolidated's mid-stream buoy system in Laplace, LA (Mile Marker 134).

HIGH CAPACITY
MID-STREAM TRANSFER

TWO STAGE
MECHANICAL SAMPLING

MAGNET METAL
COLLECTION

LOUISIANA MID-STREAM TERMINALS, LLC
8280 YMCA Plaza Drive #2 ● Baton Rouge, Louisiana 70810 ● (225) 324-6038
TRAFFIC@LAMIDSTREAM.COM

Dry bulk handling in the US Gulf region

St. James Stevedoring now has a fleet of eight Gottwald mobile harbour cranes.

New acquisitions significantly boost St. James Stevedoring's capacity

St. James Stevedoring is a midstream stevedore on the lower Mississippi. It operates six midstream ship berths and one barge to land berth between lower Mississippi Mile 121 and Mile 167. With 225 full time employees St. James has sought to position itself as a preferred midstream stevedore with emphasis on safety, customer service, process improvement, environmental responsibility and technological development.

In February 2012 St. James further solidified its position as the operator of the largest fleet of modern Gottwald floating cranes with the christening of its two new Gottwald Model 8 floating mobile harbour cranes. The two new cranes join a fleet that began with the introduction, by St. James, of the world's first floating Gottwald mobile harbour crane in 2005. The St. James fleet has now grown to eight floating Gottwald cranes.

Named after long term employees Kevin Delaune and C.J. Lebauve, the two newest St. James cranes are the largest capacity floating cranes on the Mississippi River. The *Kevin D* and *CJL* feature buckets up to 61 cubic yards and offer a gross lift of 63 metric tonnes at 140 feet radius. The cranes were sized to handle the transfer products such as iron ore and coal between barge and Capesize vessels.

Unique to the *Kevin D* and the *CJL* was the decision to include on the cranes the new Schenck Process bulk product weight system. This system has been certified for commercial service in the EU and St. James together with Gottwald Port Technologies and Schenck Process are seeking to have the weigh systems certified for commercial weighing in the United States. The introduction of certified weights into the midstream floating crane industry will provide customers with greatly improved assurance of dry bulk cargo quantities.

The addition of the two new cranes at St. James, the addition of one floating crane at Associated Terminals in April 2012 and the floating LMO bulk cargo elevator at Cooper Consolidated September 2011 represented an increase of dry bulk cargo handling capacity at midstream on the Mississippi River of about 12mt (million tonnes) within a period of less than 12 months. This addition of bulk cargo handling capacity was only noticed by the bulk shipping world after the fact when projected ship congestion, particularly in the export coal arena never materialized and record shipments beyond the assumed capacity of the Mississippi occurred without issue. Midstream operators on the Mississippi continue to demonstrate their flexibility and willingness to meet customer and market needs with new equipment and ideas.

Continuing St. James' efforts to improve services available for the mid-stream shipper, in September of 2012 St. James introduced the first floating coal marine auger sampling system. This marine auger sampling system is a joint project of SGS North America and St. James and was driven by the need to improve both the accuracy of the sample being taken from barges at midstream and the safety of personnel taking the samples. The unit features an auger sampler similar to the augers used throughout the US coal industry to sample trucks and railcars — only bigger. The unique feature is its outreach and ability to auger fully to the bottom of a barge. The system produces a coal size consists as well as performing initial crushing of the quality sample whilst returning 75% of the initial sample back to the barge, thereby reducing the environmental

impact of the amount of sample transported to shore and ultimately placed in a land fill disposal site. Additionally the system provides real time temperature measurement and the ability to perform on board moisture analysis of coal. The marine auger sampling system unit which is jointly operated by St. James and SGS has achieved sampling rates of 60,000 tonnes per day.

Technology continues to be a major push at St. James. The use of Crane Data System (CDS) developed by its Harbortelematics System continues to expand around the world providing operators of Gottwald cranes with the ability to monitor production, maintenance and fuel use. The system is approved by Gottwald and provides Gottwald crane users with unique visibility into the operations of their cranes. St. James has instituted a fuel management system using CDS as the alerting device which will save an estimated 60,000 gallons of diesel fuel in 2013.

On another technology front, in 2012 St. James began testing a new prototype barge draught survey device. Initial results are very positive and the ability to provide consistent, recordable and instant data on barge draughts is in the foreseeable future.

Loading ships up to and including Capesize, St. James exceeded the tonnage handled in the entire 27 years of operation during the month of October 2012. The mix of cargoes has shifted with the economy thought the major products handled continue to be import fertilizer, ores and minerals and exported coal. St. James is anticipating additional growth during calendar year 2013.

In late-December 2012 St. James announced the purchase of its next two Model 8 Gottwald floating harbor cranes. The new cranes are expected to arrive in August and will boost St. James fleet on the Mississippi River to 10 floating mobile harbour cranes including 4 Model 8 cranes.

Coeclerici finalizes US acquisition

The assets of the American company Coal Network Inc. have been acquired through the establishment of Coeclerici Coal Network LLC in which Coeclerici will hold a 51% stake.

Coeclerici is entering the American coal trading market for those producers and consumers located both East and West of the Mississippi River.

The Coeclerici Group — one of the major global operators in the provision of integrated services for the procurement of raw materials for the steel and energy industries — becomes the controlling shareholder of Coeclerici Coal Network LLC with a 51% stake, through the acquisition of the assets of Coal Network Inc. in the U.S.

Coal Network Inc., with annual sales of approximately US$90 million and a staff of 16 employees, is a Coal Equity Inc. Group company, with corporate offices in Mason, Ohio, and trading activities encompassing producers and consumers located throughout the US.

With this acquisition, the Coeclerici Group is entering into an important new market where it plans to couple the American coalfields consistent source of global supply with Coeclerici's global experience in trading and ocean transportation of raw materials, primarily coal, an arena in which it has been operating for over a century.

The transaction, which was concluded through the Group's American branch, Coeclerici Americas LLC, also includes the possibility for Coeclerici to acquire a further 35% stake within five years, taking its investment to 86%.

Following the transaction, the founder and chairman of Coal Network Inc., Ramesh Malhotra and the current, President Jerry Quitter, will keep their responsibilities as well as becoming minority shareholders of the new company. The Deputy Chairman and minority shareholder of Coeclerici Americas LLC, Bill Graybeal, also will become Deputy Chairman and minority shareholder of Coeclerici Coal Network LLC..

"It is with great satisfaction that we announce this transaction," — stated Paolo Clerici, president of the Coeclerici Group — "which is a further confirmation of the attitude of our Group to move forward in a competitive international framework and to identify new areas for growth."

"The strengthening of our presence in the United States" — continued Paolo Clerici — "confirms the solid and long-standing relationship that we enjoy in that market, which has been solidified over almost a century of importing American coal into Italy as the exclusive agents of Consol Energy. Through this acquisition, which strengthens the Miami offices of Coeclerici Americas LLC, the Coeclerici Group will become an even more important player in an important market such as America."

The Coeclerici Group, founded in Genoa in 1895, with 2012 turnover of €600 million and 1,000 employees, carries out activities through the mining division extracting energy coal from proprietary mines; the trading division operating mainly in selling raw materials such as coal, anthracite, coke and iron ore; the logistics division where it operates in the integrated logistics sector, with activities ranging from cabotage to transportation and transshipment, and the ship owner division where it operates serving the trading division through time-charter contract vessels.

Port of Corpus Christi: leading the way in wind energy logistics

Port Corpus Christi (POCC) has been generating business and jobs in South Texas for 86 years. Strategically located on the western Gulf of Mexico, POCC is the fifth largest port in the United States in total tonnage. The port provides a straight, 45ft-deep channel and quick access to the Gulf of Mexico and the entire United States inland waterway system. The port delivers outstanding access to overland transportation, with on-site and direct connections to three Class-I railroads, BNSF, KCS and UP, and direct, vessel-to-rail discharge capabilities through Corpus Christi Rail Terminal. The Joe Fulton International Trade Corridor, now fully operational, provides direct, non-congested access to Interstate 37 and Highway 181. POCC is ideally positioned for Global Trade in the South Texas Region.

POCC has some notable projects on the horizon. The US Army Corp of Engineers has authorized the port to deepen the Corpus Christi Ship Channel to 52 feet. However, before diving into a project of that scope, POCC is aiming to strengthen infrastructure. It received federal funding to expand the La Quinta Channel by 1.4 miles to an authorized depth of 41ft. The port is moving forward with the development of the La Quinta Trade Gateway, a 1,100-acre marine terminal designed to accommodate a multi-modal cargo facility. Recognizing the growth of breakbulk and project cargoes, the port identified the necessity to improve rail capabilities and has embarked on a $20 million rail improvement project. The engineering design for the construction of a new rail yard adjacent to the Viola Turning Basin to better serve its customers is in progress. All these efforts open the gate for an increase in trade for the South Texas Region.

POCC SHIP AND BARGE ACTIVITY

Year	2011	2010	2009	2008	2007	2006	2005
Dry	430	416	341	789	1,077	942	1,037
Tankers	965	992	971	962	1,057	1,019	1,043
Barges	4,018	4,360	3848	4,281	4,610	4,672	5,298
Total	5,413	5,768	5160	6,0320	6,744	6,633	7,378

TOP 10 COMMODITIES 2011

Rank	Inbound	Outbound
1	Crude Oil	Gasoline
2	Fuel Oil	Diesel
3	Bauxite	Feed Stock
4	Gas Oil	Wheat
5	Feed Stock	Gas Oil
6	Naphtha	Fuel Oil
7	Aggregate	Alumina
8	Benzene	Cumene
9	Condensate	Sorghum
10	Barite	Caustic Soda

As a leader in environmental awareness, POCC adopted an environmental management system (EMS) in 2004. The port's EMS is ISO 14001 certified and initiatives include an anti-idling campaign, a port-wide recycling programme, and an annual Gulf Ports Environmental Summit to share ideas on common environmental issues faced by all Gulf Ports.

The port offers more than 125 acres of open storage and fabrication sites, heavy lift capabilities, more than 295,000ft^2 of covered dockside storage as well as a cold storage facility. POCC operates Foreign Trade Zone #122, encompassing 25,000 acres with four active, general-purpose zones and 14 subzones.

Wind energy industry

After successful participation at the annual American Wind Energy Association (AWEA) Conference and Trade Show in the middle of last year, POCC continues to prove one of America's most important wind energy logistics ports.

POCC has handled wind energy components since 2006 from all top wind manufacturers worldwide with a total of 210

TONNAGE FIGURES — 2004 TO 2011 (ALL TONNAGES IN SHORT TONS)

Year	Break Bulk	Grain	Chemical	DryBulk	Liquid Bulk	Petroleum	Totals
2011	306,631	4,214,821	1,743,708	8,692,368	533,543	64,819,146	80,310,217
2010	339,259	4,113,277	1,468,244	6,866,446	506,211	68,900,860	82,194,297
2009	317,993	3,951,347	1,410,028	6,443,658	131,100	64,265,522	76,519,648
2008	552,590	5,423,867	1,630,019	7,891,343	301,007	70,060,614	85,859,440
2007	445,204	3,377,386	1,848,875	8,241,554	513,036	74,893,638	89,319,693
2006	256,697	2,031,610	1,569,993	7,700,130	248,355	75,176,048	86,982,833
2005	444,982	2,098,829	1,795,329	8,396,055	518,403	73,532,352	86,785,950
2004	503,016	1,836,090	2,142,736	7,289,403	407,906	74,214,650	86,393,801

- service from three Class I railroads (BNSF, UP, KCS);
- dedicated port-owned railroad;
- direct discharge vessel to rail or vessel to truck;
- competitive rates;
- efficient stevedoring services;
- state-of-the-art security; and
- FTZ available throughout the port.

POCC has been successful not only in the logistics sector of the wind energy industry, but is also the only port in the US with a wind farm on its property. In February 2011, Revolution Energy, LLC inaugurated the first phase of its 'Sunrise Wind Farm' in the north side of the port's inner harbour. At a cost of $20 million, the wind farm generates 30,000,000kWh/year of clean energy, equal to the electricity needs of nearly 2,500 homes.

vessel calls and more than $4m in revenue. The first wind farm development to bring POCC into the wind energy industry arena was Papalote Creek in Taft, Texas. The construction of Phase II was completed in 2011. It can produce 380MW of power, enough to serve approximately 115,000 homes. The Papalote Creek Wind Farm has added more than $500m in value to the property tax base of San Patricio County and local school districts.

Apart from its strategic location in the Gulf of Mexico, POCC's advantages include:

- short steaming time from Gulf of Mexico;
- 45ft-deep channel (approved and permitted to 52ft)
- multiple uncongested berths;
- approximately 100 acres open laydown yards;
- large manufacturing sites available;
- direct highway/rail access;

Mississippi shipping hits the rocks

The drought situation in the US Midwest could result in barge operations ceasing on a section of the Mississippi river in the early part of this year.

The American Waterway Operators (AWO) and Waterways Council, Inc (WIC) have released a joint statement claiming the situation at Thebes, 125 miles south of St Louis, has reached a point that "suggests that commerce on the Mississippi River could come to an effective halt between January 5 and 15 when the required 9ft draught will fall to an 8ft draught."

According to AWO and WIC, the majority of tow boats require a minimum 9ft draught to operate and only a "very small number of towing vessels can operate at 8ft or 7ft draughts." The water level at Thebes is forecast to fall below 9ft. While the US Army Corps of Engineers and the Coast Guard maintain they will not need to close the Mississippi to shipping, AWO and WIC say the water level will effectively "preclude navigation because tow boats will be physically unable to transit the area between St Louis and Cairo, Illinois."

AWO and WCI have been pressuring government agencies to release water from Missouri River Reservoirs to alleviate the situation on the Mississippi, but the Corps. has maintained that there is no legal authority for this without a direction from Congress.

This is the slowest part of the year for Mississippi barge traffic, but AWO and WIC estimate loss of service over the period January 7 to 31 would disrupt the flow of 7.2 million tonnes of commodities valued at US$2.8 billion. "This does not take into account the uncertainty in the supply chain that affected operations during the month of December or any potential economic impacts that will extend into February if the nation's waterborne superhighway effectively comes to a halt," the groups added

Port of New Orleans: unaffected by low water levels in Mississippi

The Port of New Orleans is at the centre of the world's busiest port complex — Louisiana's Lower Mississippi River. Its proximity to the American Midwest via a 14,500-mile inland waterway system, six Class One railroads and the interstate highway system makes New Orleans popular for the movement of cargoes such as steel, rubber, coffee, containers and manufactured goods.

Port of New Orleans overview

With the Mississippi River moving about 500 million tonnes of cargo each year — including chemicals, coal, timber, iron, steel and more than half of the nation's grain exports, the Port of New Orleans is a noted gateway to the global market.

New Orleans has been a centre for international trade since 1718 when it was founded by the French. Today, the Port of New Orleans is the only deepwater port in the United States served by six class one railroads. This gives port users direct and economical rail service to or from anywhere in the country.

New Orleans is one of America's leading general cargo ports. A productive and efficient private maritime industry has helped produce impressive results, including the USA's top market share for import steel, natural rubber, plywood and coffee.

In the past ten years, the Port of New Orleans has invested more than $400 million in new state-of-the-art facilities. Improved breakbulk and container terminals feature new multipurpose cranes, expanded marshalling yards and a new roadway to handle truck traffic. The Board of Commissioners of the Port of New Orleans is committed to building a port that will serve the needs of the global marketplace well into the new century.

Facilities

The port's facilities include 22 million square feet of cargo handling area and more than 6 million square feet of covered storage area. The port's facilities accommodate an average of 2,000 vessel calls each year.

Port facts

The Port of New Orleans handles a wide variety of commodities each year, including: steel; coffee; forest products; rubber; containerized cargo; and copper.

- **Mississippi River.** The Port of New Orleans is ideally located on the 14,500 mile Mid-America inland waterway system.
- **World's busiest waterway.** More than 6,000 ocean vessels annually move through New Orleans on the Mississippi River.
- **Statewide economic impact.** According to a 2004 study conducted by Martin Associates, maritime activity within the Port of New Orleans is responsible for 160,498 jobs, $8 billion in earnings, $17 billion in spending and $800 million in taxes statewide.
- **General cargo port.** The Port of New Orleans is a diverse general cargo port, handling containerized cargo such as apparel, food products, and consumer merchandise. The Port's general cargo volume has averaged 8.6 million tonnes from 2003 through 2007.
- **America's most intermodal port.** In addition to excellent

Steel handling at the Port of New Orleans.

rail service; 50 ocean carriers, 16 barge lines, and 75 truck lines serve the Port of New Orleans.

- **$400 Million in New Facilities.** The board has invested in new wharves, terminals, marshalling yards, cranes and transportation infrastructure in the past ten years.
- **Truck access.** Local and national carriers provide truck service via the Interstate.
- **Highway system.** The Clarence Henry Truckway gives truckers speedy and dedicated access to the Port's Mississippi River terminals.
- **Foreign Trade Zone.** A defined area where foreign merchandise may be brought into the country without being immediately subject to the usual US Customs regulations.
- **Rail access.** The Port of New Orleans is the only seaport in the US served by six class one rail roads — Burlington Northern/Santa Fe, Canadian National, CSX, Kansas City Southern, Norfolk Southern, and Union Pacific.
- **World's longest wharf.** The 2.01 mile-long quay between Henry Clay Avenue and Milan Street terminals can accommodate as many as 15 vessels simultaneously.
- **Import steel.** The Port of New Orleans is a leading port for the movement of imported steel. Countries of origin include Japan, Brazil, Russia and Mexico.
- **No. 1 in natural rubber.** The Port of New Orleans is the nation's top port for imported natural rubber. Countries of origin include Indonesia, Malaysia and Thailand.

Port of New Orleans operations unaffected by low Mississippi River conditions in the Midwest

Low water levels in the upper reaches of the Mississippi River are not affecting operations within the Port of New Orleans, as the US Army Corps of Engineers has maintained the Congressionally-authorized 45-foot deep channel on the Lower Mississippi River from Baton Rouge, La., to the mouth of the River.

"We do not anticipate any interruptions to deep-draught shipping or cruise operations within the Port of New Orleans as a result of the low River stages," said Gary LaGrange, port president and CEO. "All of the port's berths are at 100% of their authorized depths and no restrictions on the Lower Mississippi River are anticipated."

Liquid and dry bulk commodities, which rely on barge transportation, are the primary cargoes concerned with low river levels in the Midwest. These commodities include agricultural products, such as grain and corn, and other bulk commodities, such as chemicals, petroleum and coal. These products are generally shipped in bulk by barge, as river barge transportation is the most economical. These commodities are shipped to the Lower Mississippi River and loaded onto oceangoing bulk vessels at deep-draught terminals. These ocean going vessels can be loaded to full capacity. However, if draught restrictions are placed on inland barge traffic in the Midwest, barge transit would become more costly for growers, producers and manufacturers.

The majority of the private grain elevators, petroleum refineries and coal terminals are located upriver and downriver from the Port of New Orleans' jurisdiction. The port is a general cargo port handling cargoes, such as containers, steel, palletized natural rubber, forest products, rolled paper and bundled copper and aluminium. These cargoes arrive and depart the port's terminals primarily by rail and truck, thus there is minimal impact within the Port of New Orleans.

The primary area of concern is stretches of the River between St. Louis, Mo., and Cairo, Ill., where the Corps of Engineers continues to apply all available resources to maintain a navigable nine-foot deep channel for barge traffic. Additionally, Corps contractors are removing rock obstructions from the channel — an estimated 890 cubic yards of limestone from River bottoms — to reduce any risk to vessels during periods of low water. Dredging has also been ongoing since early July to preserve the channel in the Midwest, along with continued channel surveys and patrols to ensure safe navigation throughout the river system.

"We are working closely with the Corps of Engineers and the US Coast Guard to ensure that all deep-draught facilities along the Lower Mississippi River remain at authorized depths of at least 45 feet and remain open for business for our customers, stakeholders and the shipping community," LaGrange said. DCi

EUROPORTS relocates international headquarters to Hoofddorp, The Netherlands

Major bulk and breakbulk port operator Euroports, is relocating its international headquarters to Hoofddorp, The Netherlands. The move, which should be completed in Q1 2013, brings Euroports closer to the heart of the European maritime supply chain community and will further strengthen the management of the Group by centralizing the management of the entire group in one office.

"In Hoofddorp, we will be closer to many of our customers and stakeholders and benefit from a very – competitive infrastructure. We also expect to have better access to maritime supply chain experts we will be looking to recruit as we continue to grow our business, says Charles Menkhorst, Group CEO of Euroports"

EUROPORTS

EUROPORTS is one of the largest bulk and breakbulk port operators in continental Europe, offering transport and logistics solutions. Its core service package includes terminals (handling, storage and VAS), transport services, freight forwarding and contract logistics in a number of industries.

EUROPORTS handles in total some 73 million tonnes annually with a strong focus on general cargo and dry bulk. It offers:

- 22 port terminals (bulk, breakbulk, containers port facilities) across eight countries;
- a wide range of transport services (road transport, barge transport, sea chartering, ship agency, customs clearance) in-house to provide 'last mile deliveries' to the hinterland;
- ten contract logistics projects for various industrial customers; and
- a global freight forwarding, company (Manuport Logistics) with offices across Europe, the Middle East, Asia Pacific and Latin America.

Essar Ports commissions 16mt terminal at Paradip

Essar Ports, part of steel to oil refinery Essar Group, has scaled up its multi-port cargo handling capacity to over 100mt (million tonnes) by recently commissioning a 16mt fully mechanized all weather dry bulk terminal at Paradip Port on India's east coast in Orissa. While the terminal, a maiden venture for Essar Ports on the east coast, is seen as forward linkage for the Group company Essar Steel, which is working on the second phase of a 12mt iron ore pellet plant in Paradip after bringing on stream the first unit, it will be open to use by third parties. A leading private sector port developer and operator, Essar Ports is now building a 14mt-capacity coal berth at Paradip.

India's requirements of coal berth capacity are to rise steadily both for handling imported fuel and for moving domestically produced coal from mines to consumption centres across the country using ports. Coastal movement of dry bulk cargoes like coal and pellets has significant cost advantage over shipments by rail or road. India's coal imports are set to rise over 28% to 127mt in the year to end March 2013 from 99mt in 2011/12, according to Centre for Monitoring Indian Economy. Imports rises are despite the step up in local coal production. India has targeted coal output of 578.10mt in the current year as against production of 540mt in 2011/12.

The new 16mt berth at Paradip will allow loading of 5,000 tonnes of cargoes an hour. The terminal with good road and rail connectivity and linked to the stockyard by a 9km-long conveyor system is designed to achieve a cargo handling rate which will compare with the best in the country and facilitate quick ship turnaround. Essar Ports now having total cargo handling capacity of 104mt, including 30mt at Hazira and 58mt at Vadinar, both on west coast in Gujarat, has projects in hand to raise capacity to 158mt in the next few years. The additional capacity is to be achieved by commissioning the coal terminal at Paradip, building a 20mt dry bulk cargo terminal at Salaya in Gujarat and creating an additional 20mt capacity at Hazira. Essar Ports managing director Rajiv Agarwal said beyond all this, the company "at this point is not looking for expansion into new ports in India or abroad. We have enough on our plate." This, however, is unlikely to please the government.

The Indian Planning Commission says the country's port capacity will have to nearly double to 2,301.63mt by 2016/17 to handle cargo traffic of 1,758.26mt. Last year India's port capacity was 1,247.45mt and the total volume of cargoes handled was 971mt. Without private sector participating in a big way in building new deep sea water all season ports and also creating new berths in government owned ports, the capacity projected for 2016-17 will remain unachievable.

Kunal Bose

Forestry products terminal for El Ferrol in Spain

El Ferrol port authority in Spain has awarded a concession to the ENCE group to handle forestry products at a new terminal in the port outer harbour. This will cover an area of 5,000m² and handle a minimum annual traffic hundred 50,000 tonnes. *Barry Cross*

Ust-Luga piles on coal export tonnage

The Rosterminalugol coal handling facility in the Russian Baltic port of Ust-Luga announced that it had handled its 10 millionth tonne of coal on 17 September 2012. This compares to just 8mt (million tonnes) handled by the same date in 2011. The facility, which has a nominal capacity of just 8mt, so throughput rise by 45.3% last year to 10.9 million tonnes. *BC*

A forerunner on the tides of change: first ship calls at the Port of Sept-Îles

The *Eternus*, an Isle of Man registered vessel, sailing from Falmouth, United Kingdom, was the first ship to arrive at the Port of Sept-Îles this year, at 5:20 a.m. on 4 January 2013. The vessel arrived empty and finally docked on 11 January at Rio Tinto IOC dock N° 2. It will set sail again with 162,721 metric tonnes of iron ore destined for Dunkirk, France.

Pierre D. Gagnon, president & CEO of the Port of Sept-Îles, presented Captain Miroslaw Kaczmarczyk with the prestigious cane bearing the Port of Sept-Îles insignia.

