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FEATURES

- Fertilizer Trades
- Cement Handling
- Handymax Bulkers
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NOVEMBER 2013 issue

featuring...

Vital support from coal trade

Signs of further growth in seaborne dry bulk trade have been reinforced by evidence of pickups under way in the economies of China, Japan, the USA and Europe. Additional import demand for raw materials, fuels, and other industrial commodities in many countries could be accompanied by larger requirements for grain and soya in some areas.

The latest (October) IMF assessment of the global outlook for economic activity suggests that a moderate strengthening is likely, despite slowdowns in several emerging countries. Cautious estimates point to the advanced country group's GDP growth improving from a sluggish 1.2% this year to a more healthy 2% in 2014. But China's economic growth is expected to continue slackening from 7.6% this year to 7.3% next year.

Coal

Seaborne coal trade prospects still look quite bright, and more expansion in the dominant steam coal sector is foreseeable. Much of this enlargement probably will be concentrated among Asian importers. As shown in table 1, key steam coal buyers in this region could see a 5% increase during 2013, raising their overall total to over 600mt (million tonnes), although in some individual countries very limited extra volumes are a possibility.

Coal's expanding contribution to the global energy picture continues apace. Most attention is focused on China and India because of the large scale of potential import growth. But many other countries are significant. For example, reports suggest that Morocco's annual purchases could rise steeply from the current 6mt when a new coal-fired power station is completed.

Iron ore

Recently revised forecasts by Australia's Bureau of Resources and Energy Economics provide an optimistic view of global iron ore trade development. In 2013 the world total (which includes land movements, but is mostly seaborne) could increase by 90mt or 8%, reaching 1,216mt, followed by a further 91mt (7%) advance next year, to 1,307mt.

These BREE estimates are based on a positive view of China's import demand, which contributes the largest part of the global growth envisaged. Extra imports into China are expected to comprise the majority of this year's world increase. Next year, however, a larger proportion could be contributed by several other importers, possibly including a much bigger volume into India.

Grain

Estimates of China's grain imports in the current 2013/14 crop year ending June are still being ratcheted upwards. This process is encouraging a brighter outlook for global trade, in the absence of signs of any large rises elsewhere. Among other importers negative changes are still prominent, including expected downturns in the Middle East and Europe.

Imports of wheat and coarse grains into Africa, a region comprising one-fifth of world trade, seem likely to be flat in the current crop year. There are no signs of greatly increased volumes into either North Africa of sub-Saharan Africa. The latest International Grains Council estimates showed North Africa's total rising only marginally by 1%, to 35.1mt. In sub-Saharan Africa an unchanged 19.8mt is expected.

Minor bulks

Various agricultural and related commodities form part of the minor bulk trade sector. Seaborne movements of oilseeds (excluding soyabeans) and meal, rice, sugar, plus fertilizers apparently totalled about 330mt last year, and some signs indicate a small increase in 2013.

Bulk carrier fleet

Among bulk carrier size groups, the Capesize sector seems set to experience the sharpest deceleration in fleet growth during 2013. Newbuilding deliveries will be greatly reduced, possibly by as much as 45% (table 2). Despite the large reduction in scrapping which is also likely, the Capesize fleet's expansion this year may be down to under 6%, about half of last year's expansion and well below the very rapid growth seen previously. From 279m dwt at end-2012, a total of about 295m dwt at the end of this year is estimated.

TABLE 1: STEAM COAL IMPORTS IN KEY ASIAN COUNTRIES (MILLION TONNES)

	2008	2009	2010	2011	2012	2013*
Japan	111.0	96.2	107.9	106.6	113.7	112.0
South Korea	80.0	87.0	95.2	103.2	98.9	101.0
Taiwan	54.7	49.2	53.2	56.0	55.2	55.0
China	34.0	92.1	119.0	138.4	181.5	195.0
India	35.0	58.3	74.5	92.7	123.4	140.0
Total of above	**314.7**	**382.8**	**449.8**	**496.9**	**572.7**	**603.0**

source: various & BSA estimates **forecast*

TABLE 2: CAPESIZE (100,000 DWT & OVER) BULK CARRIER FLEET (MILLION DEADWEIGHT TONNES)

	2008	2009	2010	2011	2012	2013*
Newbuilding deliveries	8.6	21.0	38.6	45.6	41.9	23.0
Scrapping (sales)	2.2	1.4	2.7	10.5	12.1	7.5
Losses	0.0	0.0	0.2	0.0	0.0	0.0
Plus/minus adjustments	5.5	6.8	3.6	4.9	-0.2	0.0
Fleet at end of year	**143.5**	**170.2**	**209.5**	**249.5**	**279.1**	**294.6**
% change from previous year-end	+9.0	+18.6	+23.1	+19.0	+11.9	+5.6

source: Clarksons (historical data) & BSA 2013 forecasts **forecast*

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The long and winding road to US coal exports

When six different United States West Coast coal export terminal projects were first aired, few of the proponents realized just what a demanding and energy-sapping process they were up against.

Just two years ago, there were plans to create over 125 million tonnes of new export capacity through a variety of port projects in Oregon and Washington.

They aired a compelling case. There were no US coal export facilities on the entire West Coast back then and yet world coal prices were buoyant and demand in Asia beckoned. Serving Asia from the US East Coast wasn't the answer. At home, coal was falling out of favour boosting exports of coal stocks not wanted on a domestic market as cheaper, cleaner natural gas was being touted as the answer to future power generation.

But, the voyage hasn't been smooth sailing. Coal prices have softened by up to 40% in 2013 over what was offered when the six terminal projects were first suggested. In 2012, total US coal exports topped 106.7mt (million tonnes) and they continued up by 4% year to date through June.

The game changer in trying to build new facilities in the Pacific Northwest, however, has not been the weakening business case for US coal exports, but an avalanche of highly-organized opposition. This veritable green machine has swept through the coastal cities, big and small, urging a shutdown of all coal exports as "evil and the biggest culprit in global warming" through CO_2 emissions.

The non-stop rhetoric won hearts and minds on Internet sites and in the social media. Before long, Seattle and Vancouver city councils had passed 'symbolic' motions banning any future coal movements within their boundaries, even though they had no power by law to stop them.

No wonder that in 2013 there are now only three survivors among the West Coast coal port proposals. The proponents say they aren't too concerned about the short term coal industry outlook, and note that supply constraints, and boom and bust cycles have characterized coal markets for the past decade. In any case, serious efforts to put together financing are still several years away. But, the environmental protest — far greater than ever seen before — does have them hopping.

The largest surviving project is a 48mt per year Gateway Pacific Terminal (GPT) proposal by SSA Marine to ship coal and other commodities from a deep-sea port to be built north of Bellingham at Cherry Point, just half an hour's drive from the Canadian border. GPT is now amid an environmental impact statement (EIS) and the expansive scope of the review, which includes an analysis of how the project would affect human health in the state and an evaluation and disclosure of greenhouse gas emissions of end users, is attracting huge local attention.

Also in Washington State, a Millennium Bulk Terminal project for the Port of Longview on the Columbia River is amid a three-month period of public comment or scoping set to end 16 November, which will determine the breadth of the future environmental review process. This two-phase project would clean up an existing brownfield site and plans to ship about 44mt a year when fully developed.

In the US the green machine is forcing long and involved environmental and other assessments and if they don't get their way they threaten a long season of litigation ahead. "Neither one of these terminal sites here in Washington is likely to be shipping coal for a long, long time if ever," came one activist comment reported in *The Seattle Times*.

The third survivor, and the one generally considered the most advanced along its long and winding road to approval, plans to have Union Pacific Railway haul Power River Basin coal to the Port of Morrow on the Columbia River where it will be barged to the Oregon Port of St. Helens, 53 miles inland from the Pacific Ocean.

The Morrow Pacific project is being developed by Ambre Energy North America and plans to take what some in the coal industry see as "expensive and unusual measures" to appease its critics with enclosed storage buildings and conveyors, and custom-built, covered barges. At the off-load, a $40 million transloading vessel, using Siwertell screw unloaders, would initially allow shipments of 3.5mt a year, increasing to 8mt if approvals

are given. Three permits have so far been issued by the Oregon Department of Environmental Quality and if a final green light is given the project could be operational early in 2015.

Fallen by the wayside have been suggested coal export ports in Coos Bay, Oregon, a Kinder Morgan development in the Port of St. Helens unrelated to the Millennium proposal, and Grays Harbour, WA.

The only US coal shipments currently getting through from the West Coast to Asian buyers such as South Korea, Japan, and China have to cross the Canadian border to British Columbia and Westshore Terminals in the Greater Vancouver area. That means a rail haul of 2,500km from the coal-rich Powder River Basin in Montana and Wyoming.

But, those hauls still pass through Seattle and Bellingham and are also drawing fire. The 'northwest resistance' as www.occupy.com and other environmental web sites have called it, has spread into British Columbia and Port Metro Vancouver where the two existing coal export ports — Westshore and Neptune Bulk Terminals — have been steadily upgrading and increasing their capacities to meet Canadian and US coal demand, while being forced to turn away business. Health officials in the US and Canada have suddenly found a voice and become aware that coal has been hauled through their areas by rail — for the past 43 years or so to Westshore, including the first trial shipment of US coal back in 1992.

Now, some of the more extreme warn of the perils of dirty coal as a threat to shellfish, salmon and the entire ocean food chain; as well as human health and climate change. So far, no telling health statistics about increases in cancer, asthma, lung disease and neurological disorders have come forward, but it doesn't seem to matter, the unsubstantiated claims appear to be enough.

Amid all of the mounting green angst, Port Metro Vancouver approved a capacity increase and equipment upgrade at Neptune that drew protests. Now, a proposal by Fraser-Surrey Docks, a low-draught port about 20km up the Fraser River and part of the Port of Vancouver, has run afoul of environmentalists and even surrounding municipalities with its plan to bring in Power River Basin coal from the US by rail, transfer it to barges, and carry it to Texada Island out in the Strait of Georgia for transshipment to deep-sea bulk carriers bound for Asia.

Fraser Surrey Docks has submitted what its President & CEO, Jeff Scott, calls "a vast body of work" to meet expanded environmental and other demands from Port Metro Vancouver in the approval process. It says it has listened to the community concerns and eliminated a planned stockpile, ensured the respraying of the US coal at the border with a binding agent before it comes along the Fraser River banks for unloading onto barges, and is going to add another binding agent to the coal on the barges.

Stay tuned, this promises to be quite a ride in getting any new coal export facilities on the West Coast, in either the US or Canada.

Ray Dykes

Reshuffling the grain trade exporters pack

Seaborne trade patterns, port activities and bulk carrier employment are changing as a result of the latest shake-up in the grain market. During the current 2013/14 crop year ending June 2014, exports of wheat, corn and other coarse grains from the USA and Black Sea region are expected to increase greatly, while some other suppliers see lower volumes.

This grain trade adjustment represents a turn towards a more 'normal' pattern after the even more dramatic upheaval of the previous 2012/13 crop year which ended in June. During that period US and Black Sea exports plummeted when poor harvests devastated crops, reducing their combined share from almost half of world trade in the preceding period, to 36%. That proportion could rise back up to 43% in the current crop year.

Recovering Black Sea exports

For Black Sea exports of grain it has been a roller-coaster ride in the past few years. In the past twelve months these were greatly reduced after achieving a remarkable recovery in the previous crop year from the preceding severe setback. In 2012/13 Russia, Ukraine and Kazakhstan saw an overall fall of almost 15mt (million tonnes) or 25% from 60.5mt in 2011/12, to 45.6mt.

Last summer's harvests in the Black Sea region were damaged by excessively hot and dry weather through the growing season, drastically reducing crop yields in many areas. Grain production in the three countries totalled 125mt, a decline of over one-quarter. The summer/autumn 2013 harvests in this group are much better, currently estimated at 161mt, a strong 29% rebound.

The upturn in Black Sea supplies, resulting from more favourable weather, has great significance for the world market, because of the region's key export role. Extra supplies of lower quality feedwheat available from all three countries, plus sharply higher corn exports from Ukraine, will be a feature of international trade during the period ahead.

Recent (end-September) International Grains Council forecasts suggest that the three Black Sea suppliers together will export much larger quantities of wheat and coarse grains. In 2013/14, Russia's total may be 21% higher at 18.8mt, as shown in the table. Ukraine is likely to see a rapid 25% increase to 28.8mt, but Kazakhstan's volume could be only very marginally larger at 7.2mt.

Reviving US exports

Greatly improved weather in the USA this year, compared with that seen in last year's growing season, has raised grain output and also boosted soyabeans production, improving export availability. US exports of wheat and coarse grains in crop year 2012/13 ending mid-2013 fell steeply by 22.7mt (31%), to 49.9mt, reducing their share of global grain trade from well over one-quarter to well under one-fifth. In the current year, a sizeable bounce back is envisaged. Lower wheat production this summer is expected to be more than offset by a huge expansion of corn and other coarse grains output. The US wheat harvest was completed earlier and was 7% lower than last year's volume, at 58mt. Coarse grains production is estimated at 366mt, an increase of over 80mt or 28%, resulting from a slightly larger area coupled with much higher yields.

Availability of US grain in 2013/14 consequently has expanded noticeably. Wheat exports could be 9% higher at 30.0mt, while corn and other coarse grains exports could be 40% higher at 31.3mt. The overall total according to IGC calculations is likely to be 61.3mt, almost one-quarter above the preceding very low annual total.

Changes among other exporters

Elsewhere, some sizeable changes among key suppliers are foreseeable in the current crop year. One notable variation is a possible downturn in Brazil. Grain exports from Brazil, predominantly corn, have become a key feature of the global supply pattern in the past few years and reached 28.2mt in 2012/13, almost triple the preceding year's volume. A reduction may follow, reflecting lower production.

These changes are taking place against a background of what is expected to be a continuing fairly flat grain import demand picture. In 2012/13 global wheat and coarse grains trade evidently totalled 266.2mt, a marginal 1% decrease from the previous year. In 2013/14, this reduction is estimated by the IGC to be more than reversed with a 2% rise, to 270.7mt, although unforeseen rises and falls are a defining feature of grain movements.

Support for import demand around the world in the twelve months ahead probably will be derived from the improved supplies emerging onto the market, and lower international prices. But there are not many signs at present of lower domestic grain production in importing countries which could potentially stimulate further foreign purchases.

The main positive feature of global import patterns at present is China's forecast additional requirements. Although the mid-2013 domestic grain harvest in China apparently is marginally above last summer's output volume, other factors point to more imports. Consumption is expanding robustly, while the quality of some domestic grain supplies is reportedly inferior, possibly necessitating an almost doubling of the imports total to 18mt in 2013/14.

Among other importers notable changes are not prominent. Middle East grain buyers are expected to reduce their total by about 5% to 45.6mt in the current crop year, while in North Africa only a marginal 1% increase to 35.1mt seems likely. European Union purchases could be down by 24%, to 12.5mt.

Richard Scott

GLOBAL WHEAT & COARSE GRAINS EXPORTS (MILLION TONNES)

	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14*
Argentina	22.3	20.0	26.1	31.5	32.6	30.4
Australia	18.4	18.0	23.2	30.2	27.3	25.0
Canada	22.2	21.4	21.0	21.7	23.5	23.9
EU-27	30.0	23.6	28.1	21.9	28.4	29.3
Russia	23.1	22.0	4.3	27.2	15.5	18.8
USA	77.7	79.4	87.7	72.6	49.9	61.3
Ukraine	24.9	21.0	12.2	21.5	23.0	28.8
Brazil	7.2	7.6	14.0	10.2	28.2	21.6
Others	23.7	27.3	26.1	32.8	37.8	31.6
World total	**249.5**	**240.3**	**242.7**	**269.6**	**266.2**	**270.7**

*source: International Grains Council 26Sep 2013 *forecast July/June crop years*

Devastating sugar fire at Brazil's Port of Santos

A catastrophic fire at a 300,000-tonne-capacity warehouse complex at Brazil's Port of Santos will complicate shipments of sugar from the port for at least a year.

A fire ripped through a warehouse complex owned by the Copersucar co-operative in the Port of Santos on 18 October, and destroyed 180,000 tonnes of raw sugar during the 12 hours it took to get under control.

The structure of at least three of the six warehouses was badly damaged and it is expected to be at least a year before the terminal can be re-built and become operational again.

The fire started in one of the conveyor belts which carry sugar from the bays where it is unloaded from rail cars or trucks and taken to storage, or on to one of the three shiploaders at the giant terminal.

One ship being loaded when the fire broke out was towed clear, while tugs poured sea water onto the terminals, as roofs collapsed.

The expansion of Copersucar's Santos complex was completed at a cost of about $200 million dollars in June this year. The new system aimed to allow up to 70% of the 7.3mt (million tonnes) of sugar Copersucar had planned to export this year to reach the complex by train. Copersucar, which handles the sugar from 50 mills, is responsible for a third of the 20mt of sugar shipped now shipped from Santos each year.

There are several other smaller sugar terminals at Santos, owned by the Cosan company, in which Shell has a 50% share, and by Bunge, Cargill, Noble and Dreyfus. All have offered to help Copersucar ship the 4mt the company has contracted to export between now and April 2014.

Some sugar will also be diverted to the port of Paranagua, 400km to the south, which handled about 6mt of sugar last year. But all of Brazil's ports are working at capacity to allow them to load the 60mt of soya beans and meal, and the 20mt of corn Brazil now exports each year.

Partly because of the investments made by Copersucar,

including the instalation of a third shiploader which took loading capacity to 5,500 tonnes per hour, vessels have had to wait less than a week to take on cargoes in recent weeks, compared with the three to four weeks common previously. However, the loading situation will now revert to what it was before.

Work on clearing away the damaged sugar and superstructure is not expected to start for up to three months, after insurance claims have been settled.

Even if the sugar can be shipped from other terminals, as Copersucar hopes, it will cost substantially more to get the sugar to ships from now on. No other terminal receives much sugar by train, so most of the sugar will have to travel to Santos along extremely congested roads for the next few months.

The damage at the terminal will result in more sugar leaving Santos in containers from now on. Almost three million tonnes of bagged sugar was loaded into containers at terminals outside the main port area in Santos in 2012, and taken to one of the numerous container terminals at the port.

Patrick Knight

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Global fertilizer outlook

Maria Cappuccio

In the latest assessment of the global economy, the International Monetary Fund (IMF) confirms that global growth is still weak, underlying dynamics are changing, and the downside risks remain. The anticipated wind-down of the US Federal Reserve stimulus programme is expected to impose greater and longer-lasting tightening of global financial conditions, as a result the IMF forecast global growth to remain subdued, slightly above 3% a year over the medium term. Advanced economies, are expected to expand by 2% in 2014, helped by a stronger US economy, an appreciable reduction in fiscal tightening (except in Japan), and highly favourable monetary conditions; growth in the Euro area is expected to be constrained by very weak peripheral economies; while emerging and developing economies are projected to expand by 5% in 2014, as fiscal policy is forecast broadly neutral and real interest rates to remain relatively low. The IMF expects unemployment to remain unacceptably high in several advanced and emerging market economies, notably those in the Middle East and North Africa.

FAO backs sustainable systems to help solve future food challenges

In sharp contrast to last year's drought-affected crop this year's abundant global harvest is forecast to boost grain and oilseed supplies, to a record 2.4Bn/t, easing inflationary pressures and food security concerns. The UN's Food and Agricultural Organization (FAO), confirmed that global food prices fell, for the fifth consecutive month in September, to their lowest level in three years. This was driven by a sharp fall in the international price of cereals, notably corn, and well below the record peak in 2011 when high food prices helped fuel the Arab Spring uprisings in the Middle East and North Africa. While the global population, which drives the demand for food, is expected to rise to 9Bn by 2050, the global area of arable land, available for food production, continues to shrink. On World Food Day, FAO choose the theme, "Sustainable Food Systems for Food Security and Nutrition" to sharpen the focus on food production and to find better ways of eradicating hunger, malnutrition and waste, while at the same time protecting, the natural environment, ecosystems and biodiversity, that have been degraded by current production systems, yet remain vital to help meet growing food requirements.

Fertilizer industry shaken by soft prices and lower sales

The International Fertilizer Association's (IFA) assessment of the global nutrient sector, earlier in the year, forecast a more positive outlook for 2013/14, compared with last year with overall demand seen rising by 2.4%, to 180mt (million tonnes), assuming that Indian demand for phosphate and potash recovered, and that crop prices remain attractive to stimulate fertilizer applications in key regions. The exception is North America, due to lower crop prices and the residual effect of nutrient applications in 2012. But, as the year unfolded — and with a huge global harvest in prospect — the fundamentals, for nitrogen, phosphate and potash weakened. This weakening was due to soft prices and lower sales volumes in key markets, exacerbated, in the case of potash, by the break-up of the Belarussian Potash Corp (BPC) in July, which accelerated the fall in both price and demand for potash; the spill-over also adversely affected prices and demand for nitrogen and

phosphate products. Talk that the US Federal Reserve would begin to "taper" its stimulus programme, as early as September, saw investors withdraw from emerging-market exchange-traded funds, which strengthened the dollar, but made devaluation in other key emerging markets like India, worse. The rupee dropped to an all-time record low, as the cost of imported nutrients became more expensive. The steep fall in nutrient prices and lack of demand through the summer led to renegotiation of contracts as distributors deferred purchases in the expectation of even lower prices. The shake-up has led to some rationalization and key changes in personnel at some of the leading companies in the fertilizer industry.

Longer term, despite high volatility resulting in significant year-on-year variations, the IFA forecast the agricultural outlook to stimulate fertilizer demand, expected to increase to 194.9mt by 2017/18; with the highest growth rates found in regions with low average application rates or where cultivated land area is expanding, namely, Eastern Europe, Central Asia, Latin America and Africa; elsewhere demand continues to plateau in East Asia (mainly China), while in South Asia, the outlook continues to depend on the Indian government's policy towards nutrient-based subsidies.

Corn harvest glut cuts US seed sales

This year, the unexpected strength of the US corn harvest has wrong-footed Syngenta, which expects to be left with surplus seed, prompting a write-down of inventories and cut in full year profits. With almost 40% of the harvest completed, US corn yields have beaten expectations, with trade analysts leaning toward an average US yield of 160bu/acre, well above the USDA forecast of 155.3bu/acre. R.J. O'Brien & Associates forecast US corn production to rise to 353mt (13.91Bn/bu), almost 80mt more than last year and responsible for corn prices, that tumbled by over 34% to $4.30/bu (Oct 28). Abundant supplies of corn will outpace demand, boosting thin stocks in the US and in other exporting countries with a larger crop and much lower US prices reduces the incentive for farmers to increase fertilizer applications, negatively affecting fertilizer demand and potential prices.

GLOBAL FERTILIZER USE

1961–2017/18 mt Nutrients

	Nitrogen	Phosphate	Potash	Total
1961/02	11.6	10.9	8.7	31.2
1970/01	31.8	21.1	16.4	69.3
1980/01	60.8	31.7	24.2	116.7
1990/01	77.6	36.0	24.6	137.8
2000/01	81.2	32.5	21.9	135.6
2001/02	82.9	33.4	23.0	139.3
2002/03	85.1	34.1	24.7	143.9
2003/04	87.1	35.2	25.5	147.8
2004/05	90.2	37.5	25.6	154.7
2005/06	93.2	37.0	26.3	156.5
2006/07	97.4	38.1	26.9	162.4
2007/08	100.5	38.4	28.9	167.9
2008/09	97.7	33.7	23.4	154.8
2009/10	102.2	37.6	23.7	163.5
2010/11	104.1	40.6	27.5	172.3
2011/12	107.8	40.6	27.7	176.1
2012/13e	107.5	40.3	28.5	176.3
2013/14f	110.1	41.2	29.3	180.5
2017/18f	116.2	45.3	33.4	194.9

Source: International Fertilizer Association

Steep price fall for key nutrients especially potash matched by drop in sales

PotashCorp cut its forecast for full-year earnings as it revealed a collapse in its potash selling prices in the aftermath of the break-up of BPC, with prices sold to off-shore markets down to $285/t and into North America at $333/t, pointing to competitive pressures in key markets that weakened the pricing environment. While the break-up of BPC, has been blamed for much of the current difficulties, third-quarter results from companies like Agrium, Mosaic, Yara and CF Industries confirm problems facing the potash market are just as relevant to phosphate and nitrogen markets. A reduction in CF Industries earnings in Q3, reflect lower prices in the nitrogen fertilizer

FERTILIZER PRICES $ PER TONNE FOB 2008-2013

	2013 Oct Wk2	2012 Oct Wk2	2011 Oct Wk2	2010 Oct Wk2	2009 Oct Wk2	2008 Oct Wk2
Urea	$	$	$	$	$	$
Baltic	273	425	490	340	295	520
Persian Gulf	—	460	502	360	210	480
Ammonia						
Yuzhny	410	650	640	415	295	820
Tampa CFR	490	715	650	465	330	931
Middle East	—	705	—	—	—	—
Ammonium sulphate						
FSU	—	220	—	—	—	205
Di-ammonium phosphate						
North Africa	—	573	677	573		—
US Gulf	373		635	570	480	1,068
China	—	—	—	—	—	—
Triple super phosphate						
North Africa	—	485	565	4601	—	10,791
Muriate of potash						
Baltic	—	—	—	—	—	—
Vancouver	345	490	590	420	490	830

Source: Bloomberg, FarmFutures, Fertilizer Week, Fertilizer Market Bulletin, Profercy/1 Monthly average–Sept

CEREALS AND OILSEEDS – PRODUCTION, USE & STOCKS 2012/13–2013/14 MT

	Prod 12/13	Prod 13/14	Use 12/13	Use 13/14	Stocks 12/13	Stocks 13/14
Wheat	655	705	680	707	174	173
Coarse grains	1,129	1,246	1,143	1,215	151	182
Rice	469	478	469	475	105	108
Total cereals	**2,253**	**2,429**	**2292**	**3,397**	**430**	**463**
Oilseeds	472	493	396*	410*	70	81

*Source: USDA-mainly harvested Jul-Dec/ food feed industry/*oilseed crush*

market, as additional urea supply from China, weakened supply/demand balances; the ammonia market has moved lower over the past months, and UAN demand, so far, is soft, not helped by a late US harvest, its price pressured lower by weakness in urea. Agrium expects their sales of nitrogen and potash to be significantly lower. Agrium's chief executive Mike Wilson said, "When you compound a 30% drop in volume with a 30% drop in price, it does have an impact."

Global wheat plantings to rise in 2014

Global wheat plantings for 2014 were tentatively forecast by the IGC, 2.3% higher at 225.4M/ha driven by firm futures prices. Wheat sowings in the EU are taking place on a larger area forecast up by 3% to 23M/ha under generally favourable conditions, at the expense of other coarse grain and oilseed plantings. In the Russian Federation, early indications point to a similar area of winter cereals as last year. However, wet weather in the middle Volga region and in some regions of Central Russia may limit plantings initially expected to reduce the winter sown planted area by 3M/ha to 13M/ha, although recent reports indicate some recovery has been noted. In the Ukraine, conditions are satisfactory and the winter cereal area may increase; while in Asia, planting, of mainly wheat is underway in China, India and Pakistan.

South America to favour soybean plantings

South America's planted area for corn may decline, due to exceptionally high corn inventories, dry soils and much lower prices, especially in Brazil, where domestic prices in Mato Grosso, the largest corn producing state have fallen to $1.90/bu, 43% lower than last year, while in Campinas Sao Paulo producers are receiving US$ 4.80/bu, but these represent some of the highest prices, paid to farmers, with the government buying-in corn at less than $2.90/bu, as potential feed-stock for ethanol production. With much of Brazil's second corn crop expected to be replaced by a double-crop of soybeans, Oil World forecasts Brazil to plant a record 29M/ha to soybeans, up from 27.7M/ha, and expects Argentina to plant 19.7M/ha, some 3%

CEREAL EXPORT PRICES US $ FOB PER TONNE 2008-2013

	2013 Oct Wk5 $	2012 Oct Wk2 $	2011 Oct Wk2 $	2010 Oct Wk2 $	2009 Oct Wk2 $	2008 Oct Wk2
US Wheat No 2 HRW	327	368	294	298	202	264
Corn No 3 Yellow (Gulf)	211	316	279	254	173*	184
Sorghum (Nola)	233	311	262		169	160
Soybean No 2	515	581	488	476	399	388
Argentina (up river)						
Wheat	—	300*	—	—	—	—
Corn	—	294*	—	—	—	172
Soybean	527	584	491	473	392	387
Thailand B (Bangkok)	415	563	—	—	—	—
Rice White 100% 2nd grade	—	618*	616	497	537	676*
Rice Broken A1 super	—	497*	—	—	—	423*

Source: FAO IGC USDA — Prices are based on indicative quotations.

*Necochea Port Jan/Feb1*Monthly average–Sept*

larger than a year earlier. South American soybean production, in early 2014, could potentially surpass last year's record of 145mt, providing adequate rainfall occurs in dry regions.

Informa raises US estimate for soybean plantings

With much lower prices for corn suggests US farmers are expected to increase wheat and soybeans acreage at the expense of corn; typically a number of US official reports would have been published on the progress of the current harvest and a preliminary update on future crop intentions, however, due to the 16-day partial shutdown of the US federal government in October, as a result of a clash between politicians over raising the US debt-ceiling, several reports were cancelled. Private analyst Informa, raised US soybean plantings to almost 84M/acres well ahead of the 77M/acres this year; US wheat plantings up by 1M/acres to almost 58M/acres, while the corn area is cut to almost 91.7M/acres, representing a drop of 5.7M/acres, although widely acknowledged, given the rain-affected spring planting window, that the official figure for 2013 US corn plantings is overestimated. This latest estimate is broadly in line with market thinking, that US acreage will be shifted from corn to soybeans, reflected in lower corn prices in relation to soybean prices.

Yara/BASF consider joint project for large-scale US ammonia plant

For 2013 the IFA project an increase in ammonia capacity by 19% to 242.7mt NH3 in 2017, with large increases expected in China, Africa and West Asia; with global seaborne ammonia to remain at 19.7mt, the same level as last year. While Agrium, is expected to cut-back expansion due to the current environment, lower sales and soft prices, while Yara International revealed plans for a potential joint project with BASF to build a large-scale ammonia plant based in the US Gulf, to respond to pressure on the global nitrogen fertilizer market from surging Chinese urea exports. A number of nitrogen companies including CF Industries and Egypt's Orascom Construction Industries have also confirmed plans to build nitrogen capacity in the US, to take advantage of the boom in shale gas, which provides low-cost natural gas.

Agrium profits slump by 60% in Q3

Agrium warned of 60% slump in profits in the Q3 of 2013. While operating profits at its stores were holding-up, those at the wholesale level are forecast to fall by about $200m some 60% below the $312m achieved in Q3 of last year, reflecting soft prices and lower sales volumes, for all three nutrients. Agrium expects nitrogen sales to fall by 20% from 1.06mt, with phosphate sales down by 30% compared with last year, while potash volumes are anticipated to be about 30% lower than normal. With the expected retirement of the chief executive Mike Wilson, by the end of the year, Agrium's Board softened the profit news, by raising the annual dividend by 50%, Agrium's share price increased (NYSE) U$ 86.46 (16:15:03 ET on 28/10/2013). For the period to 2013-2015 the IFA forecast a relatively balanced situation for nitrogen with much of the increased supply absorbed by improving demand, beyond then, the potential surplus supply is forecast to expand within a range of 6-9% reflecting a slower/faster pace of growth.

GLOBAL NITROGEN SUPPLY/DEMAND 2013–2017 MT N

Fertilizer	2013	2014	2015	2016	2017
Nitrogen capacity	173.5	177.3	184.3	188.7	199.5
Nitrogen supply*	150.4	153.5	159.6	164.0	169.8
Nitrogen demand	141.5	144.7	148.1	151.3	154.2
Of which fertilizer use	109.4	111.3	112.9	114.4	115.9
Global nitrogen balance	**+8.9**	**+8.9**	**+11.5**	**+12.7**	**15.7**

*Source: IFA-data N/t basis * effective capacity derived by capacity x by the highest achievable operating rate*

GLOBAL UREA SUPPLY/DEMAND 2013–2017 MT UREA PRODUCT

Fertilizer	2013	2014	2015	2016	2017
Urea capacity	198.4	207.0	214.6	221.3	236.3
Urea supply	182.1	188.6	195.3	202.3	207.4
Urea demand	171.8	178.1	184.9	190.6	195.2
Of which fertilizer dem.	143.2	147.6	151.4	154.4	157.4
Global urea potential balance	**+10.3**	**+10.5**	**+10.4**	**+11.7**	**+12.2**
% of supply	6%	6%	5%	6%	6%

Source: IFA-data M/t urea basis

GLOBAL POTASH SUPPLY/DEMAND 2013–2017 MT K_20

Fertilizer	2013	2014	2015	2016	2017
Potash capacity	49.7	50.4	54.5	56.6	59.6
Potash supply	41.7	42.6	45.8	47.2	49.7
Potash demand	32.7	33.7	35.1	36.3	37.4
Of which fert'r demand	29.0	29.9	31.2	32.3	33.2
Global potash balance	**+9.0**	**+8.9**	**+10.7**	**+10.8**	**12.3**
% of supply	22%	21%	23%	23%	25%

Source: IFA-Data K_20/t basis

GLOBAL PHOSPHORIC ACID BALANCE 2013–2017 MT P_20_5

Fertilizer	2013	2014	2015	2016	2017
Phosphoric acid capacity	54.6	57.2	58.7	60.3	63.7
Phosphoric acid supply	45.5	46.9	48.5	50.2	52.0
Phosphoric acid demand	42.1	43.3	44.5	45.5	46.5
Of which fert'r demand	37.1	38.1	39.0	39.0	39.8
Global balance	**+3.5**	**+3.6**	**+4.0**	**+4.7**	**+5.5**
% of supply	8%	8%	8%	9%	10%

Source: IFA-Data P_20_5 tonnes basis

Urea prices, which have continued to slide through October, tried to hold a firmer line to reflect typical seasonal trends, with mixed results, Black Sea Urea $268/t, with the Gulf slightly higher at $283.50/t. Supplies out of China appear to be easing after earlier heavy sales, but the current environment is not helped by weak grain prices. According to the USDA, current prices suggest fair value retail prices around $392/t-$397/t, at the low end of the market in Illinois, though prices on the US Plains are higher at $411/t after active seeding of winter wheat.

Rising costs curb Yara's earnings

With lower prices for its nitrogen fertilizer down by over 30%, Yara shelved a planned expansion of its Belle Plaine plant in Canada to stem rising costs and reduce the surplus of urea; Q3 adjusted earnings will decline 24% to about 3.2Bn Kroner from last year curbing earnings for producers, expected to be weak in 2014 and 2015, because of lower fertilizer prices, higher fixed costs and increased North American gas prices. Yara's share price fell to a 15-month low in Oslo, before recovering NOK 255.7 (16:15:03 ET on 28/10/2013).

Between 2013–2017, the IFA confirms that 55 new urea units are planned (20 located in China), expected to increase urea capacity to 236mt by 2017; fertilizer demand is expected to rise to over 157mt and industrial use up to 38mt by 2017, notably in East and South Asia, North America and Latin America. In East Asia increased industrial use expected to contribute two-thirds of the demand growth. Given the number of new projects would lead to a 6% surplus of potential supply that would accelerate after 2015; while modest growth from 2013-2016, taking into account the current imbalance, followed by a declining trend towards 2017, would reduce the potential supply to 3%.

Potash facing uncertainty and competitive pressures in key markets

Potash prices that have trended lower since 2011 have seen a significant decline this year. Slower economic growth, the Indian government's bias towards nitrogenous products, strong dollar, coupled with record-breaking global crop prospects and the break-up of BPC in late July, accelerated the fall in both potash price and demand. Typically, potash has been sold mostly through two global marketing groups, the former BPC and Canpotex (PotashCorp, Agrium and Mosaic), that controlled two-thirds of the $22Bn global potash market between them. In the absence of the BPC, global buyers like those in China and India, opted to hold-off on new orders, according to Wayne Brownlee at PotashCorp, "…anybody who has got inventory doesn't want to see a price drop…." Indian Potash Ltd confirmed it had renegotiated contracts at a 12% discount to the original price of $427/t; while Zuari Agro Chemicals Ltd, negotiated to cut the price to c.$375/t for half the contracted quantity still to be delivered. Uralkali reported the price of potash for delivery in China, dropped to $325/t in September from $345/t in July. PotashCorp noted signs, that North America potash buyers have begun purchasing product in advance of fall application is encouraging; the need for Latin America to replenish nutrients in its soil, supports strong demand for all fertilizer products; and while difficulties remain in India, they expect China to make further purchases from Canpotex in the near term. Nevertheless, PotashCorp lowered both gross margins and the quantity of potash shipments to 8–8.4mt in 2013.