Several gifts were presented to the captain by Lorraine Dubuc-Johnson, pro-mayor of the City of Sept-Îles, as well as by representatives of Rio Tinto IOC.

This tradition, now in its 26th year, marks the arrival of the first ship of the year to call at the port. To be eligible, the vessel must come directly from a foreign port and be bound for a destination outside the country without making any other calls at a Canadian port.

In 2012, the prestigious cane was transformed in order to showcase the materials that form the basis of the port operations, iron and aluminium. The more contemporary version

of the cane is a reflection of the port logo, with its stylized polished aluminium head supporting an iron ore rock whose brilliance is reflected in a half sphere of acrylic. The seven stars of the port logo which represent the seven islands in the Bay of Sept-Îles have been reproduced in gold on the band of the cane. The head of the cane is mounted on a dark rosewood shaft that brings warmth and prestige to the creation.

About the Port of Sept-Îles

Boasting a variety of state-of-the-art facilities, the Port of Sept-Îles is one of North America's leading iron ore ports in terms of annual volume handled with close to 30 million tonnes. Sept-Îles' port facilities play a vital and strategic role in the operation of a number of businesses from the region's primary sector. The Port's annual economic impact is estimated at nearly $1 billion, with some 4,000 direct and indirect jobs. Port activity at the Port of Sept-Îles therefore remains a significant source of wealth creation in Quebec and Canada.

FIRST SHIPS OF THE YEAR

Date	Ship	Captain
5 Jan '88	*Yukona*	Helmut Hochcrebec
1 Jan '89	*Geona*	Holger Zimmermann
5 Jan '90	*Trebizond*	Pericles Koulsouris
5 Jan '91	*Angelic Grace*	Mikes Skellas
1 Jan '92	*Ravenscraig*	Kenneth Milburn
4 Jan '93	*Ravenscraig*	R.J.A. Copeland
1 Jan '94	*Haikang*	J.S. Minkas
7 Jan '95	*Cast Beaver*	Marko Lazimbat
1 Jan '96	*Alouette Arrow*	Terje Austnes
4 Jan '97	*Nelvana*	Defigueiredo
2 Jan '98	*Bunga Saga Satu*	Jesus G. Jamilla
5 Jan '99	*Ravenscraig*	Simon J. Windle
5 Jan '00	*Cape Africa*	Hsu Chung-Hsrong
6 Jan '01	*Kater Wave*	Zake Adolfos
5 Jan '02	*Bernhard Oldendorff*	Pritam Singh Rawat
9 Jan '03	*Berge Arctic*	Ainsley A. Athaide
1 Jan '04	*PAPA*	Sunil Thapa
1 Jan '05	*Cost Knight*	Jiahai Wang
1 Jan '06	*Antonis P.*	Stargios Kyriakidis
2 Jan '07	*Celine-1*	Kurt Husamettin
4 Jan '08	*Federal Polaris*	Derige Relance
8 Jan '09	*Lowlands Orchid*	Acosta Monis
1 Jan '10	*Alam Pintar*	Han Yaode
3 Jan '11	*E. R. Bergamo*	Roman L. Cuaresma
2 Jan '12	*Bet Fighter*	Vadym Smelsky
4 Jan '13	*Eternus*	Miroslaw Kaczmarczyk

Ontario grain sets sail for global markets

Port a key link in Hamilton's growing food chain

Each autumn, through the months of October, November and December, farmers from all over southern Ontario bring their grain into Hamilton's terminals. Throughout this busy season, several hundred trucks and railcars per day will be unloaded. Ontario grain is considered to be among the highest quality available on the global market; it makes its way from the Port of Hamilton to food processors and dinner tables in North America and around the world aboard domestic lakers and oceangoing vessels.

The Port of Hamilton is now home to some of Canada's largest grain handlers, contributing to the city's emergence as a major agri-food hub in southern Ontario. Agricultural commodities transiting the port have grown by 35% since 2008; and according to Hamilton's Economic Development office, agriculture is now a $1.3 billion engine of the city's economy.

Manitoba-based Richardson International is a worldwide handler and merchandiser of major Canadian-grown grains and oilseeds and has had a presence in Hamilton for more than a decade. "Hamilton has emerged as a major grain hub in Ontario and demand continues to grow," says Riley Verhelst, director of operations for Richardson. "Last year, we completed a significant expansion to increase handling and shipping capacity and we are committed to continuing to invest in our facility to improve efficiency and keep pace with growing demand."

The port recently attracted 103-year-old Canadian-owned grain trading company Parrish & Heimbecker (P&H). The company has completed the first phase of a uniquely designed modern, efficient grain terminal. Matt Gardner, P&H's operations manager said, "Ontario farmers face tough competition in accessing world markets, so our focus was on fast, efficient truck unloading, careful handling and storage, and efficient loading of vessels. We are very happy with the response from Ontario farmers and with the performance of our terminal."

Terminals play a critical role in facilitating the movement of grain to export markets, providing storage capacity and finding markets for domestic surpluses. "Richardson's terminal and P&H's iconic domed grain silos are helping transform the city's skyline and its reputation," said Bruce Wood, Hamilton Port Authority president and CEO.

The expansion of the port's grain handling business is part of a concerted effort to diversify the types of cargo the Port of Hamilton is known for, notes Wood. "We have pushed hard to expand the port's capacity in the agricultural sector, and having the right partners like Richardson and P&H on-board has given us a tonne of momentum."

In addition to grain handlers, the Port of Hamilton is home to companies and assets that comprise a significant agrifood sector 'food chain', for example:

- Bunge Canada, a world leader in the processing and marketing of oilseeds and edible oil products;
- Agrico and Sylvite Agri-Services, specializing in the handling of fertilizers;
- Toronto Tank Lines and Westway Terminals, providing storage and transloading of biodiesel, seed oil and other liquid commodities;
- also, the port's multimodal transportation connections offer efficiency in competitive global agricultural markets where margins are often narrow. In the near-term, the port will be undertaking an aggressive investment plan to expand and enhance its rail network.

When it comes to providing access to export markets for Ontario grain producers, Bruce Wood notes: "The port's location is unsurpassed. But it is the partners, the facilities and the multimodal transportation connections that have propelled us forward."

The Port of Hamilton is the largest Canadian port on the Great Lakes in terms of size and cargo handled. The Hamilton Port Authority's strategic vision is to be the Great Lakes port of choice.

Rhenus Midgard in Wilhelmshaven: first fully laden Capesize vessel ever to arrive at a German Seaport

The *NAVIOS POLLUX* was the first fully laden Capesize ship to reach Rhenus Midgard's expanded Niedersachsenbrucke jetty in Wilhelmshaven in November last year. The vessel, which operates under the Panamanian flag, set sail from the port of Puerto Drummond in Columbia with 171,477 tonnes of coal on board on 16 October and reached Wilhelmshaven after a voyage lasting 19 days. The ship, which is 292 metres long and 45 metres wide, transported the largest cargo of coal ever to reach a German seaport.

"The arrival of the Capesize ship proves how successful the expansion work for our coal business at the Niedersachsenbrucke jetty has been. Now that the mooring basin has been deepened, we're the only port in Germany that can handle fully laden Capesize vessels with a draught of up to 18.50 metres and a cargo carrying capacity of up to 250,000 tonnes of coal. As a result, we can offer a competitive alternative to the ARA ports," says Matthias Schrell, managing director of Rhenus Midgard in Wilhelmshaven, underlining the benefits.

Rhenus Midgard unloaded the coal, which was transported in nine holds and was bound for a German energy supplier, at its terminal during the few days following the vessel's arrival. Two-thirds of the cargo was unloaded directly to the storage area of a power station near the coast and Rhenus Midgard initially stored the remaining third at its own coal terminal prior to onward transportation to customers further inland by rail in line with demand. This will involve loading block trains with up to 3,400 tonnes of coal.

The port logistics provider's automatic train loading facility, which was only commissioned a few weeks before the arrival of the *NAVIOS POLLUX*, has a high loading capacity. Rhenus Midgard paid great attention to the accuracy of loading operations when the unit was designed in order to make full use of the wagons' permissible load limits for the benefit of customers. "Wilhelmshaven has excellent connections with the European rail network and the double-track upgrading of the line between Wilhelmshaven and Oldenburg will soon be finished. So there will be extra train paths available after the timetable changes in December," says Michael Appelhans, managing director of Rhenus Midgard, outlining other advantages of the site.

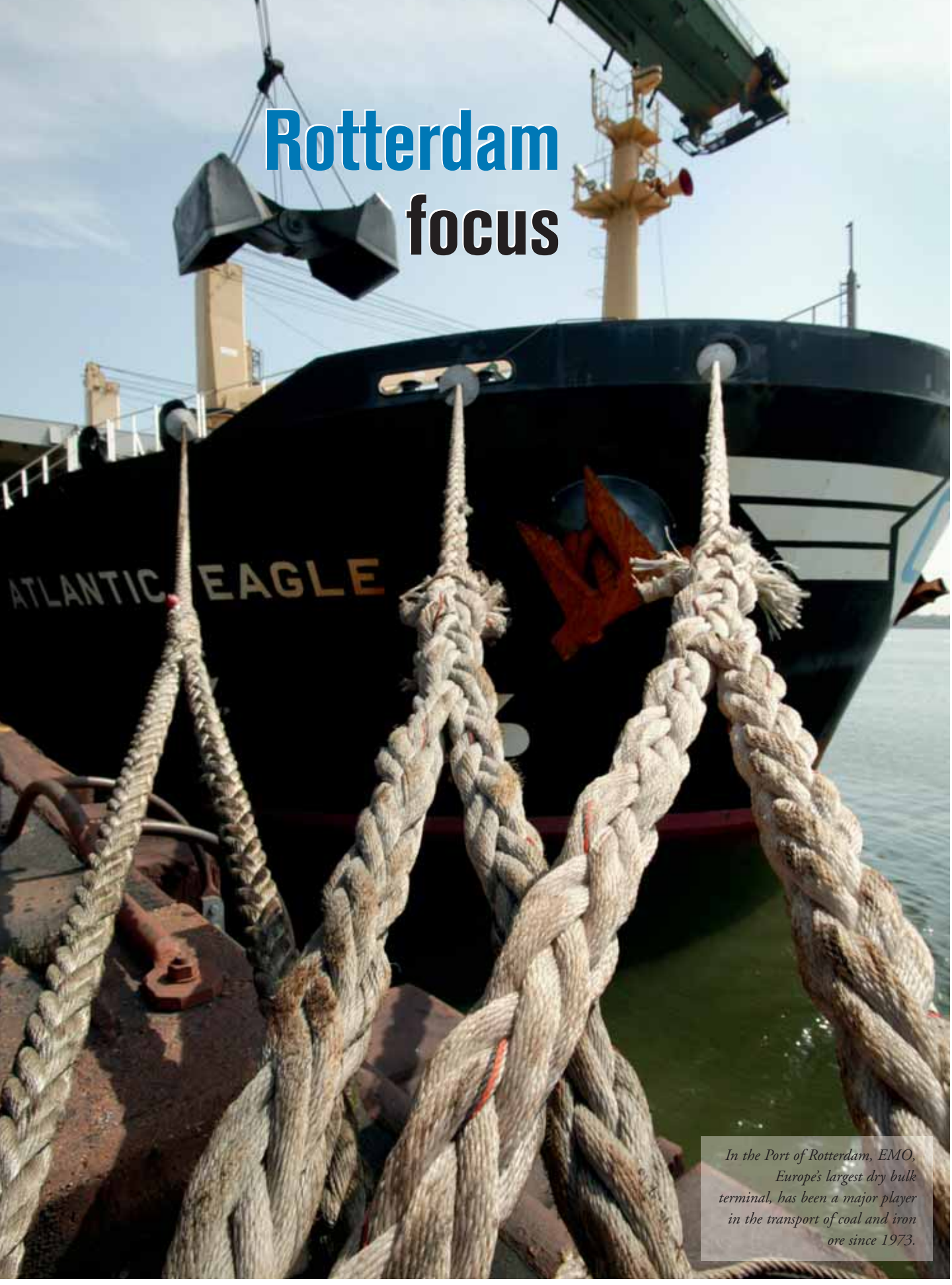
The Niedersachsenbrucke jetty has been expanded to turn it into one of the largest coal terminals in Germany during the last three years. Among other things, Rhenus Midgard has installed two new double jib level luffing cranes, which complement the existing ship unloading equipment at the port. Once a second conveyor belt has been completed between the pier and the coal storage area in the spring of 2013, the time required to unload a vessel will be significantly reduced again.

"We're pursuing the goal of gradually increasing the amount of coal handled at our terminal from about 1.6 million tonnes at the moment to between eight and ten million tonnes per annum," says Appelhans, summing up the situation. A first storage area, which is able to stockpile approximately 450,000 tonnes of coal, has already started operating and a second one was scheduled to be operational by the end of 2012. Once the expansion work has been completed, the facility could have as many as seven storage areas with a total capacity of three million tonnes of coal.

About Rhenus

The Rhenus Group is a noted logistics services provides with annual turnover amounting to €3.3 billion. Rhenus employs over 19,000 people at more than 350 business centres. The Rhenus business areas — Contract Logistics, Freight Logistics, Port Logistics and Public Transport — manage complex supply chains and provide innovative value- added services.

Rotterdam focus



In the Port of Rotterdam, EMO, Europe's largest dry bulk terminal, has been a major player in the transport of coal and iron ore since 1973.

Bulk handling in and around the Port of Rotterdam

Rotterdam is one of the main ports and the largest logistic and industrial hubs of Europe. With an annual throughput of 434.6mt (million tonnes) of cargo in 2011, Rotterdam is by far the largest seaport of Europe. The port is the gateway to an European market of more than 350 million consumers.

Rotterdam owes its position to the excellent accessibility via

Bulk Terminal Amsterdam

Your partner for dry bulk cargoes into the main European Markets

- **Main Terminal:** quay length 1 .2 km with two berths/separate belt system for simultaneous discharge of two large coal vessels (up to Capesize) at a high capacity to the various stacking installations (3250 and 3850tph)
- **Terminal North:** quay length 350 meters / one berth for up to Capesize vessels
- Max vessel size: 1 7.80 meters draft swek, max beam 45 meters
- 4 gantry cranes (1 x 60 tons/1 x 50 tons/2 x 30 tons)
- Floating crane (50 tons)
- Coal storage capacity 3mio tons on 650,000m²
- Railcar loading facility; 25,000 tpd
- Two large ship (spout)loaders: 60,000 tpd at the Sonthaven for (push)barge combinations and seagoing vessels.
- Grab loading into barge/seagoing vessel at Main Terminal and Terminal North
- In ttl 9 heavy duty magnetic separators installed in all inward and outward bound conveyor belt routes, including the railcar loader. Board/board into barge barge/coaster also possible via the magnetic separators.
- Homogenising of various grades of coal whilst loading via the conveyor belt incl. weight assessment per quality
- Screening/crushing/mixing
- Covered storage capacity at Main Terminal in 5 sheds directly under reach of the grabs; ttl. 25,000m² for biomass, agribulk and minerals.

OBA Bulk Terminal Amsterdam

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Managing Director: Hans Fylstra (hans.fylstra@oba-bulk.nl) +31 20 5873701
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EMO's fifth unloader now fully operational

EMO, Europe's largest dry bulk terminal, has put its new 85-tonne unloader into full operation. This new unloader, supplied by ThyssenKrupp Fördertechnik, provides a step change in flexibility and service at the EMO terminal.

The new unloader, the largest of its kind in the world, is now fully operational in the Mississippihaven, alongside EMO's existing unloaders.

With this new addition, EMO, Europe's largest dry bulk terminal for coal and ore products, now operates three 85-tonne unloaders, two 50-tonne unloaders and a 36-tonne floating crane.

The unloader, fabricated entirely in Europe, will strengthen the terminal's unloading capacity by 10 million tonnes per year, thereby massively improving the efficiency and service provided.

In the course of 2013, one of the other 85-tonne unloaders is due to undergo renovation, extending its operational life span by a further 15 to 20 years.

With the current unloading capacity of maximum 175,000 tonnes a day and a draught of up to 23 metres, the EMO terminal is fully capable of handling the world's largest bulk carriers.

the sea, the hinterland connections and the many companies and organizations, active in the port and industrial complex. The port stretches out over 40 kilometres and is about 10,500 ha (excluding Maasvlakte 2).

Modest growth produces new throughput record

Despite the ailing economy, freight throughput in the port of Rotterdam grew by 1.7% in 2012. A total of 442 million tonnes of cargo went through the port.

Hans Smits, President and CEO of the Port of Rotterdam Authority: "Although the growth is limited, it is another record for Rotterdam. Container throughput increased slightly in 2012, thanks especially to exports. In the dry bulk market segment, the declining steel production in Europe was responsible for reduced throughput, especially of ore. This shift was more than compensated by the growth in liquid bulk: more crude oil and oil products particularly were handled. The latter category has actually tripled in size over the past ten years. That shows that the port of Rotterdam is increasingly becoming a hub for global trade. This helps the port to continue to grow, as global trade generally develops faster than the Dutch and the European economies. The positive throughput figures for this year do not alter the fact that the profit margins for many companies are under pressure, some businesses are in the red and some are dismissing staff." The Port of Rotterdam Authority expects growth of around 2% next year.

Dry bulk

In dry bulk, less cargo was handled across the board. Bad harvests in major grain and oil seed exporting countries and the ensuing high prices caused agribulk throughput to drop by 18%. Iron ore and scrap dropped 12% due to the low steel

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THROUGHPUT BY COMMODITY

million metric tonnes

	2011	2010	2009
Agribulk	9.9	8.4	8.3
Iron ore and scrap	37.4	39.9	23.3
Coal	26.7	24.1	24.8
Other dry bulk	13.3	12.3	10.2
Subtotal dry bulk	**87.3**	**84.6**	**66.6**
Crude oil	98.8	100.2	96.4
Mineral oil products	73.4	77.6	72.2
LNG	0.6	0.0	0.0
Other liquid bulk	31.7	31.6	29.5
Subtotal liquid bulk	198.5	209.4	198.1
Total bulk goods	285.9	294.0	264.7
Containers	123.6	112.3	100.3
Roll-on/roll-off	17.5	17.0	16.0
Other general cargo	7.7	6.9	6.0
Total breakbulk	25.1	23.8	22.0
Total throughput	434.6	430.2	387.0

source: The Port of Rotterdam

INCOMING & OUTGOING BY COMMODITY 2011

million metric tonnes

	Incoming	Outgoing	Total
Agribulk	8.5	1.4	9.9
Iron ore and scrap	34.5	2.9	37.4
Coal	25.7	1.0	26.7
Other dry bulk	10.7	2.6	13.3
Subtotal dry bulk	79.4	7.9	87.3
Crude oil	92.1	0.7	98.8
Mineral oil products	41.6	31.8	73.4
LNG	0.6	0.0	0.6
Other liquid bulk	19.8	11.9	31.7
Subtotal liquid bulk	154.1	44.4	198.5
Total bulk goods	233.5	52.3	285.9
Containers	61.4	62.2	123.6
Roll-on/roll-off	8.5	9.0	17.5
Other general cargo	5.4	2.3	7.7
Total breakbulk	13.8	11.3	25.1
Total throughput	308.8	125.8	434.6

source: The Port of Rotterdam

production in Europe. Several blast furnaces have closed. Throughput of cokes coal (used in blast furnaces) did not keep pace with the drop in iron ore handling, because cargo flows were bundled and now go via the port of Rotterdam. Cokes coal throughput dropped nevertheless by 4%. The causes are the reduced demand for coal for electricity generation due to the availability of plenty of sustainable energy in the summer and stocks being used up. Throughput of other dry bulk dropped by 9%, due especially to the slump in building and disappointing industrial production. A total of 79mt of dry bulk was handled.

Liquid bulk

The throughput of crude oil increased this year by 6%, putting it back at the 'normal' level. On the one hand the refinery sector experienced fewer significant maintenance breaks than last year and on the other hand production capacity ceased elsewhere in Europe, a reason why production here was driven up.

Similar to previous years, the throughput of mineral oil products increased, this time by 12%. The most important cause is the increased oil product trade, due chiefly to the differences in the price of fuel oil in Europe and Asia. It is worthwhile, for

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TOTAL THROUGHPUT BY COMMODITY IN THE HAMBURG–LE HAVRE RANGE, 2011

	Hamburg	Bremen	Wilhelmshaven	Amsterdam	ROTTERDAM	Zeeland Seap'ts	Antwerp	Ghent	Zeebrugge	Dunkirk	Le Havre
Agribulk	6.2	1.0	0.0	8.0	9.9	2.0	1.1	1.8	0.1	2.0	0.0
Iron ore and scrap	8.5	4.0	0.0	10.2	37.4	1.1	2.8	3.5	0.0	11.3	0.0
Coal	5.9	1.6	1.8	20.0	26.7	4.7	5.4	3.1	0.0	7.6	1.3
Other dry bulk	5.0	1.5	1.6	8.2	13.3	5.3	9.8	8.8	1.5	2.9	1.7
Subtotal dry bulk	**25.6**	**8.0**	**3.4**	**46.5**	**87.3**	**13.2**	**19.1**	**17.1**	**1.7**	**23.8**	**3.1**
Crude oil	4.1	0.0	17.7	0.0	92.8	0.0	4.6	0.0	0.0	1.2	27.5
Mineral oil products	7.3	1.5	1.5	37.2	73.4	9.6	29.8	1.3	2.9	5.1	12.2
LNG	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	5.1	0.0	0.0
Other liquid bulk	2.6	0.0	0.4	2.2	31.7	3.2	11.6	3.1	0.4	1.8	1.7
Subtotal liquid bulk	**14.0**	**1.5**	**19.6**	**39.4**	**198.5**	**12.8**	**46.0**	**4.5**	**8.3**	**8.1**	**41.4**
Total bulk	**39.6**	**9.5**	**23.0**	**85.9**	**285.9**	**25.9**	**65.1**	**21.6**	**9.9**	**31.9**	**44.4**
Containers	**90.1**	**62.7**	**0.0**	**0.6**	**123.6**	**0.2**	**105.1**	**0.5**	**22.7**	**2.4**	**21.6**
Roll-on/roll-off	0.0	0.0	0.0	0.9	17.5	1.6	4.2	1.6	13.1	11.8	0.0
Other general cargo	2.5	8.4	0.0	5.4	7.7	7.8	12.7	3.4	1.2	1.5	1.5
Total breakbulk	**2.5**	**8.4**	**0.0**	**6.4**	**25.1**	**9.4**	**16.9**	**5.0**	**14.3**	**13.3**	**1.5**
Total	**132.2**	**80.6**	**23.0**	**92.9**	**434.6**	**35.5**	**187.2**	**27.2**	**47.0**	**47.5**	**67.5**
Market share in %	***11.3***	***6.9***	***2.0***	***7.9***	***37.0***	***3.0***	***15.9***	***2.3***	***4.0***	***4.0***	***5.7***

source: The Port of Rotterdam

instance, to ship Russian fuel oil via the port of Rotterdam to the Far East. The throughput of naphtha, gas oil, diesel, kerosene and petrol also increased.

LNG imports remained at a low level, because the prices in Asia are much higher, resulting in the product being transported to the Far East rather than to Europe.

Other liquid bulk experienced growth of 4%, partly through the start-up of Neste (palm oil import) and the increased import of bio diesel. A total of 214mt of liquid bulk was handled. This cargo segment thus represents half of the cargo throughput in the Port of Rotterdam.

Containers and breakbulk

The continuing economic slump means less cargo is imported and more is exported. The balance of those two is a growth of 2% in tonnage. Because export containers are heavier on average and furthermore, fewer containers were going back empty, the throughput in numbers of containers (TEU) stayed the same. The port of Rotterdam lost cargo in the feeder market, but gained short sea containers. The 11.9 million TEU in containers came to 126mt.

Roll on/roll off increased by 3%, despite the ailing British economy. Other general cargo dropped by 23%, due especially to the greatly reduced import of steel. This brings breakbulk to a total of –5% with 24mt.

Market share

The market share of the Port of Rotterdam in the Hamburg–Le Havre range increased over the past five years by an average of 0.5 percentage points per year to 37.7% in the third quarter of 2012. The difference with Hamburg and Antwerp in the container segment which arose in 2009 was preserved.

Expectations for 2013

In view of the prospects of the development of the Dutch and European, and especially the German economies, modest growth of around 2% is expected again for 2013. This means that the throughput for next year will probably approach 450mt.

The throughput is expected to increase slightly faster in the subsequent years, on the one hand, because the economic prospects for 2014 are better and on the other hand, because the current investments in tank storage, container terminals and coal-fired power plants will result in more throughput over time.

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Since 1973, the EMO terminal in the Rotterdam port has been a major hub in transporting coal and iron ore from all over the world to the European hinterland. EMO has always been a reliable partner for its customers in helping to control these flows of goods by combining daily processes with a clear vision for the future.

EMO is able to accommodate the world's largest dry bulk vessels, and yet we never cease to look to the future and plan ahead – now more than ever! In 2012, we have strongly increased our storage and transhipment capacity and efficiency by commissioning five new, state-of-the-art projects: the seventh stacker reclaimer, the fifth unloader, the second fully automated coal wagon loader, a brand-new sea-going vessel loader along an innovative, new quay, and a high-tech operations centre. These projects ensure that we are fully equipped to enhance our safety, efficiency and sustainability performance, and to continue to serve you as a reliable partner in dry bulk transhipment in the coming decades.

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EMO operates 24 hours a day, seven days a week. It handles large bulk shipments; its discharge capacity is 47mt (million tonnes) and its throughput capacity is 60mt. EMO approaches its work and planning with the greatest care, and strives to ensure that it remains right up to date. EMO believes that keeping the terminal state-of-the-art as well as making necessary improvements is the key to serving its customers. EMO's highly skilled trained personnel work closely together. Skilled employees working with innovative technology guarantee that it can give its customers the quality, efficiency and sustainability they seek.

Meeting market demands

Currently, EMO's 160-hectare area can hold 7mt of storage. EMO is ideally located on a 23m-deep waterway connected directly to the North Sea. Rotterdam harbour has excellent rail and waterway connections to the rest of Europe.

EMO is a partner that its can rely on and continue to trust. Why? The company stays on top of the latest developments in the market. EMO continually analyzes its customers' needs, the quality of its services and its terminal's performance. In anticipation of market trends and customer needs, EMO is continuously geared towards offering a more efficient, cleaner and safer terminal, one designed to meet its customers' highest expectations.

TERMINAL CAPACITY	
Unloading capacity	47mt
Throughput capacity	60mt
Storage capacity	7mt
Trainloading capacity	18 trains daily

European Bulk Services Rotterdam

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European Bulk Services: stevedoring specialist at the Port of Rotterdam

The EBS terminal at the port of Rotterdam with, inset, the new 'West 4' site.

European Bulk Services (EBS) B.V. is an internationally respected stevedoring company with a focus on the storage and transshipment of dry bulk goods. EBS operates from two strategically located terminals in the Port of Rotterdam and has its own fleet of crane vessels. EBS is a wholly owned subsidiary of H.E.S. Beheer N.V.

Terminals

European Bulk Services (EBS) B.V. conducts its business operations from two strategically located areas in the Rotterdam port area, namely the EBS Europoort terminal (at the Capesize dolphins), and the EBS St. Laurenshaven terminal, a Panamax terminal. The terminals have excellent connections to deep seaways, hinterland by inland waters, railways and trucks by highways. The terminals can be reached without having to pass a single lock. All types of ships can be handled at these terminals, from Capesize to coastal and river barge. The Europoort terminal is one-and-a-half-hours' sailing time to/from the pilot station and the St. Laurenshaven terminal is three hours' sailing time to/from the pilot station.

Magnetic separators of iron parts of coal

In order to meet the special requirements of the coal import market, EBS has invested in several (electro) magnet systems for cleaning contaminated coal with iron parts. The St. Laurenshaven terminal, with a depth of 13.85m, is perfectly equipped to handle and store, amongst others, coal from Russian load ports. These load ports have a similar maximum draught to the St. Laurenshaven.

Receivers of Russian coals can be extra sure of the quality of their coal if their product is cleaned for metals via the EBS de-ironing installation. The electro magnets are installed in such a way that the coal can be cleaned either via storage or via board to board discharge operations.

Magnetic separators.

Solutions, services and activities

EBS strives to provide tailor-made services in consultation with its clients and offers:

- transshipment of Capesize and Panamax carriers into coastal vessels and river barges by means of floating cranes and gantry grab cranes;
- open and covered storage facilities;
- blending facilities and weighing services;
- excellent transshipment facilities via road river and sea; and
- SKAL, USDA-NOP certificates and GMP+, BLU Code, ISPS and ISO certified administration procedures.

The new loading system in the West 1 area.

New developments

The new 'West 4' area is now fully operational. The new area is equipped with a new conveyer belt system and a mobile loading system.

West 4 provides EBS with an extra 300,000 tonnes of storage capacity, bringing the total storage capacity at the Laurenshaven Terminal to 1.6 million tonnes.

In the future, EBS plans to install extra magnetic separators for contaminated coal for the Laurenshaven Terminal.

EBS has also invested in a new mobile loading system on the West 1 site in order to give more flexibility for the reclaiming of the cargo. The contract for the new equipment was awarded to N.M. Heilig B.V. in Heerhugowaard. The mobile loaders are operating satisfactorily.

Among new developments at EBS is a temperature control system for stored goods, to be used to monitor coal and to prevent it self-combusting. The infrared operating method enables EBS to detect high temperatures in the stockpiles.

ZHD Stevedoring: new 50-tonne floating crane enters full operation

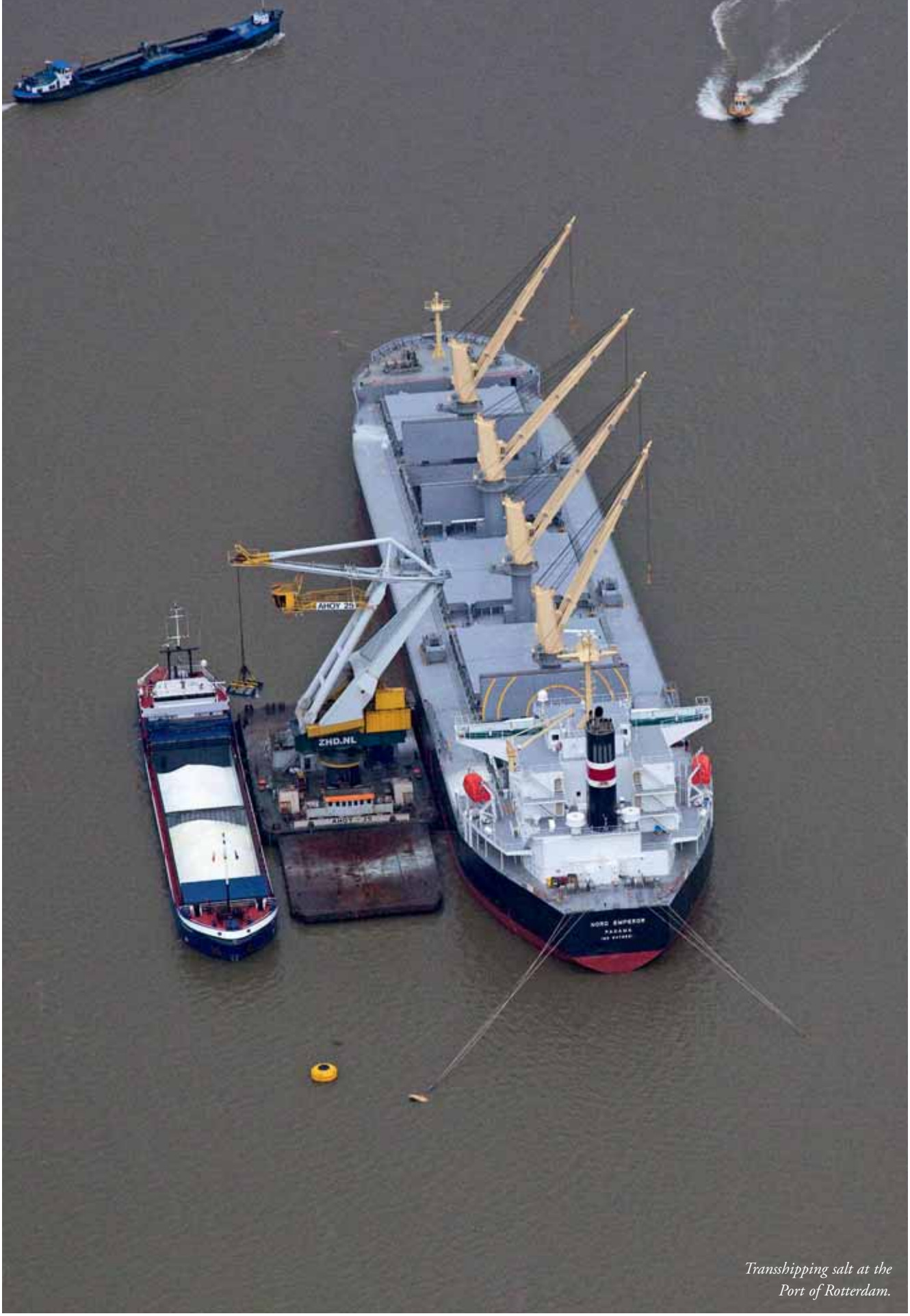
ZHD Stevedoring, an independent, privately owned stevedoring company in the Netherlands, has brought a new 50-tonne self-propelled floating crane into full operation.

ZHD Stevedoring is headquartered in Dordrecht and also operates in Rotterdam (floating terminal) and Moerdijk (Vlasweg, Graanweg, ZHD Steel).

In order to further strengthen its position in the Rotterdam Rijnmond area, and keep on serving its customers in a modern and professional way, some €20 million have been invested at ZHD Stevedoring over the course of the last two years. The Rotterdam-based family owned, private company with 45 years of stevedoring experience, has been able to continue the strong growth from 2011 into 2012.

Milestones in 2011/2012 included:

- a new mobile Gottwald crane (HMK 6407B, High Tower), which has been operational in Dordrecht since April 2011
- upgrading loading and discharging facilities for waste-materials at Moerdijk — May 2011;
- a new 150m-long quay wall (Mallegat Quay Dordrecht) — opened in June 2011;
- 20,000m² of new developed storage area at Dordrecht —



Transshipping salt at the Port of Rotterdam.

opened in December 2011;

- a new 50-tonne self-propelled floating crane — operational as of July 2012 and presented as highlight during the World Port Days in Rotterdam.

Continued investment

Although forecasts for 2013 are still uncertain, ZHD Stevedoring has decided to keep on investing in 2013. In the middle of 2012, ZHD Stevedoring started its preparations for the construction of approximately 50,000m³ of covered storage in Dordrecht,

which will be finished and operational in the second quarter of 2013. The demand for covered storage from both existing as well as potential new customers has been high in 2012, says Leo Lokker, commercial director at ZHD Stevedoring. "By investing in covered storage facilities, we expect and trust to serve our customers even better," says Lokker. "The same goes for our new self-propelled 50-tonne floating crane which is now operational in Dordrecht, Moerdijk and — of course — Rotterdam. This new self-propelled 50-tonne floating crane further expands ZHD Stevedoring's crane capacity and already has proven to increase performance and service of ZHD Stevedoring."

Joining forces

As of 1 July 2011 the municipality of Dordrecht and the Rotterdam Port Authorities have entered into an agreement to bundle forces, which in January 2012 will be formalized. This implicates that of this date (officially) the Port of Dordrecht has become an integral part of the Port of Rotterdam with all its benefits. Although already active in Rotterdam for many years, by means of its self-propelled floating cranes, ZHD Stevedoring recognizes the advantages being an official part of The Port of Rotterdam. In close co-operation with the Rotterdam Port Authorities, ZHD Stevedoring is looking into possibilities and started the negotiations to reclaim a further ten hectares of land at its terminal in Dordrecht. These ten hectares will be connected directly to the water with a 750m new quay wall with 9.45m draught, able to accommodate vessels up to Handysize. Of course, on the buoys in Rotterdam, larger vessels can be handled. ZHD expects to announce a positive outcome of these negotiations soon, at which point the preparation and construction of this huge project can be started.

Apart from handling products like minerals, coal, petcokes and seasonal products as salt, ZHD Stevedoring has been focusing on handling and storage in niche markets such as steel-scrap, biomass (woodpellets) and waste-materials. From the 1st of November ZHD also has been GMP+ certified, giving them the possibility to play their part in the transhipment of agricultural products. Special services are offered in the field of break bulk and the handling of bulk in/from containers (a.o. minerals, scrap) – a global trend which will grow in the future - are not unfamiliar to ZHD Stevedoring and completes the handling portfolio of the stevedore. With its steel terminal in Moerdijk, ZHD performs handling of coils as well as other steel products, such as wire-rods, steel bundles, etc..

Rotterdam-based ZHD Stevedoring is a family owned, private company with more than 40 years of stevedoring experience. ZHD is active in the total so-called Rotterdam-Rijnmond area, with terminals in Dordrecht and Moerdijk, but also with their (self-propelled) floating cranes in Rotterdam. The company offers services in bulk, neo bulk, steel products, coils and container handling, including warehousing and storage (open, covered and floating). ZHD has both road mobile and floating equipment and is able to handle all kinds of product. All ZHD terminals are able to work round the clock (24/7) and are ISO and ISPS certified. Furthermore, ZHD also has water-related sites available for further (industrial) development.

ZHD Stevedoring

History

1968	Establishment B.V. Zeehavenbedrijf Dordrecht
1972	Terminal Zevenbergen
1975	Terminal Vlasweg at Moerdijk
1994	Terminal Graanweg at Moerdijk
1998	Floating Terminal Rotterdam
2001	ZHD Staal Terminal B.V.
2004	Expansion of grounds at Dordrecht of 8 ha.
2008	Bulk & containers, new cranes
2011	New quay wall Dordrecht
2011	Development additional 8 ha. premises Dordrecht
2011	Revitalization quay wall Moerdijk Vlasweg
2011	New 50-tonne mobile shore crane
2011	New self-propelled 50-tonne floating

Facts and figures

- 7,300,000 tonnes handled in 2011
- 85 motivated workers
- service: 24/7

Royal HaskoningDHV develops biomass handling terminal concept

In Europe, it is anticipated that biomass will play a major role in meeting national targets in terms of the reduction of fossil fuel CO_2 emissions and the introduction of renewable energy sources. The European Union has set ambitious targets to increase the amount of power generated from biomass and thereby reduce the carbon footprint.

The shift from coal power to biomass power, especially in northern Europe, implies an increasing demand for transport, handling and storage of biomass as well as hubs and supply chains from which intercontinental transport can be distributed at a regional or local level. The supply and demand gap for biomass in 2020 has been forecasted between 26–38 Mtoe (55 to 85 million tonnes of wood pellets).

Source: IEA Bioenergy Annual Report 2009.

This increase in biomass requires an increase in capacity of the Northern European ports and of the logistical chains. To this end a vision of the future has been developed.

Vision of the future

A wood pellet biomass hub in Rotterdam, or one of the other major ports in Northern Europe, could handle a large volume of intercontinental trade and redistribute the product across Europe.

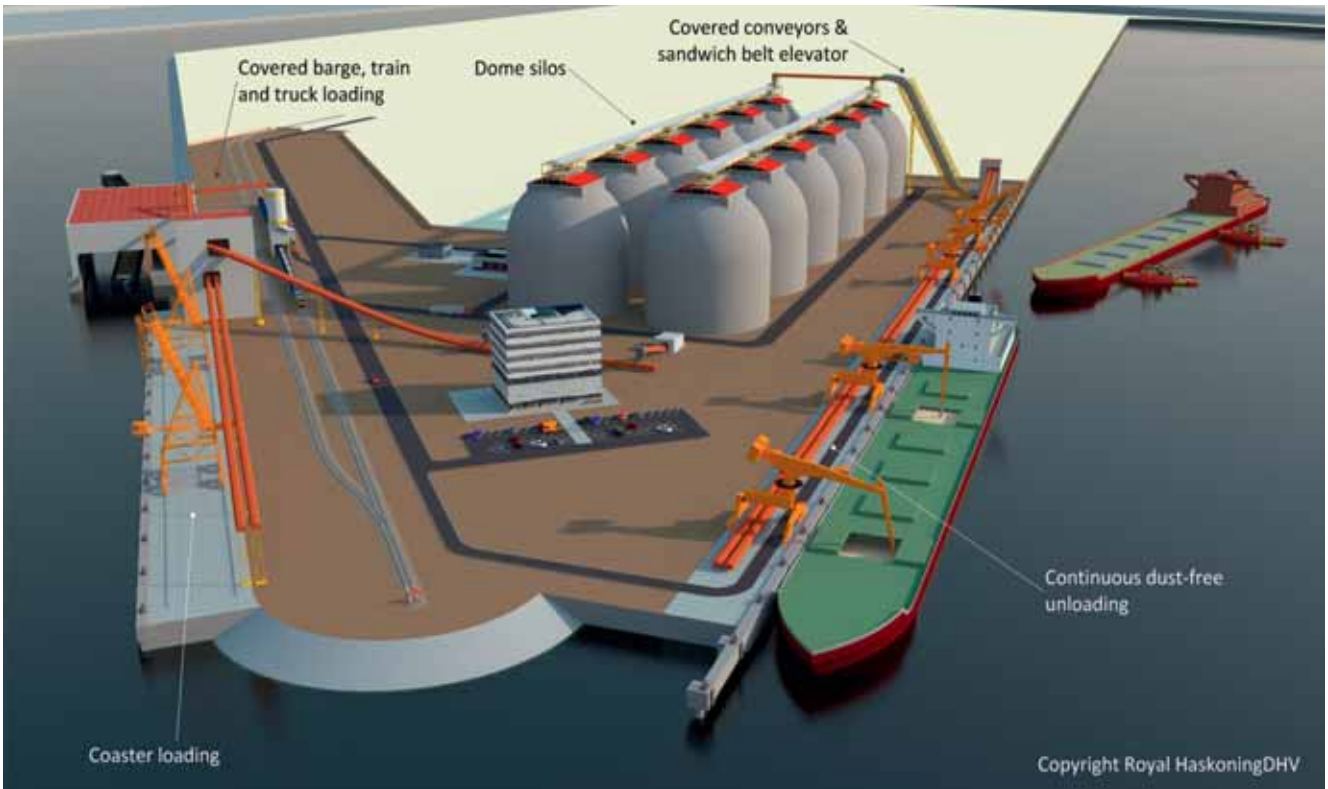
Although there are similarities between handling wood pellets and other dry bulk products, there are some important product requirements and characteristics which have a major impact on the design of such a biomass facility. Royal HaskoningDHV has developed a concept of a biomass terminal which maximizes safety and the quality of the product. Some elements of this concept are explained below.

A wood pellet biomass hub will be just one element in a supply chain. From this perspective, supply chain optimization shall determine the best modes of transport for different volumes of product to and from different locations. Important client requirements are minimizing pellet breakage and protection from moisture and precipitation. Potential solutions are the use of sandwich conveyors and coverage of conveyors and loading areas. An important implication of handling biomass is the increased safety risks as a result of dust and bio-activity. The biomass terminal concept includes various solutions to strongly reduce dust and to reduce associated explosion risks. Both quality and operational excellence require a high degree of automation. Automation will minimize handling of the product, will provide transparency of product data and will help optimizing the logistical chain. Finally, as a means to reduce the CO_2 footprint of the energy sector, sustainable development should be pursued. All means to reduce the footprint of the terminal have been assessed, such as energy reduction, use of residual energy of neighbours and the reduction of captured carbon in structures.

Although the terminal is developed as a theoretical terminal with all possible features, a real case terminal is expected to use many of the developed solutions, based on life-time cost calculations and carbon impact calculations.

Royal HaskoningDHV

Due to experience with projects with these products in handling and storage facilities, as well as the supporting logistical chains, including at these scales, Royal HaskoningDHV will be a key partner to all those wishing to enter, or expand, the biomass handling business. DCi



Terex Port Solutions receives first order for new Model 2 harbour crane

In June last year, Terex Port Solutions launched the new Terex® Gottwald Model 2 harbour crane as the first crane in its *Small Crane Family*. The Model 2 crane also includes a new crane type based on proven mobile harbour crane technology, the G HRK rubber-tyred portal harbour crane. This new crane type blends the mobility of the classic rubber-tyred mobile harbour crane with the benefits of a drive-under portal solution.

Just as the test phase was coming to a close, Terex Port Solutions received its first order for three of the new Terex® Gottwald G HRK 2304 rubber-tyred portal harbour cranes from an Indonesian terminal operator. These cranes are due for delivery in March 2013 and will be employed mainly for handling general cargo and container.

According to Terex Port Solutions, key factors in the customer's purchasing decision were the performance ratings of the crane coupled with the drive-under capability of the portal, making it possible to organize cargo-handling activities in a very efficient manner despite relatively restricted quay facilities.

Model 2 rubber-tyred portal harbour crane undergoing tests at Terex Port Solutions, Germany.

Designed for smaller river and seaports

The Terex® Gottwald Model 2 crane has been specifically designed for use in smaller river and maritime ports. With its maximum lifting capacity of 80 tonnes, a radius of up to 40 metres and hoisting speeds of up to 120 metres/minute, this crane offers excellent parameters for container handling alongside vessels up to Feeder class. Terex Port Solutions offers its newly launched Model as a two-rope crane or as a four-rope grab variant with two hoists allowing professional bulk handling with ship sizes up to Handysize.

As with the Model 3 harbour crane that was launched onto the market two years before, the drive system on the Model 2 crane is based on three-phase current. Crane owners can opt for the energy-efficient and environmentally compatible hybrid drive or a hook-up to a quayside power supply. Further optional features designed to enhance ergonomics and increase productivity include radio remote control, an internet-based information and diagnostics system and a range of intelligent driver-assistant functions.

First drive-under, G HRK rubber-tyred portal harbour crane based on mobile harbour crane technology

As with all the cranes supplied by Terex Port Solutions, Model 2 is available in a number of different types: as a classic G HMK mobile harbour crane, as a G HSK portal harbour crane, as a floating crane (G HPK harbour pontoon crane or G HSK portal harbour crane on a barge) and, for the first time, also as a G HRK rubber-tyred portal harbour crane, a completely new crane type. The proppable standard portal provides clearance height of 6m and a clear width of 9.5m, which means that terminal transport vehicles can easily pass beneath it in two lanes. Thanks to its tight turning circle and even on-the-spot turning, it is a highly manoeuvrable machine that can travel quickly and be positioned alongside the vessel with ease.

"Compact harbour cranes that also provide high-performance handling for smaller quays are in demand worldwide. The fact that we were able to record the first order from a key customer in the region so quickly after market launch confirms the appeal of the underlying concept of the Model 2 crane," explained Klaus Röhrig, Regional Director Asia Pacific.

About Terex Port Solutions

Terex Port Solutions is part of the Terex business segment Material Handling & Port Solutions that supplies customers in ports with a unique combination of machines, software and services provided by Gottwald Port Technology and Terex. Whether it is ship-to-shore cranes, reach stackers or fully automated, integrated handling systems for containers and bulk, Terex Port Solutions provides reliable solutions for rapid, safe, efficient handling of all forms of cargo with low downtimes and excellent return on investment.

About Terex

Terex Corporation is a diversified global manufacturer of a broad range of equipment that is focused on delivering reliable, customer-driven solutions for many applications, including the construction, infrastructure, quarrying, mining, shipping, transportation, refining, energy, utility and manufacturing industries. Terex reports in five business segments: Aerial Work Platforms; Construction; Cranes; Material Handling & Port Solutions; and Materials Processing. Terex offers financial products and services to assist in the acquisition of equipment through Terex Financial Services.

SENNEBOGEN adds Rish Equipment to dealer network

SENNEBOGEN expects to see its green machine material handlers taking a stronger position in West Virginia, USA, through the efforts of its newest distributor.

Rish Equipment Company was recently introduced by Constantino Lannes, President of SENNEBOGEN LLC, as the manufacturer's authorized dealer for West Virginia. According to Rish CEO Myron Jones, the territory holds ample opportunity for his new line of purpose-built material handlers.

"About 65% of our current business is in the coal and energy industries," Jones explains. "Coal is a key commodity at regional river terminals, so we see our river ports as our #1 potential for SENNEBOGEN. Our experience here will definitely be able to help SENNEBOGEN make its mark in our coal mining sector. But representing SENNEBOGEN will also help to lead our sales into some new types of customers, too."

Rish Equipment began operations as Bluefield Supply in 1934, led by Lon Rish. Building on its record as a top distributor for International Harvester, Rish became the regional Komatsu dealer in 1983 and recently celebrated 30 years of service to the mining and construction industries. The firm now operates 12 service locations throughout the region.

"We took on SENNEBOGEN to diversify our offering to current and potential customers," Jones continues. "I had spoken often with many SENNEBOGEN distributors through our participation in various dealer councils, and I've heard nothing but good comments about the organization here."

Rish CEO Myron Jones.

Before his appointment as Rish CEO earlier this year, Jones served for 15 years as the dealership's Vice President of Mining Sales, capping a 30 year history in the heavy equipment industry. He and his executive staff are leading a revamped business model focused on customer support. "We are fully engaged with solving problems for customers; every Rish employee at every level is about customer support." Jones notes that, as a family-owned company, SENNEBOGEN like Rish has earned a reputation for flexibility in meeting customer needs. "From my conversations with other dealers, I have been told that they are really fantastic about configuring custom machines for special applications. That's what I wanted to hear."