Signs that BPCs may be revived?

Since the break-up of BPC, China, through its sovereign wealth fund-China's Investment Corporation (CIC), stepped in to acquire a 12.5% stake in Russian-based Uralkali, to become the second largest shareholder by swapping Uralkali debt into shares worth $2bn. But in a late twist to the saga, hopes that the BPC partnership may be revived have been linked to the possible buy-out of Suleyman Kerimov, who owns the controlling stake 22% in Uralkali. Potash prices edged lower at the Gulf losing $2.50/t to $342.50/t (Oct 28). However, fundamentals point lower if the price war sparked by the break-up of the BPC continues. Belarus signed a deal to sell to China, sending a clear signal to Russia on price.

PotashCorp, BHP and EuroChem reveal plans to increase potash capacity

PotashCorp forecast global potash operational capability 66mt in 2013, the majority of the increase due to the completion of brownfield projects in North America. By 2017 it expects 14mt of new operational capability will be added assuming all current projects are completed, mostly from PotashCorp mines in Saskatchewan and New Brunswick.

Other companies including BHP Billiton Ltd announced a U$2.6bn investment in its Jansen mine southeast of Saskatoon, potentially shipping potash from the Port of Vancouver in Washington, on property set aside for a new export terminal that would be built in time for the company to launch sales in 2020; while Russian based EuroChem expect to develop two future potash projects in the Volgograd and Perm regions planned to come on stream in 2017, with sales on the global market in 2019. "Both can withstand a global potash price of $300/t, and even below $250/t," according to Andrey Ilyin, EuroChem's chief financial officer, the company plan to grow output to 8mt a year within a decade, some 60% of the current capacity at Uralkali.

The IFA confirm the largest increase in potassium capacity is expected to occur in North America and the EEC, forecast to

rise to 60mt K_20, with supply expected to rise to 50mt K_20 in 2017. The IFA expect potash demand for all uses to grow at a modest rate to 37.4mt K_20 by 2017, with a potential surplus depending on the rate of growth to rise between 21-25%.

Phosphoric acid capacity to increase in China, Morocco and Brazil

The IFA confirmed a large supply of global rock supply emerging in Africa, China with further additions in Saudi Arabia, Peru and Brazil expected to grow to 260mt by 2017. Phosphate rock prices fell by almost $60/t from last year to $127.50 (Sept 30). Phosphoric acid capacity is expected to increase in China, Morocco and Brazil, with global capacity to grow to 63.7Mt P205 by 2017; global supply is projected at 52mt P205, with demand expected to rise to 46.5mt P205 by 2017. From 2013-2015 supply/demand shows a stable balance in the short term followed by a moderate increase in 2015, due to larger supply growth, should some projects be delayed, a surplus of less than 6% would exist between 2013-2017.

Mosaic's purchase of CF's Florida assets appropriate in current climate

Indian Potash Ltd, Paradeep Phosphates Ltd and Chambal Fertilizers and Chemicals bought 160,000/t of di-ammonium phosphate (DAP) for $410/t on CFR basis in September, over $110/t lower than the contract price in May. Typically, India buys large quantities of fertilizer ahead of the peak season Oct-March, but despite the significant price reduction, buyers are reticent to commit as they grapple to dispose of high-priced stocks from earlier purchases, while anticipating further price cuts.

Mosaic cut its third-quarter sales and price outlook for phosphate, citing the effects of the BPC break-up, and lowered its 2013 outlook for global phosphate shipments by 2mt to 63–64mt, mainly due to a decline in shipments to India, the decline of the rupee, making imported products more expensive. For 2014, global phosphate shipments are expected to rise to 64-66mt, and thereafter to increase by 2.8% per year to reach 77.8mt by 2018. In October, Mosaic and PotashCorp disbanded PhosChem, their joint consortium to export North American phosphate products. Phosphate prices posted a modest decline this week, down $4/t at the Gulf to $369/t for DAP, with forward swaps cheaper at $332.50/t. Fundamentals continue to point to lower levels, if international buyers continue to take smaller amounts.

Pending approval by the regulator, Mosaic's purchase of CF Industries Florida phosphate assets is timely when consolidation makes sense for the business. The deal also provides for CF Industries to supply Mosaic with up to 1mt of ammonia from operations in the US and Caribbean and allows Mosaic to forgo plans for its plant in Louisiana, at a time when the industry is already seeing a series of expansion proposals scrapped for fears other new plants will lead to oversupply.

Skewed use of fertilizers hampers India's efforts to increase foodgrain production

It is common wisdom that land productivity in any climatic zone of the earth depends much on how well nitrogen (N), phosphorous (P) and potash (I) are used. Annual fertilizer consumption in India which, over the decades, has emerged as one of the world's leading producers of crops like paddy, wheat, pulses, fruits and vegetables and sugarcane, in nutrient terms (that is NPK) has risen from a negligible 0.07mt (million tonnes) in 1951to close to 30mt now. What is, however, not proving good for crop yield is the skewed use of nutrients highly favouring nitrogen. No wonder, then, in a number of crops and most worryingly for the whole range of oilseeds, Indian productivity falls way short of the world average not to speak of the best.

Much to the concern of the government, which in order to ensure 'nutritional security' must reverse the declining per capita availability of foodgrains, the current trends in agricultural output are showing falls in marginal productivity of soil in relation to application of fertilizers. But why should this be when the Indian per hectare application of fertilizers has risen from less than a kilogram a hectare in 1951 to at least 135kg a hectare on last count? (Incidentally, China is using over 500kg of fertilizers per hectare of its arable land.) Farm scientists say high application of straight fertilizers, in the Indian case urea and diammonium phosphate, and insufficient use of complex fertilizers, which are capable of improving agronomic properties are not helping the cause of productivity. Moreover, Indian farmers in general are still not aware of the benefits to be derived by using secondary and micronutrients. Besides lack of education, government subsidies made available or progressively denied to various nutrients are proving to be an important factor influencing fertilizer use.

But balanced fertilizer application as also steady expansion of the command area of irrigation will be among the deciding preconditions for the country to achieve a 4% annual average growth rate in agriculture during the current 12th plan period (2012–17) against the actual 3.6% in the 11th plan. The challenge is the growth has to be achieved in an environment of progressively shrinking of fertilizer subsidy, necessitated by compulsions to rein in fiscal deficit ruling at a high of 4.6% of GDP. At the same time, in an attempt to bring in greater levels of transparency in subsidy disbursement, the government will in phases directly transfer subsidy money to farmers, including the small and marginal ones. A start in this direction has been made with 11 districts in ten states.

In 2008/09, the disbursed fertilizer subsidy amounted to over 1.7% of GDP. Even while fertilizer production and imports had risen since, the subsidy in 2011/12 was down to about 1% of GDP. Lower subsidy means higher prices for plant nutrients. The thinking in the government is, farmers could still be incentivized to use desired quantities of fertilizers in a balanced way by using the lever of minimum support prices of major crops to their advantage. In fact, the liberal approach to minimum prices fixing is much in evidence in the past few years. Intensity of fertilizer use is not uniform in the country. As a result, the pace of agricultural growth in the eastern and north-eastern regions is slower than in the rest of the country. The government will have to think of some special programmes to encourage greater use of fertilizers by farmers to realize farm growth potential of these regions.

Between 2010/11 and 2012/13, the Indian production of urea grew slowly from 21.88mt to an estimated 22.39mt, thanks mainly to restricted and often irregular availability of natural gas. Research and consulting firm ICRA says even while the "government has prioritized the fertilizer sector in the allocation of natural gas, falling production from a major source in Krishna-Godavari basin and lack of material improvement in discoveries of new sources of gas have affected gas supplies to many fertilizer units." In the belief that gas shortages will be

overcome in the medium to long term following intensification of exploration for reserves, the government has introduced a new investment policy for the urea sector for stepping up "indigenous capacities, reduction in import dependence and cut in subsidy due to import substitution at prices below import parity prices (IPP)." The situation as now obtaining, the country is self-reliant in urea to the extent of 80%, while it is largely import dependent for potassic and phosphatic fertilizers. Officials claim that the new policy will encourage reopening of closed ammonia-urea units and investment in expansion of operating units and kicking off greenfield ventures. Not only does the policy provide for long-term availability of gas for urea capacities to result from new investments, but it also has provisions to protect the interest of investors in case of rises in gas prices or fall in IPP.

Armed with the new investor friendly policy backed by commitment to make available gas feedstock, government officials are trying to secure foreign investment in building urea plants besides local initiative. The Indian fertilizer secretary was recently in Moscow to brief officials from the Russian ministry of industry and trade and also fertilizer companies about the new policy. Following the visit, some Russian companies have begun the process of identifying opportunities for investment in urea production in India.

An official of Gujarat Narmada Valley Fertilizers says while his company will be keen to build a gas based brownfield ammonia-urea project at Bharuch in Gujarat taking advantage of some of its existing facilities, the government is likely to give approvals for setting up "four to five large ammonia-urea projects under the new policy." As it is giving a push to building large new capacities to reduce its import dependence, the government wants Indian companies to explore opportunities in foreign countries where either raw materials for P and K fertilizers or natural gas is available in plenty. The wanderlust for Indian groups could be by way of joint ventures or long-term offtake agreements backed by adequate equity participation. To underline success in such overseas ventures New Delhi is extending full support to participating Indian companies.

In the meantime, governments of India and Ghana have flagged off a natural gas based ammonia-urea joint venture in which the Indian public sector company Rashtriya Chemicals & Fertilizers is the nodal agency for this country to implement a 1mt project. In a separate initiative, inspired by Ghana's decision to accord priority in allocation of the newly discovered gas to fertilizer plant, the Indian Farmers Fertiliser Cooperative (IFFCO) will be building a urea factory in Ghana. After meeting Ghana's requirements, the two units will bring the surplus fertilizer to India. Incidentally, Oman India Fertiliser Company is exporting annually nearly 2mt of urea to India at a pre-fixed price. India saves on fertilizer cost and therefore, on subsidy if it is domestically produced or made by Indian joint ventures abroad than straight imports. New Delhi has targeted Russian companies for strategic partnerships in the P and K space on the premise that while Russia with which it has a long-standing close political and economic ties has the raw materials, India has an expanding market for such fertilizers. Russia's leading fertilizer group Akron will be interested in partnering Indian groups in building plants to make phosphatic and potassic fertilizers.

India has no potassic resources at all and it is, therefore, totally import dependent for muriate of potash. Moreover, nearly 90% of the country's requirements of phosphoric raw materials and finished phosphatic fertilizers are met by imports. Such high levels of import dependence have subjected India to price manipulations by cartels operating particularly in potash. The cartels have prospered at the cost of importing nations by keeping fertilizer prices well above marginal production costs. The participating cartel members will at no point release stocks that may bring prices down. But a cartel may also collapse in case a member in violation of an informal arrangement would on the sly sell fertilizer outside the partnership scope. It is precisely for this reason that Uralkali of Russia pulled out Belarus Potash Company (BPC) export cartel after accusing its Belarussian partner of violating an agreement and selling independently. An industry official says Urakali's quitting the cartel is like "Saudi Arabia withdrawing from OPEC." Some experts think the collapse of this cartel will lead to some major falls in potash prices. The other cartel Canadian Potash Exporters (Canpotex), a potash exporter and marketing firm is wholly owned by Potash Corporation of Saskatchewan, Mosaic Company and Agrium, remains intact. Canpotex is the world's largest exporter of potash selling around 10mt a year, which is about one-third of global capacity. In recent times, India leveraging its big importer status has been able to get the better of cartel in operation.

By Kunal Bose

Vale quits giant Colorado potassium mine in Argentina, to the annoyance of many

The decision by Vale to suspend work at the 'Colorado' potassium mine in the Andean foothills in Argentina, has greatly upset the Argentine government, as well as annoying officials in Brasilia, *writes Patrick Knight.*

With costs at Colombia spiralling out of control, at a time when the world price of potassium is falling and with Vale under severe financial pressure, the move makes a lot of sense.

The project would have been the largest single foreign investment in Argentina for many years. Most of the 4.5mt (million tonnes) of potassium Vale planned to be produced at Colorado in a few years time were to go to Brazil, one of the world's top four importers of fertilizer.

Ninety-three per cent of the 4.3mt of potassium used in Brazil last year was imported, at a cost of about $3.5 billion.

Argentina is Brazil's second-largest export market for all goods and the Brazilian government was worried that the regime in Buenos Aires might adopt reprisals, as it has done in the past.

The Colorado project was bought by Vale from Rio Tinto for $850 million almost a decade ago. As well as the mine, the project includes a rail link to take the mineral to a new port at Bahia Blanca and pipelines which will bring the gas needed to process the ore.

The cancellation of the Colorado project has come at a time when the Argentine economy is in serious difficulties. Investors are extremely cautious following of the takeover of the assets of the Spanish Repsol oil company, without compensation.

The financial situation of Vale is by no means as favourable as it was when the project was conceived, following the weakening of the market for iron ore. Vale has withdrawn from several ambitious investments both abroad and in Brazil in the past few years.

Building the Colorado mine and the associated workings was originally expected to cost less than $6 billion dollars. However, the estimate has now shot to $11 billion and would almost certainly rise further as time passes.

Potassium forms about a third of all the fertilizer used in Brazil, but less than 10% of the 10mt of the product now used each year is produced locally, most at small high-cost mines, many of them elderly.

Brazil usually pays much more than average for its potassium, the majority of it shipped from Canada and the Ukraine, with some coming from Israel as well. This is because importing is usually concentrated in the second half of the year, on the eve of planting the summer soya and maize crops, when fertilizer prices tend to be at their highest.

The initial decision to go ahead with the Colorado mine was taken in 2008, when due to the world food crisis in that year, the price of all fertilizers rose sharply. That of potassium shot to more than $600 per tonne, three times what it had been five years earlier.

The very high price of fertilizer in that year encouraged many mining companies to start building new potassium mines. It has also caused the cartels which fixed prices far above the cost of production, to crack wide open. One result has been that the price of potassium has fallen by about 25% in the past couple of years, while the price of Vale's iron ore has also dropped.

The lower price of fertilizer meant that has Brazil paid less than $400 for each tonne of potassium imported in the past three years, compared with close to $600 a tonne in 2008 and 2009. The price of ready blended fertilizer and of phosphates has fallen by just as much, although the price of urea, an oil derivate and used to make nitrates, has not fallen so much.

Brazil now imports about half of the 4.3mt of phosphates it uses each year. However, it is hoped that production of phosphates will have risen to 4mt by 2018, when the amount of phosphates needed will have increased to 5.2mt.

A total of 880,000 tonnes of nitrates were produced last year. It is planned to increase output to 2mt by 2018, by which time the amount of nitrates used will have risen from the 3.5mt of 2012, to 4.2mt.

The real fell by more than 15% against the US$ and other currencies between January and August, a change which has caused the price of most imported goods to rise.

However, price of potassium bucked the trend and fell in the first half, which encouraged farmers to import more. This is

because the area planted to soya, as well as maize and sugar cane, other big users of fertilizer, increases each year.

The amount of soya needed to buy a tonne of fertilizer varies from year to year according to the world price of the oilseed. But with soya prices at record levels in the past few years, much less soya is needed to buy fertilizer now than in most recent years, so farmers growing soya are expected to buy up to 10% more this year.

More than 40% of all the fertilizer used in Brazil is bought by soya farmers. Soaring demand for beans in China is one reason, last year's severe drought which cut production in the United States as well as in Brazil itself, is another.

Soya prices fell slightly earlier this year. But the weather has not been ideal in the United States this year once again, so prices have risen again more recently.

More than 400kg of fertilizer are applied on each hectare of average soya plantation. With the area planted to the crop now close to 30 million hectares and growing by about 4% a year, Brazil will need more fertilizer each year for the foreseeable future.

Fifteen million tonnes more soya was harvested 2012/13 than in the previous year, an increase of 10mt. More than 85mt of soya is expected to be grown 2013/14, and it is anticipated that more than 100mt of soya will be produced in Brazil by 2020. This means 25% more fertilizer will be needed by farmers growing the crop by then.

The amount of maize and sugar, the other leading users of fertilizer, is expected to grow by about the same proportion as that of soya in the next few years as well.

The government is anxious for Brazil to move towards being self-sufficiency in fertilizer, to cut the soaring import bill. Imports cost about $7.5 billion last year, which although less than the record $8.4 billion fertilizer imports cost in 2008, was much greater than the $5.2 billion fertilizer imports cost in 2007, or the $3.6 billions they cost in 2005.

If potassium is in short supply, Brazil has substantial reserves of phosphates and could easily make much more nitrates out of oil and gas as well, if it set its mind to it and was prepared to pay the high cost of opening new mines.

The country has some relatively small reserves of the comparatively rare potassium. But these are in isolated parts of the country, notably Amazonia, so will be costly to develop, as well as being a potential threat to the environment.

There is really no excuse for Brazil having to import urea and nitrates, however, given the importance and size of its oil and gas industry.

Even without Vale's investment in Argentina, which now seems unlikely to go ahead for many years, the countries fertilizer companies, now led by Vale and Petrobras, but also including Norway's Yara, plan to invest $20 billions on new production aimed at adding 9mt to output by 2018.

To facilitate this, the industry has asked the government to increase taxes on fertilizer imports, to allow them to make adequate profits. The earnings from the export of soya, maize, sugar, coffee, cotton, orange juice as well as of meat, with chicken and pork fed mainly on maize and soya meal which need fertilizer to grow well, together now generate almost 70% of Brazil's export earnings.

So the suggestion that imports of fertilizer, which has helped yields to increase much faster than the planted area in the past decades, has provoked howls of protest from farmers and the associations which represent them. The farm lobby can muster many votes in congress, so this proposal is unlikely to prosper. DCi

STATISTICS: FERTILIZER IN BRAZIL

Production, consumption & import of fertilizer, (million tonnes)

Year	consumption	production	imports
2013	30.6	10.1	20.2 (est)
2012	30.3	9.8	19.8
2011	28.3	9.8	19.4
2010	24.5	9.3	15.3
2009	22.5	8.4	11.0
2008	22.4	8.9	15.4
2007	24.6	9.8	17.5
2006	21.0	8.8	12.1
2005	20.2	8.9	11.8
2004	22.6	9.7	15.4

Source: Association of Fertilizer Distributors, ANDA

Imports of fertilizer, tonnes, US$ per tonne, cost, in $US dollars

Year	tonnes	$US/tonne	$US billions
Potassium			
2012	8.785.3	499	3.5
2011	9.391.9	456	3.5
2010	6.123.6	365	2.2
2009	3.447.3	603	2.1
2008	6.750.6	567	3.8
2007	6.762.6	221	1.5
2006	5.403.5	176	2.9
2005	5.013.0	191	2.5
2004	6.816.7	144	1.0
2003	5.228.2	119	0.6
Mixed fertilizer			
2012	3.914.1	168	2.1
2011	4.337.6	151	2.5
2010	2.480.6	429	1.1
2009	1.758.3	497	0.8
2008	2.928.2	790	2.4
2007	3.451.9	362	1.9
2006	2.236.4	251	0.6
2005	2.274.6	239	0.5
2004	2.234.8	222	0.5
2003	1.769.0	191	0.3
Urea			
2012	2.878.2	448	1.3
2011	3.041.0	434	1.3
2010	2.547.0	279	0.7
2009	1.940.9	264	0.5
2008	2.234.3	549	1.2
2007	2.510.6	306	0.8
2006	1.587.7	230	0.4
2005	1.558.0	228	0.4
2004	1.861.2	189	0.4
2003	1.702.1	145	0.2
Superphosphates			
2012	1.667.0	386	0.6
2011	1.739.8	402	0.7
2010	1.304.0	299	0.4
2009	1.084.8	217	0.3
2008	1.322.3	741	1.0
2007	1.572.3	286	0.5
2006	1.070.3	166	0.2
2005	984.9	179	0.2
2004	1.540.6	156	0.2
2003	1.066.9	138	0.2

Source: Ministry of Trade

DAMEN CRANE BARGE 6324

NEW DESIGN – TRANSSHIPMENT BARGE – AVAILABLE FROM STOCK

Our newly designed 63 m Crane Barge basically serves 3 purposes: ship-to-ship, ship-to-barge and ship-to-quay dry bulk or container handling. Because we believe in this concept, we have already built a number of them, allowing for a very short delivery time.

Why?

- 1,000 tonnes per hour turnover
- Fuel efficient crane Liebherr CBG 350
- Lifting capacity 35 t @ 36 m (grab) / 45 t @ 36 m (hook)
- 12 crew day/night accommodation
- Shallow draught

CP-Desk® launched to provide charter party services

The Marcura Group, parent of sister company, DA-Desk® today formally launched CP-Desk® an independent service provider that sets a new standard for reducing risk and managing charter party costs. CP-Desk focuses solely on one labour-intensive, time-consuming administrative aspect of the maritime shipping industry — charter party management. This enables owners, operators, and brokers to concentrate their time and attention on vital operational issues, while mitigating the risks of commencing voyages without a duly signed contract.

Unlike online solutions, CP-Desk brings a human touch to this crucial, yet often undervalued process whose disregard can end up costing a maritime shipping company a significant amount of money and untold man-hours. CP-Desk provides a trained, dedicated team for its CP-Audit™ and CP-Draw™ services. The teams are charged with ensuring the accuracy of the charter parties and providing key management reports.

The CP-Desk Services

CP-Audit is designed to minimize risk for owners and operators by eliminating charter party errors. The service features a dedicated team that reads, verifies and audits the pro forma, final recap and charter party drafted by a broker. Olam International is the latest client to use the CP-Audit service.

According to Bianca Knight, Associate General Manager – Shipping & Freight at Olam, "Charter party checking and administration is often put aside to focus on more pressing operational matters. Olam chose to work with CP-Desk because of our excellent relationship with DA-Desk and the strong administrative support that they have provided for this part of our business. The quality of support we receive and the ease of integration with our existing systems enables our small team to increase effectiveness and focus on operational and not administrative matters."

CP-Desk also provides CP-Draw, a service for brokers that focuses on the actual drawing up charter parties. Like CP-Audit, this service provides dedicated teams that work closely with clients to ensure that charter parties exactly reflect the terms of agreement. The disciplined CP-Desk process remedies the all too common industry practice of fixing the next business 'as per last,' that allows errors to flow unchecked from one charter party to the next.

"One of the many reasons we make use of the excellent CP-Draw service is that it gives us more time to focus on fixing vessels for our local clients, rather than on charter parties," said Jorgen Sorensen, Director/Partner at Dahl & Holmegaard A/S in Copenhagen, Denmark. "We receive a very high standard of service and a very professional approach from the CP-Desk team. You can say that we are a satisfied customer!"

Stated Captain Errol Gonsalves, managing director of CP-Desk, "As a Marcura Group company, like DA-Desk, we are a completely independent service provider with no ties to owners, charterers or brokers. As we began looking at the issue of charter parties in 2011 we strongly believed that our underlying philosophy would greatly benefits owners, charterers and brokers in the drafting, verification and overall reporting of charter parties. Today that has proven to be the case; our customers have confidence that we can handle their sensitive information without question."

"We also believe that in today's environment, charter parties require the personal attention of trained professionals, rather than shipping trainees as is often the case. Thus, we established CP-Desk to give charter parties the expert attention they need and to help owners, charterers and brokers limit their exposure to expensive liability issues."

To date, CP-Desk has signed on three major shipowners, including J. Lauritzen, and ten shipbrokers among them Dahl & Holmegaard & Bidsted-Yamamizu Corp.

About CP-Desk

One of the Marcura Group's premier business service companies and sister company of DA-Desk, CP-Desk focuses on the management and key reporting of commercial maritime shipping contractual documents, specifically charter parties. Designed for owners, operators and brokers alike who need to conserve costs and concentrate resources on optimizing their business, CP-Desk is the only company that focuses solely on charter party management tasks through its trained and dedicated maritime desk and technology. As such, CP-Desk sets a new standard for reducing risk and managing charter party costs.

RINA – QinetiQ Maritime Innovation Award

The Royal Institution of Naval Architects and QinetiQ are introducing a new international Award, which aims to both recognize and encourage scientific and technological innovation in the maritime industry.

Innovation is key to success in all sectors of the maritime industry, and such innovation will stem from the development of research carried out by engineers and scientists in universities and industry, pushing forward the boundaries of design, construction and operation of marine vessels and structures.

The Royal Institution of Naval Architects – QinetiQ Maritime Innovation Award seeks to encourage such innovation by recognizing outstanding scientific or technological research in the areas of hydrodynamics, propulsion, structures and material which has the potential to make a significant improvement in the design, construction and operation of marine vessels and structures.

The Award of £1,000 will be made annually to either an individual or an organization, in any country. Nominations for the Award may be made by any member of the global maritime community, and will be judged by a panel of members of the Institution and QinetiQ. The Award will be announced at the Institution's Annual Dinner.

Nominations are now invited for the 2013 Maritime Innovation Award. Individuals may not nominate themselves, although employees may nominate their company or organization. Nominations may be up to 750 words and should describe the research and its potential contribution to improving the design, construction and operation of maritime vessels and structures.

Twenty MacGregor cranes ordered for multi-purpose vessels

MacGregor cranes are designed to provide high levels of cargo handling efficiency.

Four new 38,000 dwt general cargo ships for Nanjing King Ship Management will benefit from the flexible load-handling capabilities of MacGregor cranes; the five cranes on each vessel will have a total lifting capability of 236 tonnes

MacGregor, part of Cargotec, has recently secured an order to supply 20 MacGregor cranes for four new 38,000dwt general cargo vessels under construction at Taizhou Kouan Shipbuilding Co Ltd in China for the Chinese shipping company, Nanjing King Ship Management Co Ltd. The vessels are scheduled for delivery between late 2014 and early 2015. The order was booked in the third quarter 2013 order intake.

"The mix of cranes is designed to provide high levels of cargo handling efficiency," says Svante Lundberg, Sales Manager, Cranes. "The nature of a general cargo vessel means that the arrangement of the cranes has to deliver high levels of flexibility for loading and discharging an extremely variable cargo profile; we have worked closely with all parties to develop the best configuration."

Each MacGregor crane outfit comprises one 36-tonne SWL crane with an outreach of 26m located forward, and two twin-GL cranes each with a 2 x 50-tonne SWL capacity and an outreach of 26m. Delivery of the cranes is planned between 2014 and the beginning of 2015.

Freightliner Group announces appointment of new chief executive

Freightliner Group has announced that Russell Mears will be appointed as Group Chief Executive from Monday 30 September 2013.

He will succeed Peter Maybury, who will retire from the position of Chief Executive but remain with the company as Chairman.

Mears is currently Chief Financial Officer for the Group and has worked with Freightliner since privatization in 1996. Confirming the announcement of his appointment, Mears said: "I am delighted to take the position of CEO at Freightliner. I believe that with the strength of management at all levels of the business, we have the potential to not only maintain a strong UK market presence, but also develop international opportunities that will enable us to continue our successful growth as a global rail freight player." He went on to say: "I want to offer my thanks to Peter for the way in which he has guided Freightliner Group during the last four years despite a very challenging macro-economic climate. In that time we have continued to invest in equipment and infrastructure at ports and terminals to maintain our competitiveness in the UK market whilst continuing with our overseas expansion and delivering exceptional service delivery to our customers. I look forward to his continued support in his new role with the company as Chairman."

Maybury , who joined Freightliner in 1997, worked within the Group's intermodal business as Managing Director before being appointed as Chief Executive in July 2009. He offered his congratulations, saying: "Russell knows the company inside out and has proved his credentials in readiness for an appointment such as this. With his first-class financial acumen and attention to detail, I know Freightliner is in safe hands and will continue to flourish despite the challenging trading conditions that exist in all the markets we serve. I wish him every success for the future."

Seacurus wins award for seafarers' policy

The policy launched this year by specialist marine insurance intermediary Seacurus Ltd to indemnify seafarers in the event of the financial default of their employers has been recognized as the Broking Initiative of the Year at the Insider Honours 2013 award ceremony.

The award recognizes Seacurus's innovative approach to tackling the long-standing issue of how to safeguard the rights of seafarers in cases of abandonment. In April 2013, Seacurus, part of the Barbican Insurance Group, launched CrewSEACURE, the first product designed exclusively to address the issues and liabilities arising from the stranding of crew members and to satisfy the legal requirements under the new Maritime Labour Convention (MLC) 2006, which has been dubbed 'the seafarer's bill of rights.'

The award was launched in 2012 by Insider Publishing Ltd, whose titles include *The Insurance Insider*. It was presented to Thomas Brown, managing director of Seacurus, at the event, which was held in London, UK. The judges highlighted CrewSEACURE's ability to "provide a lifeline for people wherever they are in the world in the face of extreme financial pressures," adding, "This product addresses a long-standing global problem and is a watershed moment for the industry."

Commenting on the award, Brown said, "On behalf of my colleagues at Seacurus, we are delighted and honoured to have been recognized for our efforts to provide a pragmatic and affordable solution to the problem of seafarer abandonment. CrewSEACURE not only offers a lifeline to those crew members who have been set adrift by their ship owners, but also helps to translate the goals of MLC 2006 into tangible benefits for seafarers."

Seacurus Ltd is an FCA-regulated insurance broker, founded in 2004, specializing in bespoke revenue protection cover for the maritime industry. It is a market leader in the design and implementation of solutions to protect companies from unforecasted balance-sheet impacts, including credit default, charter party cancellations, hijackings and voyage disruptions caused by political events. Seacurus established the first delegated underwriting binding authority for marine kidnap insurance and is an approved Lloyd's Coverholder.

Formed in 2007, Barbican Group Holdings is an insurance group writing business predominantly through its syndicates at Lloyd's. It also has a non-Lloyd's financial solutions business based in Guernsey which offers insurance and reinsurance programmes to the global market. Barbican Syndicates 1955 and 6113 at Lloyd's has a stamp capacity of £227.5m for the 2013 year of account and underwrites cyber liability, financial and professional lines, healthcare liability, international casualty reinsurance, marine insurance, marine reinsurance, North American casualty reinsurance, property, property reinsurance and corporate, middle market and scheme/affinity group clients in the UK and Ireland.

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Brazil to prioritize coastal shipping

Brazil's Port Secretariat (SEP) is to introduce new measures to prioritize coastal shipping operations. In order to do this, coastal shipping will have to be freed from the time-consuming customs process. At present, all vessels docking at Brazilian ports, whether they be transporting import-export or domestic consignments, require customs inspection.

In total, Brazil is to invest $84.8 billion in upgrading transport and logistics as a means of streamlining port activities. The aim is to transfer as much cargo as possible from road to coastal shipping, which should reduce transport costs, cut theft and damage, as well as reducing the amount of wear and tear on roads, whilst at the same time decreasing the number of accidents.

The Ports Minister, Leônidas Cristino, recently noted, "SEP has been studying the prioritizing of coastal shipping for quite some time. Among the points to consider are fuel costs, berth preferences for coastal shipping, and the provision of non-customs areas." By the beginning of 2014, SEP should be in possession of a new study that will allow it to implement some of the changes. *Barry Cross*

VIKING expands its global safety solution with onboard training

VIKING has strengthened its global safety package to the marine and offshore industry by acquiring a major stake in IT startup SAATSEA who offer unique, cloud-based onboard training and competence management systems.

A group of IT entrepreneurs with a background in marine and crew training and a unique product caught the attention of leading marine and fire safety equipment manufacturer VIKING Life-saving Equipment A/S. This is the latest addition to VIKING's growth strategy.

SAATSEA, now renamed as VIKING Saatsea, addresses the need of shipowners and operators to continuously train their crew by offering a combined solution that manages planning and implementation of onboard training as well as the documentation. Through the online training system, the crew can complete and register module-based theoretical and practical assignments, with immediate, up-to-date competency assessments for marine and offshore inspections — without administrative hassles.

One example, is the mandatory requirement for annual onboard training of all Emergency Rescue and Recovery Vessel (ERRV) crew on vessels operating out of Denmark, Norway and the UK. VIKING Saatsea is the first in the world to offer a system that manages both onboard training and documentation. The cloud-based mobile solution ensures that the system always works, even when the vessel is not on the internet. The information is synchronized automatically whenever the vessel has the opportunity to come online.

The system is also designed to manage the coming regulatory requirements for documentation of STCW refresher courses for all IMO vessels.

VIKING CEO Henrik Uhd Christensen is enthusiastic about the new addition to VIKING's customer capabilities and believes it lines up well with his company's strategic priorities. "We're always on the lookout for anything that can make doing business easier for our customers while improving safety onboard the vessels," he said. "This addition to the VIKING portfolio has the potential to positively influence customer financials as well as safety. Increased involvement in other aspects of the safety process is fully in line with the company vision: when it comes to safety, think VIKING."

The entrepreneurial group behind the unique system, all of whom have maritime backgrounds, is a prime example of the knowledge-based community currently adding fuel to Esbjerg's stature as an "Energy Metropolis". Director Kim Baarsøe is candid about his company's early interest in VIKING as a launchpad to bring the young company to the next level.

"First and foremost, we are a team of solution developers. To take things further, we needed the help of a partner where we could become part of a broader solution," he commented. "And VIKING has always stood out for us as a global company that has the worldwide reach we could leverage, as well as an end-to-end quality approach right across the value chain. Matching our solution to that level of quality at every stage of its delivery is, I believe, crucial to our ability to succeed."

Henrik Uhd Christensen agrees. "VIKING Saatsea is a knowledge-based company, which is entirely in line with developments we've seen within the larger VIKING group. This team has in depth knowledge about an area important to our business. They think out of the box – and they've built a great solution. Now, with the VIKING brand and global presence, we can help them expand in the global market far faster than would otherwise have been possible."

"We're pleased, too, to be able to support yet another growing business founded in the dynamic environment of the marine and offshore sector here in Esbjerg," he added.

About VIKING Saatsea

Headquartered in Esbjerg, Denmark, VIKING Saatsea develops and delivers a marine competency management and training system (CMTS) that address the need of marine and offshore owners and operators to train and manage the planning and documentation. The company is also authorized to conduct assessment onboard ERRV Vessels against the OPITO Approved Standard for OODTP.

Five Liebherr double girder cranes operate on world's largest transshipping facility

Transshipping is increasing in popularity these days mainly because of two reasons. First, the rapid rise in export possibilities has not been matched by an equally fast expansion in port infrastructure. The existence of draught restrictions in access waters does often not allow for the direct loading of large vessels. And second, ports sometimes even have to deal with impositions.

One of the most spectacular projects in transshipping in recent years has been a facility delivered by a Chinese shipyard for the South American mining company Vale. Equipped with five Liebherr double girder cranes, type MPG, this transship is handling iron ore from Valemax vessels in Subic Bay in the Philippines. Design and advisory services were provided by Logmarin Advisors of Genoa, Italy, and the 285,000 tonnes buffer storage floating terminal was built by Bedeschi.

The five MPG 40-tonne high-speed, heavy duty, double girder jib cranes are side-mounted on the Vale vessel and have an outreach of no less than 42 metres. Safety, performance and low maintenance requirements are of utmost importance and the design of the MPG cranes considers all these features.

The advantages of the MPG cranes include

- reduced crane height leading to a low centre of gravity;
- the positioning of the driver's cabin on the underside of the grab rotating arms allowing for unrestricted views of the hold on both vessels;
- no luffing ropes/mechanism meaning less maintenance and better stability of the crane in offshore operations;
- significant reduction in grab swing during slewing;
- faster crane cycle thanks to double geared configuration and faster hoisting/lowering speeds;
- independent drive systems ensuring continuous operation with full load, should a single drive fail, operation can continue at reduced speed and so reduce downtime; and
- less wear and thus longer lifetime of ropes due to special positioning of the hoisting winch.