Jones says that, while his sales groups' experience in selected sectors provide a strong base, they will have "no preconceived notions" of where their SENNEBOGEN machines can be part of a customer's solution. Jones forecasts increasing activity in scrap and recycling business, as well as opportunities in the area's many logging yards. He recently invited SENNEBOGEN's regional manager to his Bluefield location to assist with a two-day training session for Rish sales staff. Technicians from the Rish service departments are scheduled for courses at the SENNEBOGEN training facility in Stanley, NC. Rish is now expecting a stock order of several machines to arrive in time to demonstrate them at upcoming conferences and customers.

About SENNEBOGEN

SENNEBOGEN has been a well-known name in the global material handling industry for over 60 years. Based in Stanley, North Carolina, within the greater Charlotte region, SENNEBOGEN LLC offers a complete range of purpose-built machines to suit virtually any material handling application. Established in America in the year 2000, SENNEBOGEN LLC has quickly become a leading provider of specialized equipment solutions for recycling and scrap metal yards, barge and port operations, log-handling, transfer stations and waste facilities from coast to coast. A growing network of distributors supports SENNEBOGEN LLC sales and service across the Americas, ensuring the highest standard of professional machine support and parts availability.

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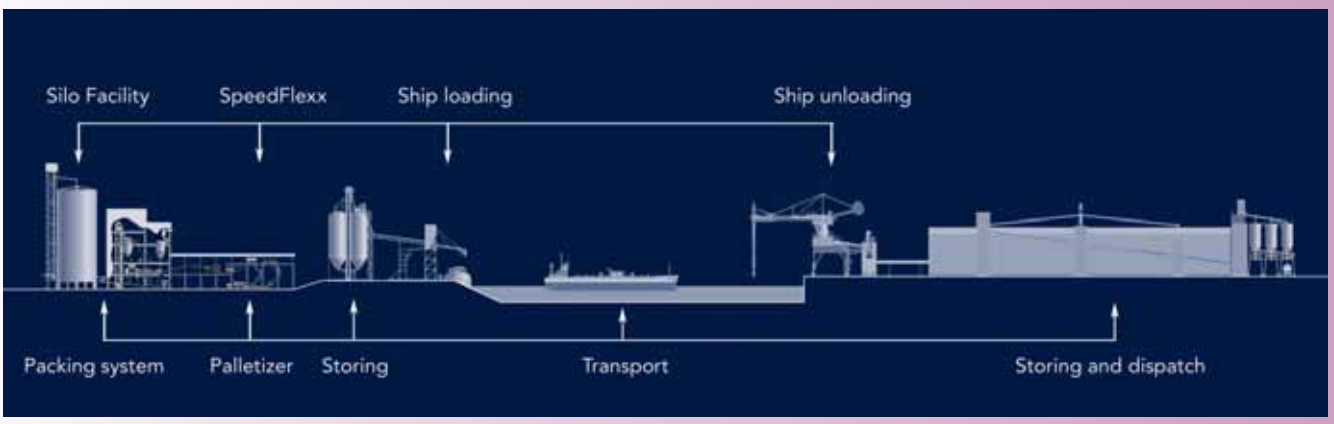

HAVER & BOECKER is a supplier of complete solutions for filling technology in all industries, especially in the cement industry.

The HAVER Group produces solutions for storing, packing, palletizing and loading processes in the cement, building products, minerals and chemical industries.

In August 2012 HAVER & BOECKER celebrated its 125-year jubilee. The origins of the company go back to the Wire Weaving Division. In 1925 the Machinery Division was founded and focused on the design and production of packing and screening machines.

Today, more than 85 years later, the Machinery Division no longer views itself as a manufacturer of single machines. Instead, it has become a supplier of complete solutions for filling technology. The company specializes in powder-type and granular materials, as well as liquid and pasty products. Together with its members of the HAVER Group or partners, complete systems can be offered. For example this can include silo stocking, loading and unloading of freighter ships, packing, palletizing and loading of trucks. The customers benefit from having a single contact during the planning and execution of complex new plants and plant expansions.

Here the Machinery Division has not only demonstrated that it has mechanical expertise for designing the different process units, but that it is also able to set up and control the entire process with regards to electrical engineering and automation. The best example is the cement terminal at the port of Malmö Sweden. As the general contractor, IBAU HAMBURG, subsidiary company of HAVER & BOECKER, delivered the entire electrical engineering and automation for controlling the loading of tanker trucks and wagons 365 days a year.

Packing plant with 25 ROTO-PACKER®s at TPI Saraburi, Thailand.

SENNEBOGEN 655 HD duty cycle crawler crane: highly dependable all-rounder

SENNEBOGEN has unveiled its 655 HD duty cycle crawler crane: a new machine for universal deployment in a wide range of heavy-duty tasks on construction sites and in the extractive industry. Whether it is used with a dragline bucket or in foundation construction, the strengths of this new 55-tonne machine are clear to see.

In developing the new 655 HD and its numerous variants, SENNEBOGEN focused on combining quality workmanship with cutting-edge technical equipment.

The new machine fits seamlessly into SENNEBOGEN's existing rope excavator range, and is ideal for tough assignments in a wide range of applications. For example it is just as suitable for use with diaphragm wall grabs and piping machinery as it is with drag buckets and leads. SENNEBOGEN has 60 years of experience designing and building rope excavators, and the fruits of that experience can be seen in this new rugged machine for persistent, heavy duty use. Both of its 16-tonne winches are driven by high-pressure, variable hydraulic motors, and deliver highly efficient power transmission. The driver is assisted in his everyday work by a special, continuously-variable free fall brake that also helps to protect the machine. User-friendly technology, state-of-the-art engines and optimized steering all go to save fuel and make the 655 HD not just easy to operate, but environmentally-friendly too.

Reliable technology and rugged construction for tough tasks

The SENNEBOGEN 655 HD's sturdy mechanical components are particularly well-suited to dynamic tasks. They include extremely wide, robust pulleys which keep ropes reliably in place and can withstand huge loads. Then there's an optional second rotation gear, which comes into its own particularly when the 655 HD is used with a dragline bucket, because as well as providing extra torque it also saves huge amounts of time when emptying the bucket. And the newly-designed fairlead keeps lateral movement in the luffing rope to a minimum thanks to a pulley rope guide in the base of the boom.

The machine also comes with a rugged double pin boom head as standard, for multiple reeving and hence easy accommodation of large lifting loads — regardless of whether it is fitted with a diaphragm wall grab, leads or piping machinery. If desired a single pin boom head can alternatively be used — perfect for operation in conjunction with wide pulleys with special rope grooves. Here the grab can pass exactly through the precisely-dimensioned pulley, making changing grabs a quick and simple process. Because of its lighter weight, the 655 HD with single-axle boom head is particularly suitable for dynamic dragline work in the extractive industry. The wide range of equipment variants available for the SENNEBOGEN duty cycle crawler crane means it is universally suitable for numerous applications — for example with a grab, crane or wrecker's ball. It can also be turned into a fully fledged crawler crane if required. Using a jib, heights of up to 56m are easily attainable.

Green Efficiency technology: bringing economy and ecology into harmony

The 655 HD is the first machine in SENNEBOGEN's crane line to feature Green Efficiency technology, which aims to bring economy and ecology into harmony with one another. Features include temperature-controlled fan drives, an automatic start-stop system and cutting-edge exhaust gas treatment, all of which boost performance but minimize fuel consumption and emissions. Generously-dimensioned hydraulic valves and tubes enhance the machine's efficiency, while high-quality components ensure ultimate reliability. It comes with a powerful 261kW Caterpillar diesel engine and a multi-circuit hydraulic system for optimal performance in every situation.

The comfortable maXcab is good news for drivers, because it is superbly ergonomic, has a sliding door for easy entry, and offers outstanding all-round visibility. It is also equipped with the SENNEBOGEN control system SENCON, which lets the operator read off, monitor and manage all machine parameters from a central location.

Apart from its superb adaptability, the other major strength of the new 655 HD is its compactness. Its telescoping crawler track and innovative self-assembly system make it simple and versatile to transport and deploy, and at just 3.30m wide, it can be carried on a conventional flatbed truck. With the help of the hydraulically adjustable A-frame, the 655 HD can also independently ballast itself, meaning it is ready to use again in no time.

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B&W is now SAMSON Materials Handling Ltd

The SAMSON™ shiploader has long been a stalwart of the bulk handling equipment market.

B&W Mechanical Handling Ltd. evolved into SAMSON Materials Handling Ltd. as of 1 January 2013. This progression is a reflection of the tremendous success SAMSON™ equipment has always enjoyed worldwide. Right from the start, SAMSON™ has played a key role in the company's most successful bulk materials handling projects in industries such as mining and minerals, environmental, ports and terminals, biomass, steel, power industry, agriculture and cement.

For over 40 years, B&W, now SAMSON Materials Handling, have been designing and manufacturing bulk material handling equipment. During that time, the company has been dedicated to providing engineering solutions that are world-class in their concept, execution and delivery. With more than 3,000 installations worldwide, the products are defined by their quality, mobility, flexibility and wide range of application.

Therefore, the new company name emphasizes strength, durability and continuity. These characteristics are also an integral part of the SAMSON team who, from the same location, will continue to provide innovative and custom-engineered solutions under the new brand name.

Hand in hand with the new SAMSON name, a blend of new cost-effective and engineered products will be launched during 2013, supported by an even more comprehensive worldwide network of dealerships committed to first-class customer service.

SAMSON is part of the internationally renowned AUMUND Group, which also includes AUMUND Foerdertechnik and SCHADE Lagertechnik in Germany, specializing in professional bulk handling solutions that provide the very highest levels of performance, engineering and reliability.

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Terex Corporation announces senior leadership changes

Kevin Bradley, currently President, Terex Cranes, will transition to the role of senior vice president and chief financial officer effective immediately after the filing of the company's annual report on Form 10-K for 2012. Bradley was named President, Terex Cranes in January 2011. Prior to this appointment, Bradley had served as President, Terex Financial Services since joining Terex in 2005. Prior to joining Terex, Bradley had financial roles of increasing responsibility at GE Capital and AT&T Capital. Terex previously announced that Phil Widman would be retiring as senior vice president and chief financial officer effective 31 March 2013.

Tim Ford, currently President, Terex Aerial Work Platforms (AWP), will become President of Terex Cranes effective immediately. The Terex Utilities business and the recently established Terex Services North America business will continue to be the responsibility of Ford. Ford will also have direct responsibility for the company's Latin American operations as well as corporate strategic accounts and government programmes. Ford joined Terex in 2006 following executive assignments at Toro, Honeywell and General Electric.

Steve Filipov, currently President Developing Markets and Strategic Accounts, will become President, Terex Material Handling & Port Solutions effective immediately. Filipov will also assume the position of chief operating officer of Demag Cranes AG as we continue the transition of this business into the Terex family. Filipov will retain overall Terex responsibility for the Russian market as well as corporate marketing. Filipov joined Terex in 1995 and has held positions of increasing responsibility, including President of Terex Cranes from 2004–2008.

George Ellis, currently President, Terex Construction, will continue in this role and also assume responsibility for the company's operations in India. Ellis joined Terex through the Genie acquisition in 2002 and has held several senior management positions at various Terex operations. Previously he held leadership positions at General Electric, Pratt & Whitney and PPG Industries.

Matt Fearon, currently Vice President and General Manager of AWP Americas, will become President, Terex AWP effective immediately. Prior to this, Fearon had been managing director of AWP Europe. Fearon has 25 years of industry experience and has worked within the Terex/Genie operations for 18 years.

Aloysius Rauen will continue in his current role as CEO of Demag Cranes AG and has announced his intention to resign during the course of 2013 once the integration of the Demag Cranes business into the Terex group is further along. Upon Rauen's resignation, Filipov will assume the role of CEO of Demag Cranes AG.

"These changes are intended to strengthen the company's leadership team and provide our executives with new learning and growth opportunities. They reflect both a maturing and broadening of scope for the Terex leadership team," commented Ron DeFeo, Terex Chairman and Chief Executive Officer. "I am confident that under Kevin's leadership, Terex will continue to maintain the highest standards of financial integrity that has helped define Terex's finance organization and our company as a whole. Tim, Steve, George and Matt have demonstrated strong leadership skills during their tenures with Terex and I believe their increasing responsibilities will serve us and our customers well. I thank Ays for his dedication to Demag Cranes and its employees and his efforts in integrating Demag Cranes into the Terex group."

Forward looking statements

This press release contains forward-looking information based on the current expectations of Terex Corporation. Because forward-looking statements involve risks and uncertainties, actual results could differ materially. Such risks and uncertainties, many of which are beyond the control of Terex, include those factors that are more specifically set forth in the public filings of Terex with the Securities and Exchange Commission. Actual events or the actual future results of Terex may differ materially from any forward looking statement due to those and other risks, uncertainties and significant factors. The forward-looking statements speak only as of the date of this press release. Terex expressly disclaims any obligation or undertaking to release publicly any updates or revisions to any forward-looking statement included in this press release to reflect any changes in expectations with regard thereto or any changes in events, conditions, or circumstances on which any such statement is based.

About Terex

Terex Corporation is a diversified global manufacturer reporting in five business segments: Aerial Work Platforms, Construction, Cranes, Material Handling & Port Solutions and Materials Processing. Terex manufactures a broad range of equipment for use in various industries, including the construction, infrastructure, quarrying, manufacturing, mining, shipping, transportation, refining, energy and utility industries. Terex offers financial products and services to assist in the acquisition of Terex equipment through Terex Financial Services.

Martin Engineering transfer point

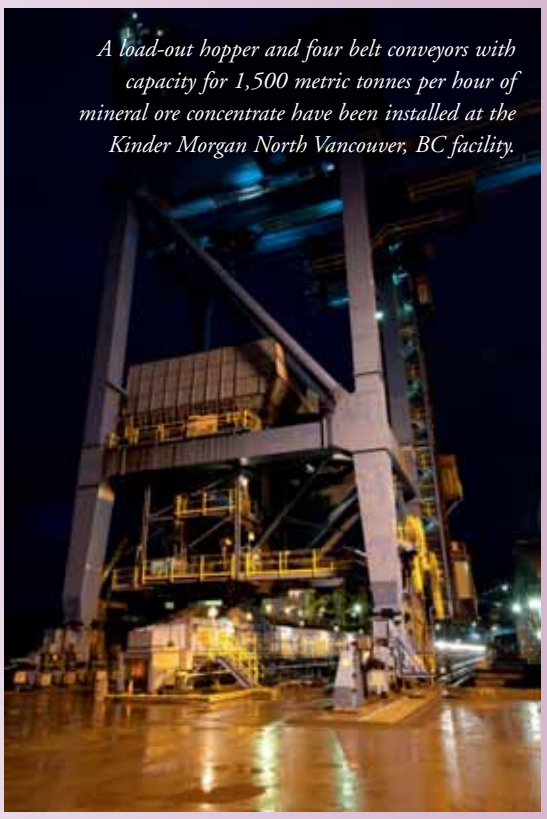
The largest independent terminal operator in North America has announced completion of a load-out hopper and four belt conveyors capable of carrying as much as 1,500 metric tonnes per hour of mineral ore concentrate, complete with five transfer points that comply with the company's 'zero spill' principle. The entire system of chutes and transfers at Kinder Morgan's North Vancouver, BC facility was designed by Martin Engineering, custom-engineered and modelled in 3-D.

The extended height settling zone from Martin Engineering is designed to decrease air velocity and increase settling time.

The Martin transfer chutes confine the material stream and reduce air entrainment, while directing the moving material onto the receiving belt with minimal impact to reduce spillage, abrasion, dust and premature wear. This control also helps ensure that material is centre-loaded on the belt, avoiding mis-tracking and fugitive dust. The new transfer points provide the dual benefits of minimizing aeration and preventing buildup within the chute, which is particularly important when dealing with combustible materials.

Four of the new transfer points employ a 'hood and spoon' transfer, with the hood discharge chute at the top of the system and a spoon receiving chute to place material onto the belt being loaded. These engineered flow chutes employ special geometries that capture and concentrate the material stream as it travels through the chute. The fifth transfer point required a heavy-duty impact area at the bottom of a hopper to handle cargo from two front loaders.

Environmental stewardship and safety are among Kinder Morgan's core principles, and all the minerals concentrate storage and handling facilities at the terminal are fully enclosed to ensure that no fugitive material escapes into the environment. From the outset, company officials knew that particular attention would be needed on the five conveyor transfers in order to prevent the escape of dust.



A load-out hopper and four belt conveyors with capacity for 1,500 metric tonnes per hour of mineral ore concentrate have been installed at the Kinder Morgan North Vancouver, BC facility.

"When we spent some time reviewing the existing transfer points, it became apparent that there was now better technology available, and we wanted equipment that could elevate the performance and containment to a new level," said Kinder Morgan's engineering and project development manager Al Price-Stephens.

During initial meetings, the Martin Engineering team introduced a variety of new technologies to improve efficiency and dust containment. "They helped us reach a good understanding of what's available, and we found additional details on the company's web site," Price-Stephens continued. "We also became very familiar with the Martin Engineering book, Foundations IV, which has become the bible of bulk materials handling."

To address the site's specific requirements and design the optimum containment, Martin Engineering conducted a site survey, followed by a conveyor risk assessment. The strategy that emerged gave Martin Engineering responsibility for the design and fabrication of the five transfers, as well as supervising the installation by an outside contractor.

"Load zones and discharge points are prime sources for the creation and release of airborne dust," explained Martin Engineering global projects manager Greg Bierie. "The amount of dust created in a transfer point depends on a number of factors, including the nature of the material and the height of the drop onto the belt, as well as the speed and angle of the loading and unloading belts," he said.

The project was kicked off with material testing at Martin Engineering's Center for Innovation at the company's headquarters in Neponset, IL. "By testing the customer's specific bulk material and applying those properties as the initial step in chute design, we can develop a transfer that maximizes capacity, while minimizing the potential for build-up and fugitive material," Bierie said.

Weekly meetings were held from the beginning of the project through final design, which allowed all participants to see and discuss the status of each transfer point as it was being designed. "Every chute design is tailored to suit the specific material characteristics and conveyor systems of the individual customer, rather than using stock products and attempting to make them work," observed Martin Engineering projects manager Tim Patrick O'Harran.

"Martin engineering works with a 3D model, which not all designers do," Price-Stephens said. "It's much easier to look at a 3D model and resolve some of the potential issues before fabrication."

upgrades raise throughput and cut dust

The new conveyors range from 105 feet (~32 metres) to 709 feet (216m) in length, and either 42" (106.68 cm) or 48" (122cm) wide. Average speeds range from 177 feet per minute (0.9m/second) on the shortest run to 565 FPM (2.87 MPS) on the longest conveyor. Liner materials were installed on all five transfer chutes to resist abrasion and extend service life.

Martin® ApronSeal™ Skirting is a dual-sealing system, with a primary seal clamped to the steel skirtboard and an 'outrigger' strip to capture fines and dust.

Asked to summarize the experience overall, Price-Stephens said, "We were pleased by the level of support that we received from Martin Engineering, without having to hound anyone. And we were impressed by the fact that when we did the initial start-up, it was the guys who helped design the equipment who were there to oversee the start-up.

"To some extent, I think bulk terminals like ours have learned to live with a certain amount of spillage and dust, believing that it's unavoidable," he added. "We've proven here that isn't the case. When you look at the components and see what's been designed for this facility, you realize the concepts and technology are pretty straightforward. It's really about simple things done well."

Kinder Morgan is the largest independent terminal operator in North America, with 180 locations. The Vancouver Wharves terminal in North Vancouver, BC delivers inbound and outbound services to shippers moving cargo between all regions of western Canada, handling mineral concentrates, liquids (diesel and jet fuel), sulphur and specialty agricultural products. The terminal handles more than 600,000 metric tonnes of mineral concentrate per year across five different storage buildings.

Founded in 1944, Martin Engineering is a major force in making bulk materials handling cleaner, safer and more productive. The company supplies flow aids and conveyor products around the world for a wide variety of bulk material applications, including coal, cement/clinker, rock/aggregate, biomass, grain, pharmaceuticals, food and other materials.

The firm is headquartered in Neponset, IL, offering manufacturing, sales and service from factory-owned business units in Brazil, China, France, Germany, Indonesia, Mexico, South Africa, Turkey, India and the UK, and under exclusive licence with ESS Australia.

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Railcar opener improves unloading efficiency at Cemex

A powerful pneumatic railcar opener has solved persistent work slowdowns caused by difficulty opening discharge gates, allowing the CEMEX Cement Terminal in Sacramento to maintain its aggressive schedule, while minimizing risk to personnel and damage to gates. The Martin® Railcar Opener improves unloading efficiency and speed, without gang tactics, stoop labor or excessive noise.

The CEMEX Sacramento plant opened in 1999 and supplies cement for concrete and ready-mix operations throughout central California. Cement is delivered to the terminal by rail from the firm's California manufacturing facilities, either from the Victorville plant, roughly 400 miles (640km) away or from the Davenport plant, a trip of about 165 miles (265km).

Four times a week, the terminal receives trains of 40 railcars. Unloading proceeds around the clock — one car every 40 minutes — until all cars are emptied and the train returns to the manufacturing plant for another load. To keep the trains in motion and the terminal's five silos full (total capacity of 8,500 tonnes), each railcar needs to be opened and emptied without lost time or risk of injury.

Terminal manager Don Wilkey realized the consistent problems opening the discharge gates of the bottom-dump hopper cars was slowing down the process. "The weight of the cargo load against the discharge gate was making the gates very hard to open," he explained. The plant needed a system to assist in opening the gates, without the backbreaking labour of using a bar or requiring the unloading crew to crawl underneath the car.

Wilkey contacted a representative from Martin Engineering, who recommended the company's rugged, air-powered Railcar Openers, which can open even the most stubborn hopper car gate with 2,500ft-lb (346kg-m) of torque at 90psi (6.2 bar). The adjustable base allows one worker to manoeuvre the wheeled cart through tight spaces, improving loading efficiency while greatly reducing safety risks for personnel.

The height-adjustable unit can accommodate different car gate designs and variations in unloading platforms. Three 10" × 4" (25.4 cm x 10.2 cm) pivoting pneumatic wheels allow the unit to maintain contact with the travelling capstan of rack and pinion gate openers, while stabilizers slide out to provide a wide base for increased leverage. A steel tube frame delivers long life under tough, 'real-world' conditions.

The smooth, non-impacting force opens gates without costly damage, yet is able to operate from a minimal air supply of 20cfm (566L/min) and with noise levels measured at just 83dBA at the operator's position (one meter from the air motor muffler).

"The Martin Railcar Opener is a great piece of equipment," Wilkey continued. "We have two units — one at each of our unloading stations — so we can open several cars quickly. Our unloading crew would sure hate to try to get along without it. We think it's the best door opener on the market, bar none," he said.

Martin Engineering also offers railcar connectors to funnel material to the under-track system to prevent wind loss and eliminate the safety hazard of requiring workers to crawl under the car.

Installed between the tracks, Boot-Lift® Connectors form a link between the railcar and a plant's under-track conveying system. Powered by air, they raise the unloading boots to the gates for clean, efficient and safe unloading of bottom discharge hopper cars.

CEMEX is a global building materials company that produces, distributes and sells cement, ready-mix concrete, aggregates and related building materials in more than 50 countries. Founded in Mexico in 1906, the company's US network includes 13 cement plants, 46 strategically located distribution terminals, more than 100 aggregate quarries and more than 450 ready-mix concrete plants. CEMEX USA was named the EPA Energy Star Partner of the Year for 2009 and 2010.

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1,000th Liebherr mobile harbour crane starts operation

Recently, the 1,000th Liebherr mobile harbour crane has been delivered and erected at Montoir Bulk Terminal (MBT). The new LPS 550 is going to play a major role in MBT's cargo handling chain in order to optimize bulk transport.

Founded in 2011, Montoir Bulk Terminal represents the first French terminal for bulk food and peat. It is a joint venture between SEA-invest and IDEA Groupe. SEA-invest is one of the world's largest terminal operators for dry bulk, fruit and liquid bulk and operates 25 ports spread across three continents. The IDEA Groupe, formerly known as MTTM, is a French transport and logistics company which also specializes in bulk supply chains.

The new crane, type LPS 550, has a maximum lifting capacity of 75 tonnes in grab operation. It is the first LPS 550 worldwide. The crane was manufactured and pre-tested in Rostock before its delivery to the west coast of France.

The structure of this type is based on the construction of the LHM 550, which is Liebherr's most in demand mobile harbour crane model. An obvious modification is that the undercarriage is replaced by a portal solution which is installed on rails. The tailor-made portal solution allows for usage of the area underneath the slewing cabin, a very useful feature especially on narrow quays. In addition to the LPS 550 a conveyor belt and a hopper are used to guarantee smooth transport of bulk cargo throughout the terminal. Thanks to this space-saving portal solution it was possible to install the crane directly above the conveyor.

To achieve even more turnover, crane drivers rely on Liebherr's Cycoptronic® with Teach-In extension. This valuable tool eliminates load swing through constantly calculating possible sway and automatically initiating dynamic counterbalancing movements. The Teach-In feature represents an optimal extension feature, especially when efficient bulk handling is required. This point to point control for semiautomatic operation pilots the crane to predetermined loading and unloading points. Once these points have been set, the crane moves between them with the highest possible speed. If one of the predefined points is reached the crane automatically stops. Furthermore, automatic steering to target points without any load swing and the possibility to stop crane motion at any time lead to a notable increase in safety and speed.