The five cranes have Litronic Robot Control (LRC) and Dynamic Anti-Collision System (DACS®), both developed in-house by Liebherr in order to increase safety and enhance performance. LRC eases operation between two pre-defined fixed points while DACS® prevents collision between the cranes and/or fixed obstacles as each crane knows and compares its position with the other crane or any defined obstacle. Two cranes can thus operate on the same hold or close to any obstacles, offering highest safety and flexibility. Due to the design focus on maximum safety and operating capacities as well as minimum maintenance and life-cycle costs the Liebherr double girder cranes are perfectly suited to the demanded round-the-clock working cycles on the transshipping facility.

Handymax bulkers

still a popular choice

Richard Scott, Bulk Shipping Analysis

Widely varying opportunities for employment, in a diverse range of global commodity trades, characterize the Handymax bulk carrier sector. These features have been reflected in the intense interest, shown by shipowners, in acquiring this type of vessel during the past few years.

As a consequence the world Handymax fleet has grown very rapidly, by almost three fifths in deadweight capacity over the period of three years up to the end of 2012. Moreover, while the fleet enlargement pace has slackened recently, it is still quite fast and may remain brisk for some time through 2014.

The employment pattern of Handymax size bulk carriers, ships of between 40,000dwt and 65,000dwt which are predominantly geared vessels with installed cranes and grabs for loading and discharging cargoes, is extremely varied. In addition to widespread use in the coal trades and grain and soya trades, and in some iron ore movements, they are used extensively in minor bulk trades including steel products, minor ores and minerals and for other industrial and agricultural commodity shipments.

Fleet expansion

Strong growth in many of these trades, over recent years, and prospects for further growth have encouraged heavy investment in the sector. During the period of three years to end-2012, the Handymax fleet grew by 57% according to Clarksons figures. This expansion added almost 53 million deadweight tonnes to the end-2009 fleet, raising its capacity to over 145m dwt at the end of last year.

But fleet growth is now slowing because the order book for newbuildings has diminished and much more scrapping of older tonnage has occurred. After accelerating sharply to a remarkable 19% fleet deadweight growth rate in 2010, the pace slackened to 17% in 2011 before slowing further to 12% last year. During the current year as a whole, another slowing to around 8% or under is predicted. In 2014 there are some signs that only limited further deceleration will occur, because a sizeable volume of Handymax tonnage is still on order at world shipyards.

Fleet statistics, showing the position at the beginning of September 2013, reveal that the world fleet of Handymax bulk carriers consisted of 2,890 ships. With a capacity of 152.4m dwt, this sector comprised almost 22% of the entire world bulk carrier fleet. These figures emphasize the vast carrying capacity which is available.

Deliveries of newbuilding Handymax vessels from world shipyards have been very heavy in the past three years, varying between 19m and 22m dwt annually. These additions have been partly offset by increasing scrapping. Sales to demolition yards

were low in 2010 at just 0.4m dwt, before rising to 2.2m dwt in the following year and then more than doubling to 4.6m dwt last year. In 2013, it seems quite likely that the newbuildings total will be much lower at under 15m dwt, but the scrapping volume also seems set to decline, perhaps to around 3m dwt.

The Handymax order book although reduced is currently still large, corresponding to exactly one-fifth of the existing Handymax fleet. Based on figures compiled by Clarksons, at the beginning of September this year 546 ships were on order throughout the world, with a capacity of 30.8m dwt. Many ships scheduled for delivery in the remaining months of this year probably will not be delivered until later, adding greatly to the 190 ships of 10.8m dwt already scheduled for 2014 delivery.

A high proportion of Handymax newbuilding orders are within the 'Supramax' group, ships of 50,000dwt and larger. The popularity of this vessel size group in recent years continues, and presently 437 ships of 25.9m dwt (84% of all Handymaxes on order) are within the 50,000 to 65,000dwt category.

Recently the statistical upper size limit of the Handymax bulker sector was raised to accommodate a new sub-sector of 'ultramax' ships, with capacity between 60,000dwt and 65,000dwt. Many more of these geared vessels will be delivered in the next few years. They are seen as having a valuable role in commodity trades requiring units with cargo handing gear and more capacity than the standard Supramax of around 52,000dwt, but less capacity than provided by the standard Panamax bulker of around 72,000dwt (which is usually a gearless vessel).

Trade growth

Among employment sources, coal trade is prominent. In the past few years global trade in steam and coking coal has grown at varying but rapid rates, greatly benefiting Handymax ships as well as other sizes of bulk carrier. Coal forms the second largest commodity trade, only just below the largest, iron ore, and volumes are massive, reaching an estimated 1.1 billion tonnes in 2012.

In the past three years global seaborne coal trade has grown at rates of 13.0% (2010), 6.5% (2011) and 9.4% (2012), and the current year's increase is expected to be 4–5%. Much of the upwards trend in that period was attributable to extra steam coal movements for power stations and other industries, resulting in that part of the sector reaching three-quarters of the total volume.

Additional exports from some countries clearly had an impact on larger size ships but, among trade routes extensively employing Supramaxes, shipments from Indonesia have been a

HANDYMAX (40–64,999DWT) BULK CARRIER FLEET (MILLION DEADWEIGHT TONNES)

	2010	2011	2012	2013*
Newbuilding deliveries	18.8	21.5	20.1	14.0
Scrapping (sales)	0.4	2.2	4.6	2.5
Losses	0.2	0.1	0.1	0.0
Plus/minus adjustments	–0.1	0.0	–0.1	0.0
Fleet at end of year	**111.0**	**130.2**	**145.5**	**157.0**
% change from previous year-end	+19.5	+17.3	+11.7	+7.9

source: Clarksons (historical data) & BSA 2013 forecasts **forecast*

particularly dynamic element. Indonesian coal exports reached 234mt (million tonnes) three years ago in 2009, although still well below volumes exported by the world's largest supplier, Australia.

Since then Indonesia has overtaken Australia (in 2011) to become the biggest coal supplier, with a total last year of 347mt, a cumulative increase in annual volume of 114mt over three years. A large proportion is represented by short-haul voyages to China. The 2013 total is expected to show further substantial growth, perhaps exceeding 10%. Another boost has come from Indonesia's exports of low-quality lignite, a type of coal not normally included in international coal trade statistics.

The contribution of grain (including soya) trade to Handymax employment has been more variable, both in terms of annual global volumes and geographical trading patterns. In the past twelve months up to mid-2013, trade growth ceased and weakened marginally, after an upwards trend in preceding periods.

Recent weakness reflects restricted export availability after several harvest downturns in key exporting countries a year ago, consequent high international grain and soya prices, and adverse effects on import demand in many areas. World trade in wheat and coarse grains was a marginal 1% lower in crop year 2012/13 ending June, at 266mt, according to International Grains Council estimates. Global soyabeans and meal trade in marketing year 2012/13 ending September was marginally (under 1%) lower at 149.2mt, based on US Dept of Agriculture calculations.

Handymax grain trade opportunities have been adversely affected by lower imports into African countries over the past twelve months, although in other importing areas such as the Middle East and European Union higher volumes were seen. Soyabeans and meal imports into the EU were lower. During the year ahead, 2013/14, a moderately positive trend is expected to resume, boosted by additional grain and soya imports into China.

Minor bulk trades, some of which are actually very large and not really minor, showed substantial enlargement as a group over the past three years, benefiting Handymax employment. Annual volumes in this sector evidently grew by approximately 30% since 2009, reaching just under 1.5 billion tonnes in 2012, although that rise included a sharp rebound in 2009 from depressed levels in the previous twelve months.

Steel products trade (coil, sheet, plate and other items) is a large employer of Handymax tonnage. According to seaborne steel products trade figures compiled by Clarksons, the global annual total recovered rapidly after the severe setback in 2009, since when it has expanded by 32% to reach an estimated 279mt in 2012. Another rise of about 3% could be seen this year.

The steel trade is characterized by an extremely complex geographical trading pattern, with many countries being simultaneously both substantial exporters and large importers, reflecting the enormous variety of finished steel products grades available. Last year China exported 55mt and imported 14mt. South Korea exported 30mt and imported 20mt. The EU exported (to countries outside the area) 38mt and imported 25mt. These World Steel Association figures emphasize how two-way flows generate massive demand for Handymax and other bulk carriers.

Handymax market

At the end of September this year and early part of October, the Handymax freight market strengthened. The Baltic Supramax Index (based on timecharter trip rates for a standard 52,000dwt-size bulk carrier with cranes and grabs) abruptly jumped by 20% to around 1,200, after remaining in a 850-1,000 range for about six months.

How sustainable this upturn will prove is unclear. There is still great over-capacity of ships in the global freight market as a whole, affecting the Handymax sector. Much of the excess has been absorbed by vessel productivity deterioration manifested in slow-steaming and other trading 'inefficiencies'. Global seaborne trade expansion and demand for tonnage has been growing at a healthy pace in the past few years and that trend is continuing. But the supply of transport capacity in the fleet has exceeded, sometimes greatly exceeded increasing requirements, leading to a subdued dry bulk freight market. DCi

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NORDEN

part of Indonesia's coal adventure

Fifteen to twenty times a month, a NORDEN vessel loads coal in Indonesia, and NORDEN transports the coal to especially China, which is the world's largest consumer of coal, the world's largest producer of coal and the world's largest importer of coal. NORDEN aims for additional business in Indonesia, which has large coal reserves.

NORDEN is part of the Indonesian coal adventure. Nowhere else in the world does NORDEN load more dry cargo than in Indonesia, and it is coal that fills up the vessels. NORDEN aims for more business in Indonesia, which has large reserves of the world's most important source of energy after oil and which is optimally placed relative to the largest users of coal in the world.

The demand curve for coal only goes in one direction – and that is up!

Coal has become the fastest growing global source of energy as the last decade's growth in the consumption of coal has been driven by financial growth in the developing countries, particularly China. Since 1999, the global coal production has increased by an annual average of 4.1% to a level of 7.9 billion tonnes in 2012. Figures from the International Energy Agency, World Coal Association and BP show that 30% of the world's energy demand is now covered by coal — the largest share since 1969.

Volume-wise, coal is indisputably also NORDEN's largest type of cargo. In 2012, the 250 vessels in NORDEN's Dry Cargo fleet transported 64mt (million tonnes) of commodities (excluding cargo on vessels chartered out), and of this, coal constituted 40% or around 25mt.

Indonesia has now surpassed Australia as the world's largest exporter of thermal coal to the energy sector, and 15–20 times a month, a NORDEN vessel loads in Indonesia, which continues to have an annual GDP growth rate above 5% despite a certain

TOP 5 EXPORTERS AND IMPORTERS OF COAL (MILLION TONNES)

Largest exporters		Largest importers	
Indonesia	347	China	235
Australia	316	Japan	184
Russia	130	Korea	124
The USA	107	India	159
Columbia	80	Taiwan	66

Sources: Simpson Spence & Young (SSY), Customs General Administration (figures for China) and Federal Service of State Statistics (figures for Russia). All figures are 2012 figures.

slowdown in the economy. First and foremost, NORDEN transports the Indonesian coal to China. Other loads are transported to India, Japan, Thailand, the Philippines or another country in the region.

NORDEN's Mr. Indonesia

The daily responsibility for nurturing and further cultivating NORDEN's interests in the Indonesian market lies with NORDEN's subsidiary in Singapore where group vice president & CEO Jakob Bergholdt has several employees who spend a significant part of their time on the Indonesian market. At the head of this is NORDEN's Mr. Indonesia, Indonesian-born general manager Mukhlisin Aziz, who will soon hand over the responsibility for the Supramax section in Singapore to others in order to fully concentrate on the job as head of the Asia Business Development Desk — with Indonesia as the central area.

"The Asian growth economies import around 80% of all commodities sold worldwide. It is coal, iron ore cement, grain, etc. – it is all the commodities which are the prerequisite for the impressing growth rates that we are seeing out here. Asia is the epicentre of the global dry cargo market with China as the largest importer of coal and dry cargo products in general and Indonesia as the world's largest exporter of coal, and that is primarily thermal coal to the energy sector. Therefore, Indonesia has a very high priority for the company here in Singapore. We have close commercial connections to Indonesia, and they are continuously expanded," says Bergholdt. Mukhlisin Aziz' new role will further increase his focus on Indonesia and on creating connections between the coal buyers in the region and the coal mines in Indonesia, Bergholdt points out.

It all began in 2000

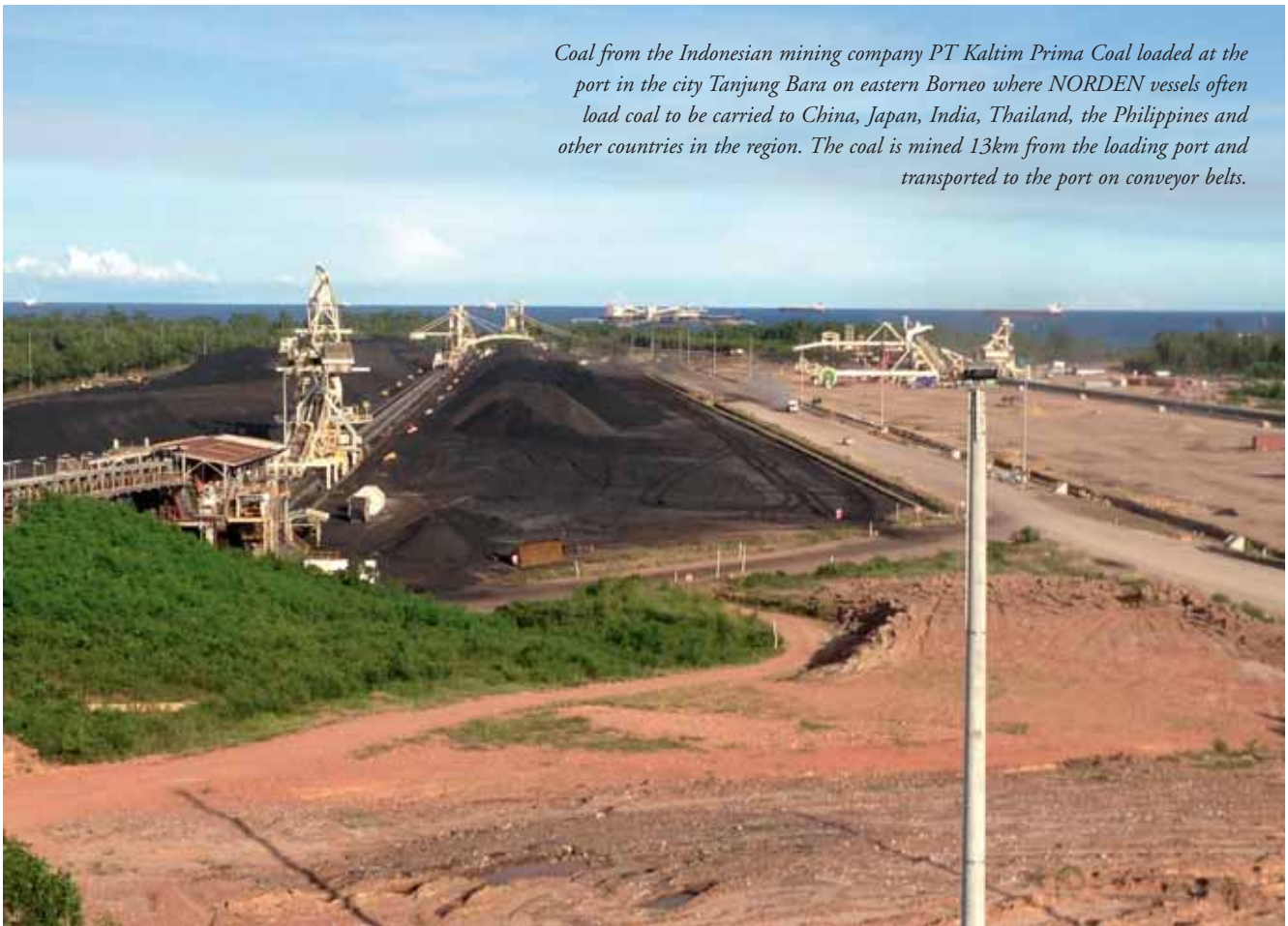
NORDEN's business activities in Indonesia date back to the year 2000 and really picked up in 2007/2008 at the same time as the Indonesian export of thermal coal began to boom. The vessel types used for the transport of coal include everything from Handysize (with a cargo carrying capacity of 28,000–38,000 tonnes) over Supramax and Panamax to Capesize (with a cargo carrying capacity of 171,000-180,000 tonnes). Vessels without cranes either load at the dock or at anchorage by means of floating cranes whereas vessels with cranes often load at anchorage by means of the vessel's own cranes.

According to Bergholdt, NORDEN has been able to create good relations with several large Indonesian mining companies, which have provided the company with valuable knowledge on potential new business. This has been important in the

Large increase in transportation of coal

International transportation of coal is done by ship – primarily by the vessel types Supramax, Panamax and Capesize in which NORDEN is strongly represented. Since 1990, seaborne trade with thermal coal for power plants has grown by an annual average of around 7% whereas seaborne trade with coking coal for the production of steel has had an annual average growth rate of 2.3%. In total, global seaborne coal trade reached 1,113 million tonnes in 2012. But that only constitutes 15% of the coal which is consumed globally as the main part of the production in the world's more than 50 coal producing countries is consumed in the domestic markets. Over shorter distances — especially in the producing countries — coal is transported by conveyor belts, trucks, trains and barges or (mixed with water) in pipelines.

Sources: World Coal Association and Simpson Spence & Young (SSY)



Coal from the Indonesian mining company PT Kaltim Prima Coal loaded at the port in the city Tanjung Bara on eastern Borneo where NORDEN vessels often load coal to be carried to China, Japan, India, Thailand, the Philippines and other countries in the region. The coal is mined 13km from the loading port and transported to the port on conveyor belts.

China: world's largest coal consumer

The last decade's significant increase in the consumption of coal has been driven by economic growth in the developing countries, especially China. The five largest consumers are China — the indisputably largest — the USA, India, Japan and Russia, which together account for 76% of global consumption. In 2012, China alone imported 235mt of coal, which roughly constitutes 7% of the country's annual consumption of 3,607mt (an annual consumption which, volume-wise, is thus almost as large as the total global seaborne dry cargo market covering ALL dry cargo categories). Total coal consumption in Asia comprises 70% of world consumption. And there is plenty more coal where that came from. At the end of 2012, known coal reserves were estimated to be able to cover consumption for the next 109 years. The USA, Russia and China have the largest reserves with approximately 237 billion tonnes, 157 billion tonnes and 115 billion tonnes, respectively.

Sources: World Coal Association, The International Energy Agency and BP et al.

development of the future strategy in the market. NORDEN has also made a lot of effort to find new potential customers in Indonesia. The motto in this process has been that no customers are too small for NORDEN, just as no customers are too large.

NORDEN's special strengths

On NORDEN's special strengths in the Indonesian market, general manager Mukhl[n Aziz says: "First and foremost, we are able to offer our Indonesian customers some competitive freight rates. But we also share knowledge with them by e.g. inviting them to a seminar on laytime, just as we are happy to give them technical and/or port related advice in connection with expansion projects. By and large, we are happy to assist our customers if they need to draw on the expert knowledge which NORDEN has as a flexible, reliable and ambitious shipping company, which places great emphasis on long-term customer relations."

It is Aziz's clear estimation that Indonesia will remain the world's largest exporter of thermal coal. With its coal reserves, the country even has great opportunities to increase its production in the coming years. The main obstacle is the infrastructure in Indonesia — it is simply still a challenge in some areas to get the coal to the loading port. But if global demand and global market price increase to a healthy level, it is likely that the Indonesian coal mines will solve the infrastructural problems.

NORDEN aims for more

"Compared with other leading coal exporting countries such as Australia and South Africa, Indonesia is geographically optimally placed relative to China, India and potential new large markets such as Myanmar and Vietnam. NORDEN has knowledge of several new power plant projects in the region, which aim to get the main part of their supplies exactly from Indonesia by which they not only ensure low freight expenses but also high-quality coal," says Aziz.

Group vice president & CEO Jakob Bergholdt adds: "Even though NORDEN already now has a solid footing in the Indonesian coal market, it is our clear ambition to strengthen this further by getting our share of the upside which the market is facing."

Coal covers 30% of world energy demand

Coal now covers 30% of the world's energy demand – the largest share since 1969. One million tonnes of coal can cover the annual electricity consumption of 190,000 people. After oil, coal is thus the most important source to cover the world's energy demand and the primary source to the production of electricity as 40% of the world's production of electricity is based on coal. The production of electricity takes place on more than 2,300 coal-fired power plants in the world of which as many as 620 are placed in China. Coal is also used in the production of steel and cement, as liquid fuel and in the production of aluminium and paper and in the chemical and pharmaceutical industry. Thousands and thousands of different products have coal or by-products from coal as components. This goes for e.g. soap, plastic, nylon, rayon, filters for cleaning water and air and filters in dialysis machines. And it goes for products as versatile as bicycle frames, tennis rackets, cosmetics, shampoo, tooth paste and airplane hulls as e.g. the new Boeing 787, the Dreamliner.

Sources: World Coal Association, the International Energy Agency, Boeing et al.

What is coal?

Coal is a fossil fuel consisting of pre-historic plants, which have transformed into coal after being stored in swamps and peat bogs for several hundred million years under great pressure. The energy from the coal comes from the energy which the plants once got from the sun. All living plants store energy through what is called the photosynthesis. Photosynthesis is a complicated string of biochemical processes which enable plants, alga and cyanobacteria (blue-green alga) to turn the atmosphere's carbon dioxide (CO_2) into organic compounds and oxygen by means of solar energy. When plants die, the stored solar energy usually disappears through decomposition. But when plants are turned into coal, the decomposition process is stopped, which prevents the stored solar energy from disappearing. The solar energy is so to speak locked inside the coal and is only released when the coal is burned.

Source: World Coal Association et al.

Traffic falling in Spanish ports

Traffic at Spanish ports overall in 2013 has dropped by almost 6%. However, dry bulk traffic has been particularly poor, decreasing by 17.5% in July, from 7.17mt (million tonnes) in 2012 to just 5.94mt in July this year. However, the explanation for this is very simple: Spanish harvests have been so good that it has resulted in a significant reduction in the import of flour. *Barry Cross*

Rail to serve Lisbon cement terminals

In Portugal, the port authority overseeing operations at Setúbal and Sesimbra is in talks with the rail track authority, Refer, and SAPEC industrial parks to explore ways of extending the existing rail network from Praias Sado station to two terminals on the Mitena peninsular.

A direct beneficiary of such a rail link would be the dry bulk terminal, Termitrena, where much of Lisbon's cement handling takes place, and also Teporset, which specialises in clinker and cement. Between them they handle annual traffic of two million tonnes, but with an additional rail link the port would be much more competitive and therefore be able to extend its hinterland, argues the port authority. *BC*

Tarragona sees major drop in dry bulk traffic

The Spanish port of Tarragona has reported a 18.6% drop in traffic for the first seven months of the year to just over 16mt (million tonnes). The biggest decreases comes in dry bulk, which amounted to 3.6mt for the period, equivalent to a drop of 43.4%. The reduction is blamed on the current economic crisis and also that associated with various production sectors. *BC*

Noatum renames Tarragona terminal

Codemar Iberbulk, which is based in the Spanish port of Tarragona, has now become part of Marmedsa Noatum Maritime and will henceforth be known as Noatum Codemar Tarragona. Its handling activities are based on the Aragón and Castilla quays, where it has warehousing given over to cereals and other agribulk commodities. *BC*

Nectar Group sets up JV with Portman India

Nectar Group, the UK-based port developer, and Portman India have agreed a joint venture to offer port and terminal management services in India.

The 50:50 joint venture, to be known as Nectar Portman, will provide port advocates with design, development and operation services of ports in India, according to the JOC. The financial details of the agreement will remain undisclosed.

In a statement, Portman India, established in 2009, said that its sees "huge prospects in this sector in India".

The accord will combine both Portman India's domestic knowledge of the market and UK-based Nectar's port management know how and expertise.

Georgia Ports wins Communication Award

For the first time in GPA history, the Georgia Ports Authority (GPA) has captured the top communications award presented by the American Association of Port Authorities, a trade association representing the entire Western Hemisphere.

In mid-October, Robert Morris, GPA's senior director of Corporate Communications, accepted the Dan Maynard Communications Award for Overall Excellence in Orlando, Fla.

This 'travelling' award is presented to the port that earns the most points in AAPA's annual communications competition.

Morris said the campaigns produced by the department shared a cohesive message across multiple platforms, such as advertisements, community relations events and collateral materials. "Our public relations mission is to communicate GPA's commercial advantages while highlighting our customer service, economic development and sustainable practices," Morris said. "Key messages showcased our ports' capacity to move autos and containerized cargo, extensive berth space, and Class I rail connections to the US Southeast."

The communications effort also shared GPA's environmentally responsible business practices, such as reducing diesel consumption with electrified ship-to-shore cranes and North America's first electrified rubber-tyred gantry cranes — all while preserving water quality and natural history.

"When port authorities communicate strategically with their many audiences, including their communities, business leaders and policymakers, they're better able to show their tremendous value as economic development and jobs drivers," said Kurt Nagle, AAPA's president and CEO. "This competition helps our member ports by rewarding effective communications and highlighting best practices and lessons learned."

GPA executive director Curtis Foltz said membership in the AAPA provides valuable feedback that helps to hone port operations, including communication outreach.

"This marks the first time the GPA has brought home the overall excellence award," Foltz said. "It is welcome recognition of the work our Corporate Communications office has done to share our message with the public and policy makers, as well as current and potential customers."

Georgia's deepwater ports and inland barge terminals support more than 352,000 jobs throughout the state annually and contribute $18.5 billion in income, $66.9 billion in revenue and $2.5 billion in state and local taxes to Georgia's economy. The Port of Savannah was the second busiest US container port for the export of American goods by tonnage in FY2011.

Royal Haskoning to undertake Eten port studies

Dutch consultants, Royal Haskoning, have been contracted to undertake the final technical and environmental studies for the $1 billion Puerto Eten project in Peru, which will be comprised of a maritime port and surrounding industrial zone. The facility will be built in the country's northern Lambayeque region.

The port itself has an estimated budget of $400 million, but a new highway connection and airport are also mooted.

The new facility will serve northern Peru and southern Ecuador, with a focus on mining and agribulk traffic.

The studies are expected to be completed in the third quarter of 2014, after which the government investment agency, Proinversión, will issue a tender in respect of the concession that will be made as part of a public-private partnership arrangement.

The national parliament has already been asked to declare the port is being of national interest. *BC*

Iquique to move soya

Iquique Port Company (EPI), in Chile, has signed various contracts to move soya by container. These will arrive at the port in big bags of 4–5 tonnes, where they will then be containerized. This will allow soya to be moved by most vessels heading for Asia, rather than requiring the port to charter a bulk carrier.

Alfredo Leiton, EPI director, says this obviates the need for dedicated bulk ports and will allow the new Iquique container terminal to ship bulk consignments in containers. He also welcomes the decision to link Chile with Brazil by Bolivia as part of a bio-oceanic corridor, which should also generate additional cargo for the port. *BC*

Toledo's Ironville Terminal redevelopment near completion

Third and final phase of construction underway

The Toledo-Lucas County Port Authority, Midwest Terminals of Toledo and Finance Fund were joined on 21 October by area officials for a groundbreaking ceremony of a warehouse at Ironville Terminal. This ceremony commemorates the third and final phase of construction on the 180-acre site, making it ready for business this winter. The total project cost was approximately $18 million and when completed, the project will provide up 100,000 man hours of skilled construction labour for the community.

"The redevelopment of this land will provide new space for unloading ships and new lay down areas for cargo, which will allow the Port of Toledo to continue as a leader on the Great Lakes," said Paul Toth, President and CEO of the Toledo-Lucas County Port Authority. "Without the help of local, state and federal agencies who believed in this project and administered the programs to help with its financing, the redevelopment of this riverfront site would have not been possible."

The development of Ironville was financed with public and private investment; the Port utilized a combination of state financing mechanisms along with new market tax credits to complete the multi-phased project. Finance Fund, a company that helps connect underserved communities with public and private sources of capital, provided $15.5 million in new market tax credits for the project, which made it possible to complete all three phases in such a short time frame.

The first phase of redevelopment included the installation of approximately 15,000 linear feet of rail, which were connected with the nearby Norfolk Southern rail line. Phase two included improvements to the river channel and shoreline to prepare a deep water marine dock to accommodate barges, and lake trading and ocean vessels. Approximately 65,000yd^3 of sediment have been dredged to provide access to the dock face, and 520ft of the existing dock face has been improved.

Phase three includes the installation of a multi-modal delivery system. Once completed, the newly installed conveyor and material transfer system will create efficiencies through rapid freight unloading, and is capable of handling any dry bulk material. Self-unloading ships will discharge into a 65yd^3 hopper, which will feed the conveying system. The conveyor terminates with a mechanized radial stacking system. Phase three also consists of the construction of a 19,000ft^2 warehouse, which has a clear height of 39ft and will contain two rail spurs and an overhead crane.

The warehouse will allow Midwest Terminals to be prepared for nearly any type of business that may present itself. An additional 5,000 feet of rail for loading operations was also installed during phase three.

"The addition of the Ironville Terminal to the Port of Toledo's foothold is great news for this region," said Betty Sutton, Administrator of the Saint Lawrence Seaway Development Corporation. "Once completed, the site will open up access to a second Class I railroad, which will provide customers with a more efficient and cost effective supply chain, and through this, will grow the Port of Toledo and generate more opportunity for job creation."

Ironville Terminal, formerly known as the Chevron property, was purchased by the Toledo-Lucas County Port Authority in 2008 for $3.4 million. The Port Authority formed a public-private partnership with Midwest Terminals of Toledo through a long term lease for the property. This acquisition made the Port of Toledo the largest land mass seaport on the Great Lakes.

The Great Lakes-Seaway marine shipping industry supports 227,000 jobs in the US and Canada, generates $34 billion in business revenue, and moves 164 million metric tonnes of cargo annually on the system. The Port of Toledo supports 7,000 jobs and has an annual economic impact of over $1 billion on the local economy.

Hard at work: the groundbreaking ceremony, which took place on 21 October this year.

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The first Chinamax vessel will be loaded in the Port of Sept-Îles

On 16 October, Cliffs Natural Resources Inc. (Cliffs) and the Port of Sept-Îles, announced that for the first time in North-America, a Chinamax type vessel will be loaded in the Bay of Sept-Îles, and will transport 300,000 metric tonnes of iron ore concentrate from Cliffs' mine in Bloom Lake, to Asia.

"Cliffs' team is proud of this historical milestone in North America," said Don Gallagher, executive vice president and president — global operations of Cliffs. "This first shipment of iron ore product via Chinamax for our customer Wisco, is consistent with Cliffs' core value of environmental stewardship and operational efficiencies. The technology and loading capacity (over 300,000 metric tonnes) of these larger vessels will allow us to reduce greenhouse gas emissions as well as maritime traffic and enhance our competitiveness within the global iron ore market. It is exciting to see this new access road between Sept-Îles and Asia finally come to fruition."

"We are witnessing a historical turning point today: the opening of our port to the next generation of ore vessels of the planet. We must congratulate the initiative of our partner, Cliffs Natural Resources, who made this possible," said the president & CEO of the Port of Sept-Îles, Pierre D. Gagnon.

About 'CSB Years'

The *CSB Years* is a 'Chinamax'-type bulk vessel, with a loading capacity of 330,000 metric tonnes, measuring 330 metres long and 31.3 metres high. The *CSB Years* was registered in Hong Kong in January 2012 by the company Nianhua Shipping SA.

About Cliffs Natural Resources Inc.

Cliffs Natural Resources Inc. is an international mining and natural resources company. A member of the S&P 500 Index, the Company is a major global iron ore producer and a significant producer of high-and low-volatile metallurgical coal. Cliffs' strategy is to continually achieve greater scale and diversification in the mining industry through a focus on serving the world's largest and fastest growing steel markets. Driven by the core values of social, environmental and capital stewardship, Cliffs associates across the globe endeavor to provide all stakeholders operating and financial transparency.

The company is organized through a global commercial group responsible for sales and delivery of Cliffs' products and a global operations group responsible for the production of the minerals the Company markets. Cliffs operates iron ore and coal mines in North America and an iron ore mining complex in Western Australia. In addition, Cliffs has a major chromite project, in the feasibility stage of development, located in Ontario, Canada.

About the Port of Sept-Îles

Boasting a variety of state-of-the-art facilities, the Port of Sept-Îles is a leading iron ore port in North America, with an annual volume of nearly 30 million tonnes. Sept-Îles' port facilities play a vital and strategic role in the operation of many 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. Through its activity, the Port of Sept-Îles therefore remains a significant source of wealth creation in Quebec and the rest of Canada.

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Rhenus Bulk Terminal in Wilhelmshaven well placed to handle growing coal imports

Rhenus Midgard's services for efficiently handling bulk commodities in Wilhelmshaven have now been given a new name: the label 'Rhenus Bulk Terminal Wilhelmshaven' (BTW) was used for the first time at the international Coaltrans conference in Berlin on 20–22 October 2013. The Rhenus Group modernized and enlarged the bulk commodities terminal, which was known in the past as the Niedersachsenbrucke jetty, during a four-year expansion phase. New records were set for unloading cargoes of coal this summer and they clearly reflect the positive developments.

The deepening of the mooring basin in front of the terminal in Wilhelmshaven was completed at the beginning of 2012. This allows the port to handle Capesize class bulk carriers, which have a draught of as much as 18.50 metres. Rhenus has invested in additional ship-unloading equipment, a more efficient conveyor belt system, fully automatic stacker/reclaimers and a high-performance train loader since 2009 in order to increase the efficiency of the long-standing bulk commodity transhipment facility, now known as Rhenus Bulk Terminal Wilhelmshaven. The space used to provide temporary storage for the huge amounts of coal has also been enlarged.

"The terminal has reached a new level as a result of these developments. We've now become one of the top European bulk commodity ports this year. Our new name will help us to clearly demonstrate the international aspect, which shapes our daily work with the vessels and the coal being imported from all over the world," Michael Appelhans, managing director of Rhenus Midgard, emphasizes. "We'll continue to optimize our Rhenus Bulk Terminal Wilhelmshaven and its efficiency in future too. We've taken a huge step forwards with our new equipment, which enables us to unload the large Capesize vessels in just three days," says Matthias Schrell, managing director of Rhenus Midgard in Wilhelmshaven, summarizing the latest developments. "The 440,000 tonnes that we handled in June 2013 set a new monthly record. We were then able to increase this figure to 457,000 tonnes in August — the largest monthly volume ever."

The decision by Rhenus Midgard in Wilhelmshaven to attend the 33rd Coaltrans, one of the leading exhibitions for the global coal business, and have its own stand for the first time for a decade reflects this positive development. "We want to present the potential that we now have at Rhenus Bulk Terminal Wilhelmshaven to all the major players in the international coal markets in great detail and we're already looking forward to the discussions that we'll have in the German capital," says Michael Appelhans, with a keen sense of anticipation in the run-up to the event. "The terminal facilities are designed to handle up to 10 million tonnes of coal per annum in the long term. We want to use this potential for our future business development in the interests of our customers."

About Rhenus

The Rhenus Group provides logistics services around the globe and has annual turnover amounting to EUR 4 billion. Rhenus employs over 24,000 people at more than 350 locations worldwide. The Rhenus business areas — Contract Logistics, Freight Logistics, Port Logistics and Public Transport — manage complex supply chains and provide a wealth of innovative value-added services.

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Port of Ghent's cargo traffic in third quarter of 2013

For the third quarter of 2013, Ghent port registered a total cargo traffic of 12mt (million tonnes), which is 6% less than for the third quarter of 2012. This brings the cargo traffic after nine months to 36mt: a decrease by 4.5%.

Third quarter

The 12mt in the third quarter comprise both seagoing and inland navigation traffic. Seaborne cargo traffic amounted to 6.6mt or 3.7 % less than in the third quarter of 2012. Inland navigation traffic has fallen to 5.4mt, or 8.5% less.

With the 12mt of cargo traffic, the third quarter of 2013 finds itself right in-between the results of the first quarter (11.6mt) and of the second quarter (12.4mt).

Kinds of goods

In the third quarter, the cargo traffics for fertilizers, metallurgical products, foodstuffs and solid mineral fuels by seagoing navigation recorded a growth. For chemical products, a steep drop is registered.

The share of imports (75%) and exports (25%) in the seaborne cargo traffic remains similar.

For the inland navigation traffic, agricultural products experienced a strong decrease, just like the solid mineral fuels and petroleum products. Foodstuffs, metallurgical products, crude minerals and building materials were on the up.

January–September: seaborne cargo traffic on the rise

In the first three quarters of 2013, the Port of Ghent had a total cargo traffic of 36mt. This is 1.7mt or 4.5% less than in the same period of the previous year.

For these first nine months, 19.1mt of seaborne cargo traffic was recorded. This is a decrease by 4.7% compared with 2012 but, since the beginning of 2013, seaborne cargo traffic has been increasing for three quarters in a row.

With a 10% rise, it seems that seaborne cargo traffic is recovering. Inland navigation traffic registered a total of 16.9mt: a decrease by 4.3%.

For the first nine months, an increase of the roll-on/roll-off traffic by seagoing navigation can be observed (+13%). The tonnages in containers by seagoing navigation equally grew (+18.5%). Container traffic by inland navigation in this period has doubled to 240,000 tonnes, in a smaller number of containers.

Coquimbo to handle copper concentrates

In Chile, the Caserones mining project, which is operated by Lumina Copper, part of Pan Pacific Copper Company Limited, has opted to export its copper concentrates via the port of Coquimbo. Terminal Puerto de Coquimbo (TPC) has signed a three-year contract with the producer. New investment will be made in a 6,000m² warehouse, which is being designed with state-of-the-art environmental protection measures in mind. The first consignments should arrive in the first quarter of 2014.

The choice of Coquimbo is significant, given that the mine is located some 162km to the south east of the city of Copiapó and alternative outlets more specialized in this traffic were available. Consignments will be sent to the port by road once production commences in the first half of 2014. *BC*

Tisur to upgrade Matarani

Concessionaire Tisur is to invest $260 million in upgrading its infrastructure at the Peruvian port of Matarani. This will allow it to almost double the amount of cargo it handles over the next two years. The decision to make the investment is the result of Terminal Internacional del Sur (Tisur) being given permission by the government to extend its operations into the port's aquatic area. *BC*

Colombia to ship bulk along Magdalena river

The government of Colombia wants to significantly increase cargo traffic on the Magdalena River. An intergovernmental group has been set up to study the project. At present, the river moves around 1.7mt (million tonnes) per annum, but once improvement work has been completed, capacity would be increased to 12mt, although only half of this will be taken up in the short term. To put this into perspective, in the country as a whole, some 180mt of cargo is moved annually.

To ensure that the river remains navigable between Puerto Salgar and Bocas de Ceniza throughout the year, new river training and dredging works are required. The government views the potential of the river as being one of a 'cargo transport motorway'.

At present, mostly hydrocarbon consignments are dispatched along the river, although in recent times steel shipments have been sent with a saving around 30% in shipping costs compared to land transport. In addition, Trafigura and Sicor are also handling general cargo, dry bulk and containers on river vessels. *BC*

Lirquén handles largest ever timber consignment

The Chilean port of Lirquén has handled the country's largest ever consignment of timber, which totalled 58,100m³, which was dispatched to the Middle East. The shipment was made aboard the *African Tern*, which conveyed 8,000m³ on deck and the rest in its holds. CMPC Maderas, the specialist company involved in timber handling, will load 18 vessels conveying timber in Chile's Biobio region this year, bound for either Japan or the Middle East. The timber involved will either be used in the petrochemical industry or in construction.

Port Lirquén has two quays and six berths, offering the deepest draught in the region, being able to accommodate vessels drawing up to 15m of water, which is unique on the West Coast of Latin America. *BC*

Privatization of ports in Spain on hold

The Spanish government has insisted that "currently" privatization of the national ports authority, Puertos del Estado, is not on its agenda, although concedes that it has been in talks with some industrial groups in respect of possible public-private partnerships. Previously, questions were asked in Parliament about a possible policy of totally or partially privatizing the ports, as well as transferring stevedoring activities to outside operators, along with all other port activities . In July 2012, Prime Minister Mariano Rajoy had publicly stated that he wanted to see the "liberalization", or even "privatization", of services associated with transport, in which he included ports.

The European Union is similarly looking at possible market deregulation in this area. *BC*

Lisbon despatches major cement consignment

In September, the Cipor cement terminal situated at Alhandra in the Portuguese port of Lisbon loaded 40,000 tonnes of clinker en route for the Brazilian port of Aratu. The consignment, which was handled by the ETE stevedoring company, was taken to the Handymax vessel anchored in Mar da Palha by barge.

The terminal is having something of a banner year, having seen growth of 88% in exports in the first eight months of this year. *BC*

Callao and Matarani add minerals terminals

The Peruvian ports of Callao and Matarani are shortly due to put into operation new export mineral terminals. That at Callao is expected to open in 2014. This is in line with government policy to invest in ports and infrastructure to boost exports, especially those of minerals.

In Callao, the terminal will handle mineral concentrates, taking responsibility for the existing traffic of 3,000,000 t annually that passes through the port and also handling a further 800,000 tons that the Toromocho mining project is expected to generate.

At Matarani, concessionaire Tisur has been given permission to build a minerals terminal to handle demand generated by the south of the country. This will cost an estimated $200 million and will mainly handle output from the Cerro Verde mining complex. *BC*

Spain cuts port tariffs

Spain's Economic Development Minister, Ana Pastor, has announced a 5% reduction in port tariffs, which will be applied to all vessels making use of port infrastructure. She stressed that in the first half of 2013 exports at national ports had risen by as much as 9.7% and that 70% of all external commerce is undertaken by sea, with ports accounting for €9 billion of GDP. The cut in rates is expected to make Spanish ports even more competitive, although will have an impact on companies of around €45–€50 million.

Port of Barcelona (photo: Louise Dodds-Ely).

The Port of Pori

The harbour tug Porin Karhu *at the Port of Pori (©Port of Pori/Pekka Sundberg).*

an eco-friendly choice

The mining industry is booming in Finland. Prospecting and the opening of new mines have also brought environmental issues into sharp focus. According to the vision of Finnish Minerals' Strategy, Finland will be a global pioneer in the sustainable use of minerals. Finland's metallurgical industry is also part of the growth sector.

The Port of Pori has a strong focus on mining and metallurgy in its strategy. There is a strong concentration of Finland's metallurgical activity about 50km inland from the Port of Pori, in Harjavalta. In Tahkoluoto harbour area, there are two coal power stations, which are using coal that is imported via the Port of Pori. The Port of Pori has handled dry bulk for decades and it has invested heavily in its environmental strategy. The port's geographical situation and its infrastructure also form a good basis for environmentally friendly operations throughout the whole logistic chain.

Taking care of environmental matters is a central tenet of the quality management system of the Port of Pori. The port has the ISO 14001 certificate for environmental management issued by DNV. The Port of Pori believes that offering 'green' operations does not in any way hinder business opportunities. Environmental issues can be combined with long-term economic growth and simultaneously guarantee sustainable development over the long run. Environmental aspects are taken into account in all investments of the Port of Pori.

Port of Pori has made several investments which have helped to keep the environmental effects of the port's activities at the lowest level possible. Concrete examples of this are loading and conveyor solutions that minimize dust emissions. The first of these investments — a closed loading system — was completed in Tahkoluoto harbour in 2006. None of the load is now handled with open conveyors. In spring 2010, a dust-minimizing unloading system was implemented at the Mäntyluoto harbour.

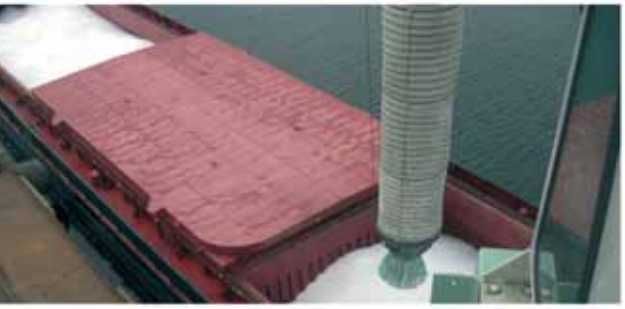
The heart of the dust-minimized loading system in Tahkoluoto is based on an old Siewertell unloader, which was modified to a loader and equipped with a chute made by Cleveland Cascades. The conveyor is fully covered. The structure of the chute also guarantees very low dust emission levels in the holds. The loader is mainly used for loading ammonium and ferrous sulphates. Customers have been very satisfied with the loading system, which offers a maximum capacity of 1,500tph (tonnes per hour). The loading system is environmentally friendly, but it also benefits customers by minimizing the contamination risk of handled products.

The Port of Pori is a general port where all kind of cargo is handled including project cargo, breakbulk, containers, liquid bulk and, as mentioned before, dry bulk. The global and also environmentally friendly trend is containerization and both dry

Major bulk port in Finland

Port of Pori

The port of all size vessels



The strengths of the Port of Pori

- Dust minimized loading and unloading systems in use
- Suitable for large volumes
- Deep fairway (15.3m) and the best ice conditions in Finland
- Uncongested hinterland connections
- Room to expand, free areas available for dry and liquid bulk
- Located far from dense housing areas
- Environmental and work safety as top priorities

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and liquid bulk is handled increasingly in containers. The Port of Pori can meet that challenge, too. The port has long traditions in container handling. Currently, there are two container lines calling at The port of Pori. Hacklin's service to Hamburg carries containers, but also project cargo. Containerships Ltd Oy operates a line calling at many destinations in the UK and on the Continent. This means that the whole network and door-to-door services of Containerships can be reached by using the Port of Pori. Of particular interest is the fact that the vessels *Containerships VII* has a scrubber to meet the future sulphur emission requirements.

Closed loading system in Tahkoluoto harbour.

Energy efficiency is an important factor when environmentally friendly sea transport is considered. Energy efficiency can be increased by using larger vessels with full loads. The average ship size is continuously growing. In Tahkoluoto deep harbour, the depth of the fairway is 15.3 metres, the same depth as the Danish Straits. This means that all vessels that can pass through the Danish Straits can call at the Port of Pori. Every year, Capesize vessels call at Tahkoluoto harbour. In Mäntyluoto harbour there is a new 12-metre berth and fairway for Panamax vessels. Geographically, the Port of Pori is favourably situated, as it has the best winter conditions of all Finnish ports. Ice-breaking is rarely needed, meaning lower bunker costs for the vessels. Because there is no archipelago, safe sea transport is possible, which is very important when moving chemicals and oil. The Port of Pori has two berths in the chemical harbour. The port has also made significant investments in safety and environmental protection, both at the berths and in storage areas.

Businesses are having to find new, energy-efficient ways of operating, to satisfy increasingly stringent environmental regulations. In the middle of October, the *Nordic Orion* called at Tahkoluoto deep harbour. There is nothing new about a ship carrying 75,000 metric tonnes of coal calling at Pori. However, the route taken was exceptional. The vessel came from Vancouver via the North West Passage. *Nordic Orion* was the second cargo vessel and the first dry bulker ever that has sailed through the whole passage. The North West Passage is more than 1,000 nautical miles shorter than the traditional shipping route through the Panama Canal and it saved fuel and reduced CO_2 emissions. Even more importantly, the amount of cargo carried was increased by 25%.

The whole transport chain via the Port of Pori is environmentally, friendly including land transport. Road transport connections are uncongested. Both harbours have railway connections. The Port of Pori is thus connected to the Finnish and even the Russian railway network, too. Finland has the same railway gauge as Russia and Eastern Europe. Finnish main railway lines are electrified.

The Port Director of the Port of Pori, being interviewed by the Finnish Broadcasting Company YLE, about the trailblazing visit of the Nordic Orion *via the North West Passage.*

The most energy-efficient way of operating is to concentrate industrial and logistical activities near the port. There are 200 hectares free land in the immediate vicinity and in the port area of the Port of Pori. The M20 Industrial Park is one of the few industrial and logistics areas in Baltic Sea Region that offers space for growth to industrial and logistic companies right next to a well-functioning general port. There are plans to build a LNG terminal for industry and shipping in the Tahkoluoto harbour. DCi

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France: a Regional Report

© Le Havre Port

Jay Venter

HAROPA, the biggest French port complex

Grouped together within the 'GIE HAROPA' (Economic Interest Group) since the beginning of 2012, the ports of Le Havre, Rouen and Paris today constitute the fifth-largest North-European port complex. The total tonnage of the goods having passed in transit, since January 1st, 2013, through the maritime terminals of Le Havre and Rouen exceeds 67.5mt (million tonnes), a 5% increase against the same period of the previous year.

The rise in tonnage of HAROPA joint venture especially relies on that of dry bulks: cereals, but also aggregates and coals, while liquid products are stable (35.6mt) under the influence of a downturn (–4%) of refined petroleum products. It should be noted too that new services have set up in the Port of Rouen, in particular to the Baltic and Africa. It is in this context that HAROPA has launched a public consultation on its strategic discussion paper on the port of future: HAROPA by 2030.

Containers

Over the first nine months of the year 2013, container traffic handled by HAROPA registers a 7% growth (19.3Mt) with regard to the same period in 2012, despite a relatively strained world economic situation.


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Dry bulks

Cereals: the strong beginning of the season in Rouen silos

The 2012/2013 grain campaign, ending in late June, was marked by an 8% increase, with 6.6mt, tonnages of wheat and barleys were loaded in bulk from the silos of Rouen and its neighbouring area. For the year 2013, 7mt should be reached.

Coals: recovery in Le Havre and good activity in Rouen

The HAROPA joint venture registers a strong upturn of trades in Havre, as well as stability in Rouen and in industrial coal. A strong proportion of coal was handled by Gennevilliers (HAROPA-Ports of Paris).

Aggregates: all active terminals

The traffic of aggregates is globally good, this year, at HAROPA terminals, increasing by 8%. HAROPA-Port of Rouen terminals registered, in July, its second best monthly sea traffic (118,000 tonnes) in 12 years. Aggregates of massive rocks from Scotland and Norway and marine aggregates are regularly received in: Honfleur (Lafarge), Saint-Jean-de-Folleville (SPS constituted by Cemex and GSM), Vatteville-la-Rue (Cemex Casema), Saint-Wandrille (Holcim Yeoman/Eurovia Yeoman/Eurovia) and Rouen (Stema) with new unloading of Norwegian aggregates. Over 9 months, traffic reached 600,000 tonnes, that is a 36% rise, with regard to the same period in 2012. In Le Havre, tonnages were more or less stable, with 930,000 tonnes.

Liquid bulks

Refined petroleum products: a relatively slight downturn

Over the first nine months of the year 2013, refined petroleum products, at the terminals of HAROPA-Port of Rouen, suffered a 7% drop, to 5.2mt at the end of September, 2013, against 5.6mt at the end of September, 2012. Although the actors of the energy sector record a slight increase of their traffic, the latter does not make up for the loss of sea traffic caused by the stoppage of the Petroplus refinery in Petit-Couronne which accounted for 2.4 Mt in 2011. In Le Havre terminals, crude oil traffic is stable, and the drop in refined products is limited to 3%.


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River: stable traffic

The waterway traffic of HAROPA seems stable over the same period of the year compared with 2012: –2 % with 15.9mt tonnes of goods. The consumption of aggregates globally remained stable over the first six months of 2013 with regard to the same period in 2012. The activity suffered bad weather during the first half of the year and was booming during the second half. The tonnage of aggregates carried by inland waterway increased by 2.6% over the first seven months of 2013. The construction of important logistics platforms in the 'Ile-de-France' area (Paris region) may favour an increase in medium-term trades as well as the upgrading of urban ports (Point du Jour, Javel, Victor, Issy-les-Moulineaux, Alfortville and Choisy). Container traffic for the first nine months of year 2013 is marked by an increase of 2% (123,000 TEU).

Bureau Veritas leads on Chinese-built eco bulkers

The Crown 63 eco bulker JS Danube *built in China to BV class.*

Paris-based Bureau Veritas is a leading classification society in bulk carriers with 984 ships totalling 75m dwt in its classed fleet, *writes Konstantinos Chatzitolios, Manager Bulk Carriers, Bureau Veritas.*

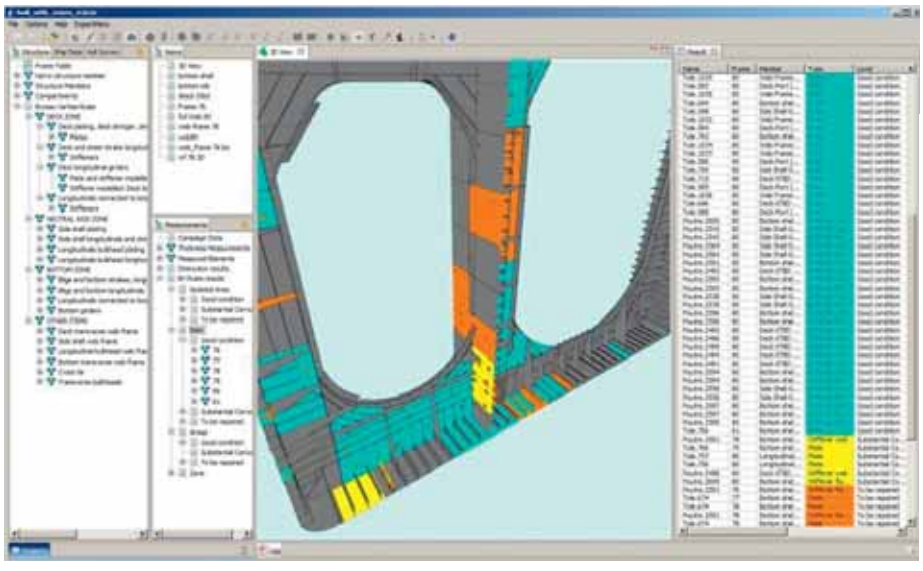
It is a young fleet with an average age of 8.3 years. Another 129 ships are currently under construction in various shipyards in six shipbuilding countries. More than half of these ships will be delivered from Chinese yards to various owners from China, Greece, France and Japan. BV has a long presence in China and a strong position in classing ships in Chinese yards. Over the past decade China has dominated in the construction of bulk carriers, taking the lead from Japan and S. Korea. As a consequence, the first eco-bulk designs were built in China with optimized hull forms, electronic engines and other energy saving devices. These new designs can obtain a 15–20% lower fuel consumption and have a better CO_2 footprint compared with the majority of bulk carriers built between 2006 and 2008.

Since 1 January 2013, CO_2 emissions for new ships have been regulated by the EEDI (Energy Efficiency Design Index) of MARPOL Annex VI. Some of the recently built eco bulk carriers have achieved an EEDI value which is phase 2 compliant. Phase 2 will enter into force on 1 January 2020 so these ships are future-proofed. BV classes a significant number of these new vessels including the Crown 63 Supramax bulk carriers designed and built by Sinopacific and the first vessels of the new 38,000dwt Green Dolphin SDARI series.

Bureau Veritas has launched its new software VeriSTAR-HLC to assist ship owners with the maintenance of their ships and to better plan their vessel's dry-docks. VeriSTAR-HLC uses a 3D representation of the ship which helps monitor its actual structural condition. Thickness measurements are entered in the model's database and the vessel's condition is displayed in colour codes. This enables a more efficient preparation of steel repairs by the owner because areas to be repaired are automatically displayed by the system. Data remains in the database forever and access to all ship's data, including historical data, is simple.

In case of damage, the current structural condition of the ship is made available without delay making VeriSTAR-HLC an essential tool in an emergency. This kind of structural monitoring is especially important for bulk carriers due to their demanding service life with rapid loading of heavy cargoes and grab damage. VeriSTAR-HLC is also fully integrated with BV classification surveys and the tool is used by BV surveyors for the assessment of the ship's structure and repair decisions.

The new harmonized Common Structural Rules (CSR-H) covering bulk carriers are expected to be adopted by the IACS council in December 2013. The CSR-H will have to comply with IMO's Goal Based Standards which will enter into force in July 2016, but the implementation of the CSR-H is expected a lot earlier than this date. Bureau Veritas has already updated its software VeriSTAR Hull and MARS with the new CSR-H requirements. These software tools are used for the structural assessment of the ship. Bureau Veritas has committed substantial resources to the IACS efforts to finalize the common rules and in that way it has unrivalled knowledge of how the rules work. It has used that to update its tools and to assist shipyards in China, S. Korea and Japan in the development of their new CSR-H compliant designs.



VeriSTAR Hull Life Cycle screen shot.

New Feldspar traffic via the Port of Dunkirk

After a complete programme of renovation and the creation of storage areas, the former Silonor quay was delivered by the Port of Dunkirk (Dunkerque) in November 2012 and has been handling new types of traffic since the beginning of the year. In September, a cargo of 7,500 tonnes of feldspar was delivered at the site, whose storage yards and facilities are operated by DMT (Dunkerque Multibulk Terminal).

The cargo, imported from Gulluk in Turkey by Esan Italia Minerals for Céramiques Desvres, arrived during the night of 18 to 19 September on board the *Romy Trader* (132m × 20m). Feldspar is a dense product (1.5) but not dusty; it was discharged by the handling teams of Barra SNM, stored under cover in the DMT installations and used to supply the factory in Maubeuge (Nord département) at a rate of 600 tonnes a week. The ship also carried big bags of fine sand for testing in the region's glassworks.

This activity was started up last June with a ship of 6,500 tonnes, which had to be discharged at the Freycinet 12 quay because DMT's installations were being used for other traffic and were therefore unavailable. Other ships associated with this activity are expected shortly, including a cargo of 4,000 tonnes of bentonite and another ship carrying 12,000 tonnes of feldspar.

Benoit Masure, Director of DMT in Dunkirk, says: "The DMT quay has received this first shipload of feldspar which will supply the Desvres factory in Maubeuge, for the production of tiles and adhesives. The annual traffic volume is approximately 40,000 tonnes, including some cargoes of bentonite in the near future. So we are consolidating our weekly deliveries to Desvres, which began in June, at 600 tonnes a week. This product is imported from Turkey by Esan Italia Minerals. This operator is demonstrating its confidence in DMT and is planning rapid developments to supply the region's glass factories. We would like to point out that this traffic, initiated by DMT in Dunkirk, was previously imported via The Netherlands."

Jean-Frederic Laurent, Strategy and Development Director of Dunkerque-Port, adds: "With the creation of DMT and the additional 15,000 square metres of wharfside storage yards, we can offer new, competitive logistics solutions within the port. This recent extension will reinforce the position of Dunkerque-Port in the small solid bulks sector."

First French grain ship to China for nine years

Nord Ceréales and the Port of Dunkirk have re-launched the grain trade between France and China. The *Moon Globe*, a Panamax ship 225m long and 32.26m broad, called at the Port of Dunkirk during the last week of August to load more than 60,000 tonnes of wheat from the Nord Pas-de-Calais, Somme and Aisne regions, bound for Guangzhou in China.

France had not shipped any grain to China since 2004. The quality of the wheat offered is highly satisfactory and opens up new opportunities for trade with Chinese buyers. With its outstanding access for shipping, its draught, and the handling facilities available, the Port of Dunkirk can accommodate very large ships for the loading of grain. The *Moon Globe* called at the Nord Cereales terminal and was loaded at a rate of 1,800 tonnes per hour, by using two gantry cranes simultaneously. Nord Cereales recently acquired a second loading gantry to double its handling capacities. Joel Ratel, General Director of Nord Cereales, said: "The 2013/2014 season looks promising, in terms of both quantity and quality, and gives us good prospects for the coming weeks and months." Christine Cabau, Chair of Dunkerque-Port's Executive Committee, added: "The investments made by Nord Cereales in the Port of Dunkirk are bearing fruit: we are able to berth and load extremely large ships with a high level of productivity to satisfy the most demanding clients. We are delighted with this result which rewards the efforts made by the sector."

The Nord-Cereales terminal is located in the Port of Dunkirk and offers all the facilities needed for berthing ships with a capacity of 110,000 tonnes. The terminal has 222,000 tonnes of vertical storage, 110,000 tonnes of horizontal storage, and a 3,000-point dryer.

France's third-ranking port, Dunkirk is well known as a port handling heavy bulk cargoes for its numerous industrial installations. It has also built its reputation in other sectors such as cross-Channel RORO traffic to Great Britain, containers, fruit, etc.

Classified as the seventh port of the North Europe Range which extends from Le Havre to Hamburg, Dunkirk is also the leading French port for ore and coal imports, France's leading port for containerized fruit imports, and the country's second-ranking port for trade with Great Britain. DCi

DunKerque
the French port for dry bulk

Accessible to ships with draughts of 14.20 metres via the De Gaulle Lock, the Central Port is the location for many industries. It includes the grain and multibulk terminals, as well as the raw materials reception facility for the ArcelorMittal steel works.

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Italy: regional report

Jay Venter

Bedeschi's successful global operations highlighted

Since the beginning of the last century Italian company Bedeschi has been involved in handling various kinds of dry bulk material for a variety of industries like cement, brick, clinker, coal, bauxite, iron ore, coal etc. The company business segments are essentially:

Bricks: the entire range of equipment required for bricks and tile manufacturing

Cargo Handling: all kinds of stackers, reclaimers and conveyor systems

Mining: crushers and apron feeders

Marine: cargo handling systems required for on board installation on transshippers

Air Pollution Control: large range of systems and equipment environmental control.

Since 2004, the company has recognized the vast potential of the growing offshore transshipment market and started developing cargo handling systems for offshore applications, too. Bedeschi has the distinction of implementing various transshipment systems in different parts of the world which are in successful operation. Two systems are examined below as case studies:

The 'Princesse Chloe' and its sister vessel 'Vittoria'

The *Princesse Chloe* and its sister vessel *Vittoria* are equipped with two heavy duty Liebherr offshore cranes of four rope type with 30 tonnes capacity each. The cranes are strategically placed in such a way, with respect to the hoppers, so as to minimize the slewing movement, thereby increasing the cycle time and efficiency.

Each Floating Transfer System (FTS) is equipped with a cargo handling system supplied by Bedeschi, which consists of two hoppers and an array of conveyor systems leading to a telescopic/shuttle ship loader. The hoppers are of 50m^3 volume with a top opening sufficient to accommodate the footprint of the large grabs in use. Coal from each of the hoppers is extracted by means of individual variable speed belt feeders and transferred to the longitudinal conveyor. Another conveyor then transports the coal and leads to the shiploader which is of shuttle/telescopic boom type and has 19m air draught, which makes them capable of loading large vessels up to Capesize. It is fitted with a curved delivery chute, which can deliver coal into all parts of the holds of a Capesize vessel, evenly without any broken space. The cargo handling equipment constructed and supplied by Bedeschi is manufactured with the highest classification for heavy duty work for open sea conditions.

Another recent completion of a project by Bedeschi is the engineering, supply and installation of a new shiploader for loading coal for a rechristened floating transfer station *Bulk Celebes*. The new retractable shiploader, similar to the ones already operating in Indonesia, is equipped with a curved delivery chute supplied by Bedeschi and the floating transfer station was retrofitted in Singapore for coal loading operations in Indonesia.

'Ore Sossego'

Bedeschi has also recently completed the implementation of another large floating terminal for Vale, named *Ore Sossego*. This FTS which is now commissioned is being used to transfer iron ore from Valemaxes into Capesize vessels or OBOs. The *Ore Sossego* is equipped with five MPG cranes, of Liebherr make, and

a cargo handling system comprising five hoppers, of 50m³ capacity each, equipped with variable belt drives feeders, conveyors and two shiploaders. The basic layout is such that one section of longitudinal conveyor is fed by three cranes and the other by two cranes, both moving in opposite direction and transferring the iron ore to a transverse conveyor. The transverse conveyor has a capacity of 6,000tph (tonnes per hour) and transports the cargo across the beam of the transshipper leading to a deviator, which distributes the cargo to either of the shiploaders. These retractable shiploaders of 3,000tph capacity each, have an outreach of 44m with slewing and luffing capability.

Bedeschi is also a member of Bulk Logistics Landmark (BLL) which is a consortium of Bedeschi, Liebherr and Logmarin. Bulk Logistic Landmark is a single-source supplier, providing state of the art expertise and technology for green dry bulk handling, storage, transshipment and waterway transport. BLL is founded on the synergies, the individual strengths and the networks of each of the three partners offering its clients a wider range of integrated services and products, as well as sparing them the trouble of interacting with many organizations. BLL helps its clients to optimize the flow of dry-bulk materials through cost effective solutions (shore terminal, storage facilities, floating terminals, self-discharging vessels, floating cranes, etc.).

CFS International Engineering Handling srl: performance proved in the field

Italian company CFS International Engineering Handling srl develops, designs and manufactures bulk handling equipment.

CFS's products are used by sectors such as: ports, steel mills, waste, cement, demolition, waste and every type of material handling. The company's production includes both mechanical, hydraulic and electro hydraulic buckets and also hydraulic and electro hydraulic grabs.

CFS Handling is able to offer a wide range of products to suit the customer's specific needs. Customers, both Italian and foreign, have proved the effectiveness and validity of CFS's products in the field.

Recently CFS manufactured a 16m³ electro hydraulic bucket for wooden chips with a density of 0.7t/m³, which will be installed in the Port of Livorno in Italy. This is the third machine that CFS will deliver to Livorno.

For the scrap sector CFS manufactured and shipped 0.5m³/0.6m³/0.8m³/1m³/1.5m³ hydraulic grabs (HGV model) and also 5m³/10m³ electro hydraulic grabs (EGV model) for the ports and steel mills of Italy.

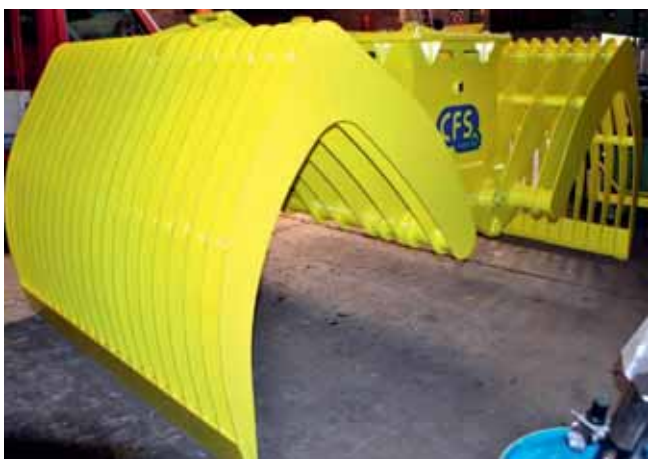
In the paper industry, CFS has constructed an electro hydraulic bucket EBL with nominal capacity of 3.5m³ for handling of plastic material resulting from the separation from paper.

This summer CFS manufactured and shipped two 18m³ mechanical buckets for coal handling in India. Another 12m³ electro hydraulic bucket EBV for materials with density of 2.5–3t/m³, like iron nickel balls, also designed and manufactured for an Italian port and installed on a Gottwald crane.

A 4m³ EBL electro bucket was also delivered in France. The bucket is equipped with sensors in order to operate automatically on an overhead crane. The handled material is grape marc. The bucket has special valves made of stainless steel AISI 316 to handle foodstuffs, and it was painted especially for a food environment.

Still under construction is another 18m³ electro hydraulic bucket for materials with density of 1.8t/m³, that will be installed on a Gottwald crane.

CFS Handling believes the quality of its products is a result of its passion, dedication and hard work.



Logmarin Advisors: facing challenges, meeting targets and expectations

Logmarin Advisors, part of RINA Group (2,200 employees, 140 offices in 49 countries and €300 million turnover) specializes in waterborne supply chain assessment and design and is a leader in floating terminal design, with long-standing professional experience and overall expertise in:

- floating terminals;
- open sea terminals & transshipments;
- self-unloading barges and ships;
- special purpose floating units;
- port facilities and terminals;
- bulk handling equipment and systems; and
- waterborne supply chain commercial analysis and solutions.

Just some of the challenges faced by Logmarin, while helping its clients to combat their bottlenecks, include:

- the magnitude of the world's largest floating HUB *Ore Fabrica*, designed to unload iron ore — the biggest bulk-carrier ever built;
- the gentle nature of the Great Barrier Reef and Queensland Environmental Authority for a green coal supply chain project;
- the cement distribution optimization in New Zeeland;
- the harsh environmental condition in Siberia for log handling and transportation;
- the efficient and reliable coal supply chain for a new power station in Vietnam;
- the long and inherent complexity of the coal supply chain from Montana mines to Korea;
- the support for LNG terminal design optimization in Ghana

Logmarin's main tools to configure the industry's waterborne supply chain as effectively as possible, with given resources and constraints upstream (supplier end) and downstream (user end), are:

- the right technology: (Log.Des), Discrete Event Simulation to identify the optimal supply chain solution and other software to assess and verify sea keeping and mooring capability, etc;
- the experience gained in the field and the feedback received from on-going operations;
- the team-working capability and synergies with their clients and partners.
- creativeness and an open-minded global approach

Log.Des is utilized to identify the optimal solution assuring that the selected supply chain strategy will work in the real world as planned by this software, meeting the project target and expectations.

It allows studying and analysing the interaction between every single link of the supply chain (production, inland transport, storage, river and ocean freight, terminals, etc up to the consumer) in order to evaluate the impact of potential changes before their occurrences, thus enabling Logmarin to:

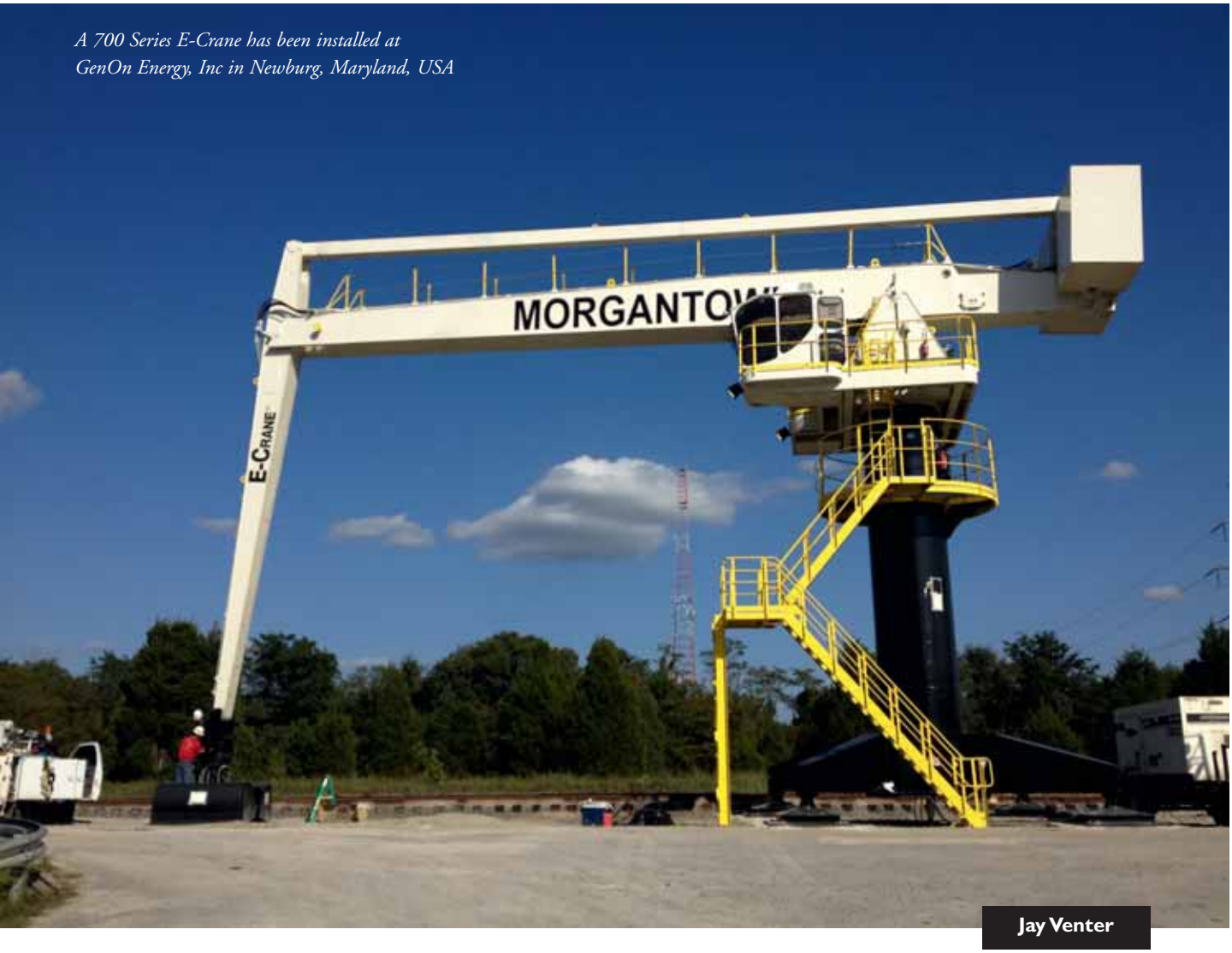
- create a real and accurate model of the end-user supply chain in an animated computer environment
- trial alternative scenarios in a digital (free-risk) environment
- estimate and foresee the dynamic development of events and interaction of any links of the supply chain (effectively answering the question, "What If?")