Moreover, the new LPS 550 is equipped with the unique Pactronic® hybrid drive system. This innovative system boosts performance and reduces emissions at the same time, each by 30%. Paying attention to the environment is very important for MBT. For that reason, going for the 'green' advantages of Pactronic® was a logical decision. In addition to the hybrid drive system, MBT has equipped its new machine with electric drive, which allows for an even more eco-friendly crane operation.

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Superior Industries to attend bauma 2013

Superior Industries, North American combination manufacturer of conveyor systems and their related accessories, will be presenting its systems at its booth at bauma 2013 in April this year. Well known as the largest trade show in the world, the 30th edition of bauma 2013 will be held 15–21 April, at Messe München International in Munich, Germany.

About Superior Industries

Superior Industries has a reputation for engineering and manufacturing groundbreaking, bulk material handling conveyors and cutting-edge conveyor components. From its headquarters in Minnesota, USA, the manufacturer supplies stackers, transfer conveyors, shiploaders and stationary systems; plus idlers, pulleys and accessories to lower operating costs and increase production. The company manufactures from additional plants in Arizona and Georgia, USA.

Handling system ensures compliance at start of WIP application

National Bulk Equipment, Inc. (NBE) has developed a fully automated, food-grade bulk material handling system. This was built to be compliance-ready at start-up and to conform to the specific, regulated processes and practices of the wash-in-place (WIP) application.

The integrated system, including: powered infeed conveyor; 2,000 lb.-capacity container lift carriage; 304-2b stainless steel custom discharge hood, surge hopper, and vibratory conveyor is structurally designed with angled-plane, rounded-radius framework and highly finished plate to reduce solids build-up and speed moisture removal. Internal and external welds of product contact areas are finished beyond a subjective, 'ground smooth' spec, to a measured, 32 Ra finish eliminating ripples, pits, and crevices; and aiding material release, cleanability, and inspection. The NBE RotoLink™ carriage linkage design provides the carriage a 500 lb. lift advantage, and an additional 15° of tip rotation, compared with typical industry designs.

This increasing input volume and improved material release eliminates costly material waste due to incomplete discharge. The NBE RotoLink also enables the carriage to move in a smooth, continuous motion, while also allowing for intermittent, start-stop of the carriage even during full-tote rotation.

NBE was the single-source provider of the system's integrated controls and automation. Built in the NBE, UL certified panel build facility, the NBE controls and automation architecture pushed control functionality farther out, and deeper into equipment operations to optimize total line throughput and deliver a standard, system-wide data report from the control layer. NBE instrumentation and process controls aid standardization, improve resource management, reduce operating burden, increase labour efficiency and safety, and extend equipment contribution and performance lifecycles.


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Cargotec wins contract to supply two large Siwertell unloaders to Vietnam

Siwertell systems can deliver huge cost savings in comparison to traditional systems (pictured: Siwertell coal unloaders in Yonghung, Korea)

In November 2012, Cargotec secured a breakthrough contract for two large Siwertell coal unloaders from Formosa Petrochemical Corporation (FPC), part of the Formosa Plastics Group. The unloaders will be the largest that Cargotec has delivered so far and may start a trend that sees more steel plants using Siwertell machines for dedicated coal unloading.

The equipment will be delivered to Formosa Plastics Group's newly-built Ha Tinh steel plant in Vietnam's Son Duong Port during the last quarter of 2014. Each ST 940-DOB unloader will be feeding coal with a rated capacity of 2,400tph (tonnes per hour).

"Siwertell systems can deliver huge cost savings — in the region of $2.5 to $3 million per year for this particular operator — in comparison to traditional systems, because ships will spend much less time at the unloading berth," says Per Karlsson, President for Bulk Handling Business Line. "Until now the industry has been reluctant to invest in separate intake systems for coal and iron ore, however, savings on this scale cannot be ignored and we are confident that this order will start a trend that sees more steel plants using Siwertell machines for dedicated coal unloading.

"In a competitive international bidding process, we offered the customer the most efficient unloading system with a high through-ship capacity, which will deliver huge cost savings and also provide a clean, dust-free operating environment; all at a competitive price," notes Karlsson.

The steel plant is owned by Formosa Plastics Group's subsidiary company Formosa Ha Tinh Steel Corporation; its annual intake of coal is estimated to be about 7.8 million tonnes. The unloaders are expected to be operational by mid-2015 and will be erected on site with their main system components coming from Europe, and steel structures from Vietnam.

Cargotec

Cargotec improves the efficiency of cargo flows on land and at sea — wherever cargo is on the move. Cargotec's subsidiary brands, Hiab, Kalmar and MacGregor are recognized experts in cargo and load handling solutions around the world. Cargotec's global network is positioned close to customers and offers extensive services that ensure the continuous, reliable and sustainable performance of equipment. Cargotec's sales totalled €3.1 billion in 2011 and it employs approximately 10,500 people. Cargotec's class B shares are quoted on NASDAQ OMX Helsinki under symbol CGCBV.

N.M. Heilig B.V.

serving the bulk market with a wide range of equipment

N.M. Heilig B.V. is a manufacturer of durable installations and components for the international dry bulk industry. The company offers equipment to satisfy almost every need related to the transshipment and storage of material in dry bulk terminals.

N.M Heilig B.V. has over 30 years of practical experience, and its equipment is all of a high quality. It specializes in the design and construction of elaborate installations. It offers equipment for loading, unloading, transporting, crushing, categorizing, washing, sieving, separating and processing dry bulk materials.

About 250 highly skilled and enthusiastic employees divided over five subsidiaries within Europe serve the company's clients. Most installations are supplied as turnkey solutions, but individual components are also supplied to many leading companies in the bulk handling industry. The company delivers both mobile and fixed-position systems.

Project: mobile screening plant

Recently N.M. Heilig B.V. has delivered a turnkey solution for the screening of coal on location.

In the past this customer was using a fixed screening plant centralized on the terminal. Due to the fixed base of this screening plant, there was a lot of internal transport needed to and from the screening plant. The transport costs associated with this set-up were high. To reduce these costs, when the installation needed replacement, the customer chose to replace the fixed installation with two mobile installations.

The first of these custom-built screening machines was delivered and put into operation in November last year.

The screening plant (see picture above) is fed by a wheel loader. Through a mobile hopper, the material is brought to the first conveyor, the material surpasses the ironing step and then is divided into fractions by the screen.

This screen makes three fractions with a capacity of 350tph (tonnes per hour).

Project: 'thermal rooms'

For Holland's biggest steel producer, N.M. Heilig B.V. is currently involved in the design, production, assembly and implementation on site of three so-called 'thermal rooms'. Each room is a rectangular box construction which is covered by nine big movable hatches on top of each room, where the producer will stock just-produced hot carbon-steel materials. The materials will be loaded into the 'thermal room' by gantry cranes. The

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rooms are constructed with robust steel structures, concrete and insulation. The hatches are rail based. A lock system device for the shutters is installed, operated by electrical hydraulic accumulators and complex operating software.

Each room can be filled with 320 tonnes of steel slabs. In total up to 1mt (million tonnes) of steel slabs can be placed in the rooms to prevent rapid cooling and loss of quality.

Only two hatches can be moved variously and simultaneously, the location and opening of these hatches will be determined by the operating system. After the location and opening is set, the accumulator unlocks the lock system and detaches the nine hatches into two pairs of hatches to create an opening. There are eight combinations to open the shutters, for required logistic reasons of the crane movements.

Open or closed position of the shutters and synchronous operation will be detected and managed by electrical sensors. In normal operation, the time to open or close the shutters will be a maximum of 14 seconds, and occasionally this can be speeded up to seven seconds. This speed, in combination with a total movement of the enormous weight of approximately 10 tonnes per hatch (ca. 45m²/hatch), is a challenge which N.M. Heilig B.V. will overcome.

This project was put into operation in November last year, and is currently running well. With this investment the customer can boost production, guarantee the steel quality and reduce costs by preventing the steel slabs from cooling down, so limited energy is needed to heat up the slabs before the slabs are rolled into coils. DCi

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continuous ship unloaders for an efficient bulk process

The simple design of mechanical unloaders reduces wear and maintenance costs.

Bühler debates the relative advantages of mechanical and pneumatic unloaders

Ship unloading systems: mechanical or pneumatic?

For efficient unloading of grain and other bulk goods, both mechanical ship unloading systems like the Bühler Portalink and Portalino and pneumatic ship unloaders like the Bühler Portanova are employed worldwide, *writes Sandro Suppa, Bühler AG.* Each of these system types is founded on sophisticated, powerful technology and is the perfect instrument for specific areas of application.

Mechanical and pneumatic ship unloaders serve the same basic purpose: to unload grain or other bulk goods as efficiently as possible. However, each system possesses specific advantages that make it the preferable choice for certain areas of application.

An often-used rule of thumb is that pneumatic unloaders are an excellent choice for lower unloading capacities up to 600tph (tonnes per hour) — some experts even set the limit at just 400tph — and lower annual shipping volumes, while mechanical unloaders show off their strengths at higher capacities. The comparison that follows is intended to illustrate the most important characteristics, advantages and disadvantages of each of these technologies. Grab systems, which are also commonly used, are not included in this analysis.

Functional principles and technical configuration

Mechanical: the Portalink/Portalino mechanical ship unloading systems transport bulk material to the pier at low speed via a high-performance chain conveyor. This is carried out using two independently run chain conveyors, one in the vertical conveying arm, the other in the boom. The boom and tower designs are standardized and can thus be manufactured economically.

The advantages of this simple design principle with few wearing parts and low conveying velocity are high dependability and low maintenance requirements. The low wear also ensures a constant conveying capacity with no losses in performance over the entire life cycle.

Thanks to the minimal maintenance requirement, the amount


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of downtime of the entire installation decreases while system availability increases.

Pneumatic: the design of pneumatic ship unloading systems requires the inclusion of several components such as telescopable spouts, airlocks, filter systems and the suction nozzle. These parts require more maintenance, and as a result, higher maintenance costs. The high conveying velocity of the bulk material also contributes significantly to the high level of wear — unexpected failures of the installation are more probable with this system. Additionally, many of the parts must be designed to be particularly resistant to wear in order to withstand great forces — another cost factor to consider. The frequency at which parts must be replaced is naturally greater, which increases the amount of downtime of the installation and reduces the availability of the system. The higher amount of wear also automatically causes a loss in capacity that reduces the overall efficiency of the unloader. The berthing times of the ships can also increase due to sudden stoppages in operation, leading to higher berthing fees.

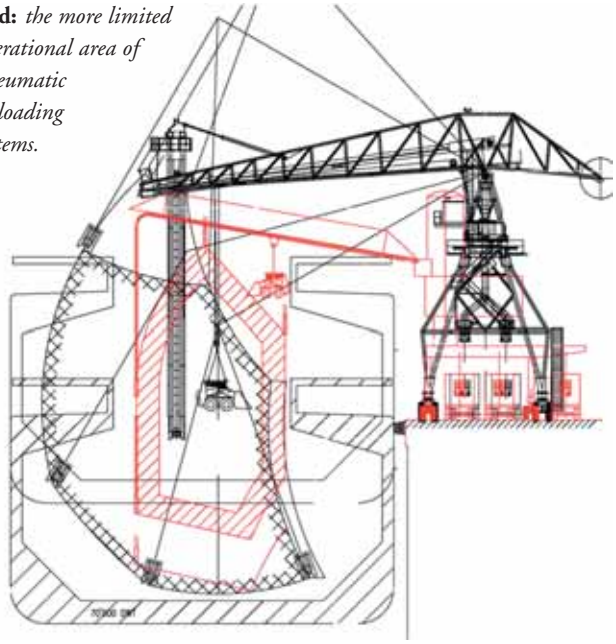
These disadvantages are less critical at lower conveying capacities, since wearing parts do not need to be replaced as often and maintenance requirements are lower as a result.

Unloading process

Mechanical: mechanical unloading systems like the Bühler Portalink/Portalino use a so-called 'kick-in/kick-out system' for unloading bulk materials. In this process, the conveying arm moves through the bulk material in a curve. In this manner, it reaches the bulk material below the rim of the cargo hold without requiring repositioning of the ship (with stationary systems) or the unloader (with mobile systems). This flexibility significantly speeds up the unloading process and minimizes the need for bulldozers for removal of bulk material residues.

Pneumatic: pneumatic solutions can only adjust the position of the conveying arm vertically or horizontally. This makes more frequent repositioning of the ship or unloading system necessary, which in turn reduces unloading velocity. The bulk material below the rim of the cargo hold cannot be reached, requiring bulldozers to be used earlier and leading to longer unloading times.

Gray: *the curved operational area of mechanical unloading systems up to the rim of the cargo hold.*
Red: *the more limited operational area of pneumatic unloading systems.*



The more complex design of pneumatic unloaders increases wear, construction and maintenance costs.

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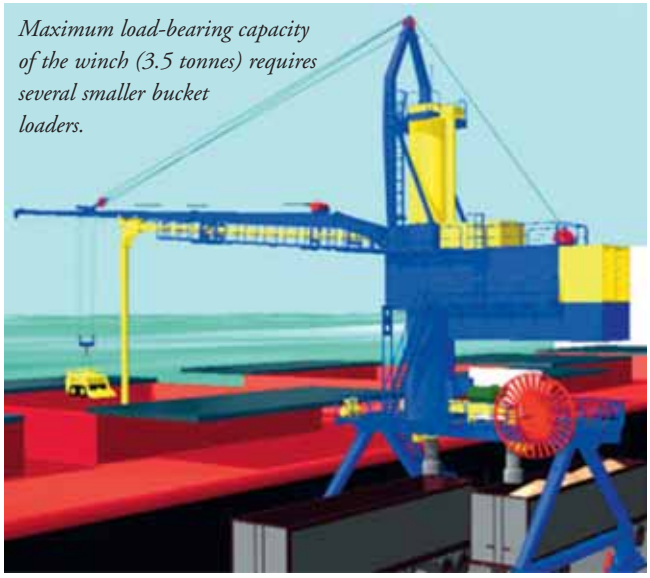
Unloading of bulk material residues

Mechanical: as a rule, bulldozers and bucket loaders are used for the removal of bulk material residues from the cargo hold. Many modern unloading systems with mechanical technology such as the Bühler Portalink and Portalino are equipped with a winch integrated in the boom for moving the bulldozer into the cargo hold. Depending on the capacity of the unloading system, the winch — e.g. in installations with a throughput of 1,300tph — can offer a high load-bearing capacity of 15 tonnes. In this case, the use of a single heavy bucket loader is sufficient to remove all cargo residues. However, the bulk material residues must first be placed into the bucket of the loader so that it can then be lifted out of the hold.

Problem-free transport of a heavy bulldozer thanks to 15-tonne load-bearing capacity.

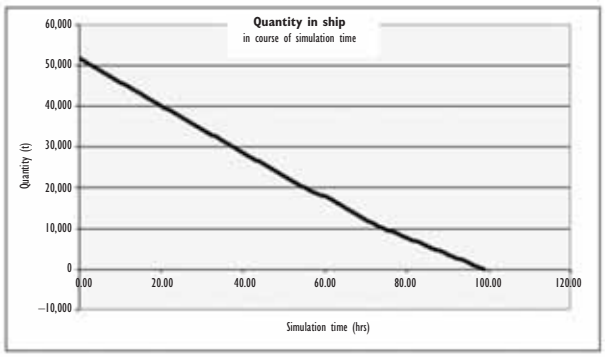
Pneumatic: by comparison, pneumatic unloading systems come equipped with winches having a more limited load-bearing capacity of no more than 3.5 tonnes. Winches capable of bearing higher loads are technically feasible; however, they require larger steel constructions which lead to much higher costs as compared to standard systems. Thus, several smaller bulldozers or bucket loaders must often be moved into the hold in order to remove the remaining bulk material. This takes time and increases unloading time and, in turn, the berthing time of the ships, resulting in an increase in costs. The basic advantage pneumatic systems offer, i.e. being able to remove literally every grain from the hold, is countered by their (physically determined) low residue unloading capacity.

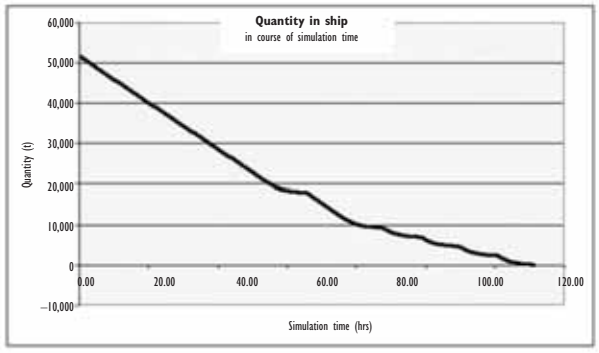


Maximum load-bearing capacity of the winch (3.5 tonnes) requires several smaller bucket loaders.

The following simulation based on a comparison of unloading systems with 600tph throughput and a Panamax ship shows just how greatly the use of heavy bulldozers or bucket loaders can impact the efficiency of the entire unloading process. While the unloading time of the simulated ship comes to only 99 hours using the mechanical Portalink unloading system, with a pneumatic unloader, the complete process takes a total of 131 hours. This enormous difference comes about not only through the use of heavy bucket loaders to unload the material residues, but also through the difference in throughput: while the Portalink unloading system continues to unload at constant full capacity as the level of bulk material sinks, with the pneumatic unloading system, the throughput decreases by at least 10% as the bulk material level decreases and the conduit pipes are extended fully. The overall efficiency of the mechanical Portalink system is 87%, whereas with the pneumatic system, efficiency is only 66%.

Here again, it should be pointed out that at lower conveying capacities, the efficiency disadvantages of pneumatic unloading systems illustrated here can be significantly lower.





Comparable unloading capacity up to approximately 20,000 tonnes, then significantly longer unloading time with the pneumatic unloading system.

Handling

Mechanical: with the mechanical Bühler Portalink and Portalino unloading systems, operating staff only occasionally has to intervene in operation.

The conveying arm automatically sinks into the bulk material and discharges large amounts of cargo at a constant throughput level before repositioning becomes necessary. The static construction of mechanical unloading systems does however have disadvantages whenever there are strong variations in the water level at the pier.

In this case, the length of the conveying arm cannot simply be flexibly adjusted to the water level, which means additional repositioning is required.

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Metso railcar dumpers keep you moving in the right direction

For over a century, Metso's rotary railcar dumpers have set industry standards worldwide. Our custom-designed systems can service trains of any length or style. Single, tandem and triple dumpers are engineered to provide long life and low maintenance in dumping all manner of bulk materials.

Additionally, Metso's railcar positioners are designed to move individual cuts of 1-10 cars, up to entire unit trains in excess of 200 railcars. When combined with our dumpers, the complete railcar system provides fast, dependable train turnaround requiring only one operator; yet another reason you can rely on Metso's equipment and reputation. **They're both rock solid.**

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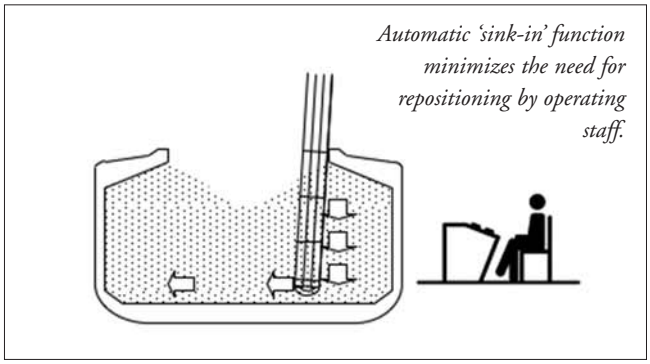
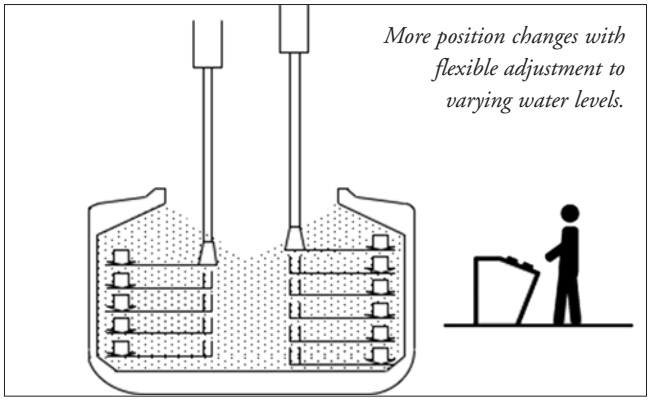


Automatic 'sink-in' function minimizes the need for repositioning by operating staff.

Pneumatic: without the benefit of the automatic 'sink-in' function, operators of pneumatic unloading systems have to manually adjust the position of the conveying arm depending on the height of the bulk material and reposition the suction nozzle accordingly. On the other hand, the possibility of varying the length of the telescopable spout allows the system to be employed flexibly where water level varies. The disadvantage of this flexibility:as the length of the telescopable spout increases, throughput decreases.

In addition, pneumatic systems prove superior with regard to handling, e.g. when two different products are transported in the same hold and are separated only by sheeting or flooring or when tankers are employers as bulk carriers.



More position changes with flexible adjustment to varying water levels.

Product protection

Mechanical: mechanical solutions like the Bühler Portalink/Portalino unload the bulk material at a constant low velocity. This not only reduces wear and the maintenance costs of the system, but also ensures that especially sensitive grain is unloaded in an exceedingly gentle manner. In this way, damage to the product is minimized and financial losses caused by high reject rates are avoided. The overall high product quality leads to higher margins than with pneumatic unloading systems – a financial aspect that shouldn't be underestimated in light of increasing grain prices.

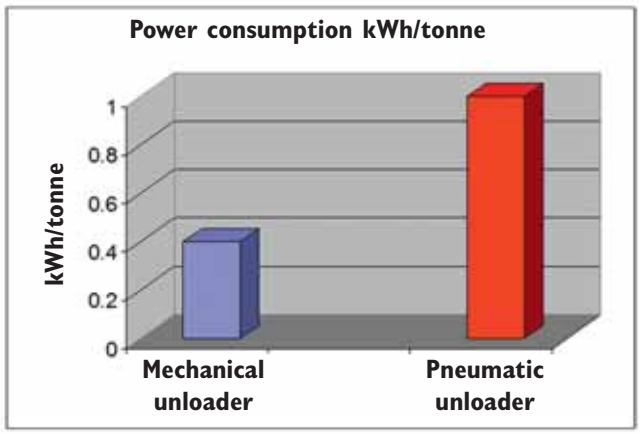
Pneumatic: the physical properties of pneumatic solutions require the conveying speed to be higher than that of mechanical systems. The resulting higher maintenance costs are not the only disadvantage; critical disadvantages also include higher reject rates and lower product quality, which in turn leads to lower market prices. Additionally, greater system wear results in reduced unloading throughput.

Energy consumption

Thanks to a simple design with few components and a lower conveying speed, the energy consumption of mechanical unloading systems like the Bühler Portalink or Portalino is approximately 0.35–0.4kWh per tonne. By comparison, the energy consumption of pneumatic systems is roughly 0.85–0.9kWh/t; older systems even require more than 1kWh/t. Depending on conveying capacity and local energy prices, mechanical unloading systems can save the user tens of thousands of Euros each year.

In the light of the continuing trend toward higher energy prices, it stands to reason that in the future, mechanical unloading systems may also become more attractive for lower capacities — above all in countries where energy is expensive.

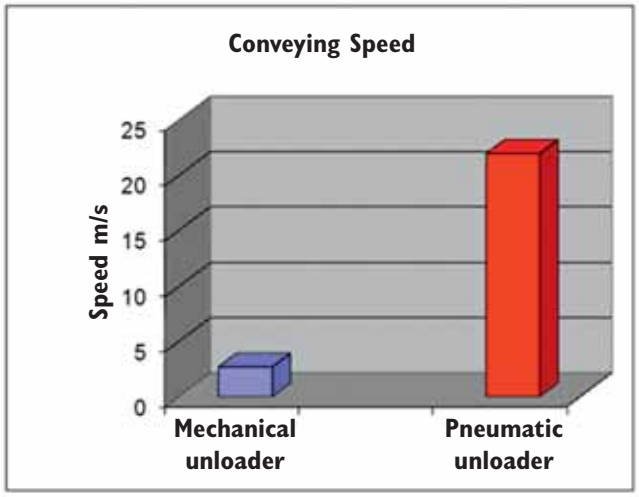
High levels of specific energy consumption also have a negative impact on the overall power supply of an installation — and on costs for the provision of energy. The necessary investment costs as well as the annual increases in electricity rates are often overlooked in calculating the overall costs of a system. In this regard, mechanical unloading systems like the Bühler Portalink or Portalino are clearly superior to pneumatic solutions.



The energy consumption of mechanical unloading systems is two to three times lower.

Noise pollution

Mechanical: to say that mechanical unloading systems like the Bühler Portalink or Portalino operate quietly would certainly be an exaggeration. Nevertheless, with the exception of necessary safety signals, their constant noise level means they can only be heard in the immediate vicinity. In this way, the system adheres strictly to environmental and occupational safety guidelines and



The reduced conveying velocity of mechanical unloading systems protects products and increases margins.

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minimizes the impact of noise on workers.

Pneumatic: in contrast to mechanical systems, the air suction blower (roots type) employed in pneumatic unloading systems produces an unpleasant noise frequency that is often perceived as an annoyance, particularly at long distances. While multi-stage fans produce less noise as a whole, at further distances, they result in noise pollution similar to that of roots-type blowers.

Costs

Mechanical: mechanical unloading systems such as the Bühler Portalink and Portalino are capable of handling throughputs up to 1,300tph and beyond. This means even larger amounts of bulk material can be unloaded with just a few unloading systems. At an average of €0.08, the specific maintenance costs per tonne of unloaded raw material are also low (replacement parts and personnel).

Because of their design however, mechanical unloading systems are heavier and must be built larger than pneumatic solutions due to their geometry. This requires greater investments in the pier installations.

Pneumatic: by contrast, pneumatic unloading systems are only capable of handling a maximum of 600tph throughput (with one suction nozzle). Larger conveying amounts require the employment of several unloading systems, which in turn drives up investment costs. At approximately €0.14 per tonne of unloaded raw material, the specific maintenance costs are significantly higher. On the other hand, costs for the pier installations are lower than that of mechanical unloading systems.

Conclusion

The advantages of mechanical ship unloading systems like the Bühler Portalink/Portalino lie in the areas of energy consumption, low wear and low maintenance and efficient unloading with short berthing times, in particular at high throughputs starting at 300tph or higher volumes of approximately 300,000–500,000 tonnes annually. Continuing increases in energy prices could also make mechanical systems an attractive alternative to pneumatic systems at lower volumes in the future. Pneumatic systems continue to demonstrate advantages with low material volumes, through their high level of flexibility where water levels vary at the pier, when different products are transported in the same cargo hold or when tankers have been converted into bulk carriers.

In short: each of these technologies serves a purpose. The specific area of application and volume of bulk material are the deciding factors.

Bühler has long experience in both technologies and offers methods and calculation tools to assist any client in his decision for the right technology for his individual application.

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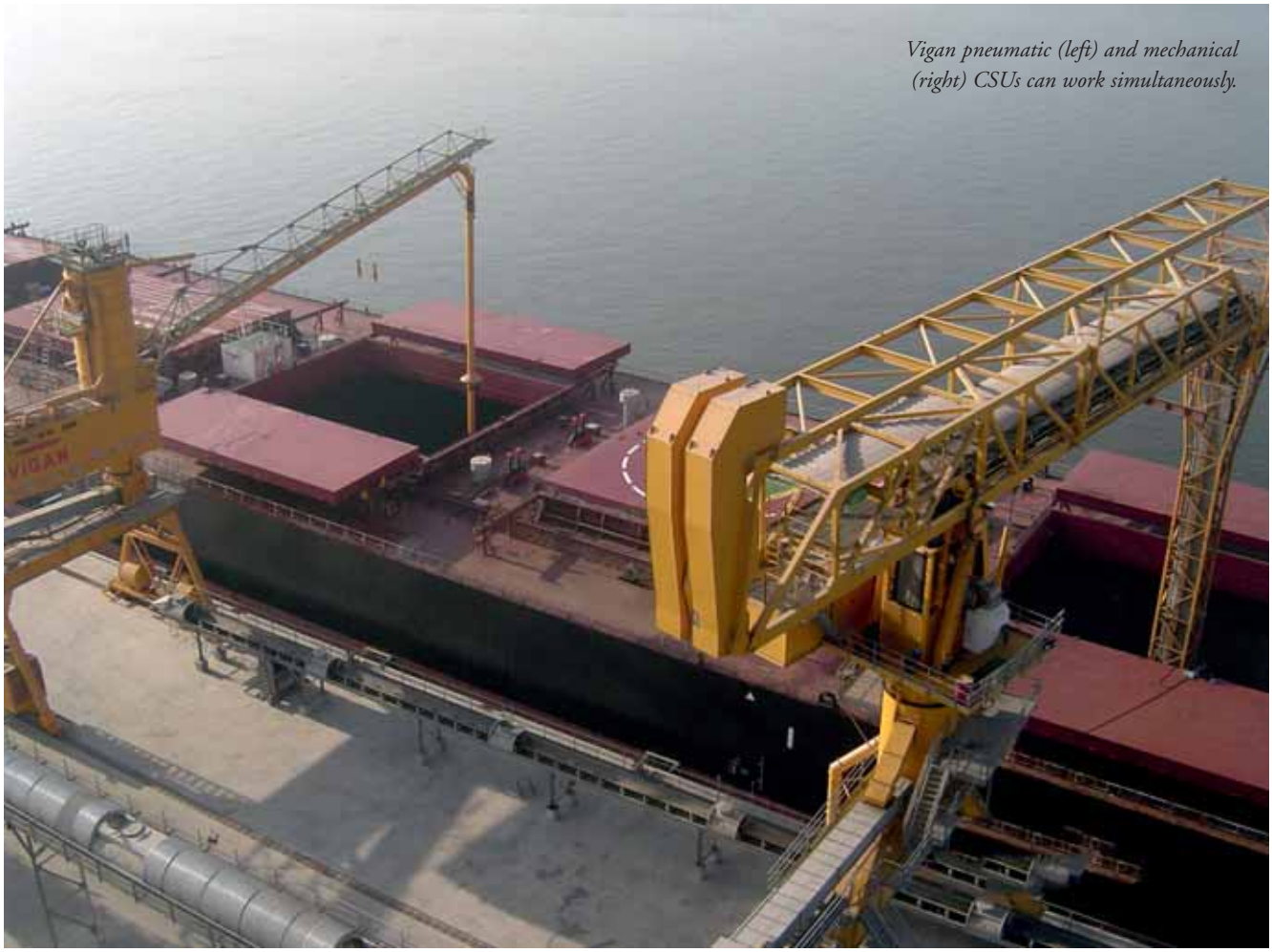
VIGAN CSUs continue to grow in popularity worldwide



Vigan pneumatic (left) and mechanical (right) CSUs can work simultaneously.

The introduction of continuous ship unloaders (CSUs) is probably the most important innovation in bulk material handling technology of the last decades.

The machines have particularly proven their suitability for unloading products such as all types of cereals, oilseeds, raw material for animal feeding and other free-flowing products like the newly emerged market of wood pellets for example. Whilst it is a rather younger and more complex technology compared

Unloading bulk cargo using grabs is potentially hazardous and can cause significant dust emissions.

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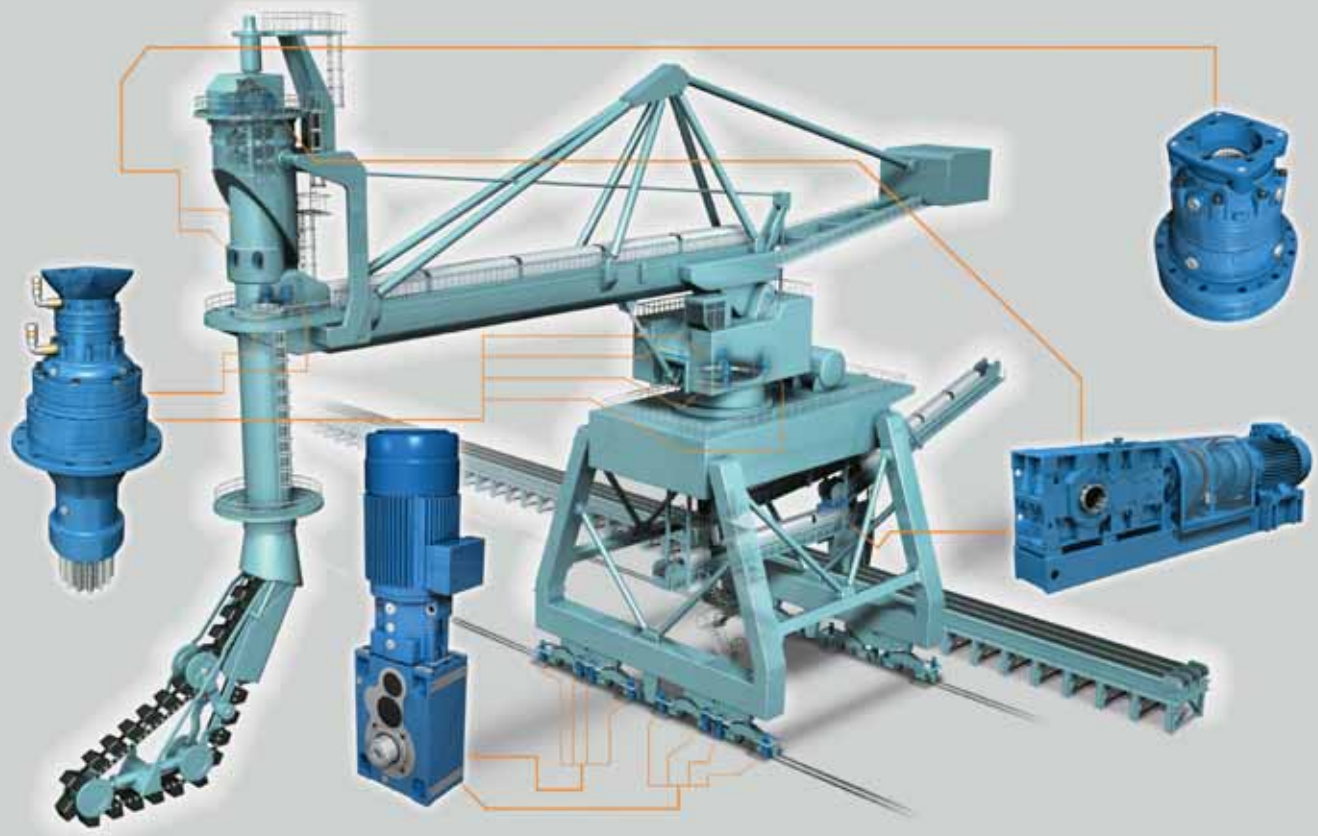

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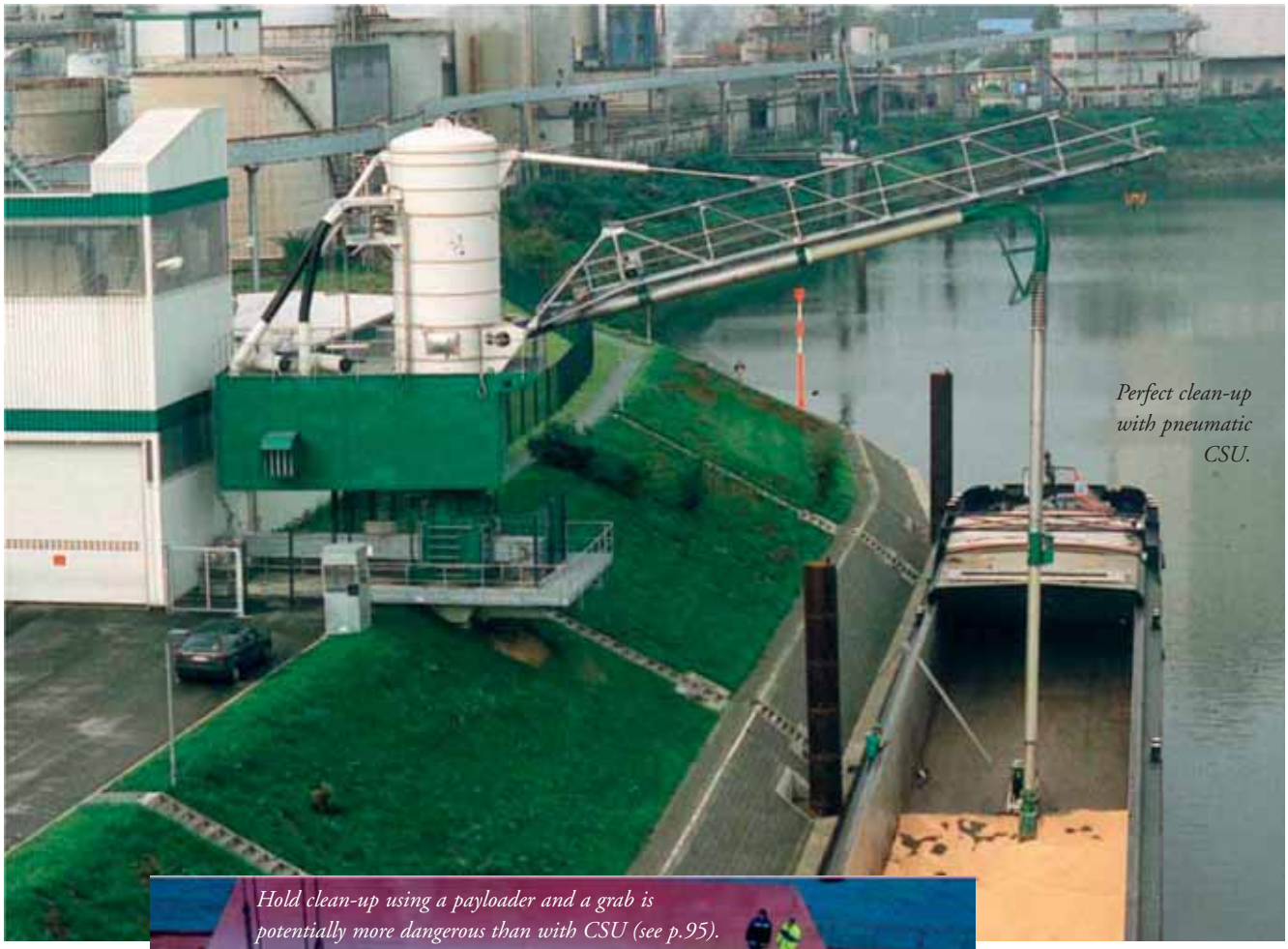
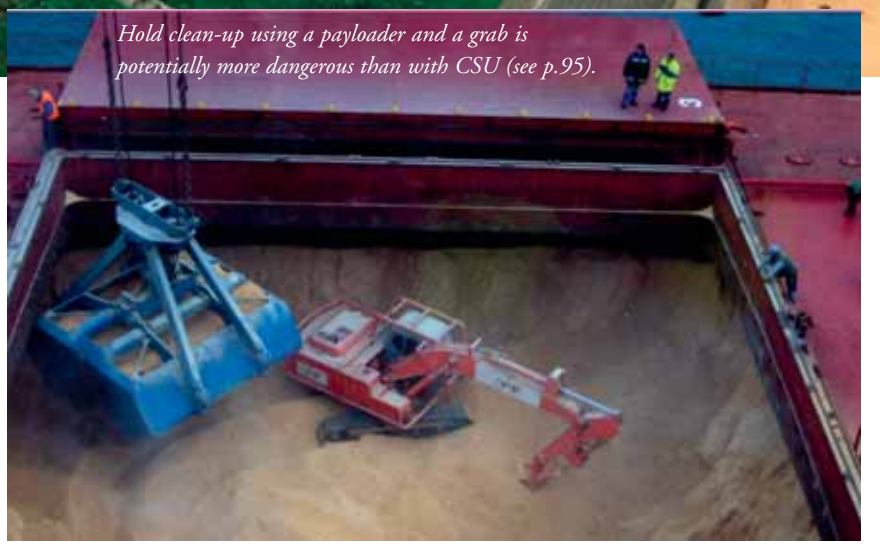


Perfect clean-up with pneumatic CSU.



Hold clean-up using a payloader and a grab is potentially more dangerous than with CSU (see p.95).

Considerably more hold clean-up is required when cargo is unloaded using grabs instead of CSUs.

with grabs and conveyors, their number is continuously increasing worldwide due to their environmental and their overall profitability key advantages.

Most obvious assets, especially when compared to grab unloading, are the minimization of product spillage, dust and noise pollution.

CSUs have a clear environmental benefit. For instance, VIGAN CSUs — whether pneumatic or mechanical — are totally enclosed systems during the whole unloading operation from the heap in the ship's hold up to the discharge points such as trucks and wagons or quay conveyors to storage facilities.

Even at that stage, whereas grab unloading consists in opening the jaws into a hopper — an action which can generate a lot of dust (see picture on bottom of p91), CSUs are most frequently equipped with fully covered conveyors with dust filters and telescopic loading tubes with dust aspiration system.

Furthermore, either from the suction nozzle of the pneumatic unloader or from the mechanical feeder, no particle of the cargo can escape while unloaded and transported.

- ❖ in the pneumatic system, products are sucked into vertical and horizontal pipes, are separated from the air in the receiving cyclone or hopper, and discharged through the airlock to the appropriate transfer and/or direct discharging system.
- ❖ in Vigan's mechanical Simporter ('twin-belt' technology), a pair of conveying belts holds the material gently but firmly during its travel all along the vertical leg. With this technique, the material remains always stationary. There is no product degradation, no spillage, and no dust.

The financial advantages are sometimes controversial. At first sight, initial investment is often the major concern of buyers. But other key-factors must be considered.

- ❖ because of their ability to unload ships at a constant handling rate and with homogeneous flow, productivity can be forecast, controlled and adjusted: it is easier to organize labour shifts because the necessary man-hours are more precise. This is a real asset for proper budget management.
- ❖ another key issue is the total unloading time of vessels. The mobility of the self-propelled gantry along the quay (whether on rails or tyres) allows quick displacement without having to move the ship, thus optimizing the unloading sequences of the hatches.

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COST COMPARISON PROVES EFFICIENCY OF CSU TECHNOLOGY

System	CSU	Grabs
Maximum capacity	300tph	300tph
Global efficiency incl.hold cleaning	75% (300 x 75%)	65% (300 x 65%)
Average capacity	225tph	195tph
Power consumption	270kW/hour* or 1.20kW/tonne	120kW/hour** or 0.62kW/tonne
Cost of kW (example)	US$0.20	US$0.20
Energy cost/tonne	US$0.24	US$0.123
Cost for unloading 500,000 tonnes	US$120,000 (US$58,500 more)	US$61,500
Number of tonnes/year (ex)	500,000	500,000
Average capacity	225tph	195tph
Number of hours for unloading 500,000 tonnes	2,222	2,564 (342 hours more)
Tie-up cost	US$12,000/day or US$500/hour	US$12,000/day or US$500/hour
Cost of hours needed	2,222 x US$500 = **US$1,111,000**	2,564 x US$500 = **US$1,282,000**
TOTAL COST over 1 year (ship + energy)	**US$1,231,000 –US$112,500**	**US$1,343,500**

** pneumatic power consumption or even lower*

*** mechanical system specifications*

US$112,500 savings with a CSU system for unloading 500,000 tonnes

- furthermore, particularly the pneumatic CSUs offer the fastest and most efficient hold cleaning operations (see pictures on p93), which reduces significantly the costs of demurrage. By the way, the pneumatic quick clean-up is also a major advantage especially as ships are frequently used for transporting different goods in bulk; and time can be lost before loading a vessel with another cargo if it has not been perfectly cleaned-up. The speed of hold cleaning is also of outmost importance for the unloading of barges.
- the energy costs are often used as an argument in favour of grabs. However, if we compare globally the whole unloading cost of a vessel, figures show that the overall efficiency of CSUs can offset this cost. The table above is an illustrative example, showing how large savings can be achieved by reducing the total unloading time. Demurrage and tie-up costs are most critical factors not only for the operational costs but also in term of berth occupancy management. This is why for all people involved in port operations, fast and reliable unloading techniques are key-targets.
- whichever type is chosen, less manpower is necessary when operating a CSU: one single operator can manage the unloading either from the ship's deck and/or from a platform thanks to a wired or remote control box. The unloader can also be designed with an operator's cabin, and the boom end equipped with cameras allowing supervising operations on control screens.
- last but not least, the major factor shouldn't be forgotten: operator safety, which is maximized with CSUs. Indeed the intake line (vertical leg or pipe) moves slowly inside the holds, thus minimizing risks for the workers and for auxiliary equipment operating in the hold (see picture, right).

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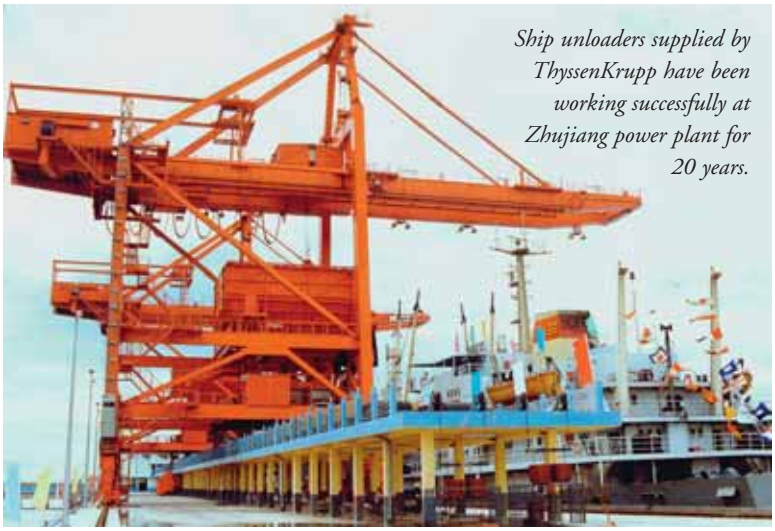
ThyssenKrupp wins follow-up order from Guangzhou Zhujiang Power Plant, China



Ship unloaders supplied by ThyssenKrupp have been working successfully at Zhujiang power plant for 20 years.

Back in 1994, the new power plant in Guangzhou City, Zhujiang power plant received ThyssenKrupp's ship unloaders for its coal terminal, and put them into operation. Since that time, these ship unloaders have been operating successfully, serving the power plant's requirement for coal to run its 3 × 600MW blocks, as well as handling the transshipment of coal for the region. An annual turnover of 6–8mt (million tonnes) is achieved by these unloaders.

With the increased power consumption in this region, the power plant has begun work on its Phase II expansion project for the other 1,000MW block. Through an international tender, ThyssenKrupp again won the new order for the two further ship unloaders — this time, chain bucket elevator continuous ship unloaders.

The contract was signed in June 2012 for the supply and installation of two CSUs. These unloaders will be designed for an unloading rate of 1,500–1,650tph (tonnes per hour), serving ship sizes of up to 70,000dwt currently and, in the future, 100,000dwt. This new order is representative of ThyssenKrupp's outstanding success in China; it now has >75% of market share.

For ThyssenKrupp, this follow-up order is not only the award of a further order, but it also represents continuity with respect to design, supply, construction and management, and demonstrates the client's appreciation of and satisfaction with ThyssenKrupp's performance to date.

The delivery to site and commissioning of the new CSU is scheduled for the end of 2013, with commercial operation set to start from February 2014.

The decision of Zhujiang Power Plant to choose ThyssenKrupp as supplier for all of its important ship unloaders has been made because of its confidence in ThyssenKrupp's advanced technology, ability to execute large scale projects and first-class technical service. According to one of the decision-makers, the choice went in favour of ThyssenKrupp after accurate comparisons of several competitors on the evidence of

- world wide and extensive experiences in the development of coal ship unloader technology;
- excellent performance of CSUs already built;
- high availability and long service lifetime without intensive repairs;
- reliable technical services during construction, commissioning and operation period; and
- good relationship with Chinese partners for manufacturing and erection

With this contract, ThyssenKrupp, one of the world's leading designers and manufacturers of CSUs, has once again contributed to the development of China's coal ports and power plants along with other equipment of more than 60 machines for car dumpers, ship-unloaders, shiploaders, stacker-reclaimers, and so forth. DCi

Three ThyssenKrupp CSUs, during unloading operation at Huayang Power Plant, China. These units are similar to those to be installed at Zhujiang

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Shiploader for TPT Richards Bay Terminal

Transnet Port Terminals' investment programme still going according to plan

The red shiploader pictured in the Port of Richards Bay after its arrival on Wednesday 16 January.

A R140 million, general bulk shiploader procured for South Africa's Port of Richards Bay is the latest addition in Transnet Port Terminal's (TPT) R33 billion Market Demand Strategy (MDS) investment programme. Custom-built to complement the terminal's operational envelope, the loader was designed in Austria and built in China; however, South African engineering company Sandvik has managed its entire procurement.

Its capacity is a guaranteed 2,500tph (tonnes per hour) at a bulk density of 1.9 tonnes per cubic metre (t/m³). The linear travelling loader will be suitable for all export commodities the terminal handles including coal, magnetite, chrome and chloride – among others.

In July 2012 the terminal's multi-billion rand equipment replacement programme kicked off with the arrival of one of its largest assets, the Rio Tinto Alcan Alesa unloader.

According to terminal manager, Victor Mkhize: "This arriving shiploader is a replacement of the less suited, 35-year-old Krupp machine that has now exceeded its design life."