With the knowledge gained (and thanks to Log.Des output), new supply chains and related infrastructures (links) can be designed with the optimum Capex and Opex balance, (avoiding wasteful expenditure), assuring that the key links (cranes, storage, fleet, equipment etc) are duly sized, relevant utilization maximized and risks (detention, lack of reliability, environmental impact, process bottlenecks, weather and physical restrictions, etc) are duly identified and minimized.

This process allows understanding how various system links interact with each other and how they affect the overall performance thus achieving efficiency in the whole supply chain (door-to-door).

Log.Des can also help to seek for efficiency and reliability of an existing supply chain and test the impact of new strategies, change in business, rules, production, etc — quickly and in a risk-free environment.

Belgian bulk handling activity



A 700 Series E-Crane has been installed at GenOn Energy, Inc in Newburg, Maryland, USA

Jay Venter

E-Crane: impressive cranes from a small country

With 30 years of experience in manufacturing balanced cranes, E-Crane has undoubtedly reached a market leading position in the industry. E-Crane was founded in Belgium and has been built slowly but surely on its strong reputation in the heavy-duty material handling equipment and has numerous satisfied references across the world. As 2013 is coming to an end it has once again been a very successful year for the Belgian company. Here is a compilation of only the most recent installations and a look ahead at what is to come in 2014.

Volga Shipping

Russia

A new balanced material handler has been recently installed onto a floating terminal in the port of Kazan for the Russian company Volga Shipping. It is being used for gravel and sand unloading. The MH900 Series has an outreach of 26.4m (86.5ft) and a duty cycle capacity of 9.5 metric tonne (10.5 US tons). This installation was a milestone for E-Crane as it was the first E-Crane ever installed in Russia.

Phoenix Services

Romania

At the end of October, two new 1000 Series rail-mounted E-Cranes were installed at the Galati scrap yard, supplier to the ArcelorMittal steel mill, in Romania. They both have a maximum outreach of 31.7m (104ft) and a duty cycle capacity of 10 metric tonnes (11 US tons). Both E-Cranes will be unloading scrap from railcars, stockpiling and sorting the scrap before loading charge baskets with the correct mix of scrap to be processed at the steel mill.

Mongla Cement

Bangladesh

E-Crane has really begun to set the standard in Bangladesh for cement handling equipment. After several other E-Cranes going up in Bangladesh, it is no wonder that Mongla Cement chose the E-Crane for offloading its cement clinker from barges to the dockside. It chose the smaller 700 Series with an outreach of 29.0m (65ft) and a duty cycle capacity of 5.5mt (6.0 US tons).

"E-Crane provided the crane with a custom modified barge and managed the entire project on a turn-key basis. We're very pleased with the design and operating flexibility of the crane and have ordered a 2nd E-Crane for use at IMT."

Fred Pope, Project Manager, KinderMorgan, USA

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Kinder Morgan is a repeat E-Crane customer.

The E-Crane is pedestal mounted and it will load the cement clinker into a fixed hopper on the dock.

Third E-Crane for Bashundhara

Bangladesh

The Bashundhara Group has recently ordered a third E-Crane for handling material at its cement grinding mill. The first two E-Cranes installed at the facility were two 1000 Series. The third E-Crane is an even larger pedestal mounted 1500B Series with an outreach of 26.4m (86.5 ft) and a duty cycle capacity of 15 metric tonnes (16.5 US tons).

GenOn

USA

Earlier this month a 700 Series E-Crane was installed at GenOn Energy, Inc in Newburg, Maryland, USA (about 50 miles south of

1500 Series pedestal-mounted E-Crane at Terminal 6 S.A. in Argentina.

E-Crane in operation at Harsco's scrap yard in Brazil.

Washington DC). This new E-Crane has an outreach of 24.7m (81ft) and a duty cycle capacity of 5.5 metric tonnes (6.0 US tons). It is used to unload gypsum from rail cars into a nearby hopper. The material deposited into the hopper is then transported back to the plant by conveyor.

Kinder Morgan 3

USA

Kinder Morgan placed an order for an E-Crane early in 2013 for its International Marine Terminals (IMT) facility in Port Sulphur, LA near New Orleans as a part of a multi-phase expansion of the terminal. Kinder Morgan is very pleased with the success of its new machine. It has already placed an order for a second, identical E-Crane to add to its facility at IMT. This E-Crane will be dock-mounted and will also be used for barge cleaning operations. F red Pope, project manager at Kinder Morgan, summarizes, "The E-Crane design and operating flexibility is ideal for our needs at International Marine Terminal. E-Crane offered to provide the crane with a custom-modified barge and managed the procurement, fabrication, assembly, commissioning, and training on a turn-key basis. We're very pleased with the finished product which is now in service. A second fixed E-Crane has also been ordered for use at IMT."

Terminal 6 S.A.

Argentina

In October, a brand new 1500 Series pedestal-mounted E-Crane was installed at Terminal 6 S.A. in Argentina on the Paraná River near Rosario. The new E-Crane has an outreach of 26.4m (86.5ft) and a lift capacity of 19 metric tonnes (20.9 US tons). The crane is being used to unload soy beans as well as various other grains from Mississippi and Paraná sized barges into a hopper/conveyor system. Soy beans were originally unloaded at the facility using a diesel driven cable crane along with a small material handler. Each machine was achieving a production rate of about 400tph (tonnes per hour). Terminal 6 S.A. considered many different material handling options, but ultimately chose the E-Crane to maximize their operation. The cable crane was removed from the site and the new E-Crane was installed in its place. The E-Crane is mounted directly onto a new addition to the existing dock.

Harsco Brasil

Brazil

A new E-Crane was recently installed and commissioned at the Harsco scrap yard in Brazil near São Paulo. The new E-Crane is a pedestal mounted 1000 Series with a maximum outreach of 31.7m (104ft) and a maximum lift capacity of 13.6 metric tonnes (15.0 US tons) and will be used to handle scrap at the facility.

The Harsco scrap yard is a supplier to the ArcelorMittal steel mill. The scrap handled at the Harsco yard fills the trucks which then go to the steel mill to be processed. The E-Crane will be utilized at the scrap yard to feed a shredder, shear, and pre-shredder.

The shredder is currently installed at the scrap yard and foundation work has begun on the shear and pre-shredder. The E-Crane currently feeds the shredder, which has a target capacity of 20,000 tonnes per month. Full operation will not begin at the facility until 2014 when the pre-shredder and shear are installed and are completely operational.

The new E-Crane will replace at least three small material handlers at the site. According to the installation team on-site, "Harsco is very happy with the setup and with the capacity of the crane. They are really impressed with the amount of material that the crane can move within a short time, especially compared to their previous equipment."

Terval, ideally located in the Port of Liège

Terval has been active in the coal industry for more than 30 years. It is ideally located in the Port of Liège, along the Albert Canal, hundred kilometres inland from the ARA ports.

Terval has regular arrivals of South African, Russian and South American coal and organizes its own freight.

Shipping Tonnages

Total sales of the Terval Group reached €2.5 million in 2013, evenly spread between Benelux, Germany and France. The company's sales force has been enlarged through the new entity Terval Schweiz AG in Zug (and Basel).

Terminal capacity & features

Terval is able to receive barges up to a capacity of 4,500 tonnes and has a charging/discharging capacity of 15,000 tonnes per day.

The terminal size on which Terval operates is 14ha. The open storage capacity is up to 500,000 tonnes and the hangars offer a covered storage capacity of approximately 20,000m^2.

The port of Liège is spread all along the Maas and the Albert Canal. Terval is one of the biggest actors in the annual tonnage passing by Liège and is the only one active in coal.

The Albert canal offers big logistical advantages: there is no problem of high or low water.

Thanks to its ideal location (Albert Canal, highways and railways network), the coal can be delivered by barge, truck or train.

Apart from the Liege- terminal, Terval is using ports in Germany (Hamm, Lünen, Dortmund) in Switzerland (Basel) and

France (Rouen, Thionville).

Terval also has the capacity to offer milled coal (between 150,000 and 200,000 tonnes) out of Lünen (Germany) and Liège (Belgium).

EQUIPMENT

Terval operates five screening/crushing installations and a homogenizing installation.

A dense medium washing plant with a capacity of 120tph (tonnes per hour) produces 2,000 tonnes per day, with an integrated screening for six sizes. The capacity of covered and closed storage has been increased to over 20,000m².

The degree of reinvestment is very high and all installations are up to the most modern standards.

Terval operates a fully equipped laboratory to guarantee the qualities produced and delivered to all customers. All incoming and outgoing goods are carefully checked.

MARKET FOCUS

Terval's main market focus is on the industrial customers, such as cement-, paper-, sugar-, chemical, and steelworks and power stations.

The Manufert terminal of Euroports, offering 260,000 tonnes of storage capacity, is one of the main terminal operators handling sugar in the Port of Antwerp.

Antwerp, first-class fit for your dry bulk supply chain

The Port of Antwerp handles 20–25mt (million tonnes) of dry bulk a year, with a wide range of cargoes including coal, iron ore, non-ferrous concentrates, cement, industrial minerals, fertilizers, grains, sugar and scrap. All 12 of the port's dry bulk terminals are fully tri-modal. This speeds transits, maximizes connectivity and seamlessly integrates foreland and hinterland.

Well connected

Dry bulk services link Antwerp with locations worldwide, mostly on a 'freighting/chartering' basis. Antwerp is the leading European port for shipping services to and from North, Central and South America, Africa, the Middle East, and the Indian subcontinent.

Frequent and reliable shortsea and feeder services link the port with over 200 locations in Europe and North Africa.

Road transport

International road hauliers can offer a full range of trucks and equipment and are experienced in transporting all types of dry bulk cargo.

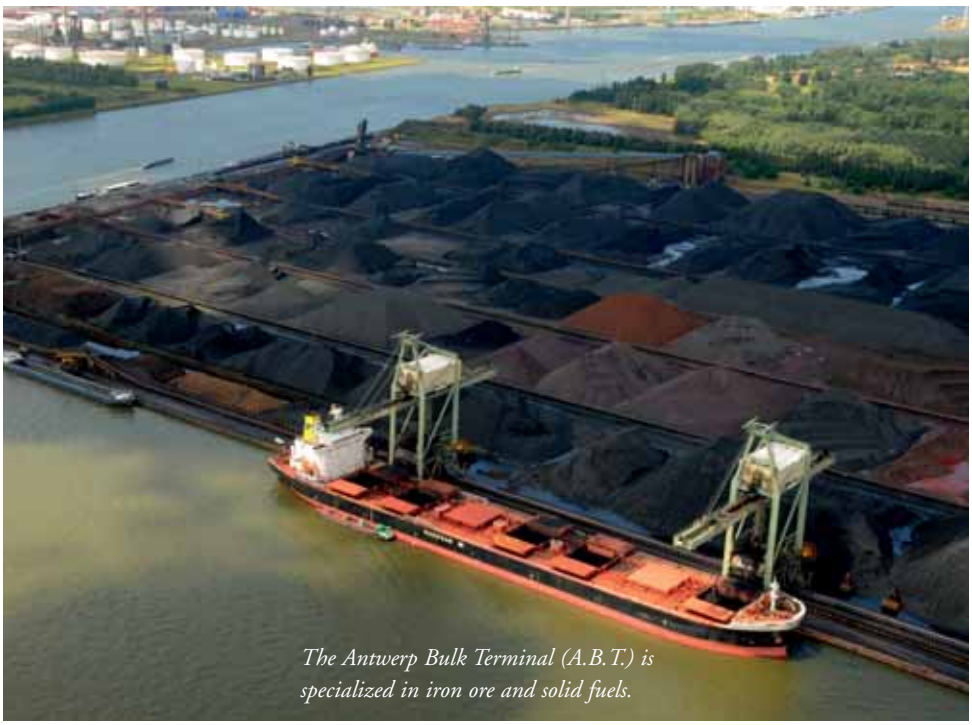
The electronic pre-notification of trucks minimizes turnaround times at the port terminals.

Motorways connect Antwerp with Belgium and the rest of Europe. For example, trucks can reach Frankfurt (Germany) in around 5hr 30min, and Paris in France in just over four hours.

Rail transport

In the Port of Antwerp all of its berths are rail connected. Several rail freight operators serve the port, linking it with locations across North West Europe. Each day around 250 cargo trains link the port with one of the 820 destinations in 23 countries.

Depending on dry bulk volumes and destinations, customers can choose anything from the contract-hire of dedicated trainload shuttles to the spot hire of individual wagons.



The Antwerp Bulk Terminal (A.B.T.) is specialized in iron ore and solid fuels.

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Euroports bulk terminal specializes in the handling of fertilizers and industrial minerals.

Barge connections

From the Port of Antwerp, there are around 915 barge departures a week to 75 destinations in Europe. As with the seagoing vessels serving Antwerp, the barges vary in size and offer a broad range of capacities and capabilities.

Antwerp is directly connected to the Albert Canal, and the 1,500km Belgian barge network. Thanks to its location in the middle of the Scheldt-Maas-Rhine delta, this network is linked to the pan-European inland waterway network.

Barges can reach the Ruhr area (Duisberg) in around 20 hours, and Switzerland in 72 hours.

To further speed and smooth traffic flows, the Port of Antwerp co-operates closely with several inland ports, including Brussels, Genk, Liège, Limburg and Venlo.

Largest port

Covering almost 13,000 hectares, the Port of Antwerp is one of the world's largest ports by surface area. It is Europe's largest port by storage space, and Europe's second largest port by total tonnage.

More than 150,000 professionals work in and around Antwerp. Among these, expert operators provide value-added logistics (VAL) services such as stock and quality control, weighing, sorting, conditioning, grinding, labelling and packaging. In addition, a wide range of manufacturing services can support all stages of the production cycle.

The port's many cargo handling companies are renowned for their professionalism, productivity, reliability, service-mindedness and tailor-made services. Employing highly skilled staff and operating a wide variety of specialized equipment, they are also known for their experience and expertise in transporting, handling, processing and storing all types of dry bulk.

The port's extensive choice of dry bulk terminals, terminals and operators ensures that customers benefit from extremely competitive rates.

Together offering more than 1.4 million square metres of covered and open dry bulk storage space, Port of Antwerp cargo operators can handle a total of over 40mt of dry bulk a year. Furthermore, this capacity and throughput can be quickly increased if required.

Antwerp's cargo operators offer both multi-use and specialized storage.

Innovation and development

The Antwerp Port Authority aims to continually improve transport in and around Antwerp. In the 15 years to 2025 it will invest €1.6 billion in new infrastructure and facilities, including a second lock on the port's left bank and the Liefkenshoek rail tunnel.

Due to open in 2014, the new tunnel will link the left and right banks of the River Scheldt and greatly increase railfreight capacity.

With the aim of installing a biomass power plant within the port area, Antwerp Port Authority and Solvay Energy have established Antwerp Biopower. In January 2013, Antwerp Biopower and its new operational partner, E.ON Climate & Renewables, agreed to take this plan forward. The Port of Antwerp-based biomass power plant is planned to have a capacity of 165–300MW.

The Antwerp Port Authority also invests in sustainability, as a result, the second sustainability report was launched in October 2013. A joint effort from the Port Authority, private companies and third parties. The port is also internationally recognized for its efforts in the fields of ecology, the environment and sustainability thanks to the Environmental World Ports Award and the IAPH Environment Award. In the future the port will keep investing in the further improvement of the living environment in and around the port.

Anvil expands rental fleet of buckets and grapples

Anvil Attachment's rental fleet of hydraulic and cable buckets and grapples is now larger than ever. The rental fleet is now over 30 unit's total. These units include hydraulic buckets, hydraulic grapples, single line buckets and Anvil's new diesel hydraulic grapple. "The number of customers requesting rental units has increased drastically in the past year," says Kyle Watson, Anvil's inside sales representative. Customers are looking to rent for several reasons. The most common reason is to handle a short term job, where they only have a need for a week or month, and purchasing a bucket is not cost effective. Anvil has been working hard to make material handling attachments an affordable reality to all customers.

Another popular reason customers rent from Anvil is that the company offers a 'rent to own' programme. Under this programme, a customer can rent a unit, and if needs change or their job lasts longer than originally anticipated, it may become cost effective for them to purchase. Anvil will then credit a portion of the rental fees to the purchase of the unit. Anvil also offers a 'try it before you buy it' option. Watson added, "Depending on the model, Anvil will also build a new unit for rental if we don't have it in stock, with our fast lead time, we can produce a grapple in as little as a week and a hydraulic bucket in two weeks."

Anvil offers rental options anywhere from a week to a year, with most units shipping the same day ordered. Anvil's rental fleet includes hydraulic clamshell buckets in sizes ranging from 2yd³ to 9yd³. Cable operated buckets including single line radio remote control buckets from 1/2 cubic yards to 20yd³. These include cable 'touch and go' buckets.

Anvil's grapple fleet is also large, including 4 and 5 tine hydraulic grapples. Anvil also recently added its 7yd³, 6 tine diesel hydraulic grapple to the rental fleet.

ABB to invest about $20 million in new Russian factory

Power and automation technology group ABB plans to invest about $20 million to build its first factory in the Lipetsk special economic zone in Russia.

The construction is starting in 2014 and production for low-voltage modules is expected to begin in 2015.

"We are delighted that we will soon start the first in-house production of distribution boards and automation enclosures," said Anatoliy Popov, head of ABB in Russia. "We see a strong need for high-quality electrical modules in a market where 60% of installed modules are outdated, especially in housing and infrastructure refurbishment."

The new site will be conveniently located about 450km southeast of Moscow with good material availability and attractive investment conditions. "We appreciated very much the good collaboration we had with the regional administration," said Popov.

The new factory will be the sixth ABB factory in Russia. Other production sites are located in Moscow, in Cheboksary the capital city of the Chuvashiya Republic, and in Ekaterinburg, the fourth largest city in Russia, which is situated in the Ural region. ABB has a staff of around 1,300 employees in Russia and generated orders of about $660 million in 2012.

ABB supplies power and automation technologies that enable utility and industry customers to improve their performance while lowering environmental impact. The ABB Group of companies operates in around 100 countries and employs about 145,000 people.

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Metso completes acquisition of China's Shaorui Heavy Industries

Metso continues to strengthen its presence in the fast-growing Chinese construction market through the completion of the acquisition of Shaorui Heavy Industries Ltd. (Shaorui), announced in November 2012. Located in Shaoguan in Guangdong Province, Shaorui is one of the leading mid-market crushing and screening equipment producers in China. Seventy-five per cent ownership of Shaorui and approximately 330 employees will transfer to Metso as of today. Metso has an option to purchase the remaining 25% of the company in the future. The value of the acquisition will not be disclosed.

"The acquisition is an important step for us and helps us gain deeper knowledge of the products and customers in the Chinese construction markets. Our aim is to better serve the needs of our Chinese customers by developing a market driven technology offering for China. This will be done by utilizing the technological know-how of both Shaorui and Metso to further enhance our product offering," states Pekka Pohjoismäki, President, Crushing and Screening business line, Mining and Construction, Metso.

Furthermore, it forms a good platform for future growth in terms of the leading crushing and screening market position by combining Metso's current premium product offering with Shaorui's excellence in mid-market products. After the acquisition, Metso will have a better product portfolio for penetrating also to other emerging markets.

"Our recent actions in China, the acquisition of Shaorui Heavy Industries Ltd. and the joint venture with LiuGong Group Corp. Ltd., announced last November, significantly strengthen our supply capabilities for the Chinese construction industry", he continues.

Metso in China

The year 2013 marks Metso's 80-year anniversary in China. The company's first contract from China, a paper machine delivery, was signed in 1933. Today, Metso has a strong and well-established presence in China. Metso's about 3,500 employees in China address local customer needs in all Metso's key customer industries, and support the sustainable development of China's industries and infrastructure.

Shaorui Heavy Industries Ltd. is one of the leading mid-market crushing and screening equipment producers in China. It employs some 330 people. Shaorui has a leading local market position and a well-known brand in South China; it is headquartered in Shaoguan of Guangdong Province.

Metso's mining and construction professionals specialize in always bringing the right technology, processes, machinery and services to our customers in aggregates production, construction, mining and minerals processing.

Metso is a global supplier of technology and services to customers in the process industries, including mining, construction, pulp and paper, power, and oil and gas. Our 30,000 professionals based in over 50 countries contribute to sustainability and deliver profitability to customers worldwide. Metso's shares are listed on the NASDAQ OMX Helsinki Ltd.

Big Lift Trucks: main Australia dealer for Capacity of Texas

Big Lift Trucks, distributors of industrial forklifts and container handling equipment, has been appointed by Capacity of Texas as the principal dealer for Australia.

"Big Lift Trucks, with its head office in Brisbane and a recently established facility in Perth, now distributes Capacity terminal tractors throughout Australia," says Gerry van Elden, sales and marketing manager of Big Lift Trucks Australia. "An important part of the company's service to Capacity is the ready availability of terminal tractors, spares and accessories, with the support of a technical advisory, repair and maintenance service."

Capacity terminal tractors can be customized for the specific handling task it needs to perform. Other advantages of these machines include reduced emissions for enhanced environmental protection and the latest technology in fuel savings, which significantly lowers operational and maintenance costs. Improved driver ergonomics ensures comfortable operation in all environments, which contributes to reduced fatigue and improved productivity.

Big Lift Trucks has been appointed by Capacity of Texas as the principal dealer for Australia. Big Lift Trucks Australia's Dave Walbran (national technical service manager — left) with Gerry van Elden (sales & marketing manager).

Big Lift Trucks Australia, which is part of a global group of materials handling specialists, has established an enviable reputation for providing robust, quality equipment that guarantees efficient and safe operation.

Specialist areas of business include transport, freight, manufacturing, mining, shipping, agriculture, food and beverage, paper and packaging, as well as warehousing.

The company also distributes a range of Taylor forklift trucks, container handlers and reach stackers throughout Australia.

SENNEBOGEN expands warehouse facility by 45,000ft²

As a result of the successful growth and the increasing demand for spare parts for SENNEBOGEN machines in the American market, the management of SENNEBOGEN LLC has expanded its stock of spare parts in North Carolina by 45,000ft² in March 2013.

On more than 100,000ft² the facility of North America's retailer of material handlers combines administrative and sales offices with a training centre and a parts warehouse. Earlier than expected in 2010, when SENNEBOGEN first moved to the Americas, the latest expansion has now been able to go into operation.

SENNEBOGEN maintains a complete inventory of service parts and replacement components for its green line material handlers, from electrical fittings to cabs and booms. SENNEBOGEN LLC provides factory support to customers throughout the United States and Canada as well as Central and South America. The facility also supports a nationwide network of distributors who maintain complete inventories of common wear parts and consumables.

"When Sennebogen decided to bring its material handlers to the Americas, it was clear parts support would be absolutely critical to customers here," says Constantino Lannes, President of SENNEBOGEN LLC. "By employing this strategy, we took on this challenge and costumers have proven we were right."

HIT expands market share

In the last few years, Hansen Industrial Transmissions (HIT) has become very successful in selling single stage blower drives. Having no dedicated single stage solution for the larger sizes, a special solution was designed starting from the standard horizontal, parallel, 2-stage 'Hansen P4' housing (size G, H, J or K — with one gear set). What started as a one-off project has turned into recurrent business since.

HIT sees a significant market potential for similar single stage drives, also outside Europe, mainly in the mining sector (e.g. for centrifugal slurry pumps) and for applications such as blowers, compressors and refiners as well as equipment for e.g. the chemical industry and the energy sector.

These applications however would not benefit from a specific 'large' single stage housing i.e. those used for the P4 single stage units with a dedicated housing. HIT therefore reused its current robust P4 2-stage housing.

Using its in-house resources HIT generated a large number of possible gear sets. From a mechanically optimized subset a final selection was made looking at dynamic and noise properties which led to a highly optimized gear set range. With a selection ratio up to 1% exact in almost any case the optimal working speed is matched as near as possible.

The specially designed lubrication for this new product range — based on the multi Megawatt principle — ensures the gear set and all bearings are pressure lubricated. A new type of sprinklers caters for optimal oil distribution over the gear teeth. Due to the high installed powers, a cooling group is indispensable. Taking into account the high peripheral speeds at the shaft ends HIT provides its 'Hansen Oil-lock™' sealing at all shaft ends and dimensions the oil drains large enough so no pressure is built up and leakage is prevented.

About Hansen Industrial Transmissions nv:
Hansen Industrial Transmissions nv (HIT) is an established global industrial gearbox designer, manufacturer and supplier. The company provides durable gear drives for a wide range of industrial applications throughout the world and has established a dedicated international sales and service network. Its principal state-of-the-art manufacturing facility is located in Edegem, Flanders, Belgium. Since 2012 HIT has been part of the 'Gearbox Division' of the 'Power Transmission & Controls Group' of Sumitomo Heavy Industries Ltd. HIT employs over 400 people worldwide.

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Pneumatic railcar opener improves bulk storage facility

A busy agribusiness storage facility in the heart of Ontario's feed production zone is saving time and money with a powerful pneumatic railcar opener, expediting the opening and closing of stubborn railcar gates while reducing the risk of injury. The versatile design features an adjustable capstan and handle to compensate for variations in cars, unloading platforms and operator preferences, with pivoting wheels to facilitate manoeuvring in tight locations. It delivers 2,700 pounds of torque at 90PSI to open even the toughest gates efficiently, without excessive manual labor or damage to cars.

Seaforth Elevators and Expediting specializes in storing and shipping agricultural products such as grain, seed, micronutrients and by-products. The company maintains three main receiving elevators, with two serving truck and rail lines and one dedicated to trucks. Although throughput is seasonal, the facility averages more than ten rail cars per month, with the tallest elevator capable of receiving as much as 5,000 bushels per hour. Railcars are typically unloaded in about three hours, with contents destined for packaging, storage in silos or bins, or loaded directly from railcar to truck.

"Our customers include farmers and commodity traders that merchandise and distribute their products throughout the region," explained Co-Owner Jason Oud. "Like most facilities, we had been using manual labor to open each railcar gate. That sometimes included pry bars, chains or even blow torches for extreme cases. We've had three people at a time trying to free up a stuck gate, spending as much as an hour just to open one car," he recalled.

"Opening the gates manually was costing us time, as well as causing a great deal of frustration and fatigue," Oud continued. "It also exposed us to possible injuries if a tool slipped or someone lost their grip. We knew there had to be a better way."

Oud said that older, leased cars in particular don't see much routine maintenance, and little attention is paid to how well the gates operate. Exacerbating the problem was the fact that some of the facilities that load the incoming hoppers use railcar openers, and at times they would over-torque the gates upon closing.

After doing some research on the Internet and evaluating several types of railcar openers, Oud contacted Martin Vibration Systems (Marine City, MI). "We liked the fact that the Martin design was driven by plant air rather than electricity, which made it less expensive," he explained. "Adjustability was also important to accommodate the different railcar configurations and the condition they're in."

The Martin Railcar Gate Opener is built on a wheeled carriage that can be positioned by one worker, and its 10"x4" pneumatic wheels manoeuvre easily over rough rail side conditions. The unit delivers smooth, non-impacting force to open gates without damage, and the heavy-duty construction delivers a long service life under real-world service conditions.

Engineered to operate on 90–120PSI of compressed air (6.2 to 8.2 bar), the design consumes 18.5–20.5 CFM (8.7 to 9.7 litres/second) during normal use. Seaforth employs a twin piston compressor with a 100-gallon tank.

"This opener saves us significant time and effort, which means we can be more productive," Oud concluded. "With less worker fatigue and a reduced risk of injury, it also helps us comply with stringent health and safety protocols. We're a hands-on operation, and I can say from personal experience that the benefits are unmistakable. We use it on every railcar."

Seaforth Elevators and Expediting is a family-owned and operated business, including two facilities specializing in loading/unloading, storage and product packaging. With more than 2,500 metric tonnes of storage available, the company is located on a well-maintained daily short rail line, near major border crossings and highways. The rail siding from the Goderich/Exeter Rail Line can handle up to five cars at a time, and flexible storage options include bin capacities from 15–500 metric tonnes.

Martin® Vibration Systems & Solutions is a major innovator and supplier of rail car accessories, industrial vibrators, compaction tables, feeders, hoppers and other material handling products for a wide range of industries, including chemicals, food, pharmaceuticals and foundries. The firm supplies both electric and pneumatic models. MVS has built its reputation on developing quiet and energy-efficient designs, engineered and built to deliver precise energy transmission, long service life and low maintenance.

Brake refurbishment in conveyor systems

WITH A VIEW TO ECONOMIC VIABILITY AND OPERATIONAL SAFETY

The german company SIBRE – Siegerland Bremsen GmbH (SIBRE Brakes) is a major system supplier with representatives throughout the world. SIBRE operates production branches in China and sales and service branches in India, Spain, Italy and the USA. The current portfolio is characterized by a wide breadth and depth of standardized heavy duty industrial brakes and components for drive technology. This allows the company to fulfil nearly every market demand because a field-proven standard product is always the basis for customized specifications.

Modern belt conveyor systems for mixed uphill and downhill mining operations or for mechanized tunnelling often come along with additional drives for more powerful thrust. Downhill conveyor systems have to handle extremely high conveying capacities (with correspondent weigth of the excavation material). All these applications have to function in harsh environments and locations are often far beyond accessibility for fast maintenance. Therefore, it is all the more important that reliable and low-maintenance brake solutions are being used as service or emergency stop brakes. As one knows, effective maintenance procedures for conveyor systems can boost productivity — and this is true also for the brakes in the drives!

For many years SIBRE disc brakes type USB (service/emergency) and calliper brake SHI (holding/emergency) provide an established and proven equipment meeting the highest safety standards and low maintenance costs. Because of their lining wear compensator, their stainless steel pins with teflon coated bushings and the synchronization linkage USB brakes can be considered as the first virtually maintenance-free disc brakes. With a brake torque up to 23000 Nm (USB) and a clamping force up to 555 kN (SHI) both brake types offer high power reserves. An improved version of the USB with a clamping force up to 95,000N is under way with the development objective: higher torque, less weight due to unique lever geometry and smaller thrusters.

SIBRE has successfully realized many international customized projects in the field of brakes refurbishment (and of course initial equipment) in conveyor systems and band drives of different type in recent years. For instance 190 USB brakes had been installed in band drives and conveyors of lignite mining in Greece.

Several SHI brakes with tailored Hydraulic Brake Control Units are being currently supplied for the Pilbara-site of Rio Tinto in Western Australia. To reduce mechanical stress and destructive forces on gear box and the conveyor belt, a set of adjustable hydraulic components is incorporated in the brake control unit for a smooth and controlled induction of braking force. Pre-set, adjustable components guarantee an easy and reliable fine-tuning of brake control at site.

In 2012 SIBRE provided 150 sets of large SHI brakes and hydraulic units (to some extent in explosion-proof design), 20 sets of USB brakes and over 80 sets of drum brakes for conveyor projects in China, amongst others to Shenhua Group Co. Ltd. The Open Pit coal mine East of ChinaCoal Pingshuo Co., Ltd., located in the Shanxi Province, uses more than 30 sets of USB brakes since 2011.

First of all these figures indicate one thing: trust. Trust in the proven performance of SIBRE brakes. Over 50 years of company history mean a huge amount of experience in industrial brakes manufacturing. This is the reason for SIBRE being an ideal partner for brake refurbishment in conveyor systems of the mining sector. In addition to the product quality, the cost-efficiency of a brake system, i.e. the lowest possible service life costs for the system with regards to maintenance and ongoing operation, is a significant factor for industrial systems operators. For this reason, SIBRE not only is focused on new product developments; but also places high value on optimizing mechanical properties and monitoring of its brake systems.

The SIBRE Intelligent Brake Control System (IBC) for SHI brakes is ideally qualified for the exact observing of essential safety functions and control of brake cascades in mine belt conveyors. The IBC (developed by Sibre Brakes Tianjin Co.,Ltd.) is predestined for modernization and upgrading of machines and drive systems. It is designed as a redundant system with two hydraulic power units and comes with an uninterruptible power supply in case of power failure.

Shipunloader at Tianjin Coal Terminal.

Stacker and reclaimer at Dalian Iron Ore Terminal.

Shipunloader Zhoushan Iron Ore Terminal.

SIBRE brakes perform excellently and reliably in all these heavy-duty industries. (Photos: Copyright SIBRE)

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New CAT® 314E L CR excavator: compact, productive, and fuel efficient

The new Cat® 314E L CR hydraulic excavator is designed for customers requiring a powerful, versatile, fuel-efficient, 14.5 to 17.1 metric-tonne machine with the compact dimensions to work productively on space-restricted job sites. The new model meets European Union Stage IIIB emissions standards and features a fuel-flexible engine, efficient hydraulic system, choice of booms and sticks, refined operator's environment and easy serviceability.

MACHINE SPECIFICATIONS

Max operating weight	14,500 kg min./17,100kg
Net power – ISO9249	91hp (67 kW)
Max. dig depth	5,950mm
Hyd. flow	254L/min
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The compact-radius design of the new 314E L CR also keeps the upper structure completely within the machine's footprint — a design that combines with limited over-side extension to significantly reduce the risk of damaging the machine or surrounding obstacles when the machine swings. Operators work more confidently and more productively.

The Cat C4.4 ACERT™ engine powering the 314E L CR develops 91 net horsepower (67 kW) and can use either ultra-low-sulphur diesel fuel (ULSD) or a bio-fuel blend of ULSD and up to 20 percent bio-diesel (B20) fuel meeting EN14214 standard. The engine provides two power modes, high and economy, to best match operating situations with efficient fuel usage. An On-Demand Engine Power feature keeps engine speed low during light work and idling to conserve fuel but automatically increases speed when loads increase. For added fuel savings, the Engine Idle Management system shuts down the engine after a specified time interval.

The 314E L CR's hydraulic system combines power and efficiency to provide high production with excellent fuel economy. The main pumps, located side by side, are driven directly from the engine for maximum efficiency, and the electrically controlled regeneration valve in the boom-down circuit saves fuel and minimizes heat by recycling oil between boom-cylinder ends, eliminating the necessity to pump the required oil. The main control valve is designed to work with any tool (quick-couplers, buckets, grapples, plate compactors, shears, or hydraulic hammers — for example) to greatly expand the 314E L CR's versatility. Productivity can be enhanced with the optional quick coupler.

At the foundation of the new model are rugged mainframes, and a long, well-balanced undercarriage that features double solid-pin-type track rollers set in massive track frames. Two counterweight options are available, 3.06 and 3.56 metric tonnes, to optimally match the machine to digging and lifting chores. Three types of booms are available: a reach type for all-around versatility, a variable angle boom for super flexibility and versatility in the working envelope, and a power offset type for added production in restricted spaces. Depending on the boom choices, different optional sticks are available to provide the best match for situations typically encountered.

The refined operator's environment features mechanical and air-suspension seat options with available heating and cooling for the ultimate in operator comfort year-round. The 314E L CR provides an automatic climate-control system, and the high-resolution monitor also serves as screen for the rearview camera. Large glass areas, including an expansive skylight and the rear view camera, provide all-around visibility to promote safe operation. Intuitive controls simplify operation.

Overall machine efficiency is further enhanced with the optional Cat Grade Control Depth and Slope system, which allows operators to more quickly cut and fill to specification. Also, the optional Product Link™ system can report diagnostic codes, hours, fuel consumption, location and other pertinent information to a secure, web-based application (VisionLink®). Maintenance efficiencies include ground-level access to service points and side-by-side mounting of radiator and oil cooler, with charge-air cooler and A/C condenser set forward.

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PIRS SAS builds fertilizer terminal in the Port of Riga in Latvia

On February 2012, French company PIRS SAS was selected to build a new fertilizer terminal in the Port of Riga in Latvia for the company RFT. The project had initially started with another dome company, but there were safety issues and PIRS was called in as a replacement.