He added that the loader not only boasted better outreach and a higher draft to accommodate much larger vessels, it had also been designed to be environmentally friendly with its built-in dust collection system and three dust free loading chutes.

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The 2,500tph shiploader will be able to handle all commodities.

Just over 70% of the terminal's total commercial trade is export. The addition of equipment is aimed at the MDS's promise of facilitating unconstrained growth, unlocking demand and creating world-class port operations through improved efficiencies.

TPT chief executive Karl Socikwa said: "TPT will in the next seven years, invest in infrastructure, maintenance and expansion, drive growth and increase our footprint in Africa offering improved connectivity to existing and new markets."

Socikwa said there were several projects currently under way across all terminals to ensure that equipment woes would no longer hinder operational targets.

A skills transfer opportunity has also been created through Sandvik where TPT operators and the technical team will be trained for sustainable operations. The pre-assembled loader will be off-loaded and installed upon arrival to undergo commissioning.

The machine is scheduled to be fully operational in April 2013.

Also arriving in January 2013 are new vehicles to boost the terminal's mobile fleet. A total of 21 have been ordered.

Celebrating (left to right): chief maintenance officer Shane Narainsamy, project managers Alec Schemel and Kris Naidoo, terminal manager Victor Mkhize and general manager of Capital Projects and Maintenance Logan Naidoo.

About Transnet Port Terminals

Transnet Port Terminals is a division of Transnet SOC Limited, South Africa's state-owned freight transport and handling company.

It provides efficient and reliable cargo-handling services at terminals situated across seven South African ports — Durban, Richards Bay, Cape Town, Saldanha, Port Elizabeth, Ngqura and East London. TPT customers include shipping lines, freight forwarders and cargo owners.

Operations cover import and export operations across the following cargo sectors: containers, mineral bulk and the agricultural bulk and ro/ro sector.

Karl Socikwa is the chief executive. The company has a staff complement of over 6,000.

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SENNEBOGEN presents the 8130 EQ:

75% more energy efficient thanks to its balance technology and electric motor

In an exclusive preview demonstration, SENNEBOGEN presented its new 8130 EQ balance material handler to *DCi*.

The 8130 EQ combines two important SENNEBOGEN trademarks: flexibility and low operating costs.

"With the 8130 we are entering a new dimension in terms of energy efficiency," explains managing director, Erich Sennebogen.

"As the machine is fully balanced in every position a much smaller energy input is required."

And it gets even better: "First tests have shown, that in combination with our electro-hydraulic drive, we can save about 75% in operating and energy costs, savings of 75%!"

In contrast to conventional hydraulic material handling machines, this latest machine from SENNEBOGEN not only sets new standards with regards to performance and handling but also enables savings of up to 75% in energy and running costs compared with conventional diesel motor drive concepts.

The SENNEBOGEN 8130 EQ with electric motor operates environmentally friendly and efficient, both in scrap handling and port material handling. An adjustable counterweight means that the machine always remains perfectly balanced in any position and the centre of gravity stays central. This EQ (equilibrium) principle enables the machine to constantly remain balanced. Thanks to the directly linked counterweight, minimal energy usage provides sufficient drive even for large reaches and high loads.

Sophisticated balance technology and electric motor: 75% savings

The way it works is simple. The whole machine can be controlled using just two cylinders. A bar running parallel to the boom connects the jib to the rear counterweight and ensures effective transmission of power. During every operating movement, the counterweight is held in balance in a similar way to classic lever principle behaviour. In this way, it takes almost no energy at all to move the machine. Even for heavy loads and high reaches, only the loads attached must be moved and driven — an enormous saving in terms of effort and energy. Savings in running costs and energy costs of up to 50% can be achieved just by using this sophisticated balance concept.

Used in combination with the electrohydraulic drive concept, further considerable savings are possible. As an electric machine, the 8130 EQ uses just 25% of the energy required by similar diesel-powered machinery.

There are even more advantages to the electric motor, including low energy consumption, low additional costs and

With a reach of 27m, the new SENNEBOGEN 8130 EQ can operate as a stationary machine in an area up to 2,300m² — ideal for demanding scrap and port material handling

above all, the motor operates extremely quietly and smoothly without refuelling. The 8130 EQ's 400 volt electric motor generates a powerful 130 kW, while short hydraulic connection and reliable control technology allow the power to get to where it is needed.

At home in port material handling and on the scrapyard

The new SENNEBOGEN 8130 EQ is particularly well suited for use in port material handling and on the scrapyard as well as for logging. The balance technology shows off its strengths in all situations where bulk goods or large quantities of scrap need to be handled cost-effectively. With a bearing load of 5 tonnes and a reach of 27m, a stationary machine can easily operate in an area of around 2,300m^2. Additional material can be piled up to a height of 25m. Several working steps can still be carried out with optimum logistics from a central position. A clear view is always guaranteed thanks to the pylon structure and the raised cab position.

In addition, the machinery guarantees the highest level of efficiency and productive workflows in port material handling. From ships to Handysize-class vessels, the SENNEBOGEN 8130 can unload goods up to a depth of 8m and can bear a load of up to 10t.

Central and easily accessible — the SENNEBOGEN Power Pack

Optimal ease of use and convenient maintenance safeguard the sophisticated machine design. Centrally accessible monitoring and maintenance points guarantee quick and easy inspection of the entire hydraulic system. The Power Pack that can be accessed inside offers the best possible access to the engine and the control technology in any weather conditions — that's easy maintenance at its best. All drive and control components are kept together in a large engine compartment. The clearly arranged design, simple maintenance and understandable technology prove their worth in daily use. With 60 years of experience, SENNEBOGEN guarantees excellent reliability and the best in safety and durability. A rapid supply of spare parts and premium maintenance are ensured thanks to the use of proven standard components and the easy-to-reach positioning of both cylinders.

With the proven maXcab comfort cabin and the Power Pack that can be walked on, the 8130 EQ sets new standards in ease of handling and serviceability.

Proven technology and new product developments – Mastercab is the ideal cabin

SENNEBOGEN represents individual, customer-specific solutions and thanks to the modular design of its machines, a wide range of equipment options is always possible. From stationary underframes, crawler chassis or rail solutions to pontoon constructions, a wide range of solutions are possible, all tailored to the customer's requirements. The machine is also available as an option with a 151/164kW Cummins diesel engine. In the cabin on the 8130, the driver not only has a clear view, but thanks to the SENNEBOGEN SENCON Control System, all the adjustments can be made centrally, current measurement readings can be taken and the driver is able to fine tune things himself using the clear display. The proven SENNEBOGEN maXcab industrial comfort cabin allows the driver to get the best all-round view — an important safety factor — thanks to

The largest of its class: the SENNEBOGEN Mastercab impresses with staggering dimensions that comply with the most recent ergonomic standards — a perfect view for material handling.

end-to-end tilted bullet proof glass and floor windows.

In addition to the existing comfort cabin, the SENNEBOGEN 8130 will also be available with an all-new cabin design for the very first time. The new SENNEBOGEN Mastercab offers an outstanding feeling of spaciousness, the clearest view and the highest level of comfort. The resiliently mounted spacious harbour cab is impressive due to its large floor window and excellent all-round view — a valuable advantage for safety, for example when unloading ships.

The interior, complete with air-suspended seat, complies with the most recent ergonomic standards and certainly impresses with its staggering interior dimensions. In addition to sliding windows and air conditioning, the Mastercab is the largest cabin in this machine class and is the first to be fitted with a spare foldaway seat. This means there is space for an instructor to sit for training purposes, where he can take an active role in instructing the driver. In comparison to the previous maXcab industrial cab, the optional cab is around 50% wider and 25% higher. For the driver this means the space has been almost doubled to over 6m³. Various storage solutions complete the top of its class interior in the new Mastercab and make it the perfect cab for demanding material handling. In the future, the Mastercab will be available as an option on SENNEBOGEN machines from the 850 model upwards.

SENNEBOGEN: service company, family enterprise

SENNEBOGEN, a German family-run enterprise, develops and produces complete model ranges for duty cycle crawler cranes, crawler-, telescopic- and harbour cranes, material handling machines, multiloaders as well as base carriers. In addition to flexible machines from series production, SENNEBOGEN also designs individual specialized machines in close collaboration with its clients.

SENNEBOGEN stands for material handling and lifting technology, global leadership through innovation and continuity as a German manufacturer.

The company's customers and partners highly appreciate it as a responsible service company because it focuses on providing simple and better solutions. Its flexibility and ability to respond fast and direct communication with its partners only furthers this appreciation.

Values of a family-run enterprise

1 **Safe investment** — longevity and high residual values through robust designs
2 **Tailor-made** — modular designs, customer specific build
3 **Availability** — engineered focus: controllable design — no over-engineering
4 **Reliable** — focus function and performance at any time
5 **Innovative** — leading through innovation through better solutions
6 **Sustainable** — clever investment; reduce lifetime cost.
7 **Lasting values** — quality 'made in Germany' — also for second hand markets
8 **Future-oriented** — electrohydraulic drive concepts — emission free, low noise, enduring.

Values of a family-run enterprise

- economic strength for long-term stability;
- profitable, long-term oriented organic growth; and
- long-lasting and reliable partnerships worldwide.

The organization — industry oriented

SENNEBOGEN has a wide variety of application- and competence focused product lines. Its product and industry specialists guarantee excellent support to its customers.

Competence Green Line

SENNEBOGEN's Green Line includes machines from 12 tonnes to 300 tonnes operating weight and machine availability of up to 7,000 operating hours per year.

SENNEBOGEN listens to its customers' individual

Highest operational demands – individual solutions in recycling.

Individual solutions for bulk handling.

The world's largest mobile material handler working at Shoreham port.

requirements and finds appropriate matching solutions.

Furthermore, its products are highly reliability due to robust design and quality components.

Examples of where the Green Line of handling machines are being used are: scrap handling, waste/recycling/biomass, timber and forest industry, ports, demolition, agriculture and municipalities.

Competence Crane Line

SENNEBOGEN's full crane product line includes: telescopic cranes, crawler/rubber tyred, truck cranes, crawler cranes, HD rope excavators, foundation machines, multicranes.

Advantages of Crane Line products:

Unique: simple maintenance, high availability, compact dimensions.

Economic: low operating costs, high residual values, excellent transportability.

Crawler cranes: Easy transport — ready for operation fast — working safe and with sensitivity.

Telescopic cranes: Easy transport — ready for operation fast — working safe and with sensitivity.

HD crawler cranes: duty cycle works in special foundation.

Competence Port Line

SENNEBOGEN's Port Line includes a wide variety of purpose built cranes and material handling machines for the port industry with high productivity. Due to its modular system the Port Line offers the perfect solution for virtually every ship, vessel or barge size as well as every kind of cargo and every size of port.

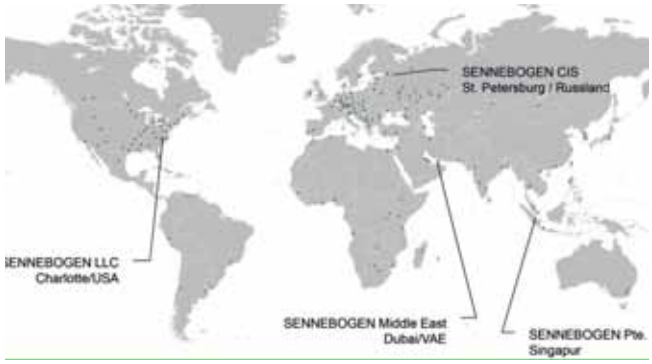
These machines also have a high life-time expectancy due to very robust design and use of high quality components.

The Port Line's machines are used in the following places: civil engineering, foundation construction, lifting industry, mining, and the demolition industry.

Sales and Service Partners

SENNEBOGEN's worldwide sales and service network, with experienced and factory trained partners, guarantees excellent service and local availability of parts.

There are 100% family owned subsidiaries present in important regions like North America, Middle East, Singapore and Russia.



Four individually orientated locations

Plant Straubing 1, corporate headquarters

⑥completed in 1959;

- total area 44,000m²;
- office & production space 16,000m²;
- approx. 200 employees; and
- corporate headquarter of the group as well as assembly of OEM base carriers and fabrication of steel components.

Service centre Straubing

- expansion in 2008;
- approx. 50 employees; and
- product support and spare parts centre.

Plant Wackersdorf

- completed in 1991;
- total area 160,000m²;
- office & production space 25,000m²;
- approx. 200 employees; and
- assembly of the Green Line material handling machines with up to 80t operating weight.

Plant Balatonfured/Hungary

- integrated in the group in 1996 total area 120,000m production space 22,000m² approx. 300 employees
- fabrication of steel components as well as machining of steel structures

Sennebogen works 2 in Straubing.

Plant Straubing 2, Industrial Park 'Hafen'

- completed in 2008;
- total area 125,000m²;
- office & production space 20,000m²;
- approx. 350 employees; and
- research & development, assembly, marketing & sales of cranes, material handling machines and harbour mobile cranes focused on large machines, serial production and customized solutions.

Service-centre/SENNEBOGEN LLC

Straubing Service Center

- expansion 2008, 50 employees; and
- customer service/spare parts centre.

SENNEBOGEN LLC, Charlotte, USA

- completion 2010;
- total area 130,000m²;
- sales, spare parts, training centre; and
- managing 48 sales partners with more than 240 service points

Production

- three locations in Bavaria, manufacturing of large machines — innovation leader for decades;
- flexible production methods and fast response times — transfer of customer ideas into solutions;
- use of local and high quality suppliers — logistic advantages and economic solutions; and
- 'made in Germany' stands for highest quality standards

Responsibility

SENNEBOGEN is following a long-term strategy to become a strong player in the market. It is committed to keeping its designs simple and maintenance friendly, to train operators and service people. SENNEBOGEN's focus remains on efficiency, safe operation and high machine availability.

The company is also dedicated to training the next generation — 10 % of its employees are working in its apprenticeship programme, the company's investment into the future of the company.

People

SENNEBOGEN believes that trained, experienced and motivated employees are the guarantee to its success in the market.

Low management structures and direct decision involvements of employees help the company to act quickly on customer solutions and to react fast to market changes.

Therefore it believes in high investments into employee training and apprenticeship programs, as well as close co-operations with high schools, universities and institutions.

Emotions

A successful long-term operation is based on active participation to develop the company as well as interests in politics, industries and associations. Consequently SENNEBOGEN believes that a friendly and ecological company environment breeds satisfied customers, partners and employees, which instills in everybody the excitement and passion for their daily tasks.

SENNEBOGEN history: SENNEBOGEN celebrates its 60th anniversary this year

1952–2012

1952: Erich Sennebogen, aged 21, founds his own company making agricultural machinery in Pilling near Straubing, Lower Bavaria. "There's no such thing as can't." Erich Sennebogen's motto from 1952 to the present day.

1953: The company is growing quickly and soon has 13 employees. The first SENNEBOGEN manure loaders are built.

1957: The first mechanical SENNEBOGEN duty cycle crawler cranes are developed and produced for the construction industry.

1955: Innovation and increasing mechanization for agriculture: the S 500

1959: The rapid growth of the company forces SENNEBOGEN to expand: a new plant is opened at the train station in Straubing.

1960: The 1,000th automatic excavator leaves the plant in 1960.

1963: Just like today, all products produced by the company back then are characterized by one thing: the focus on designing and producing proprietary solutions where possible. The motto 'there's no such thing as can't' is applied throughout the company by Erich Sennebogen.

1964: Alongside the traditional mechanical duty cycle crawler cranes, SENNEBOGEN develops the first hydraulic excavators from 1962, which enter production for the first time in 1964.

1966: Innovation: the first duty cycle crawler crane with hydraulic lattice boom folding function, ensuring that the machine can be transported easily and be ready for use quickly. These innovative machines are also launched on the market as truck-mounted cranes.

1969: World premiere: SENNEBOGEN develops the world's first fully hydraulic duty cycle crawler crane.

Passionate engagement for generations: Erich Sennebogen sen.(+), Erich Sennebogen jun., Walter Sennebogen, Anton Sennebogen (left to right).

With its combination-winch preselection function, the machine represents a milestone in duty cycle crawler crane technology.

1970: The first SENNEBOGEN hydraulic excavator with modern plastic chassis and wide angle of vision is produced.

Post 1973: The company recognizes the opportunities of internationalization early on and has been actively using them since 1973: globalization and export help spread awareness for the SENNEBOGEN brand — including in the Arab states and Africa.

1976: SENNEBOGEN develops a fully hydraulic duty cycle crawler crane with hydraulic elevating cab.

1980: World premiere: SENNEBOGEN develops the hydraulically adjusting articulated boom (GAUH). This innovation changes the face of the hydraulic excavator market and is still the global standard today. The GAUH articulated boom: in road driving position at the touch of a button.

1986: Innovation: SENNEBOGEN develops machines with

a boom range of 20m for effective, stationary material handling.

1986: The SENNEBOGEN crawler excavator SR 28 is awarded the Stuttgart Design Prize at bauma 1986.

1989: Development order for the quietest excavator in the world! SENNEBOGEN receives the Blue Angel environmental symbol for the quietest mobile excavator over 10t.

1990: Innovation: SENNEBOGEN supplies the first SR 28 special — a pioneering development for modern, effective material handling.

1991: The decision to build another plant in Wackersdorf is the next step in the expansion strategy. An ultra-modern production plant for mobile excavators is developed on a 160,000m² site.

1996: The company takes over and modernizes a supplier in Hungary, Balatonfured, and develops it into a modern supplier for steel assemblies and weld constructions in just a short time.

1996: SENNEBOGEN bundles its longstanding experience and creates a completely new range of high-performance material handling machines: the green line range is born.
Now the broadest range all over the world: SENNEBOGEN green line

1999: The new mobile harbour crane 6180 HMC.

2000: American sales and service operation established in Stanley, North Carolina, USA, under the name SENNEBOGEN LLC.

2002: Celebrating 50 years.

2006: SENNEBOGEN is presenting the new D- series for the Green Line material handlers

2007: Sales and service operation, SENNEBOGEN Middle East FZCO, established in Dubai (UAE).

2008: Erection of the additional plant 2 in the industrial park Straubinger Hafen with a total area of 125,000 m² and an investment of more than 30 million euro.

2011: On 21 March 2011, company founder Erich Sennebogen sen. passed away at the age of 79, having had a major influence on the fortunes of the company for almost six decades.

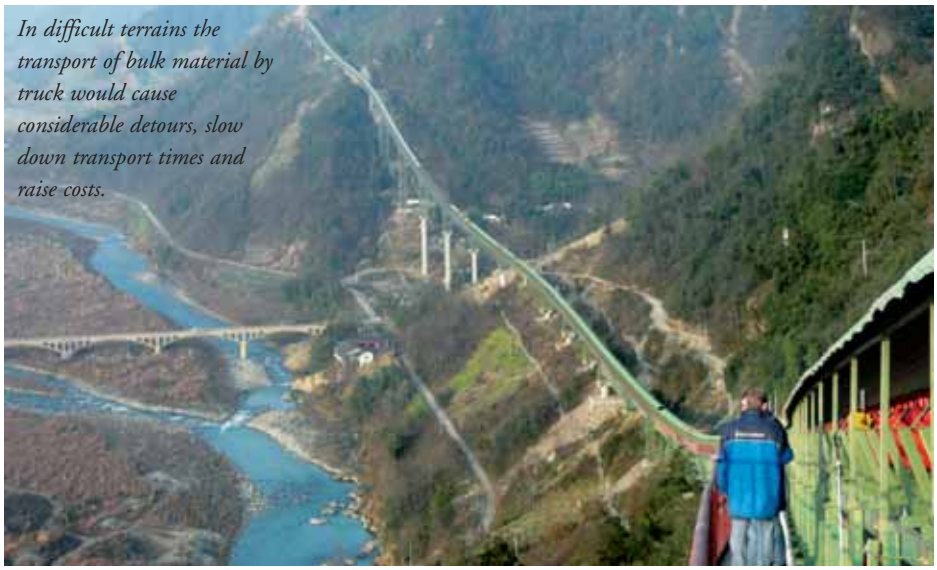
2012: SENNEBOGEN celebrates its 60th anniversary! The logo stands for 60 successful years: the individual "rocks" represent the sales and service partners of the company, the "diamonds" represent the four production sites and subsidiaries.
Innovation: SENNEBOGEN successfully launches the new E series with Green Efficiency technology on the market. The fuel-saving and environmentally-friendly high-performance machines are perfectly suited to challenging continuous use in material handling.

Belt conveying systems or trucks – which of them ensures more efficient bulk material transport?

Finally it should be sustainable

Modern cropping technologies require systems capable of transporting bulk materials quickly and efficiently from the quarry to the destination, and through rough terrain as well. Often trucks are used in this regard. Depending on the nature of the terrain, however, trucks rapidly reach their limits as they need, for example, well-developed roads. The costs arising for construction, maintenance and possible extension are not insignificant. In addition, all of this implies serious landscape changes. The emissions caused by truck traffic are undoubtedly high, both with regard to toxic substances and to noise and dust. BEUMER develops and installs curved belt conveying systems, which ensure efficient and environmentally safe transport also in rough territories. A comparison follows.

Belt conveying systems enable a rapid and efficient transport of bulk material from the quarry to the destination also through rough terrain.



In difficult terrains the transport of bulk material by truck would cause considerable detours, slow down transport times and raise costs.

Belt conveyor or truck? This question was raised at Asia Cement Group, a large building material manufacturer headquarter in Taipeh (Taiwan): approximately 30km from the quarry from the newly constructed plant. The requirements were clearly defined: the limestone has to be transported rapidly to the plant, which is provided with two kiln lines each having a daily output of 4,200 tonnes. For this, Asia Cement Group needs daily 14,000 tonnes of raw material. The building material manufacturer had the option of choosing between transport by truck or belt conveying system. Due to the fact that the terrain consists of mountains and bamboo woodland, the trucks would have had to drive mostly via public roads. This would have caused detours, slowed down transport times and raised costs. Asia Cement chose the troughed belt conveyor of the intralogistics expert BEUMER as the cost-efficient solution.

Considering ecological, economic and social aspects

Several companies have to take this decision if they intend to transport large quantities of bulk material such as ore, coal, gravel or sand from the quarry, the mine or the sand pit to the plant or to the harbour as cost-efficiently and quickly as possible. In this regard, trucks present many disadvantages. To build roads is expensive and implies considerable landscape changes. Especially roads dimensioned for dump trucks require a width of approximately 30 metres. Moreover, roads must be maintained. Operational costs and emissions caused by trucks are to be added as well — including fuel consumption and personnel costs, as well as noise and dust. The more raw materials have to be transported from the quarry to the plant, the more truck loads have to be undertaken.

Belt conveyors - an efficient alternative

Therefore in practice companies must take a closer look at the alternatives. With its belt conveyors, BEUMER provides an economical and environmentally protective solution for bulk material and piece good transport. The belt conveyors are able to navigate long distances, high angles of inclination and tight curve radii, and can be adapted individually to the respective application and topography. The landscape changes are minimal and meet even the highest environmental protection requirements. Durable conveyor belts guaranteeing tensile strength are used. BEUMER makes use of different dimensioning programmes to determine the ideal belt design. In this way, tractive forces or loads arising by acceleration and delay also can

be calculated — and this always considering the net weight of the belt and material transported. Possible curve radii are also calculated with this programme. BEUMER provides preliminary feasibility studies in this regard. Furthermore, the belt position in the corresponding curve radius is pre-calculated for empty and loaded belts thus enabling the optimal adaptation of the belt conveyors to the local environment. Due to their slight routing, the belt conveying systems negotiate rugged terrain and other obstacles, such as rivers, streets, buildings or train tracks. Horizontal and vertical curves can even overlap. Except for support columns and steel structure that need to be constructed, the landscape is not subject to changes. Companies save significant costs, including those typically arising for example in connection with earthwork, and even in difficult environments the construction work for these systems is minimal. In addition, belt conveyors represent an environmentally friendly solution, which can therefore be adopted also in nature reserves.