Several factors were taken into account, including environment, safety, efficiency, cost and quality. However, it was cost and quality that were the overriding reasons for the choice to use a dome, instead of more conventional storage systems. A further consideration was time pressure — it was vital to build the terminal in the shortest possible timeframe.

The project aim was to build the most advanced and safest fertilizer terminal in northern Europe. When finished, this terminal will handle more than 2mt (million tonnes) of fertilizer per year.

PIRS SAS was contracted to design and build six domes, to store different types of fertilizer, with a total storage capacity of 130,000 metric tonnes. Local partners were used to deal with the rest of the work.

Project information

The project includes the construction of four hemispherical domes, with a unit capacity of 25,000 metric tonnes, and two hemispherical domes with unit capacities of 15,000 metric tonnes.

The 25,000-tonne domes have a diameter of 51.8m, and are 25.9m high. The 15,000-tonne domes have a diameter of 41.2m, with a height of 20.6m. Fertilizer is reclaimed from the dome by gravity, through hoppers located in a diametric gallery crossing under the six domes.

The ground survey shows that soil conditions require special deep foundations to support the domes. Therefore, the smaller domes are supported by 285 piles (diameter 820mm), and the larger domes by 487 piles (diameter 820mm). A large access door, 5.5m and 5m high, with a tunnel allows access by front-wheel loaders if necessary.

The top platforms on the domes have rectangular dog houses (9.5m × 8m for the small domes, and 12.5m × 11m for the large domes). The dome structures were designed to support very high loads on top, mainly because of the three-conveyor decks on each dome. The vertical loads on the top apex are 380 tonnes, with horizontal loads of 124 tonnes.

The domes will be used to store different fertilizers, which will arrive by wagon and be loaded into the dome. From the dome, the product will be loaded into vessels. The main fertilizers are UREA, CAN-AN, DAP 1 and DAP 2.

PIRS has already shown that, even under difficult conditions, it is able to find the right solution for a project and can come up with the optimum solution. The company is constantly improving technologically and in terms of quality, and always strives to keep its prices as low as possible. It remains confident that it can solve all bulk storage issues.

Seamless integration from mine to market?

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Martin Engineering acquires TNJ Industries

In a move designed to strengthen its strong position in dust control for bulk material handlers, Martin Engineering has announced the acquisition of TNJ Industries, an Arizona-based firm specializing in dust management for crushing and conveying of mined materials. The decision further broadens Martin Engineering's extensive line of dust control products, allowing customers to benefit from an even wider range of components and experience to address fugitive material issues. Terms of the transaction were not disclosed.

"The technology and knowledge that reside at TNJ are a perfect complement to our expertise in dust and spillage control," commented Martin Engineering product support manager Mark Strebel. "We now have an even larger toolbox to help us solve difficult dust management problems, and the added capabilities in wet suppression and custom-blended chemicals will be invaluable in helping customers meet tightening dust regulations."

Throughout its years of experience in mining applications, the TNJ team has built a reputation for effective and reliable dust management solutions, escalating customer service and training to new levels within the industry. The firm is known for engineering user-friendly, yet highly-automated systems that deliver continuous particle management. Its ability to tailor suppression chemicals and additives for specific applications has proven the company's approach in some of the most difficult operating environments on the planet.

Between them, the two companies have been involved in virtually every aspect of the dust control process, including technologies such as transfer point solutions, air control devices, spray bars, fully automated dust suppression systems, dust control chemicals and energy-efficient air cleaners that return fugitive dust to the material stream.

"With this acquisition, we're better positioned to design, install and service dust solutions of all kinds, both in minimizing dust creation at the source and controlling fugitive airborne particles," Strebel added. "Whether it's conveyors, crushers, stockpiles, storage bins or railcars, there are combinations of different technologies that we can implement to solve customer problems."

TNJ Industries delivers highly effective dust prevention and/or dust suppression products and services, including turnkey spray systems, custom blended chemical formulations for wetting or binding agents, and other technologies demonstrated to be compatible with mining production processes. The company also supplies storage tanks, spray system controls and on-site customer training when needed. TNJ's business model is built around the design and delivery of virtually hassle-free products and services, engineered for reliability even under the most difficult operating conditions.

Founded in 1944, Martin Engineering makes 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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Metso equipment for Alderon's Kami iron ore project in Canada

Alderon Iron Ore Corp., along with Hebei Iron & Steel Group Co. Ltd. (HBIS), have selected Metso grinding mills to deliver efficiencies and meet production goals for the joint-owned Kami Iron Ore Project, located in Newfoundland and Labrador, Canada.

As part of the effort to secure long-lead mining and processing equipment for the project, Alderon and HBIS placed an order for two Metso grinding mills: one autogenous (AG) mill and one ball mill. The order is included in Metso Mining and Construction's Q3 2013 orders received. The value of the order will not be disclosed.

Alderon, which owns 75% of the Kami Project, views this contract as an important step for the project. Tayfun Eldem, President and CEO of Alderon, explains the significance of securing Metso equipment for the plant: "This order is an exciting step for Alderon, as these mills are the cornerstones of our new process plant."

Given its manufacturing and services presence in Lachine, Quebec, Metso was a clear choice for the contract. A majority of the ball mill (fabrication of shell, machining of mill heads and trunnions), as well as a portion of the AG mill (machining of mill heads and trunnions) will be manufactured at the Lachine facility. Plus, many key Alderon personnel had previous experience with reliable and high-quality services from the Metso team in Lachine — a factor that weighed heavily on the company's final decision.

Metso's AG and ball mills enable the mine to reach its production targets

Metso's mill delivery will help the mine reach its 8 million-ton-per-year production goal. The AG mill is 11m (36ft) in diameter and 7m (23ft) in length, with a 15 megawatt power rating. The ball mill is 6.7m (22ft) in diameter, 12.5m (41ft) long, and has a 10 megawatt power rating. The Metso grinding mills are scheduled for delivery in Q4 2014, with the Kami Project slated to begin production of iron ore concentrate by the end of 2015.

Alderon is an iron ore development company based in Canada, with offices in Vancouver, Montreal, St. John's and Labrador City. The Kami Project, owned 75% by Alderon and 25% by HBIS, is located within Canada's premier iron ore district and is surrounded by four producing iron ore mines.

Metso's mining and construction professionals specialize in always bringing the right technology, processes, machinery and services to its customers in the aggregates production, construction, mining and minerals processing and in metal and waste recycling.

MTS Group grows with new Bobcat loaders & excavators

Based in Wakefield in Yorkshire in the UK, MTS Group, which runs one of the largest fleets of Bobcat compact equipment for hire in the UK and one of the biggest in Europe, has boosted the company's fleet with the purchase of around 30 new Bobcat compact loaders and mini-excavators worth over £500,000. As well as updating the current fleet of over 220 machines, the new investment is also supporting planned expansion of rental services in Scotland and the Midlands.

The investment includes the existing Bobcat S100 and S130 skid-steer loaders together with several models from the new 500 platform loader range launched this year, including S550 skid-steer loaders and T590 compact tracked loaders. The company has also purchased Bobcat E08, E16, E26 and E50 mini-excavators for the hire fleet.

Peter Watson, managing director of MTS Group, said: "We have been running a fleet of Bobcat compact loaders and excavators for hire for more than 30 years now. Over that time, we have built up a great amount of expertise and experience in compact equipment hire and are acknowledged as the largest hirer of Bobcat skid-steer loaders and attachments in the UK, with many of the leading rental companies regularly cross-hiring from us. The Scotland expansion is to provide closer support for the many loaders we hire in this market, especially for dealing with the effects of the winter weather."

Winter attachments such as snow blowers, buckets, snow blades and salt and sand spreaders are part of a fleet of over 100 Bobcat attachments for hire from MTS Group, also the largest of its kind in the UK.

As well as the winter products, the MTS Group attachment fleet covers a wide selection from standard and 4-in-1 buckets, hydraulic breakers and road planers to stump grinders, tree transplanters and backhoes, delivering versatility and time-saving efficiency across a huge range of different applications. It is the diversity of these applications in construction, demolition, utilities, landscaping, groundcare, farming, foundry work, ship trimming, mining and many other markets that keeps the MTS Group hire fleet of Bobcat compact loaders and excavators busy.

Watson added: "This new investment is further testimony to our close allegiance and belief in the Bobcat brand. Bobcat products are very reliable and they have excellent residual values when you come to trade in for a new product."

The company can also offer full training for the use of any product in the fleet. MTS Group is nationally approved to provide training to all levels of competence and at two standards, Bobcat Accredited Training and LANTRA Awards. The training can take place either at the customer's premises or on the dedicated training grounds run by MTS Group.

As well as representing the Bobcat brand in hire for over 30 years all over the North of England, MTS Group has been the authorized Bobcat dealer for Yorkshire for a similar period, with responsibility for sales and service for the complete range of Bobcat equipment covering not only skid-steer and tracked loaders and excavators, but also telehandlers, utility vehicles and Bobcat attachments.

Only original Bobcat parts should be used to maintain the best mechanical standards and to optimize performance, reliability and protect machines' residual values. MTS Group stocks the largest dealer parts stock in the UK, comprising a full selection worth between £150,000 and £200,000 of genuine Bobcat accessories and parts to support every machine in the field.


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Cement technologies and equipment

The highly qualified personnel of the BEUMER Customer Support offer technical support and machine maintenance worldwide (photo: BEUMER Group GmbH & Co. KG).

Customer support cements the deal for BEUMER in Nigeria

Machine malfunctions and breakdowns can cause long downtimes, especially in intralogistics, causing production and delivery to come to a complete halt. High-quality systems can help prevent such costly consequences beforehand, but they still require maintenance and service. This is where the BEUMER Group customer support experts come in: BEUMER offers qualified maintenance and service world-wide to ensure a high level of system availability. One customer, for example, is Dangote, a cement manufacturer in Nigeria, where BEUMER specialists successfully increased the capacity of one of the older bucket elevators, using the latest heavy-duty technology.

African company Dangote, based in Lagos, Nigeria has two ambitious goals — to compete with the leading cement manufacturers world-wide and prepare for an upcoming construction boom. Africa is an emerging continent, where the demand for cement is steadily increasing due to the continuously growing population and the need for infrastructure development. Dangote has been using BEUMER systems such as loading systems, belt conveyors and bucket elevators for years. Systems from third-party suppliers are also used. "When it came to a belt misalignment on a bucket elevator used for feeding silos with a height of more than 60 metres, we repeatedly had to endure production downtimes," explains Kornelius Thimm, head of Customer Support for BEUMER in Beckum, Germany. This is a typical problem, according to Thimm. The system had to be stopped repeatedly for the workers to correct the error. In the long run, however, this needed to be corrected.

Comprehensive service

The cement manufacturer had made various service agreements with BEUMER Customer Support. "On principle, our agreements are specially designed to meet the individual requirements of the customer," explains Thimm. In order for them to be optimally tailored to meet the customer's needs, a BEUMER service technician evaluated all of Dangote's on-site systems.

The agreements can range from only maintenance and inspection to a long-term placement of service personnel on site. BEUMER Belt Management, for example, helps to avoid downtime through regular inspections and timely replacement of bucket elevator belts. The Residential Service comprises technical support, preventative maintenance and inspection, emergency plans, system and process analyses and optimization as well as spare parts and facility management.

When necessary, the technicians arrive quickly on site so as to prevent long downtimes (photo: BEUMER Group GmbH & Co. KG).

Modernization that pays off quickly

BEUMER specialists work together with the customer to find a sustainable solution. "Our goal is to further improve trouble-free intralogistic processes in order to guarantee value-added material flow," explains Thimm. In this case, the modernization of the plant was recommended. "We didn't just want to repair the errors, but actively support the company to meet upcoming capacity and technology requirements," says Thimm. After an in-depth consultation with BEUMER specialists, the belt and the buckets were replaced with the latest heavy-duty technology developed from BEUMER. This solution offers buckets that are mounted firmly to the back of the belt by segments and bolts. Belts with wire-free zones are used for the heavy-duty bucket elevators just as with all BEUMER belt bucket elevators. The buckets can be fastened to the belt without damaging the steel wires or even cutting them.

The traction forces of the bucket elevator belt are maintained to the full extent. The new bucket shape also allows for smoother running and therefore less noise generation. Furthermore, the return pulleys were replaced. "The new conveyor belts are more resistant against mechanical wear, and they can transport coarse-grained material and high mass flows. All this makes the new heavy-duty bucket elevator the preferred product for this customer," explains Thimm. This solution helps the cement manufacturer to increase the availability of the bucket elevator, reduce energy consumption and extend service life and makes the company more competitive in the long term, as opposed to the replacement of only one belt. "If we assume that the new BEUMER solution lasts twice as long as the old belt, the modification would have paid off after a short period of time," confirms Thimm.

More than just service

For the BEUMER Group, the Customer Support department is more than just service. Customer Support is a separate department on its own, independent of conveying and loading technology, palletizing and packaging technology and sortation and distribution systems. "It's basically a company within the company", explains Thimm. "We have our own Sales department, which allows us to implement projects independently." The goal is to support the customer for even better results. The head of Customer Support identifies a pronounced trend: there are still customers who invest in their own skilled maintenance personnel, but more and more companies want to delegate this responsibility. BEUMER offers the customers an all-inclusive service — everything from one source. BEUMER Group employees take on the responsibility for operating times, performance and economic efficiency of the systems and are trained regularly to stay up-to-date with the latest technology so the customer can concentrate on their core business. "Overtime, the number of technicians assigned to Dangote will increase to ensure machine availability as the increasing requirements will require a tremendous amount of time and work, impossible for one technician alone to accomplish," explains Thimm.

If the customer wishes to use its own maintenance personnel, Customer Support specialists can provide training to bring machine operator up-to-date and introduce new employees to the systems. This method ensures maximum operating time for the systems. Training is required for the initial installation, as well as a follow-up several months after the system has been running. At this time, the customer has the opportunity to ask questions related to their specific needs. "The training programmes are

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BEUMER can upgrade bucket elevators with the heavy-duty technology to increase their capacity. The new bucket shape ensures smoother running and less generation of noise (photo: BEUMER Group GmbH & Co. KG).

tailor-made for the customer and their systems," Thimm points out. "In the event there is still a system downtime that the customer is unable to correct on his own, qualified Customer Support technicians offer around-the-clock support every day of the year worldwide, reducing downtime to a minimum. Our technicians can perform remote analyses, indicate corrective measures and offer quick and reliable solutions to correct the malfunctions, so the systems can be put quickly back in service. Additionally, we will also find the cause for the malfunction to prevent it from happening again."

Projects worldwide

BEUMER Group implements projects world-wide. For example, BEUMER is the main contractor for the new distribution centre of a large iron ore exporter off the shore of Malaysia which consists of 17 troughed belt conveyors and a total length of 12km. The conveyors will ensure swift transport of iron ore from super-size freighters to the mainland. BEUMER will deliver and install the conveyors, put them into operation and take full charge of engineering, all according to a strict timetable. At the port of Callao in Peru, BEUMER will be installing pipe conveyors with a length of around 3km for transporting copper, lead and zinc concentrates by the year 2014. In Canada, BEUMER is currently installing a conveyor with a length of 3.48km for a large mining concern. This will convey up to 6,000 tonnes of iron ore per hour. This large conveying system must withstand extreme temperatures of –40° and heavy snowfalls. BEUMER has designed all mechanical and structural elements to withstand extremely low temperatures. This system is equipped with a feeding belt conveyor and a discharge belt with shuttle-type discharger. With the takeover of Enexco Teknologies India Limited in 2011, BEUMER Group has expanded its business activities in India as well. This increased the company's market presence in the cement industry in one of the most important growth markets world-wide. These are only a few examples of BEUMER Group's worldwide presence. Its Customer Support experts are available at any time, so the customer will receive optimal support and a high level of machine availability from installation through the entire operating period.

Speaking the same language

BEUMER sets high standards for its Customer Support employees. When systems are installed and used in other countries, BEUMER believes that the customer should have access to a Customer Support technician that originates from the same cultural background and speaks the same language. "For this reason we cannot just send any colleague from Beckum to Africa or Southeast Asia," says Thimm. Successful customer support requires successful communication. How is the customer positioned? What are their goals and how do they want to develop in the future? These questions require tact and cultural know-how. BEUMER is a global company and capable of meeting this challenge. "We are in permanent contact with the company," explains Thimm. BEUMER is not just dropping by for one or two days to do the basic maintenance work. The goal is long-term support.

"As all of the systems used by the customer need to be complementary, we also take into account the technical improvements of parts produced by third-party manufacturers," says Thimm. Therefore, the technicians suggest adaptations to the mechanics and controlling systems of products that interact with BEUMER machinery. "Of course, we know our competitors and

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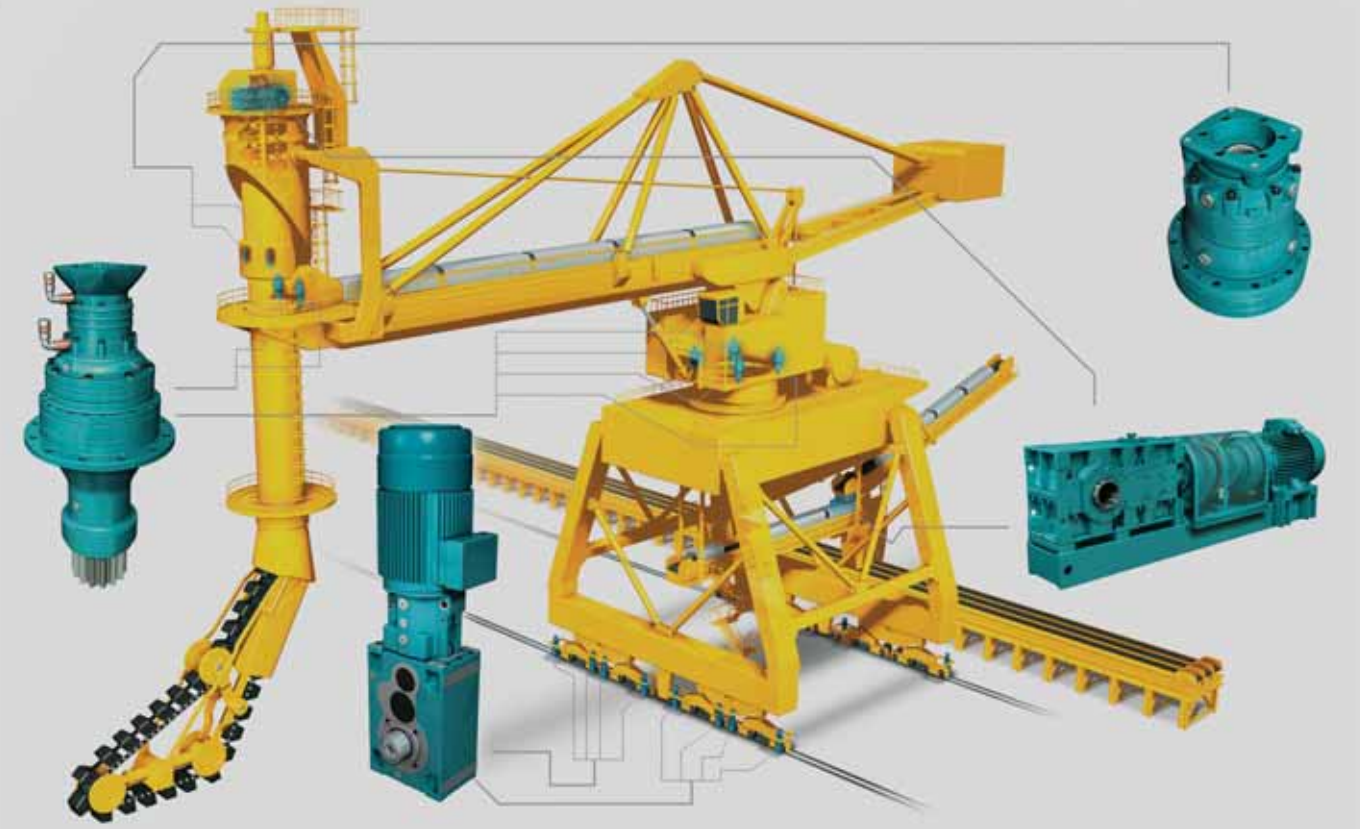

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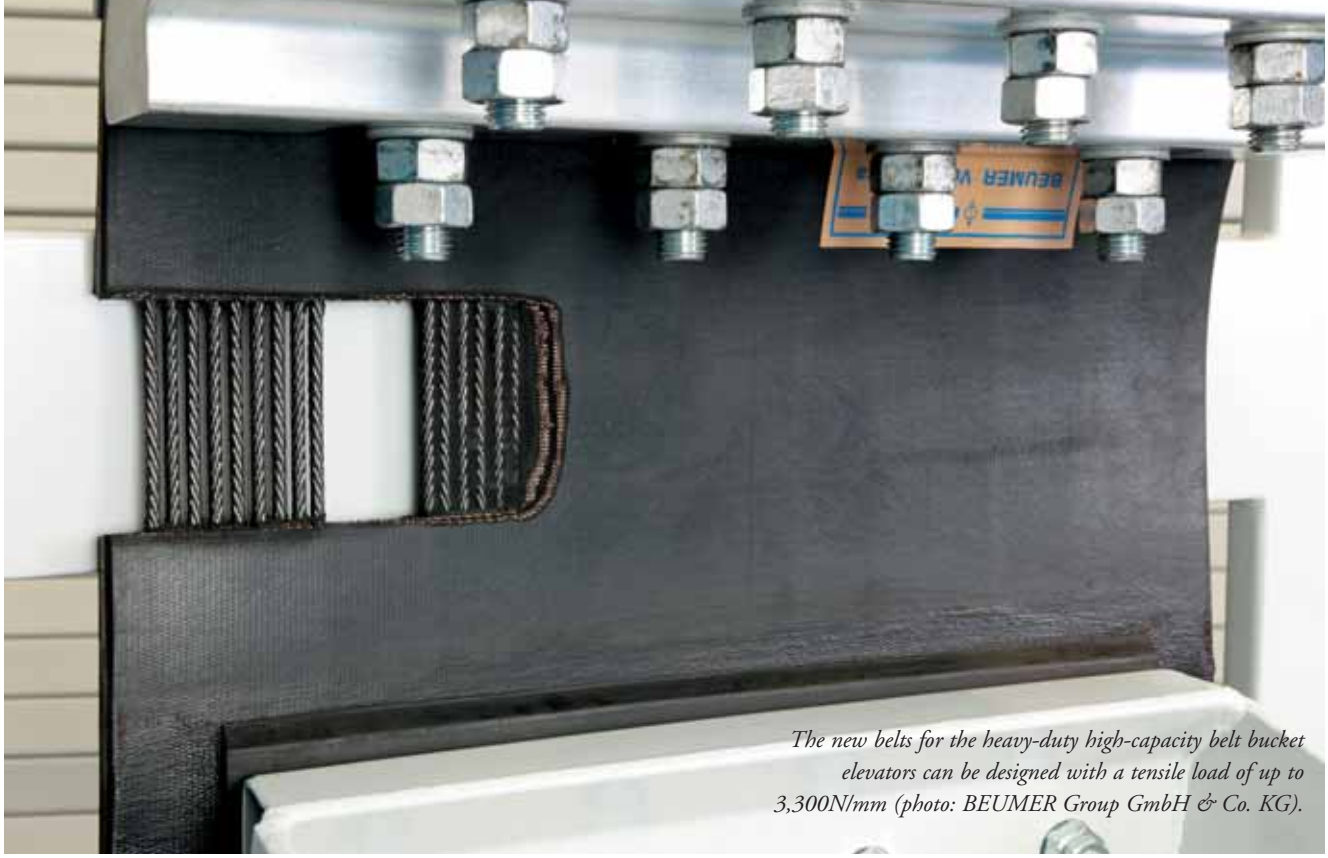

The new belts for the heavy-duty high-capacity belt bucket elevators can be designed with a tensile load of up to 3,300N/mm (photo: BEUMER Group GmbH & Co. KG).

their differences," he explains. For products that are not part of the BEUMER portfolio, Customer Support assumes the function of a general maintenance department: "In case of malfunctions, we correct them and carry out the maintenance work as indicated by the third-party supplier," explains Thimm. In Nigeria, there are many Chinese suppliers in the market. Dangote uses many Asian systems besides the BEUMER systems. "That is why we have a service technician on site who has also a lot of experience with the Chinese market and its products", says Thimm.

About BEUMER

BEUMER Group is an international manufacturer active in intralogistics in the fields of conveying, loading, palletizing, packaging, sortation and distribution technology. Together with Crisplant a/s and Enexco Teknologies India Limited, BEUMER Group employs about 3,500 people and achieves an annual turnover of about €512 million. With its subsidiaries and sales agencies, BEUMER Group is present in many industries worldwide.

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RopeCon® for Berber Cement – a straight line across sand, river and farmland

Long detours may make the transport of raw materials from the mining area to the processing plant considerably more complicated and expensive. In many cases, however, local factors such as mountainous terrain, heavily populated areas or wide rivers interfere with a smooth material flow. This report describes the situation of a cement plant in Sudan, where a direct, straight link between the mining area and the processing plant seemed impossible to establish. The report then goes on to present RopeCon® as an alternative system of transport with which all difficulties could be resolved.

Transport requirements

To meet the daily demand of 9,000 tonnes of limestone for Berber Cement Company's new cement plant, a modern crushing plant has been installed 8km away from the processing plant on the western side of the River Nile. Land transportation of 9,000 tonnes per day encounters a massive natural obstacle: the Nile, the world's longest river and approximately 850m wide in this area. The transport of the material from west to east can only be done by constructing a bridge across the river, by using small barges or by using a ropeway-type system, crossing the river

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between two towers.

At the time of the plant study, there was no existing bridge in the area nor were there any plans for constructing a new bridge. To overcome these difficulties and to find the most economic and reliable solution, a study was commissioned to investigate whether RopeCon® might be a suitable alternative. The system is briefly described below, and the report then details the solution worked out for Berber Cement.

RopeCon® — the system

RopeCon® is designed and manufactured by the Austrian company Doppelmayr Transport Technology. The system combines proven ropeway technology with the features of conventional belt conveyors. The continuous conveyor is elevated off the ground, thus reducing space requirements on the ground to a minimum. RopeCon® easily crosses obstacles such as deep valleys, mountainous terrain, rivers, roads or other infrastructure, thus allowing for a straight route between the loading and the discharge point while avoiding unnecessary detours. The below description briefly explains the main components and features of RopeCon® and highlights the potential of the system as well as possible applications.

Belt and wheel sets

RopeCon® consists of a flat belt with corrugated side walls. The belt may be fabric-reinforced or a steel cord belt, depending on the application. The corrugated side walls are cold-bonded or vulcanized onto the belt. The individual belt sections are joined by way of vulcanization to form one continuous belt, just as on conventional belt conveyors.

The belt is fixed to steel axles arranged at regular intervals which support the belt. Polyamide running wheels are fitted to either end of the axles. These wheel sets run on track ropes and provide positive belt guidance while preventing the belt from skewing. The combination of polyamide wheels on steel track ropes minimizes rolling resistance and therefore energy requirements.

Support structure

The galvanized, fully locked steel track ropes on which the wheel sets run are of the type used for suspension bridges or ropeways. RopeCon® uses three pairs of ropes: the bottom-most rope pair supports the bottom belt while the rope pair in the middle supports the top belt. The upper-most rope pair gives additional stability to the structure and serves as the travelling

TECHNICAL DATA

Horizontal length	3,465m
Vertical rise	14m
Conveying capacity	700tph
Transported material	limestone
Max. lump size	100mm
Motor rating, cont.	185kW
Number of tower structures	5

rope for the inspection vehicle by means of which each point along the line can be accessed. Track rope frames are fitted to the ropes at regular intervals to maintain the ropes in their relevant position and to distribute the loads. The ropes have fixed anchoring at both ends and are guided over tower structures, similar to passenger ropeways. Depending on the terrain and on the individual requirements of each project, different types of RopeCon® tower structures are used.

Drive

The belt performs the haulage function, as on conventional belt conveyors. The belt is driven and turned back by a drive drum in the head or tail station. After the material has been discharged, a turning device turns the belt by 180° to bring the soiled side of the belt upwards once more and to prevent residual material from falling off the bottom belt. The belt is turned once more before it runs onto the drum again in the loading station. The drive system is similar to that of a conventional belt conveyor and consists of a gearbox and an electric motor. RopeCon® features two independent mechanical braking systems. All braking actions are regulated to ensure constant deceleration and a controlled stop of RopeCon® under all circumstances.

RopeCon® for Berber Cement

When all conventional options to transport the material from one side of the Nile to the other seemed to meet with certain difficulties, Berber Cement decided to look into a RopeCon® solution for its problem. The loading station is located right on the western shore of the river, immediately behind the crusher. The material arrives on trucks. The crushed stone is loaded onto RopeCon® via a feed conveyor and a chute. RopeCon® spans the Nile with a single large rope span between two tower structures positioned on either side of the river. It is not necessary to have a support structure in the river. The total length of the Berber Cement RopeCon® is approximately 3,465 metres from the loading station to the discharge station. Its transport capacity is 700tph (tonnes per hour). Due to river navigation, the minimum clearance between the system and the high water level of the Nile must always be 21 metres. The tallest tower is almost 80 metres in height.

Apart from the crossing of the river, other aspects of the transport were also taken into consideration, one of them being the space requirements of ground mounted systems: in this desert country, the shores of the Nile form one narrow corridor of fertile land which is used for farming. A road would cut right through this valuable strip of land. RopeCon®, a system that is elevated off the ground, is able to span this corridor with just a few tower structures and requires no division of the valuable farm land along the shores of the river.

On the eastern shores of the river, several settlements border on the farm land. A transport solution that were to rely on trucks would expose residents to a considerable amount of noise and dust. With RopeCon® such truck runs can be avoided, and along with them any noise and dust pollution. The system's low rolling resistance helps keep operating costs low, whereas the maintenance of an entire fleet of trucks as well as of a road would have resulted in considerable expenses. Virtually all moving parts of RopeCon® are mounted on the belt, which means that they keep travelling through the stations where they can be easily maintained. No complicated maintenance lines or platforms are required. Any inspections of the line can be performed with the inspection vehicle.

Once the customer had decided in favour of RopeCon®, planning and production started right away at Doppelmayr Transport Technology. Right from the start, all calculations must consider the situation on site, in particular the local climate with its great variation in temperature. Throughout their work, the assembly team also met with great challenges, among them the heat and several sandstorms. A massive crawler crane was needed for the assembly of the tower structures, some of which are almost 80 metres in height. At first, several smaller sub-sections of the towers were assembled which were then fitted together to form the final tower structure. The first auxiliary rope used to pull other, stronger auxiliary ropes and finally also the track ropes, was taken across the wide river in a boat and had to be tensioned immediately so as not to hinder river navigation. This RopeCon® has been operating since 2011 and acts as a feeder to the cement plant.

Doppelmayr Transport Technology is a 100% subsidiary of the Doppelmayr/Garaventa group headquartered in Wolfurt, Austria. The Doppelmayr/Garaventa group is the quality and technology leader in ropeway engineering, and designs, plans and manufactures material transport systems, passenger ropeways, automated transport systems and fully automatic high rise warehouses.

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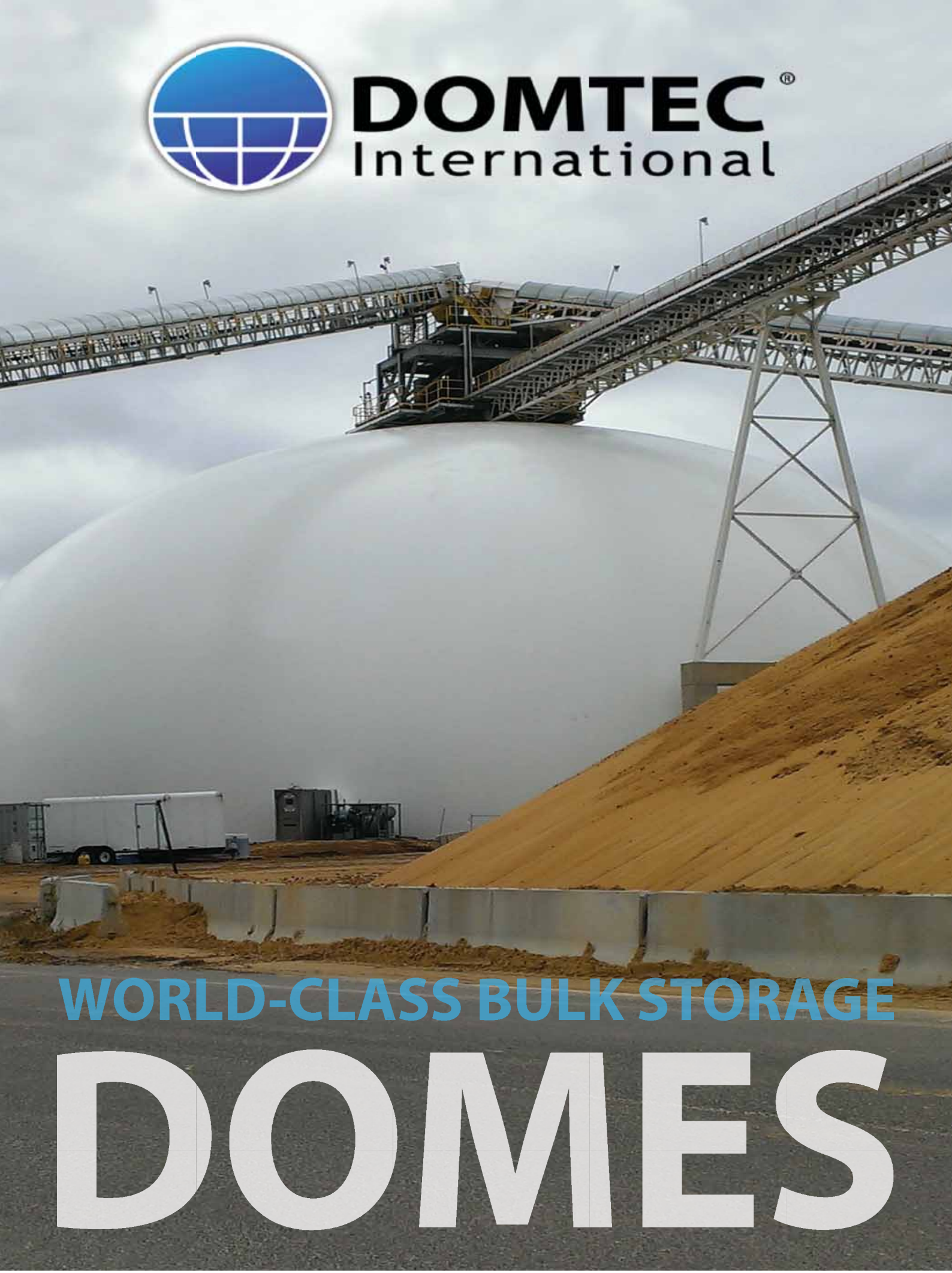

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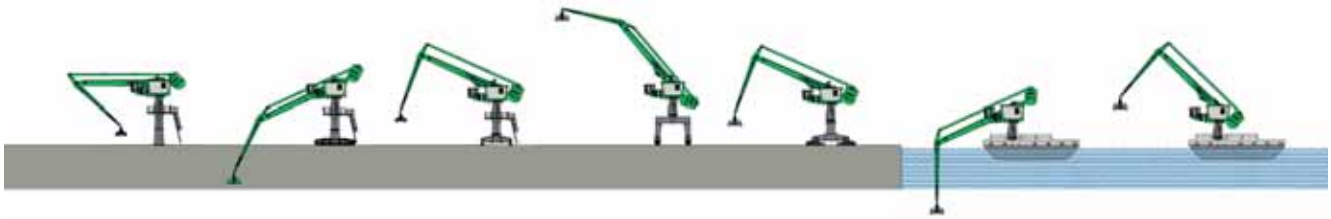
Sennebogen extends product range

Two new equilibrium handlers join Sennebogen's equipment portfolio

At the bauma 2013 exhibition, which took place in Munich in April this year, SENNEBOGEN presented the first machine of the new SENNEBOGEN EQ line alongside the 8130 EQ. This machine concept offers high energy efficiency and maximum cost savings. The Equilibrium system (EQ) guarantees the lowest energy costs and operating costs and thus offers savings up to 75% compared with conventional drive solutions. The first machine entered service in October, and SENNEBOGEN is now presenting two additional balancer models. The new 8100 EQ and its bigger 'brother' the 8160 EQ extend the SENNEBOGEN range in both directions.

The first SENNEBOGEN equilibrium handler has been working in a German paper mill since October. It has a reach of up to 27m, and a maximum working load of 10 tonnes, enabling it to conveniently cover the entire 2,300m^2 work area. Here wood is unloaded by the tonne, sorted and prepared for further processing. Thus as a stationary solution the machine not only covers a maximum amount of work space, thanks to its extensive reach and high working loads, it also handles the work of two comparable mobile machines. Now SENNEBOGEN is further extending the success of this machine concept. The firm is supplementing the extensive SENNEBOGEN product range with the little brother 8100 EQ and the 8160 EQ as the next larger machine.

"With our new EQ line we extend our product range with a very important component. The effective balance materials handling machines guarantee the highest level of profitability for materials handling at the lowest operating costs. Thanks to the proven SENNEBOGEN system modules, in development and design, after the positive experiences with the 8130 EQ, we can now offer additional machine types in different sizes in the customary quality and reliability", explains CEO Erich Sennebogen, commenting on the product strategy. "Savings of up to 75% in operating costs and energy costs — today you really



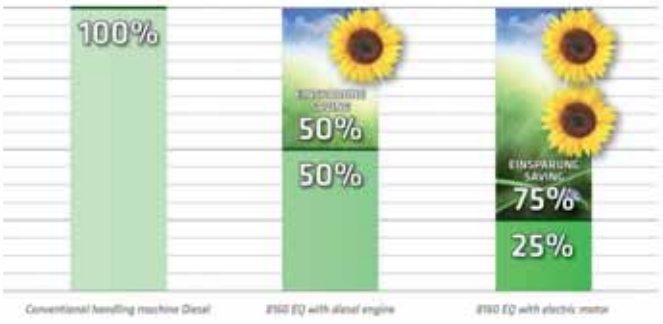
cannot move material with greater cost-efficiency!"

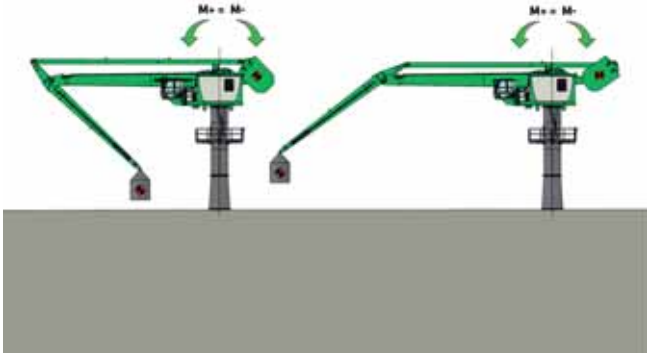
With a safe working load of 4.5 tonnes and a reach of 23m, the new SENNEBOGEN 8100 EQ is made for effective materials handling on the scrapyard. Whether the task is charging the shredder or the scrap press, or sorting and stacking material, the 8100 EQ is an ideal tool. For areas of up to 1,700m² the balancer concept is already practical and profitable with just one stationary electric machine.

In the future, with the new 8160 EQ, SENNEBOGEN will offer a machine with increased capacity data and a larger work area. With 27m or 30m reach and high force reserves, thanks to the 160kW electric motor, the 8160 EQ is a reliable partner. With area coverage of almost 3,000m² and a safe working load of 5.5 tonnes, the machine offers the best prerequisites for effective loading and sorting, and whether at the lumberyard, in port and industrial applications, or on the scrapyard.

Well-designed balancer technology and electric drive: 75% savings

The mode of operation is simple. The entire unit can be controlled with just two cylinders. A coupling bar that is routed parallel to the boom, connects the stick with the rear counterweight and ensures an effective transmission of force. With each work movement the forces are held in balance in accordance with the classic lever principle. Thus the expenditure of force for moving the equipment can almost be completely dispensed with. Even with high loads and a large reach, only the attached load must be moved and driven — incredible savings in force and energy. Savings in operating costs and energy costs of up to 50% can be achieved through the well-designed balancer concept alone. Combined with the electro-hydraulic drive concept additional significant savings are possible.





The highest level of profitability for material handling, guaranteed — EQ technology

The new SENNEBOGEN 8160 EQ can be used in port transshipment, in particular, or at the scrapyard. Wherever the requirement is to move large quantities of bulk goods or scrap economically, the balancer technology shows its strengths. From a central position, multiple work steps can be optimally executed and the overview is always ensured thanks to the mast structure and elevated cab position. Moreover the machine guarantees maximum profitability and productive work sequences in port transshipment applications. The SENNEBOGEN 8160 EQ is optimally suited for ships to the Handysize class.

SENNEBOGEN stands for individual, customer-specific solutions, and thanks to the modular structure of the machine, diverse equipment variants are possible at any time. From stationary undercarriages, crawler tracks or rail solutions, extending to pontoon setup, many versions can be implemented. The machines can also be delivered with diesel engines as an option.

In addition to the customer-specific concept, SENNEBOGEN also convinces with more than 60 years of experience through the best quality and longest service life, and is even able to satisfy the most rigorous requirements. A close-meshed dealer and service network ensures competent local partners and first class maintenance and spare parts supply worldwide. DCi

Catastrophic fly ash silo collapse

Jenike & Johanson investigates the reasons behind failures

Jenike & Johanson is active in powder and bulk solids handling, processing, and storage technology. Over the past 55 years, the company has tested over 10,000 unique powders and bulk solids and worked on more than 7,500 projects, giving its team the broadest real-world and in-depth experience in the industry to address a wide variety of bulk material handling and engineering needs.

Jenike & Johanson aims to help its clients improve the efficiency, reliability, and safety of their operations by preventing, eliminating, or reducing problems related to bulk material flow, storage, conveying, or processing.

The company offers a wide range of services, including investigating silo or equipment failures. Hundreds of industrial and farm silos, bins and hoppers experience some degree of failure each year due to improper design, faulty construction, and/or erratic operation.

Although failure may involve a catastrophic collapse of the structure, it can also display in less obvious forms, such as cracks in a concrete wall, wrinkles/dents in a steel shell, and/or bending/deflection of a support beam. Even these more 'minor' issues can be important danger signals, indicating that corrective measures are probably required.

Common equipment failures can involve:

- silos, bins, hoppers;
- feeders, conveyors, chutes;
- corrosion, erosion;
- reactors or pressure vessels;
- dryers or coolers; and
- silo inserts, supports, nozzles.

Why is Equipment Failure a Problem?

Silo or equipment failures can be costly in many ways. Failures often contribute to:

- complete unit shutdown;
- increased labour costs;
- personnel safety risks;
- reduced production rate;
- unscheduled maintenance;
- litigation or liability;
- poor process availability; and
- environmental hazards

Jenike & Johanson offers great expertise in preventing and diagnosing equipment failures. Its team of experienced engineers

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Senior Manager, PT RungePincockMinarco

have the required experience, on-site investigative skills, and state-of-the-art tools needed for these complex applications. How the bulk material interacts with the equipment is an important part of the investigation, and it offers a high level of expertise in material testing and physical and analytical modelling.

Investigation of silo or equipment failures

Hundreds of silos, bins and hoppers used in a wide variety of industries experience some degree of failure each year. In fact, these structures fail with a frequency that is much higher than almost any other industrial equipment.

Common failures

- catastrophic collapse of silo, bunker, or hopper;
- buckling, bending, denting of steel or aluminium silo wall;
- vertical or horizontal cracking, spalling, or delamination of concrete silo wall;
- damage to bin due to gas over-pressurization or vacuum (suction) effects;
- wall thickness loss due to corrosion or abrasive wear effects; and
- failure of screw feeder or reclaimer in flat-bottomed silo.

These failures are all important danger signals, indicating that corrective measures are probably required. The economic cost of a silo failure is never small. The owner faces the immediate costs of lost production and repairs, personnel in the vicinity are exposed to significant danger, and the designer and builder face possible litigation because of their liability exposure.

Project examples

- severe cracking in two of the largest reinforced concrete coal silos in South America through which 100% of the plant's production is exported;
- massive thumping of a 10,000-tonne-capacity steel silo filled with fine sand at a high throughput LCD glass plant;
- extensive cracking in several large, inter-connected reinforced concrete grain silos at ethanol plants soon after being put into operation;
- failure of an 800-tonne-capacity, multi-compartment welded steel bin that shut down production at a concrete products plant;
- failure of a 1,200-tonne-capacity steel bin storing stone at a quarry that resulted in the death of several workers;
- screw feeder and rotary plow failures at a sewage treatment plant; and
- complete collapse of a 9,000-tonne-capacity bolted steel silo storing fly ash the first time it was filled with hot material (see below).

Case study

Because of its expertise and, Jenike & Johanson was called in to discover the reason behind the collapse of a silo used to store fly ash.

A new bolted steel storing 9,000 tonnes of fly ash from the adjacent coal fired power generation station split apart two weeks after it was first filled to capacity. Up to this point, no ash had ever been discharged. Curiously, the silo collapse occurred at night when the silo was being neither filled nor emptied.

During the investigation into this failure, calculations showed that the silo was underdesigned and did not identify or account for a phenomenon called 'thermal ratcheting'. The walls of outdoor metal silos expand during the day and contract at night as the temperature drops. If there is no discharge taking place and the material inside the silo is free flowing, it will settle as the silo expands. However, the material cannot be pushed back up when the silo walls contract, so it resists the contraction, which causes increased tensile stresses in the wall. The effect is repeated each day that the material sits at rest.

Also revealed were some cost-cutting measures taken by the silo supplier during the construction of the silo that contributed to the failure. The design specified that bolts of a particular classification, size and strength be used in the construction. These specified bolts have a distinct marking on their head that identifies them as having been tested and meeting recognized standards. Less than 1% of the bolts that were recovered from the failed fly ash silo had the specified marking and none of the marked bolts had been used in the critical vertical seams. Strength tests on the unmarked bolts revealed that some had tensile strengths less than the specified minimum.

The result

There were many contributing factors to the collapse that acted together, and if any one had not been present, the collapse of the silo might have been avoided. If proper bolts had been purchased and used, the silo collapse may have been avoided. If the silo had been inspected by an independent silo expert, either during the construction or after construction was complete, perhaps the incorrect bolts would have been noticed and corrective action could have been taken. Had the operation of the silo been such that material was discharged more frequently, the condition of accumulated stresses that precipitated the collapse could have been prevented.

The life of a silo can be divided into three distinct phases: design; construction; and utilization. In each of these phases there are numerous opportunities for errors that can result in structural failure. As in the fly ash silo failure described above, the majority of structural failures of bins and silos can be attributed to a combination of several deficiencies or errors. DCi

Advanced automation for train unloading stations

making life simpler – and safer – with iSAM's train unloading technology

Bernd Mann, iSAM AG

At first look, train unloading seems to be a relatively simple process not requiring advanced sensor or automation systems. There are various types of railcars which have either bottom- or side-mounted flaps for unloading but most operators still use rotary dumpers. The latter rely usually on an indexer arm to position the cars precisely in the dumper barrel.

Many train unload stations today are entirely manual with the performance depending on the individual operator. Other stations use automation to a certain degree but require permanent supervision or don't work at the maximum possible throughput due to limitations in the control system.

Depending on the mechanical design of the train unloader there are several areas which need to be addressed to allow a 'true' automation without compromising on machine safety and performance.

- train position measurement and car/locomotive detection;
- dumper pit feeder control; and
- indexer control (where applicable).

The following article describes these systems in more detail including real-world challenges and benefits.

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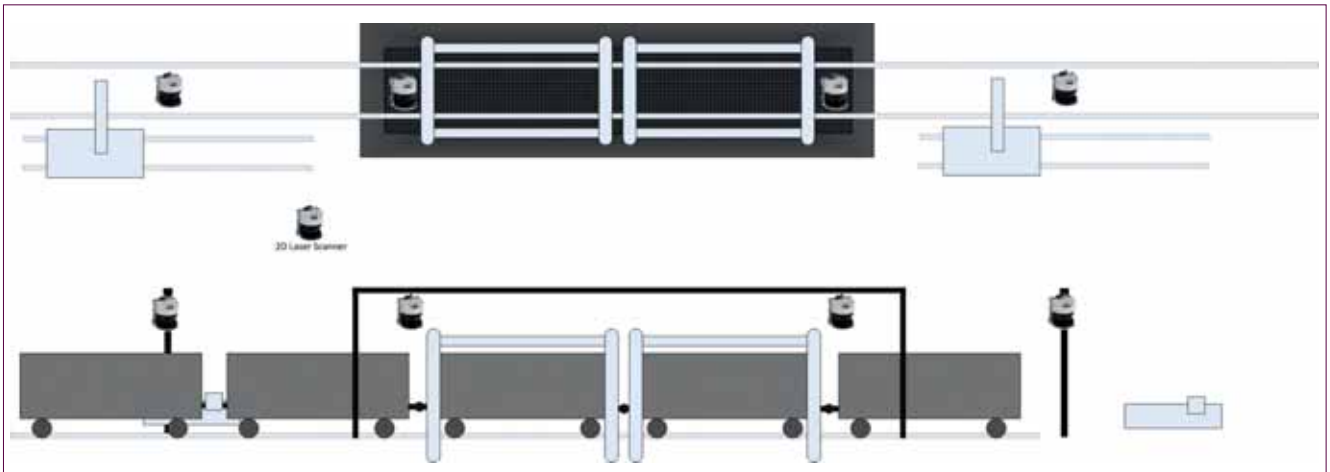


2D sensor arrangement in front of and behind dumper station — top and side view.

Train position measurement and car/locomotive detection

Especially when using rotary dumpers, it is necessary to have a system that safely detects the locomotive and the cars, so that the locomotive is not rotated. Also, in the case of bottom or side flaps, have precise knowledge of the position of the train can avoid spillage, and enables the optimized control of the train unloading process.

iSAM uses 2D laser sensors mounted above the train just outside the dumper cell. The lasers have a scanning angle of 180° and can therefore detect the locomotive or the cars in front of and inside the dumper cell.

To speed up the positioning of the train and optimize the indexer movement, the system can be extended by additional sensors in the entry- and run-out section of the train dumper.

At the time of entering the dumper, the engine driver gets an indication based on feedback from the scanner where to stop the locomotive. After stopping, the dumper operator initiates the automatic sequence and the indexer starts an initial gap hunt to automatically push the first two cars into the dumper station without the need to interact with the engine driver.

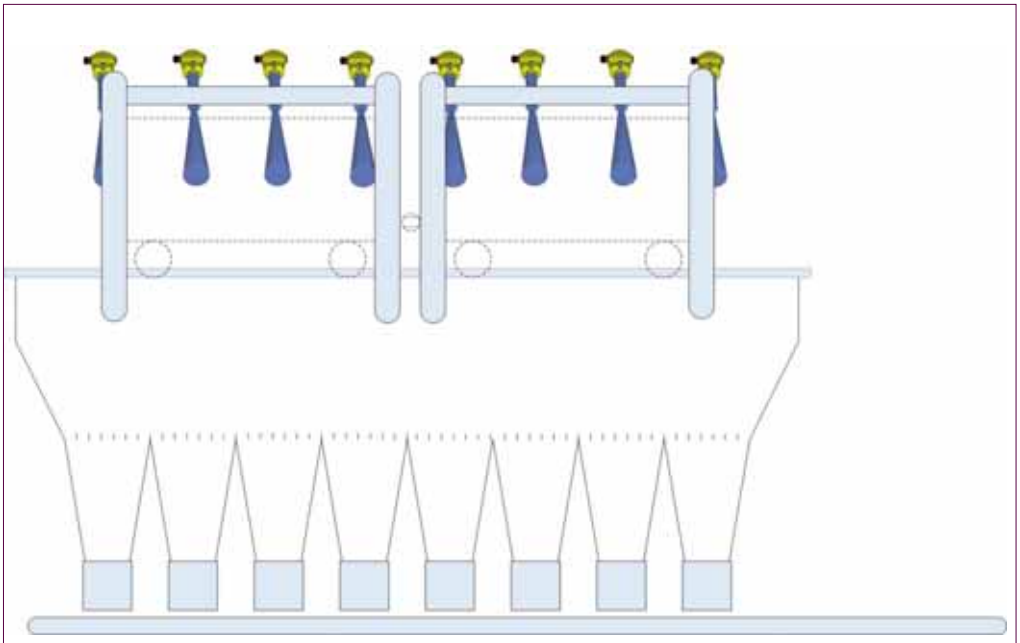
After dumping the last cars, the laser scanners detect the locomotive but no car behind it and stop the indexing sequence. The engine driver is informed by the machine operator that the train has been finished and removes the train.

The graphic above provides an overview of the sensor arrangement including the two additional laser sensors in front and behind the dumper station at a twin car dumper in Canada.

Dumper pit feeder control

Once the car has been dumped, the material is usually removed from the dumper pit via vibro-feeders which transfer the material onto a conveyor belt. In many installations, these feeders are already equipped with variable frequency drives (VFDs); however, a proper manual control requires constant attention by the operator. Frequently, the material flow through the feeders is not homogeneous and when one feeder runs empty, subsequent cars are directly dumped on the belts damaging the equipment in the long run. At the same time, other parts of the dumper pit still hold too much material to dump the next car and therefore delay the train.

To overcome these problems, a radar level measurement can be installed looking down into the bunker above each hopper. Radar level sensors are very robust and reliable especially in dusty environments and provide fast feedback regarding the bunker level. The connection to the control system is usually via Profibus/Profibus PA.



Radar level measurement sensors.

The control system receives an individual level signal for each hopper and can use this to control the vibro-feeders. If the level of a hopper drops below a pre-defined value (e.g. level of the grizzly), the PLC stops the relevant vibro-feeder to ensure no feeder is running empty during dumping. An outer control loop adjust the total output of the vibro-feeders which is especially important when blending materials. The graphic, left, provides an overview of the sensor arrangement at a twin car dumper with eight feeders.

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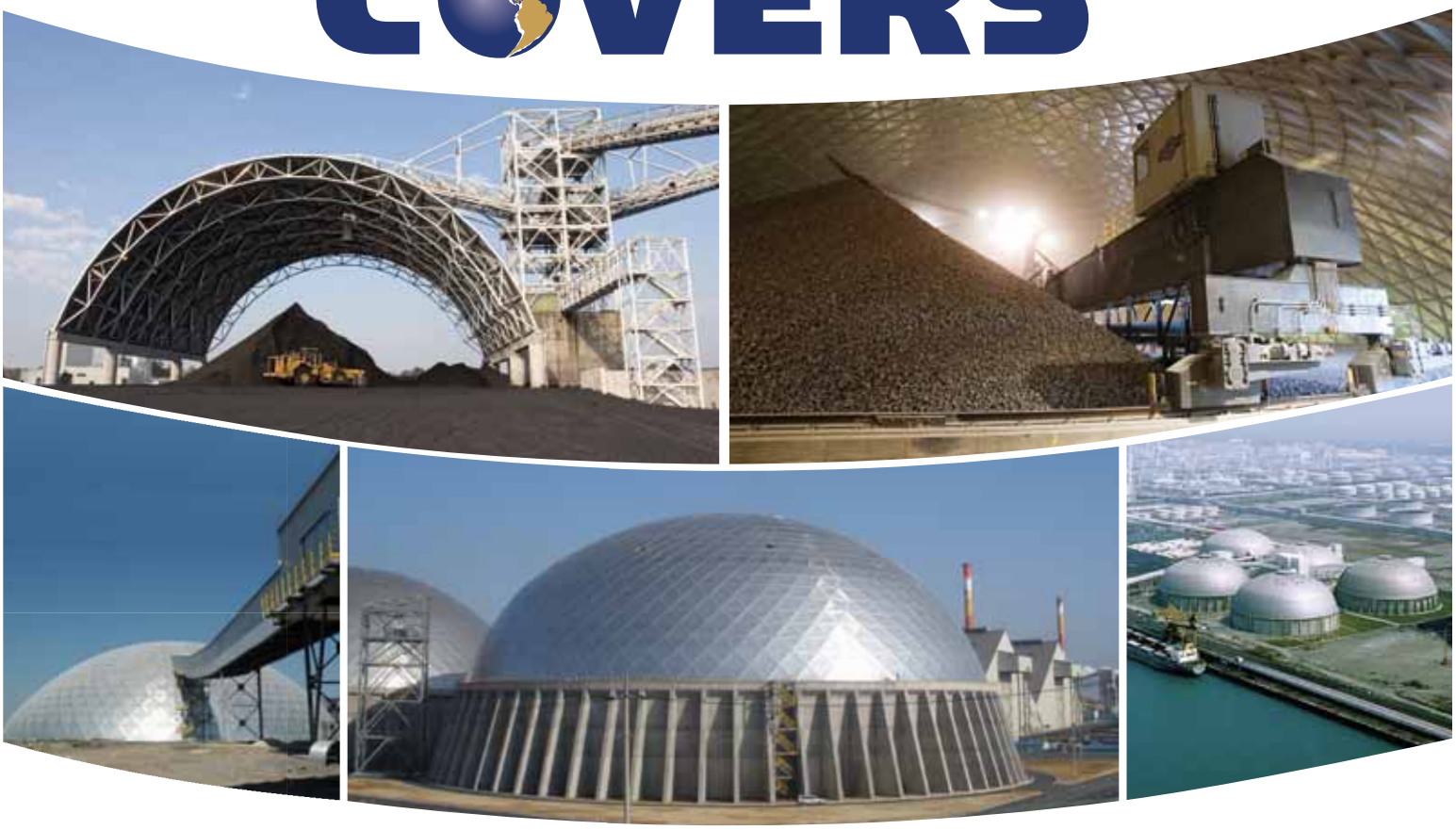

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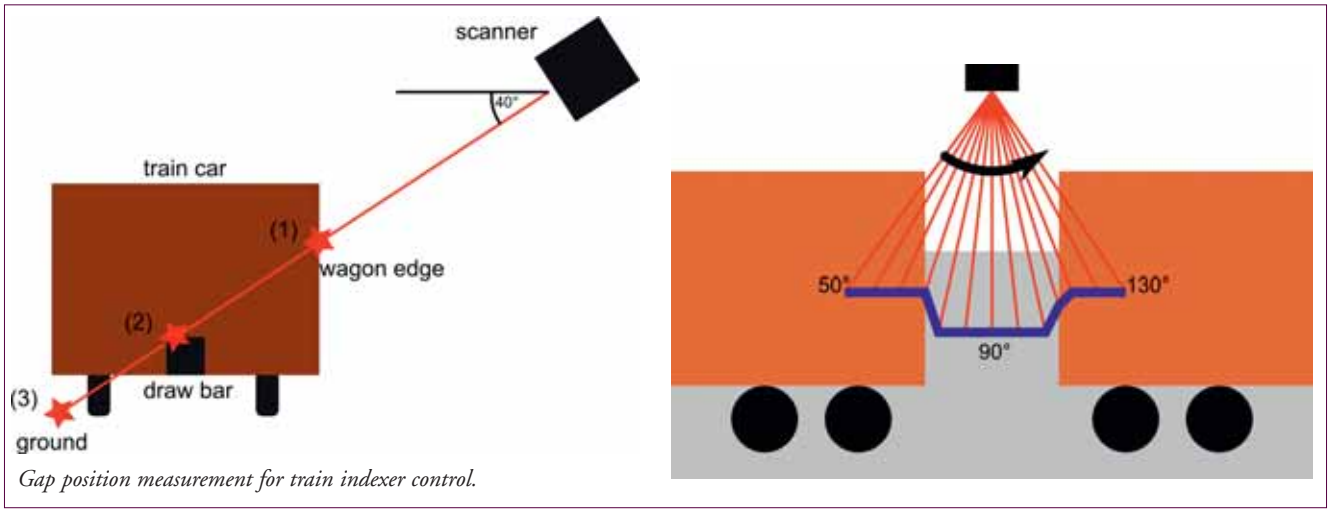

Gap position measurement for train indexer control.

Indexer control

When an indexer is used to move the train, usually the indexer arm is pre-positioned based on the known length of the cars and the position of the dumper cell. However, as train brakes do not always work perfectly, there can be positioning inaccuracies and the train's behaviour can change during the unloading process. Therefore, some fine-positioning is required in most situations which is either done manually or by using photocells on the indexer. Both systems require an early slow-down of the indexer and therefore prolong the cycle time.

To overcome these limitations iSAM has developed a precise, real-time gap position measurement system. This exactly determines the position of the gap between two rail cars in front of the train unloading station. It provides a safe and robust measurement which ensures an exact and fast positioning of the train indexer arm. The system consists out of a 2D laser scanner, a PC with control software to process the scanner measurement data and a PLC program that will control the train indexer arm with respect to the train gap measurement.

The drawing above shows the sensor setup as installed on an iron ore dumper in Port Hedland, Australia.

Being mounted directly on the indexer the system is not affected by inaccuracies in the absolute indexer position measurement. However the high vibration levels and the very demanding, dusty and hot environment required the use of a special mil-spec housing with vibration control.

Summary

Modern control systems using 2D laser scanning for train and indexer positioning allow a fast and consistent automatic operation of train unloading stations. When properly designed these systems reliably prevent the accidental dumping of mid-train or end-train locomotives and ensure an operator-independent performance.

In addition, an optimized flow control from the dumper pit using radar level sensors shortens the dumping cycle and avoids dumping material directly on the belts through an empty hopper.

Compared to entirely or partly manual systems a reduction of the cycle time by 50% or more can be achieved. However even when compared with already optimized, conventional sensor systems performance gains of more than 8% have been demonstrated.

iSAM: the company

Technology and automation provider to the global transport and heavy industry with 90+ employees (including subsidiaries) in Germany, Australia, North America and Eastern Europe specializing in advanced control systems.

iSAM delivers the full range of products and services for advanced automation of port operations and bulk material handling. Since 1983 a team of specialists from the fields of engineering, IT and physicists have been working with experienced business administrators as well as process and project managers to provide intelligent solutions for the tasks of today and the challenges of tomorrow.

iSAM offers turnkey solutions for new automation projects as well as the upgrading of existing equipment including project management, electrical engineering and commissioning.


Bernd Mann.

About the author

Bernd Mann
Chief Officer Development, Design and Technology

Background

Bernd Mann initially studied particle and laser physics at the University of Bonn before joining iSAM in 1993 and being appointed as CTO in 2002.

He is a member of the Transport and the Industry Committee, as well as a delegate to the General Assembly of the Chamber of Industry and Commerce for Essen, Muelheim and Oberhausen.

Mann is greatly involved in research and development of advanced automation systems in the industrial sector of bulk material handling and port automation. His experiences are based on the realization of many automation projects for bulk terminals all over the world.

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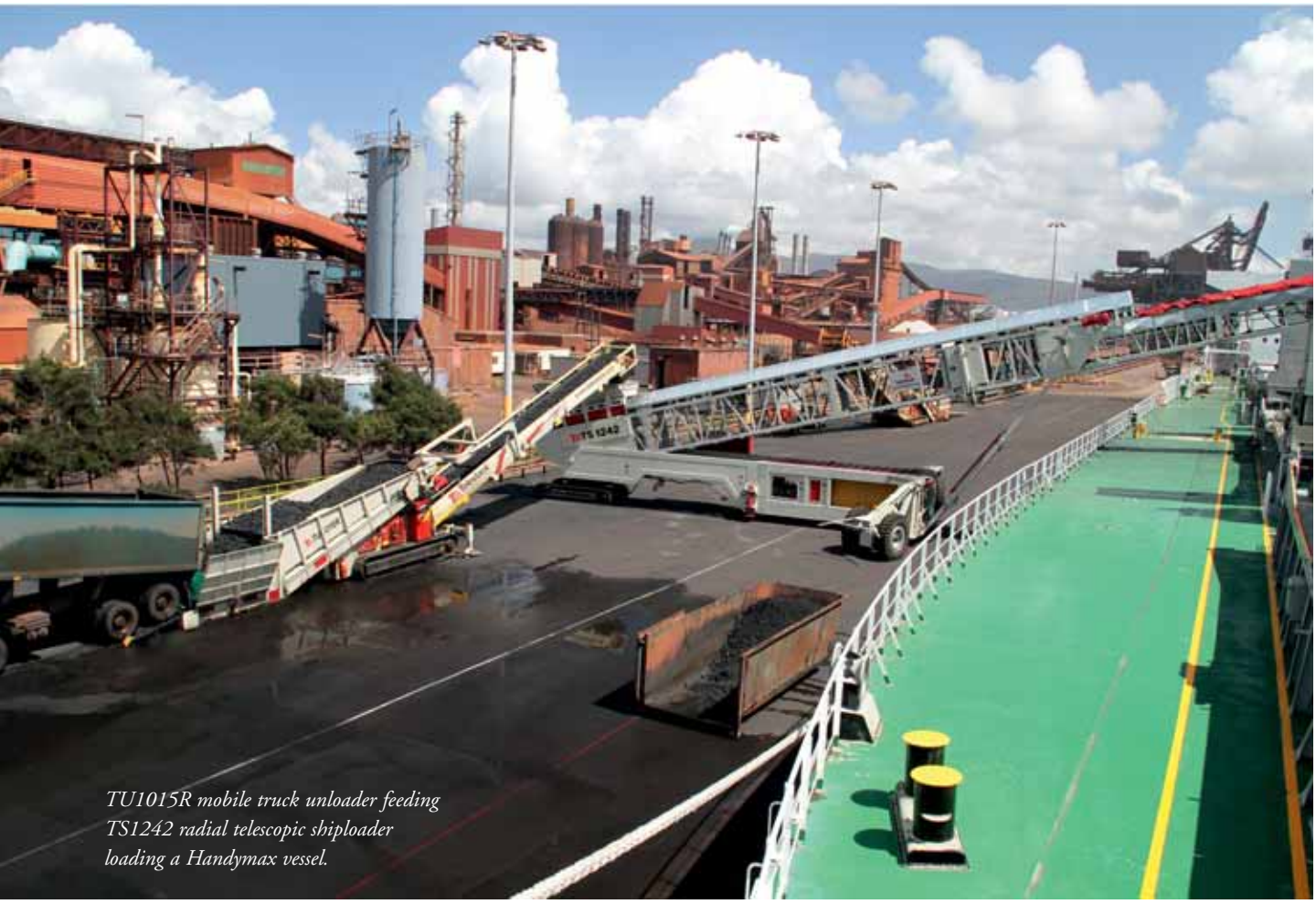
Telestack mobile equipment for coke loading at Port Kembla



TU1015R mobile truck unloader feeding TS1242 radial telescopic shiploader loading a Handymax vessel.

Telestack has recently installed and commissioned a mobile materials transfer and shiploading system for coke loading at Port Kembla in Australia.

Before the installation of Telestack's mobile equipment, the customer moved metallurgical coke stock from the point of production to a dedicated berth, which was a 50-minute round trip. The material was then stockpiled before being picked up and transported to the shiploader. The customer then moved to skip loading from a berth which had recently become available due to a reduction in steel export activity. This eliminated the 50-minute transport leg and the double handling of the brittle material. However, it was labour intensive and consequently very expensive.

The client had previously employed Telestack's mobile telescopic conveyors, combined with Telestack mobile truck unloaders, from the same berth during shiploading trials in 2009. In 2011, these were used as an alternate stockpile reclaimer for coal, coke and iron ore, when used in conjunction with front end loaders. The TU815 had also been successfully employed as a replacement for permanent reclaimers during breakdowns and scheduled shutdowns, reclaiming iron ore, coal and iron sands with rates in excess of 800tph.

The client envisaged a system that would deliver met coke to Handymax vessels at a rate of 400tph (tonnes per hour). To achieve, the client wanted to utilize its existing TU815HD mobile truck unloader to feed the new shiploader. However due to a cycle time of approximately five minutes per truck tipping and a nett weight of trucks of 20 tonnes of coke, a second truck unloader was required.

The Telestack TU1015R mobile truck unloader was bought with variable speed on the hydraulic pump to drive the feeder, allowing the client to alter the speed depending on the material being handled. The range of materials being handled varied from 0.45t/m^3–2.8t/m^3 density. This feature proved invaluable to allow the operators to control feed rates to the shiploader. When designing the shiploader, Telestack engineers were faced with

TU1015R mobile truck unloader.

several application challenges which they had to overcome.

CHALLENGES INCLUDED:

- ❖ weight restriction of 45t/m³ loading on the jetty;
- ❖ narrow jetty width of 25 metres
- ❖ need to minimize degradation, which is a risk due to the brittle nature of met coke, requiring a cascade chute and slow belt speeds;
- ❖ extremely abrasive nature of the material requiring ceramic liners;
- ❖ feeding the shiploader using trucks unloader from both sides to achieve required capacity; and
- ❖ overall weight restrictions — yet at same time complying with local Australian standards.

TS1242 radial telescopic shiploader with cascade chute.

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TS1242 radial telescopic shiploader with cascade chute and trimmer at end.

Therefore, a unique design was manufactured to overcome all of the above challenges. The TS1242 radial telescopic shiploader incorporated full dust suppression features including removable undertrays, telescopic dust covers and a cascade chute with a trimmer at the end. The cascade chute allows for the soft loading of the material and the trimmer enables the operator to easily reach under hatch coaming when finalizing the loading process. This, along with the standard feature of a 17-metre telescopic boom, allows for effective trimming.

The shiploader also incorporates a variable-speed drive on both the inner and outer conveyors to cater for material ranges in density and also accommodates soft transfer point loading to minimize degradation by reducing belt speeds. The shiploader also had 1,800mm-diameter radial wheels at the front to minimize loading at the jetty due to weight restrictions. The unit is fully self contained and fully mobile with an onboard 180 kVA enclosed Cat genset with full remote control of functions.

Using the new equipment, the client has successfully loaded Handymax vessels for nearly a year now. When the shiploader is not in use shiploading, the client can remove it from the berth for routine maintenance and washdown, leaving the jetty free for other port activities.

Telestack offers a range of mobile bulk material handling solutions which are in operation across the globe handling materials such as coal, iron ore, aggregates, fertilizer, grain etc in mines, ports, quarries, power plants, steel mills and cement kilns. DCi

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Spillage prevention with Listenow

For the past 40 years, Listenow has been active in bulk loading systems. It is a firm believer in innovation, the longevity of its products and its expertise in solving even the most challenging problems. All components leaving the company's plants are checked to the last detail. This enables it to set the foundations for outstanding quality and to operate as a trusted partner with a fully committed and responsible approach to every project.

Listenow equipment handles the full range of free-flowing bulk commodities, from A for ash to Z for zinc. Its wide range of loading systems are suitable for all loading activities, whether materials are being loaded onto railwagons or silo trucks. Client industries include port operators, aluminium and glass production, cement factories, coal-fired power stations, animal feed processing, mining, synthetic granulate manufacturing and storage silo systems.

The company's product range is extensive, and includes:

Loading systems

Dust-free loading of bulk materials of all kinds for any means of storage or transport. Products are always supplied as complete, fully compatible units and their robust and efficient construction allows throughput of up to 1,000tph (tonnes per hour) depending on material type at temperatures of between –40°C to +120°C, and up to +600°C in special cases.

Listenow offers electronic, electromechanical, and pneumatic measurement of fill levels. Its product portfolio is supplemented by a large range of special-purpose equipment, such as vibration devices, spreader plates, electrical winches, protective rubber buffers, highly wear-resistant conical sections and tubes, as well as galvanized metal parts and chrome-nickel steel sheet metal components.

Loading equipment is supplied as complete units fitting the mount points and existing discharges of silos, as well as worm screws, wheels and other attachments. The diameter of the loading hose will depend on the type of bulk material and the desired loading rate.

Models include:

- **Loading System 4000:** single-loading system without ventilation connector, with three cable guides
- **Loading System 4010:** double-loading system with ventilation connector and 3 cable guides;
- **Loading System 4020:** double-loading system with ventilation connector, single-cable guide and locking cone;
- **Loading System 4030:** double-loading system with and without ventilation connector, one or three cable guides and interior fitted with metal tubes for abrasive materials;
- **Loading System 4040:** double-loading system with and without ventilation connector, one or three cable guides and interior fitted with telescopic sections for abrasive materials; and
- **Loading System 4050:** double-loading system with integrated filter connection, 3 external cable guides and locking cone. Interior with flexible tubing, telescopic sections or tubes.