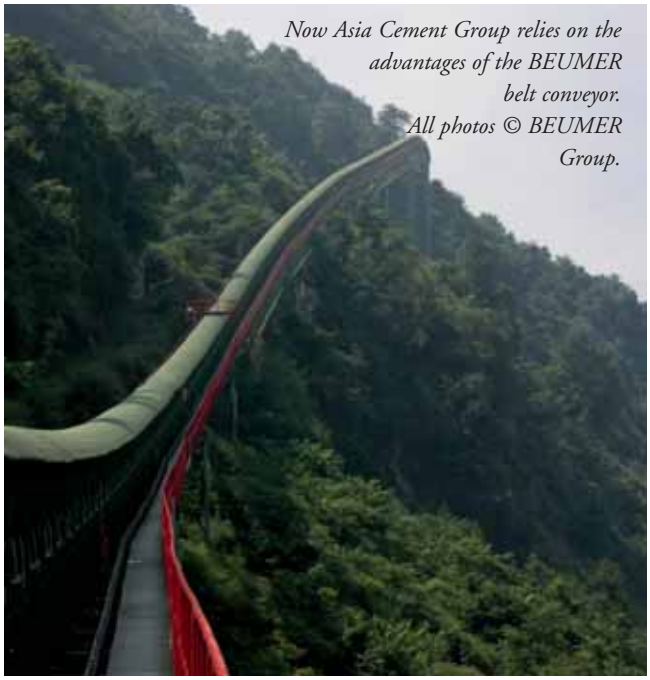
The direct routing enables a considerably faster material transport than by truck. In addition, fewer personnel is required for operating the belt conveyors. A further advantage related to the use of belt conveyors instead of trucks and implying additional cost saving is the minor energy consumption that at

The advantages of the pipe conveyor are, for example, the protection of the material from the elements and protection of the environment by means of dust-free transportation.

the same time reduces the CO_2-emissions. Depending on the project, belt conveying systems require up to 90 % less primary energy than comparable truck transports. A concrete project-related comparison discloses that, merely due to the consumption of diesel fuel, trucks require a specific primary energy of 11.4kW/h for each ton of transported material. In contrast, the belt conveying system that was constructed later requires only 1.44kW/h. If, as in this case, 7.5 million tonnes raw materials are transported annually, the use of belt conveyors means a total saving of 74 million kW/h per year. This corresponds to an energy consumption of more than 20,000 single-family houses. Solely by saving diesel fuel, the operational costs of the company are reduced by more than €5.5 million per year.

Environmentally friendly transport

Depending on the requirement, BEUMER provides open troughed belt conveyors for higher throughput, larger mass flows as well as larger curve radii, and closed pipe conveyor for products that need to be protected against environmental stress. These are used also in topographically challenging terrain that requires small curve radii and large angles of inclination. In order to minimise dust formation during transport, the open troughed belt conveyors can be covered or encased. This sealing ensures dust-free transport.



Now Asia Cement Group relies on the advantages of the BEUMER belt conveyor. All photos © BEUMER Group.

However, things are completely different for trucks: considerable dust quantities arise during transport. The dust is dispersed on the loading space and causes substantial environmental pollution. In order to minimize this, roads are for example sprinkled with water. This represents not only an immense expenditure, but in regions suffering water shortages this process is simply impossible. In addition this water — mixed with oil, tyre abrasion or bound contaminants — flows back into the ground water.

Belt conveyors are additionally provided with environmentally safe electric drives and low-energy belts. Therefore, especially in times of climate change and increasing greenhouse gas emissions they are considered a preferred option. The motors — which, depending on the topography are run in motor-driven and regeneration mode — are mostly adjustable. This permits an optimum load distribution on the drive unit in different operating conditions. If the belt conveying system conveys downhill, the system works in generative operation. The generated electric energy is fed to the mains by a regenerative feedback unit. This way the operating costs of the complete system can be further reduced.

A further advantage of the belt conveying system is the low noise emission. They operate quietly and meet also strict environmental regulations. Specific idlers, noise-reduced bearings and low-noise electric drives make sure that belt conveyors are so quiet that they are often the only alternative to material transport in nature reserves or in inhabited areas. Dump trucks, on the other hand, generate a very high level of noise. A 180-tonne truck can generate a noise level of up to 123dB and is therefore approximately as loud as an alarm siren. Compared with a belt conveying system this, noise is seven to ten times louder. Furthermore, there is the noise generated while loading and unloading the trucks.

The BEUMER Group is an international leader in the manufacture of intralogistics for conveying, loading, palletizing, packaging, sortation and distribution technology. Together with Crisplant a/s and Enexco Teknologies India Limited, the BEUMER Group employs about 3,200 people and achieves an annual turnover of about €500 million. With its subsidiaries and sales agencies, the BEUMER Group is present in many industries the world over.

SMB Group from Germany creates comprehensive systems for material handling

Robot places containers onto a roller belt

Industrial process chains in the construction sector are in a state of constant development. The SMB Group offer systems and conveyor technologies that can be tailored to meet business needs, from delivery to reloading.

For intra-logistical processes to work seamlessly together in handling a variety of goods, high priority is placed on the interaction between software and hardware. It is exactly these automated systems that facilitate the processes and contribute to savings in time and costs. The support provided by the new technologies is of essential importance, especially for companies with an extensive intra-logistics chain. An example of such a comprehensive system in the field of material handling is SMB Group's unloading robot.

Unloading robots are designed for the automatic filling systems.

The automation process starts with the delivery, and it makes no difference whether goods are dumped as bulk cargo into bins or into the containers. SMB has designed the truck unloading robots for internationally operating companies. The robot places the containers quickly and accurately onto the roller belt, which is installed directly on the loading ramp. In designing this system, it is especially important to make sure that the weight and movement of the machines are synchronized. Frequency converters are used to prevent rapid, jerky movements. The overall light weight of the system is achieved through optimized use of special finite-element-method software. During single drum unloading, a palletizer is attached to the unloading robot, which places the drums automatically onto the pallets. An empty pallet magazine is pushed fully automatically to the empty pallets. The pallets with empty drums are then fed into the filling system. The system detects the position of the drum opening. The drums are unscrewed automatically, then closed and sealed again after filling.

"However different the needs of our customers may be, the complete system for any application can be designed on customer request, using a variety of synchronized system modules," explains Andreas Heckel, Managing SMB Group.

SMB-Group

SMB International and MBA Instruments: Two brands - one idea. SMB and MBA have focused their business activities in the area of "material handling". Planning, development, manufacturing, highly complex global distribution, automatic loading systems, filling systems, level measurement technology, palletizers, conveyor systems, compact high-bay warehouse ship loaders are part of our product range.

SMB Group has quite deliberately opted for a high proportion of in-house production at its plant in Quickborn, near Hamburg. In this way, customer requirements can be implemented spontaneously, targeted and quickly while maintaining high product quality.

In-house design and production of mechanical and electrical components are the basis for the decision to implement high production depth, which guarantees reliability in terms of quality and delivery time. Installation and service teams work on national and international projects. The global sales network ensures quick and targeted information and coordination.

Unloading robot with pneumatic clamshell.

Kirow Ardelt GmbH – high performance for handling bulk materials

Wilhelmshaven in Germany

Kirow Ardelt GmbH has been building cranes for more than 110 years and by using the experience gained from supplying several thousand harbour cranes over this time, has advanced to become one of the leading manufacturers of lifting equipment for handling bulk materials.

In particular, the development of the double jib level luffing system, together with the integration of hoppers and unloading equipment into the crane system, are key factors behind the advance to achieve higher handling performances and exemplary efficiency of the equipment.

Only a few months ago, two of the largest ARDELT cranes were introduced for handling operations in Wilhelmshaven in Germany. The primary task for both cranes is the unloading of coal carriers for supplying a nearby power station.

In order to unload vessels as large as Capesize efficiently, the crane has been designed with an outreach of 55m and lifting capacity of 63 tonnes.

These cranes are able to achieve a free digging performance of up to 2,400tph (tonnes per hour).

German engineering skills combined with the cutting edge technology of established sub-suppliers guarantees the outstanding efficiency of a slewing harbour crane.

The proven double jib level luffing system with its short rope lengths, provides precise and fast positioning of the grab. The grab used at port of Wilhelmshaven is a four-rope grab manufactured by Verstegen and has a capacity of 44m³ with a deadweight of approximately 19 tonnes. These dimensions are necessary in order to provide the handling volumes required.

The grab fills a hopper, which then supplies the bulk material via conveyor belt to the longitudinal quayside conveyor.

Like ship unloaders, the ARDELT TUKAN K cranes utilize the shortest working path between the hatch and the integrated hopper.

However, the energy consumption, maintenance and repair costs and noise emissions of these slewing cranes are lower than conventional ship-unloaders or mobile harbour cranes. The minimal energy consumption is a consequence of the solely electrical operation and ensures a high level of efficiency, in addition to the balanced jib system which renders inertia practically insignificant. Energy from braking movements and lowering of the load is fed back into the mains via an active line.

Wilhelmshaven in Germany

In order to relieve the crane operator, it is possible to operate the handling process in semi-automatic mode.

The grab depth optimization system patented for ARDELT ensures smooth operation and minimizes interruptions that result from shutdown due to over-filling of the grab, or loss of performance from insufficient grab filling. Consequently the cranes fit seamlessly into the series of TUKAN K cranes supplied to various customers over recent years:

- two TUKAN K 1500 cranes for the bulk terminal in the port of Aarhus in Denmark. With a 45t lifting capacity and 45m outreach, each crane is designed for a performance of 1,100tph of coal or feedstuffs. Since bulk materials with very different characteristics are involved, the hopper is fitted with a specialized heated washing system.
- two TUKAN K 1500 cranes for unloading gabbro, with an hourly capacity of 1,100 tonnes. Material is removed via conveyor belts and chutes which service two truck lanes. The lifting capacity of the cranes is 50t and their outreach is 40m. These cranes are located at the port of Mesaieed in the emirate of Qatar.
- one TUKAN K 3000 crane, which unloads 1,400t of coal per hour in the port of Brunsbuttel, Germany. Lifting capacity and outreach are 68t and 50m respectively.
- the steelmill of CS Huachipato in Talcahuano, Chile is serviced by a TUKAN K 1500 40t x 40m which handles coal and ores.
- in Basle-Kleinhuningen and the Auhafen port on the Rhine river in Switzerland, two TUKAN K 750cranes are installed for handling various bulk materials. Both cranes have a lifting capacity of 12.5t with an outreach of 27m and are ideal for unloading inland waterway vessels.

Auhafen Basle in Switzerland.

On special request ARDELT can also create cranes with two integrated hoppers in one system. The dual hopper design is required in order to unload materials with differing densities and characteristics, optimizing the performance of the TUKAN K crane.

During 2013 ARDELT will supply another TUKAN 1500 K crane with two integrated hoppers for a port in the Baltic, this delivery will mark another highlight for our company.

In a differing design from that of the crane in Auhafen Port in Basle, which has the hoppers arranged on top of one another, these hoppers are integrated into the crane portal side by side.

With the handing over of this crane and the installation of another two cranes for handling sulphur in Tunisia during 2014, Kirow Ardelt GmbH will continue its series of successes for the delivery of high-performance double jib level luffing cranes tailored to the handling of all types of bulk materials.

Mesaieed in Qatar

Aarhus in Denmark

Basle-Kleinhuningen / Switzerland

Talcahuano in Chile

Brunsbuttel in Germany

Experience the progress.

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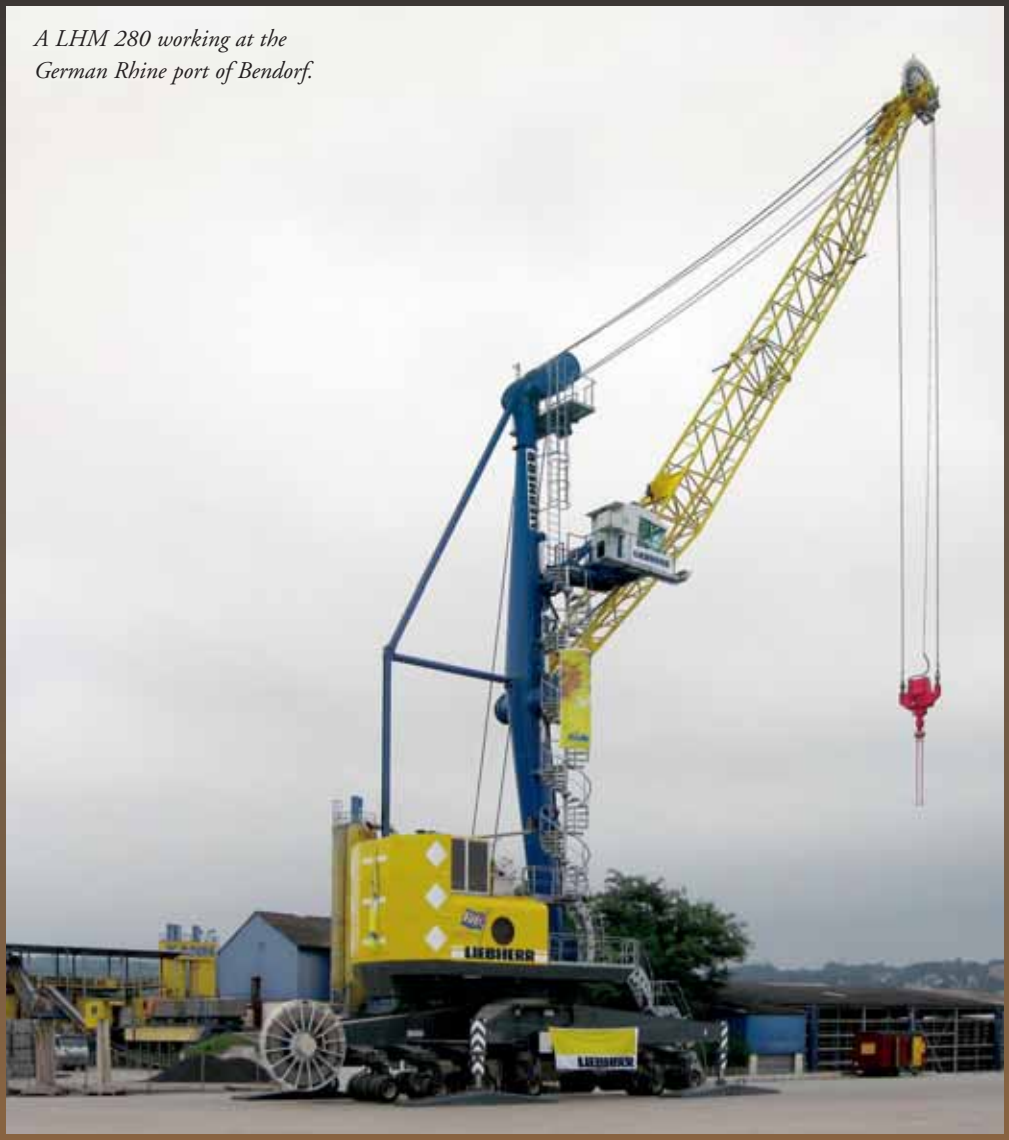
LIEBHERR
The Group

Liebherr mobile harbour crane proves its versatility in the inland port of Bendorf, Germany

A LHM 280 is enhancing the material handling capacity of the German Rhine port of Bendorf with its universal possibilities of application. The port is operated by material handling and forwarding agency BUS Bendorfer Umschlags- und Speditionsgesellschaft.

The roots of the inland port of Bendorf date back to the year 1899. Today, the port is a key logistics hub and its customers benefit from the direct access to waterways, railroad and highways. Buying the Liebherr mobile harbour crane was part of the €6.5 million investment to improve the port's infrastructure before it was officially reopened in August 2012 by Roger Lewentz, German Minister of the Interior.



A LHM 280 working at the German Rhine port of Bendorf.

Despite ongoing construction work no less than 1.6 million tonnes of material were handled in the port of Bendorf in 2011. The most important types of material handled were stones and soil followed by mineral oil products, steel, fertilizer and road salt.

From the very beginning, the LHM 280 has occupied an important position in the logistics processes of the Rhine port. The mobile harbour crane excels in both mobility as well as versatility as it is able to handle all traditional goods of the port. With its lifting capacity of 84 tonnes the all-rounder is also perfect for handling heavy goods.

"The LHM 280 has even exceeded our expectations. Especially the favourable consumption is far below our calculations," says Markus Stock, executive director of BUS Bendorf. The mobile harbour crane is operated by an eco-friendly electric drive. During operation the crane is powered by an external current source — thus, fuel consumption is significantly reduced.

According to the executive director the decision to buy a Liebherr mobile harbour crane was influenced by two key factors: first, the LHM 280 offered the best cost-performance ratio and second, BUS Bendorf had already gained positive experience in the past with the efficiency of wheel loaders manufactured by Liebherr.

The acquisition of the LHM 280 has already had positive effects on the port's growth in terms of material handling. Thanks to the new high-performance mobile harbour crane concrete segments for wind energy plants are now handled in Bendorf.

Flexibility and quick response to customers' needs are central requirements for inland ports. Due to its broad portfolio of mobile harbour cranes with different boom lengths and lifting capacities ranging from 42 to 208 tonnes Liebherr is able to meet these expectations. Moreover, the LHM series convinces through its wide range of applications: apart from individual loads and bulk material the cranes can also handle containers. The LHM 280 thus offers the Rhine port of Bendorf further potential for development.

KRÖGER Grabs still focused on further growth after 50 successful years

In 2012 KRÖGER Greifertechnik celebrated the company's 50th anniversary — 50 years of successful designing, developing, producing and maintaining grabs made KRÖGER one of the leading companies in the premium grab sector.

The focus of KRÖGER is state-of-the-art grab-technology. Combining quality, robustness and reliability to fulfill the severe jobs in daily operation is the company's key ambition. KRÖGER grabs are employed by customers all over the world, typically used in rough environments like harbour, sand and gravel, underwater mining, steel and scrap as well as incineration operations. The KRÖGER product portfolio offers a broad range of products: cable grabs, motor powered grabs, motor hydraulic grabs and hydraulic grabs. All are available in standard configurations down to customized applications for all kinds of conceivable goods. Operations sizes range from 0.2 to 40 cubic metres. The modular system of KRÖGER grabs allows the company to react instantly on design and delivery requirements.

A special KRÖGER quality feature, to benefit the environment and for improved efficiency, is the zero-maintenance bearing design. It can be offered for the entire grab portfolio. One of the main challenges for current and future cargo handling activities is to increase grab capacity and to optimize opening/closing times to achieve best productivity ratios and the fastest return on invest. KRÖGER's design philosophy aims at highest productivity, product quality for a long-lasting working life and lowest maintenance requirements.

In 2013 KRÖGER will focus on further technology development and growth projects as started in 2012. The momentum of the 50th company anniversary and the result of the 2012 business year with a highly motivated team of specialists will result in further technology innovations and new market entries. One of the main topics is to further establish KRÖGER's sales and service network in one of the largest growth markets in the world — China. After a successful market entry with several projects in the waste to energy segment and the positive response on German quality, KRÖGER will increase the effort to fulfill local market demands. Besides selling a broader product range, the company also wants to establish the KRÖGER brand as a service provider for all applications within grab technology.

Another highlight in 2013 will be the 'Bauma' fair in Munich from 15–21 April. KRÖGER will present latest technology developments and present its product specifications. While it expects the trend towards very flexible and mobile hydraulic machines within the cargo handling industry to continue, large, old and heavy perhaps retrofitted cranes are expected to disappear over time. A new heavy-duty rotator for high performance hydraulic machines will be one of the main technology innovations shown. Another major topic is the increasing demand for fully automated cargo handling technologies and the required specifications for cargo handling attachments. KRÖGER will also present solutions in this segment.

Clear growth course

Rhenus Midgard expects to double handling volumes at the Niedersachsenbrücke jetty

The berthing of the first fully laden Capesize vessel at the Niedersachsenbrücke jetty in November last year is a clear expression of the growth course that Rhenus Midgard in Wilhelmshaven has adopted. Never before has a ship of this size been able to arrive at a German seaport fully laden. This will just be the first of many and these vessels will help to turn the upgraded terminal on the Jade Basin into a central hub for coal imports.

People use heating in the winter season. Christmas is a time for lights. The resources, which are required to operate power stations generating energy or power, will continue to include a fair share of coal in future too — and this fact should not be underestimated. Despite all the efforts to boost renewable energy sources, the fossil fuel will continue to make a significant contribution towards guaranteeing power supplies in the next few years and decades.

"In the light of the halt to domestic coal mining in Germany, future needs will largely be covered by imported coal," Michael Appelhans, managing director of Rhenus Midgard, explains. The logistics services provider is a long-standing partner of the coal industry and provides its expertise and assets to manage supply chains.

Increasing volumes

The Niedersachsenbrücke jetty, a traditional coal handling terminal on the North Sea coast off Wilhelmshaven, forms part of the company's capacity. The facility, which has been operated by Rhenus Midgard since the mid-1970s, has been expanded and modernized during the last three years. Once the final upgrading work has been completed, the facility will reach its full operating capacity during the second quarter of 2013, but it already provides excellent conditions for handling this kind of black gold. "We transshipped about 1.6mt [million tonnes] of coal at the Niedersachsenbrücke jetty last year. We're hoping to

handle more than 3mt during 2013," says Appelhans, forecasting that volumes could roughly double. "New consumers joined the list at the start of the New Year and other potential customers for 2013 are already waiting in the wings." The Rhenus Midgard managing director believes that annual volumes at the Wilhelmshaven site could rise to between 8mt and 10mt in the long term.

Record cargo

Fully laden Capesize bulk carriers, which can now be accommodated at the Niedersachsenbrücke jetty, will help achieve these results. The dredging work to deepen the mooring basin, which was handled by the Niedersachsen Ports infrastructure company, already allows the facility to handle bulk carriers of this size. "Wilhelmshaven can offer a draught of as much as 18.50 metres and is therefore the only German seaport where these vessels can berth when fully laden," says Matthias Schrell, managing director of Rhenus Midgard in Wilhelmshaven, emphasizing his point.

The fact that Capesize vessels no longer need to be lightened before berthing in Wilhelmshaven ensured that the German seaport was able to set a new record at the beginning of November 2012. The *NAVIOS POLLUX* arrived at the Niedersachsenbrücke jetty after a voyage from South America lasting 19 days and was laden with 171,477 tonnes of coal. This was the largest single amount of coal to ever arrive at a German seaport.

"The handling of the *NAVIOS POLLUX*, which is 292 metres long and 45 metres wide, was a significant moment for us and underlined the unique status of the Niedersachsenbrücke jetty in Germany. As no problems emerged when handling the first vessel of this size at the port, we've finally been able to exploit the potential arising from the existing nautical conditions," says Matthias Schrell. "More Capesize vessels will visit the port in the near future and the cargos could come from countries like America, South Africa or Australia."

Improving performance

The berthing of a Capesize vessel is one side of the coin – unloading the coal from vessels, which can carry up to a quarter of a million tonnes of coal, is the other. For this purpose, the Rhenus Group has invested in its handling equipment and storage capacity at the Niedersachsenbrücke jetty. In the past, one ship unloader was used on the pier – now two new double jib level luffing cranes with a lifting capacity of 63 tonnes have been added; operating together, they are able to unload up to 4,000 tonnes of coal per hour.

At the land-side section of the terminal, two new stacker/reclaimers operate and are able to place 4,000 tonnes of coal into storage per hour or load 2,000 tonnes of coal per hour on to coal wagons heading for destinations further inland. The logistics services company had earlier built a new, automatic train loader for this purpose.

The terminal will reach its full productivity when the last new conveyor belt goes into operation during the 2nd quarter of this year; the belt will connect the pier with the two storage areas which are each able to hold approx. 450,000 tonnes of coal. "We've paid attention to a high degree of loading precision in the technical design of the overall equipment, but we've also attached importance to the smooth transition between the individual stages of the handling operations," says Matthias Schrell, describing the dove-tailing of the individual components.

"As the upgrading work on the railway line from Wilhelmshaven to Oldenburg was completed during the winter and it now has double tracks, our business also benefits from improved links to the European rail network," says Matthias Schrell. "These rail connections enable the coal to be distributed in line with demand and ensure the high level of reliability needed in the supply chain for coal-fired power stations. DCi

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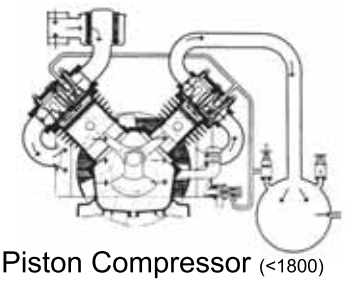
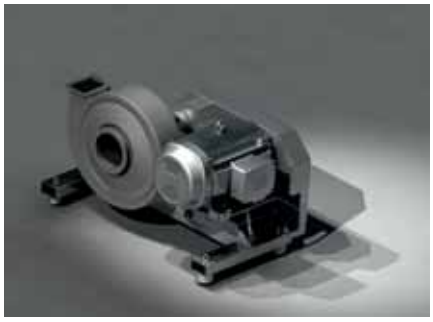


Piston Compressor (<1800)

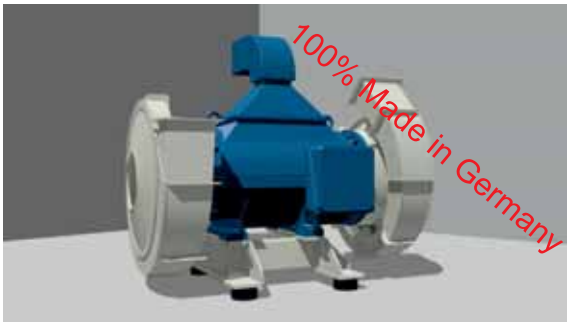
Roots Blower (1900)

Fan with Air Flow Regulator (1960)



Fan with frequency inverter and automatic belt tension (2000)

TURBO POWER single stage (2009)



TURBO POWER double stage (2011)

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