Loading hoses for loading systems

Faced with the problems associated with handling bulk materials on a daily basis, well-known clients from a wide variety of industries have come to rely on Listenow's robust and reliable

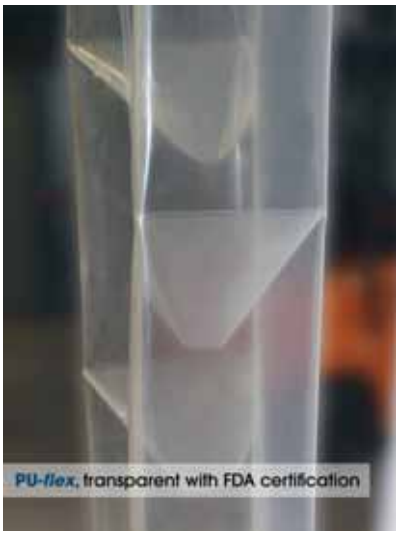
Listenow loading hose.

hoses for many years. Its loading hoses are supplied in diameters ranging between 200–2,000mm; their length is determined by on-site requirements.

Listenow loading hoses are provided stitched or welded in the company's own plant for all popular loading systems with short lead times and to the highest quality standards. The company offers:

- **Single Hoses:** single hoses for loading systems without dedusting connectors; and
- **Loading Hose Fittings:** loading sleeve sets for loading systems with dedusting connectors, with interior sleeves hanging loose or connected with arms, with plates or telescopic sections.

Cascade solution FLOW-stop



The cascade solution for highly efficient loading. The unique design of the individual cascades and their robust and easy-to-use construction promises fault-free and highly efficient filling.

In order to prevent the filling material from forming into piles at the bottom of each cascade, the cascades are aligned slightly apart to transfer the material without allowing it to fall freely for any great distance. In addition, the angle of the cascades can also be adjusted to regulate flow speed and prevent separation.

The FLOW-stop has the following special features:

- separation-free and controlled filling of containers;
- surprisingly simple and cost-effective solutions for a broad variety of tasks;
- FLOW-stop is ideally suited to a variety of applications;
- LISTENOW supplies the food industry with units constructed from pickled or glass bead blasted stainless steel or anti-abrasive plastic;

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- depending on use, either painted or galvanized steel;
- PU-flex version: transparent and with FDA certification; and
- FLOW-stop also as a feeding system.

Positioning aid LIS-pos

This cost-effective unit supports the precise positioning of vehicles at the loading point. A reflection light barrier indicates the exact position under the silo discharge by reflecting light against strips attached to the side of the vehicle. This allows the vehicle to be positioned quickly and accurately.

Self-adhesive reflective strips attached to the side of the vehicle allow a laser reflective sensor to indicate the correct position under the silo discharge. The signalling system linked with the laser light barrier allows the driver to position his vehicle precisely to each filling opening. This positioning aid therefore enables safe and efficient refilling of silo vehicles and significantly reduces vehicle waiting times.

LIS-pos positioning aid.

Folding steps LIS-klap

The safety folding steps for loading systems. Listenow supplies LIS-klap safety folding steps to give operators easy access to vehicles, such as tankers, silo trucks and tank wagons. The folding steps are based on a flexible, robust design to allow personnel to access the vehicles in maximum safety.

Anti-slip safety steps, hand rails and a stable support structure ensure accident-free access at the loading point. Listenow supplies folding steps with three, four and five steps. All models are ready to use immediately after installation.

Filters

Residual dust can be significantly reduced (less than 20mg per standard cubic metre) through the use of suitable filtering devices. Depending on use, there is the choice of an integrated filter or reverse air filter. Both types have a remarkably robust design and can transport separated dust back to the loaded material. Access to the filter inserts for maintenance is straightforward and the filter can be adjusted to suit requirements. Special features include:

- large-size differential between loading mechanism and filter;
- return of separated dust to loaded material;
- guaranteed residual dust content of less than 10mg/standard cubic metre;
- optimized maintenance through removable top section;
- robust and solid construction
- glass-bead blasted stainless steel filter housing; laminated and painted FGR plastic filter hood;


DF 9/2000 reverse air filter.

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- maintenance of filter inserts from clean gas side;
- fitted blower;
- filter control by timer relay; and
- optional control of differential pressure.

DF 9/2000 reverse air filter: filter area: 9m², 14m², 18m², 24m² or 30m² (special sizes up to 56m²). To optimize the return of separated dust, the dedusting rate is generally adjusted so that no surface is inclined at less than 60°.

Winches

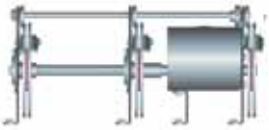
All models have a sturdy, high-performance construction and are tried and tested in many tough everyday applications. All manual winches have a safety load brake and load-carrying capacity of up to 300kg.

Listenow's electrical winches are capable of extremely high performance and have load-carrying capacity of between 220kg and 4,000kg depending on the individual model. A powerful three-phase motor, up to three pulleys, adjustable lifting limitation, including inductive slack rope switch and emergency manual operation, make these winches into easy-to-operate components for mounting alongside the upper unit of the loading system, or on a wall, ceiling or floor.

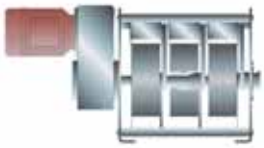
Electrical winches

Left: L51 Electrical winch. Maximum load of 125kg with one pulley.

Below: L53 Electrical winch. Maximum load of 200–600kg with three pulleys.



Below: Electrical winch. Maximum load of 500–4,000kg.



Manual winches

WH1: manual cable winch. Maximum load of 125kg with safety load brake.

WH3L: manual cable winch. Maximum load of 300kg with safety load brake.

All electrical winches are also available as explosion-proof models.

Manual winch (with explosion protection) characteristics include:

- with load pressure brake: the load is securely held in all positions;
- cable fastening with a bore and grub screw;
- all bearing positions are maintenance free;
- removable handle with four-sided insert and ball-locking mechanism; and
- location of cable output can be adjusted in any direction by simply turning the housing as required.

Electrical winch characteristics:

- attached three-phase motor;
- built-in, adjustable hoist limitation system to limit up or down travel;
- emergency manual use; and
- painted housing.

Compensators

Listenow's compensators are constructed to client specifications. A variety of coated polyester weaves, aluminium-coated, temperature-resistant kevlar and fibreglass, and its own PU-flex can all be used, complete with FDA Certification if necessary. These products provide pressure-free axial, lateral and angular compensation for pairs of round or right-angled fixed points. No norm exists currently for their design so Listenow's production is at the cutting-edge of technology. These high-quality and robust compensators are constructed and delivered to individual client specifications. DC

Experience the progress.

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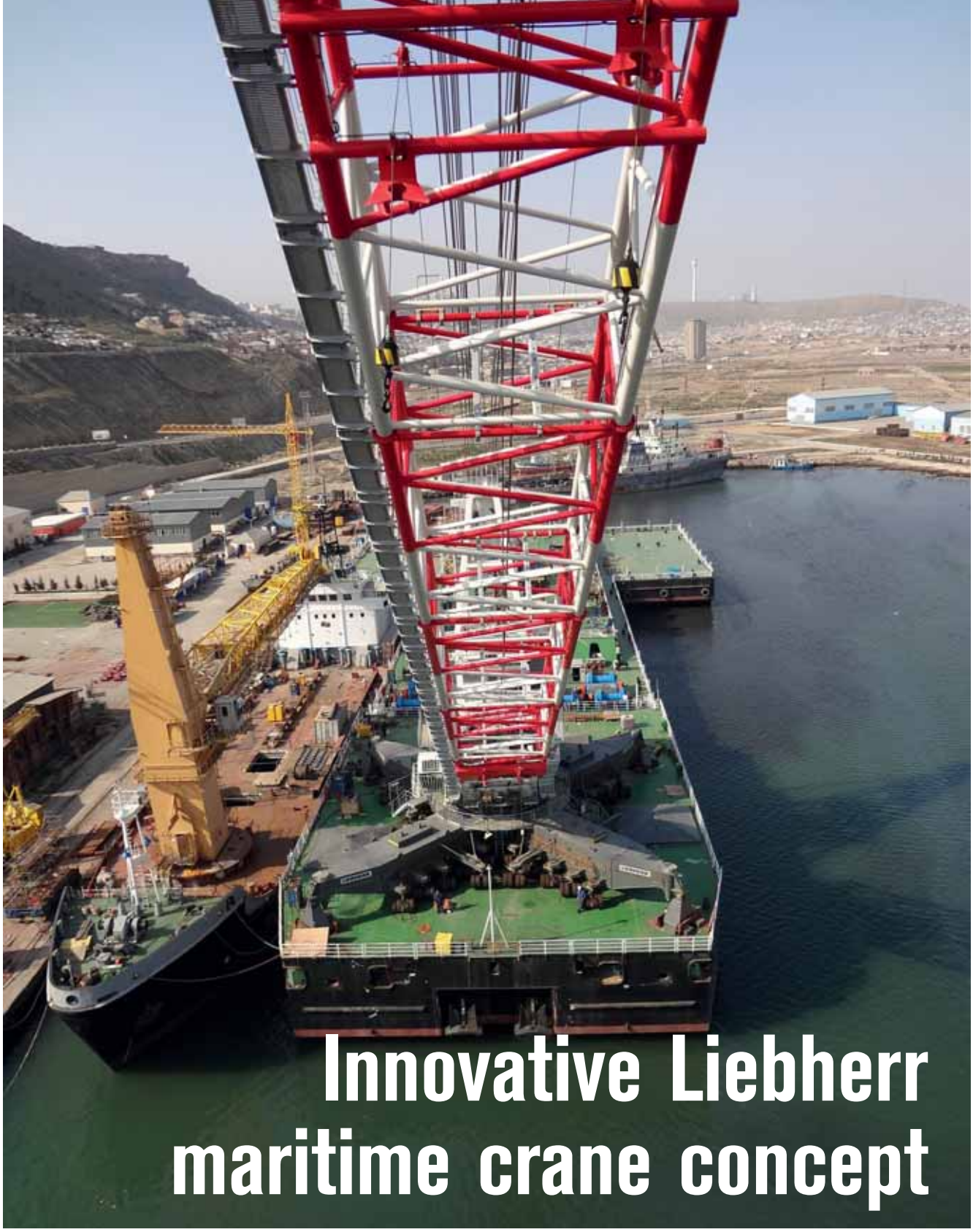

Innovative Liebherr maritime crane concept

Meeting clients' requests for cranes with lifting capacities far above the average lifting capacity of conventional mobile harbour cranes, Liebherr has developed a new and innovative model: the TCC 14000-400 D Litronic®.

This combined offshore and mobile harbour crane, designed by Liebherr-Werk Nenzing GmbH, was delivered to the customer in spring of this year. It combines know-how and existing technologies of the offshore crane department and the mobile harbour crane department, thus of two of the company's maritime business divisions.

The TCC 14000-400 D Litronic® has been assembled in the Port of Baku, the capital city of Azerbaijan. The first field of application for the multi-purpose crane with a dead weight of approximately 1,100 tonnes is the construction of oil platforms in the Caspian Sea.

Combined offshore and mobile harbour crane

A remarkable feature of the TCC 14000-400 D Litronic® is its innovative design — it can be used for two completely different types of application. As it is currently applied in Azerbaijan, the crane can either be fixed on a floating installation (barge) and used as an offshore crane under offshore conditions. It then meets all necessary functions and safety requirements in order to be rated as an offshore crane according to the norm EN 13852-2. As an offshore crane it is able to lift heavy loads up to a maximum of 400 tonnes at an outreach of 21 metres; at an

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outreach of 70 metres the crane is still able to hoist 91 tonnes. The maximum under hook height of the crane is 68 metres.

Furthermore, thanks to its undercarriage the TCC 14000-400 D Litronic® can also operate onshore as a mobile harbour crane with high lifting capacities. For the undercarriage the drive technology of a Liebherr mobile harbour crane was combined with a newly designed steel fabrication. It consists of a central X-shaped structure to which four outriggers are mounted.

For travelling operation the base structure is fitted with 48 wheel sets as known from the conventional Liebherr mobile harbour crane. During crane operation the crane is propped up on support units situated at the end of the outriggers. The dimensions of the support base are 22m × 22m. Using a large number of wheel sets and accordingly large supporting pads the crane achieves equally low ground pressure values as a standard mobile harbour crane, not only while travelling but also during crane operation.

Further advantages of the universal crane are its tugger winches, which support the functionality of the crane in the best possible way. The design of the counterweight minimizes the breakdown torque of the crane. Moreover, its independent diesel drive can be listed as another remarkable benefit.

In addition, the TCC 14000-400 D Litronic® offers a comparatively small obstruction area of only 12.5m. As an option it can also be used in tandem mode in combination with another crane of the same type.

With the TCC 14000-400 D Litronic® Liebherr's maritime division offers a compact and flexible crane for a great number of different applications. This unique crane is the ideal product for customers with demand for both heavy lift cargo handling in ports and floating solutions for typical offshore applications, like the construction of oil platforms or the installation of wind power stations in the sea. DCi

HAVER & BOECKER conquers Australia

New subsidiary company founded in Perth

The HAVER Group once again has expanded its global network by founding HAVER AUSTRALIA in Perth, Western Australia. Since early this year a four-man team led by René Dechange has been active in a modern industrial complex in Malaga, approximately 20km north of the Perth city centre. HAVER & BOECKER is now present on every continent on the globe.

HAVER AUSTRALIA offers the complete portfolio of HAVER & BOECKER's packing technology and HAVER & TYLER's mineral processing technology. In addition to sales, HAVER AUSTRALIA also covers service. Spare parts are kept in its 500m² assembly hall, where also assembly, service, and shipping works are carried out.

In addition to supporting and expanding the customer base of HAVER packing technology, the focus is also on expanding into the mining industry of Western Australia. Moreover HAVER & BOECKER anticipates good opportunities for the sales of its high-performance screening machine, washing technology, and pelletizing systems.

The HAVER AUSTRALIA team with (l to r) Managing Director René Dechange, Dominik Vennewald, Gabriela Emanuele, and Larissa Kneissl in front of the new subsidiary company's stock area.

HAVER & BOECKER launches Intra Logistics Systems

Since the complete stocking and conveyor technology of the HAVER Group has been concentrated in the newly founded HAVER Intra Logistics Systems (HAVER ILS) subsidiary company early this year, the new company can already look back at the first successes.

"This business field is not new to us," explains ILS managing director Wieland Wegge. Chain conveyors, roll conveyors, rotary tables, pallet magazines, lifts and other intra-logistical system solutions had already been produced for years at FEIGE FILLING, a HAVER subsidiary for filling liquid and pasty products. The development, engineering, and production areas of all the group members were recently centralised so that the new company could operate as a full-liner within the entire group. The entire conveyor technology for empty and filled package units — whether it's buckets, canisters, drums sacks, or empty or full pallets with palletized products — is now supplied by HAVER ILS. Corporate headquarters are located in Bad Oldesloe in northern Germany.

The first orders for various types of conveyor systems coming from international customers and from within the group have already been successfully concluded.

The complete conveying and stocking technology for empty and full package units has been handled by the newly founded HAVER & BOECKER subsidiary HAVER Intra Logistics Systems since early this year.

Growing Philippine steel market draws interest of foreign groups

Steel manufacturers from China, Taiwan, Korea and Japan are keen on investing in and setting up shop in the Philippines to cater to the rising domestic demand for steel products.

"The industry has seen over the last two years a remarkable growth — a 50% increase in demand for steel products and many companies are expecting the strong demand for steel will remain in the next few years. However, we still have to assess that, if the demand will require additional capacity," said Trade Undersecretary Adrian S. Cristobal Jr.

There were queries from prospective investors about the mothballed steel manufacturing facility of Global Steel Philippines Inc. in Iligan City, Cristobal said, adding that some of these interested companies are already in the advanced stages of their due diligence, while the others are still studying the market.

These prospective investors are considering producing hot rolled coils and cold rolled coils and reviving the production of flat steel, he said.

The decision on whether to invest in a brand-new manufacturing facility will depend on the domestic market's need for additional capacity, the viability of the project and the various policy interventions that the government may come up with to create a more conducive business environment.

On another development, the Board of Investments on Thursday opened for public scrutiny the proposed roadmaps for the housing, cement, and iron and steel industries.

Such roadmaps will help the government in identifying critical supply chain gaps that will move industries up the value chain or allow deeper participation in the global supply chain.

Bulk in bags: liners, FIBCS and more

Liner bags enable transport of bulk product in shipping containers

Bulk-Flow is a bulk packaging engineering and manufacturing company established in 2007, but with over 20 years of combined experienced, specialized in container liner bags for the shipment of dry flowable solids in marine shipping containers.

Bulk-Flow has a wealth of expertise handling all type of containerized commodities: petrochemicals, agricultural, minerals, pharmaceuticals, etc. It has a particularly outstanding record in handling those hard-to-flow commodities such as flours, starches, cement, TiO_2, carbon black, and others, with its patent pending flat fluidizer container liner bag.

Other proprietary designs (patented) include the company's bar-less container liner bag that does away with the use of expensive steel bars used for bracing. This solution is particularly cost effective for those shipper of dense commodities that require six to eight steel bars to brace the load. Bulk-Flow's bar-less container liner bag is an extremely safe liner during loading, transit and unloading. Although the bar-less liner is sufficiently strong to be unloaded (tilted) without the use of steel bars, the bar-less liner is the only bar-less in the market that allows the addition of steel bars prior to unloading, as a redundant safety measure. The company therefore confidently claims that its liner is the safest in the industry.

Despite being a design absolutely proven since 2008, the bar-less liner's general market penetration is not mainstream yet, due to the large economic interests that the receivers of the loaded liners have, to re-sell the steel bars of the traditional liner bags, in the secondary used steel bars market. Bulk-Flow hopes that, at some point, this inefficiency in the market will be removed as it is not justifiable in the overall cost scheme.

Nothing about Bulk-Flow is standard though, and even in its offer of traditional liner bags that require steel bars, the company has not followed the same course as its competitors, and it has made radical changes in the way it manufactures its liners, its material selection and its components. It is truly a liner bag unlike anything in the market in terms of installation, loading and unloading performance, and the ability to protect the cargo from spills and spoils.

This might sound like a familiar claim from any liner manufacturer, but Bulk-Flow is truly an engineering company, and it has looked very carefully at all aspects of liner bags. liner bags are so much more than just bags — they are highly engineered flexible packaging materials that will ensure the commodities can be reliably shipped in bulk inside of a container.

Proof of how much the company engineers its products for

performance and cost is the continuous amount of new products it puts out to the market. Bulk-Flow might not be the leader yet in terms of sales volume, as it is still a relatively young company, but its Fortune 500 customers are keen to acknowledge its technical capabilities.

Some of Bulk-Flow's latest innovations include its plastic grain doors. This item potentially has the greatest impact of all its bulk packaging solutions, in terms of the amount of shippers it can serve: increasingly large amounts of agricultural commodities are being containerized, and typically contained at the door with just a combination of wood boards and cardboard. The shipper might not see the issues with such setup, but the end-user definitely does. If the cardboard absorbs too much moisture from the sea or from the commodity itself, it will be rendered useless, and all the weight of the product will collapse onto the container doors, thus building up a lot of pressure on those doors. This poses a risky situation known by the receivers, that are forced to deal with it, by carefully opening the doors of the container with a forklift standing behind to contain a potential violent opening of the doors injuring an operator.

Even in those instances when the cardboard has kept its integrity during the journey, it is not an easy material to slit and allow the outflow of the product, since there are several cardboard sheets together — it involves pushing hard with a knife or other cutting tool, another potentially high risk situation for the discharge operator.

Bulk-Flow's plastic grain door will not be affected by the moisture guaranteeing its integrity, it is very easy to slit, and very importantly too, it always installs in the same way, unlike those traditional grain doors and boards which do not have any standard in terms of the number of cardboard sheets or wooden board pieces they use.

Bulk-Flow believes that, as end-users are exposed more to its plastic grain doors, they will realize that there are much better solutions out there, that they don't have to resign themselves to the low performance of the traditional grain doors, and that they don't even have to pay more for it, as it is cost competitive as well.

Bulk-Flow's liner bags for container reefers also demonstrate its high packaging engineering capabilities, though these are for a much smaller market. The challenge resides on being able to properly install and secure a liner bag in the flat walls of reefers, that also lack any anchoring point. After several tests Bulk-Flow succeeded, and now it can greatly decrease the re-positioning cost of any container reefer, by eliminating its empty back-haul, and instead converting it into a bulk vessel for any dry bulk flowable commodity.

Bulk-Flow strives to avoid complacency, and is confident that it will continue to develop more bulk packaging solutions in the years to come, as supply chains for bulk commodities push for reducing operational and packaging costs.

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Protective Packaging's 25kg sacks for moisture-sensitive products

Barrier foil gusseted sacks comprising PET/ALU/OPA/PE provide the ultimate water vapour and oxygen barrier for moisture sensitive products. They will also prevent flavour loss, odour transfer, ingress of ultra violet light, mould and fungi growth and colour deterioration.

The major benefits include superior tear and puncture resistance, and the ability to store outdoors if required. The sacks are hermetically sealed, eliminating stitching or gluing. They can also be supplied with a one-way de-gassing valve which allows the removal of excess air to improve pallet stability and also allows any build-up of gases that may be released by the packaged product to vent thus equalizing the internal and external pressure and preventing bags from bursting. This valve will automatically open, vent and close again without allowing any moisture or oxygen from entering the sack.

To meet the needs of today's increasing move to 25Kg bags being formed, filled and sealed automatically on vertical and horizontal FFS equipment, the appropriate aluminium laminates are available as roll stock, in the required width and length and with the required surface energy characteristics suitable for this type of equipment. Material can be supplied printed or unprinted.

Many companies are enjoying the benefits of switching to barrier foil 25kg sacks and industries include food ingredients and flavours, polymers, resins, pigments and animal feeds.

HAVER & BOECKER unveils high-speed direct truck-loading unit

HAVER & BOECKER has recently expanded its well-known product range of packing and loading technology by adding a fully automatic direct truck-loading system. After the takeover of Newtec Bag Palletizing in May 2013, the HAVER SpeedFlexx now rounds out HAVER shipping logistics by combining direct, just-in-time loading and conventional palletizing technology with stocking. With this new development HAVER & BOECKER now offers the full line.

The HAVER SpeedFlexx, a fully automatic direct truck-loading system expands HAVER & BOECKER's product range of packing and loading technology.

The HAVER SpeedFlexx is a high-speed direct truck-loading unit with a loading speed of up to 260 tonnes per hour. The system's flexibility also allows delivery to stock in the event of dead truck times. Therefore high packing and palletizing plant capacity utilization is assured even during times of missing trucks. By combining the proven components of stationary palletizing technology with conveying technology, the SpeedFlexx system offers unique and reliable operation. Filled bags are handled with shipping and in-house pallets, as well as sheets.

The loading cycle begins with the scanning of the truck-bed surface. Using optical analysis technology, a three-dimensional image is generated and assures that the truck is ready to be loaded. During the loading process, open trucks on two travel lanes are alternately loaded with stacks of bags. This is done by a feeding rack installed over the truck. Once the loading of the first truck is completed, the SpeedFlexx changes lanes within 11 seconds and the second truck, which in the meantime had positioned itself in parallel, is then loaded.

The result: continuously high loading speeds are achieved during peak times. Considering the anti-cyclic demand of the daily profile of a loading system, timeframes with reduced truck frequency will lead to the filling of the adjacent pallet stock. Here stocking is handled in the usual manner: with forklift trucks. This enables continuous use of the packing and palletizing plant, and thus optimum utilization of installed capacity. Moreover, in the event of bottlenecks, it is also possible to reverse this process, i.e. to feed the SpeedFlexx from a filled stock.

The SpeedFlexx is impressive because of its loading speed and the unique logistical flexibility it offers to the market.

Palletizing, stretching, printing: 3.000 bags/h

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HAVER palletizers made by NEWTEC BAG PALLETIZING

New subsidiary company successfully integrated

Last year it was announced that a new subsidiary company had joined the HAVER family: NEWTEC BAG PALLETIZING, a company employing 70 workers, based in the Alsatian city of Illzach, France. NEWTEC BAG PALLETIZING supplements and enriches HAVER's famous product range with palletizing machines. HAVER & BOECKER offered the security of a family and the new subsidiary company brought 40 years of experience in the sector of palletizing systems. During this period NEWTEC BAG PALLETIZING had made a name for itself in the chemical, fertilizer, cement, limestone, gypsum, and building products industries, and is proud to look back at more than 1,600 systems delivered. About one year ago the French subsidiary company joined the parent company into known and new customer sectors.

At TECHnoDAYS in April 2013 in Illzach the still young HAVER subsidiary company NEWTEC BAG PALLETIZING presented itself, its product range, its ambitions and its family-oriented company philosophy.

As a complete systems supplier in the packing industry, it did not take long for this development to lead to success: NEWTEC BAG PALLETIZING has increased its turnover already by a third, and a doubling is planned within the next five years. Here the new subsidiary company benefits from the global sales network of its parent company. Support from the other HAVER family companies is also certain for NEWTEC BAG PALLETIZING. Mutual developments are planned for the future so that even more efficient systems may be offered to customers. The first step was achieved with the development of the new Palletizer Series 5000, which will be used mainly in the building materials industry and matched to the speed of HAVER's packing machines.

In addition to the target of achieving success, the parent company and subsidiary mutually share a family-oriented company philosophy. Cordiality and the feeling of belonging among employees and within the HAVER family was clearly visible in Illzach in April 2013 when NEWTEC BAG PALLETIZING presented itself as an expert family member to the employees of the parent company, other subsidiary companies, and worldwide sales representatives. There was a lot more to it than just lip-service when the newest HAVER subsidiary proudly announced: "We produce and market HAVER palletizing systems made by NEWTEC BAG PALLETIZING."

Italian packing specialist: wide range of services

Femadigipack Packing & Handling Systems is part of the Fema Group, an Italian Group with more than 250 employees in Italy and with an annual turnover about €100 million.

Femadigipack is active in: cement and chemical plants, thermovalorization plants for waste, green energy plants (biomass, hydro, wind), special cranes and handling systems, ropeways, steel structure, metallic components produced by sintered process.

The company specializes in packing and handling systems, with two special divisions for these business areas.

- one division specializes in **packaging and bagging plants** and, after the acquisition of Cimidigipack, now has a particular focus on cement plants; and
- the second division specializes in **handling machines**. It has vast expertise in cranes, ropeways and handling systems in general — jib cranes, ship-to-shore for bulk and containers, rail-mounted gantry cranes, electric overhead travelling cranes, belt conveyors, ropeways.

A major storm hit ILVA Taranto steel plant in last December 2012, which resulted in several collapsed cranes, and operator cabins falling into the sea. Femadigipack has been involved as main supplier, with in-depth inspections on the cranes to restart the ILVA harbour activity. It is also supplying operator cabins equipped with special trolleys with storm brakes.

These storm brakes are useful for all operator cabins in the cranes, for the safety of the operators and to avoid any grave incident.

This last is just an example of the great flexibility of Femadigipack's technical department, which is able to satisfy all the handling needs of its customers.

NBE bulk bag filler suitable for highly demanding operating environments

National Bulk Equipment, Inc. (NBE). NBE has introduced an automated, bulk bag filling system specifically designed to ensure extended duty cycles in extremely demanding operating environments. This NBE bulk bag filler is built on a corrosion-resistant, hot-dip galvanized, stainless steel and carbon steel structural framework. Component assemblies, such as the hydraulic and pneumatic systems, are also constructed of stainless steel and have chrome-coated rods and subassemblies to ensure long-term resistance to corrosion and oxidation. Automation controls, system utilities, and connectors are hermetically sealed to prevent damage from contact with liquids and material contaminants. The PLC and HMI enclosures are 304 stainless steel, NEMA Type 4X, and are coated with a two-part epoxy finish. The PLC and HMI enclosures are each independently air conditioned to eliminate the buildup of internal condensation. The application-specific design and construction of this NBE, integrated bulk bag filler ensures accurate, reliable, and repeatable operation at process rates of up to 30,000 pounds per hour.

The performance-proven design and construction of this NBE bulk bag filler system improves process operation efficiency and material throughput accuracy; even in such conditions where ambient temperatures continually exceed 100°F, and relative humidity is 70%, or higher. Material throughput accuracy is aided by the NBE NTEP-certified (Cert. No. 07-108) hang-weigh scale system. This system provides highly accurate, and repeatable weighing of the bulk bags to an accuracy of ±0.5% of the total bag weight. To make certain each bulk bag is filled to a dense, stable, and safe load, this NBE bulk bag filler has an automated densification platform, isolated from the framework deck, that during the filling sequence directs 3 Gs of high-speed, low-intensity vibration to the base of the bag to evenly settle material in the bulk bag. Following the fill and weigh stages, a 5,000-pound capacity accumulation conveyor automatically removes filled bulk bags from the filling sequence and stages the bags for retrieval. The carbon steel structural framework of the conveyor is hot-dip galvanized and treated with a two-part epoxy surface finish to provide system-wide resistance to the corrosive environment and harsh process materials.

Rigorous risk assessment procedures, implemented by NBE, identified aspects of the application that led to the integration of process safety performance improvements such as the NBE cantilevered fill head/bag hanger carriage design, with pneumatic actions that bring the fill head and rear bag hook to well within the operators reach. This ergonomic, NBE design eliminates the need for the operator to step or lean into the equipment and enables the operator to maintain an optimal posture for safe and efficient operation.

This NBE bulk material filling system enables processing and packaging operations to run production at designed speeds, even in harsh application environments, without concern for undue equipment maintenance, material waste, package re-work, or additional labor costs and risks common with under-performing equipment.

Bulk bag filler: flexible, high-performance solution from Hapman

US company Hapman has been in dry, bulk material handling for over 60 years, *writes Craig Thomas.* As the inventor of the tubular drag conveyor in the 1940s Hapman's product line grew to other conveying and material handling technologies as customer needs expanded and changed. The Bulk Bag filler has been a part of the Hapman product line since 1999 when the company recognized the growing need for bag fillers for both light duty, FIBCs (flexible intermediate bulk containers — Big Bags) with

Bulk Bag Filler with quick release safety hooks.

capacities of 1 metric tonne or less, or custom heavy-duty FIBCs with capacities of 2 metric tonnes and less. Today, the Bulk Bag filler features and options offered by Hapman has grown to serve a wide range of needs in all major bulk processing industries ranging from mining to food.

Hapman's Bulk Bag Filler features

- the NT Series and Heavy-Duty Series Fillers seal bags more efficiently using a pneumatic inflatable dust tight bag spout ring and controls. The inflatable bladder holds the bag tight, and allows for filling with no dusting.
- they can handle various bag sizes up to 4,000 lbs (1,814kg) with adjustable or fixed frame heights. They move easily using forklift pockets.
- they offer unrestricted bag access from three sides with the cantilevered, heavy-gauge steel tubing frame.

Hapman Bulk Bag Filler options

- quick release safety hooks: the redesigned quick release safety hooks offer a single switch level to quickly and safely release a filled bag;
- accurately fill FIBCs with the optional tote or drum filling adapter;
- batch weigh control systems available;
- stainless steel or carbon steel;
- fill bags more completely with the optional vibration table;
- get precise results with optional load cells;
- increase productivity for continuous applications with optional roller conveyor;
- maximize bag capacity, improve filled bag stackability with the optional bag pre-inflator and de-aerator. Improve stackability and safeguard operators with optional motorized height adjustment;
- protect operator safety with optional traversing and quick-releasing rear hook assemblies;
- optional hang weighing system fills bags more precisely and requires no recalibration when moved to different locations.

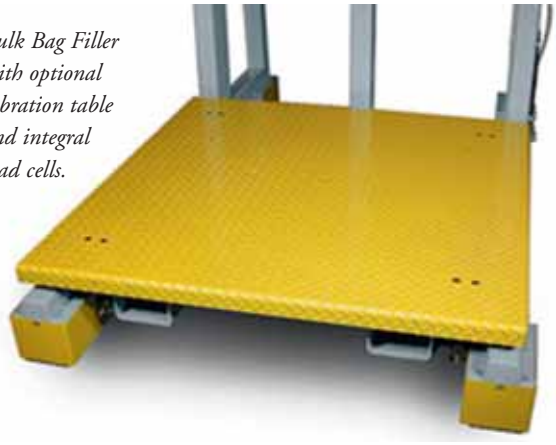
HD custom bulk bag filler with integral ag.

NT series light-duty Bulk Bag Filler by Hapman.

Hapman offers customers a wide range of standard and custom options, not always offered by other manufacturers' equipment. The company prides itself on its ability to provide exactly what the customer needs in the time frame they need it. Hapman engineers also work with customers to offer viable cost saving and/or value added options as they learn of their needs and goals.

Craig Thomas has over 25 years of industrial material handling equipment and system design experience and has been at Hapman since 2002. His knowledge and experience in material movement and mechanical equipment give him the qualifications to help customers in a wide range of material processing industries.

Bulk Bag Filler with optional vibration table and integral load cells.



Mondi's Natro Tech – filling expertise in action

Mondi is well known for its industrial bags. But it is less known that Mondi's expertise in filling powdery goods does not stop at the bag. With its filling equipment producer Natro Tech, Mondi has bag filling experts among its ranks.

Founded in 1925, Natro Tech's filling expertise of nearly 90 years and the intense collaboration with customers in the building materials industry throughout the world represent a unique asset. Fully integrated into the Mondi Industrial Bags business segment, the company designs and builds filling equipment for industrial bags — mainly valve bags but also open mouth and FIBCs (flexible intermediate bulk containers).

Building a strong reputation in filling equipment

With the development of innovative machinery Natro Tech has built up a solid reputation as a state-of-the-art filling equipment producer on an international level. The company has developed specialized expertise in the building materials industry notably for dry mortar filling equipment and related service. Natro Tech's portfolio encompasses a large range of filling equipment, most notably air packers and impeller packers, as well as related machinery such as bag applicators, sealing systems, weighing systems and palletizers.

Natro Tech's impeller packer 70BE/SI has a capacity of 400 bags per hour (25kg cement bags) and is suitable for a range of different filling products with a bulk density from 0.1 to 1.6g/cm³.

Duality between bag and filling expertise

Natro Tech provides a thorough knowledge of customers' filling processes of powdery goods. This knowledge in combination with first-class materials and technologies as well as highly educated and committed staff enable the team to design filling solutions most suitable for fillers throughout the world.

The on-site experience with air packers or impeller packers enables Natro Tech to give valuable input on optimized bag constructions notably to maximize filling speed. "We like to summarize the fruitful duality between the two Mondi entities as: filling equipment produced by bags experts and bags produced by filling equipment experts. This knowledge sharing allows us to offer high-performance yet cost efficient industrial bag solutions optimized to the customer's filling processes," states Thomas Ott, COO of Mondi Industrial Bags.

Small is beautiful — and flexible

The fully equipped Easy Pack was especially developed by Mondi's filling equipment producer Natro Tech. For flexible usage at variable sites with relatively small filling needs, Easy Pack is well suited for filling 5 to 15kg Mini Bags. With a filling capacity of 200 bags per hour and an installation time of only one working day, the unit can easily be transferred from one site to another and is ideal for flexible filling needs.

The light weight, small dimensions and fast installation time of Easy Pack allow fillers to fill bags at several sites within a short period of time without having to invest in filling equipment at each filling site. Easy Pack is ideally suited for small filling needs and impresses with its fast installation time and efficient filling capacity.

About Mondi Industrial Bags

Mondi Industrial Bags, a Business Unit of the Europe & International Division, is a major international producer of industrial paper bags, selling around 4 billion bags per year. Thanks to its broad range of bag specifications, Mondi Industrial Bags serves major industries including cement and building materials, chemicals, food, feed and seed. The Business Unit operates a dense sales and service network as well as its Bag Application Centre, where researchers develop and test innovative packaging solutions.

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To speed up your production process our dedicated experts use their thorough knowledge of paper, bags and filling to come up with the bag solutions best suited for you.

More about Mondi's industrial bags:

Building and construction. Mondi's **industrial bags** are ideally suited for the high-speed filling of cement and powdered building materials. The bags are optimised for automated and precise application on the filling spout and offer optional features such as moisture barriers or sealable valves for increased product protection. Contact us at **info.bags@mondigroup.com**

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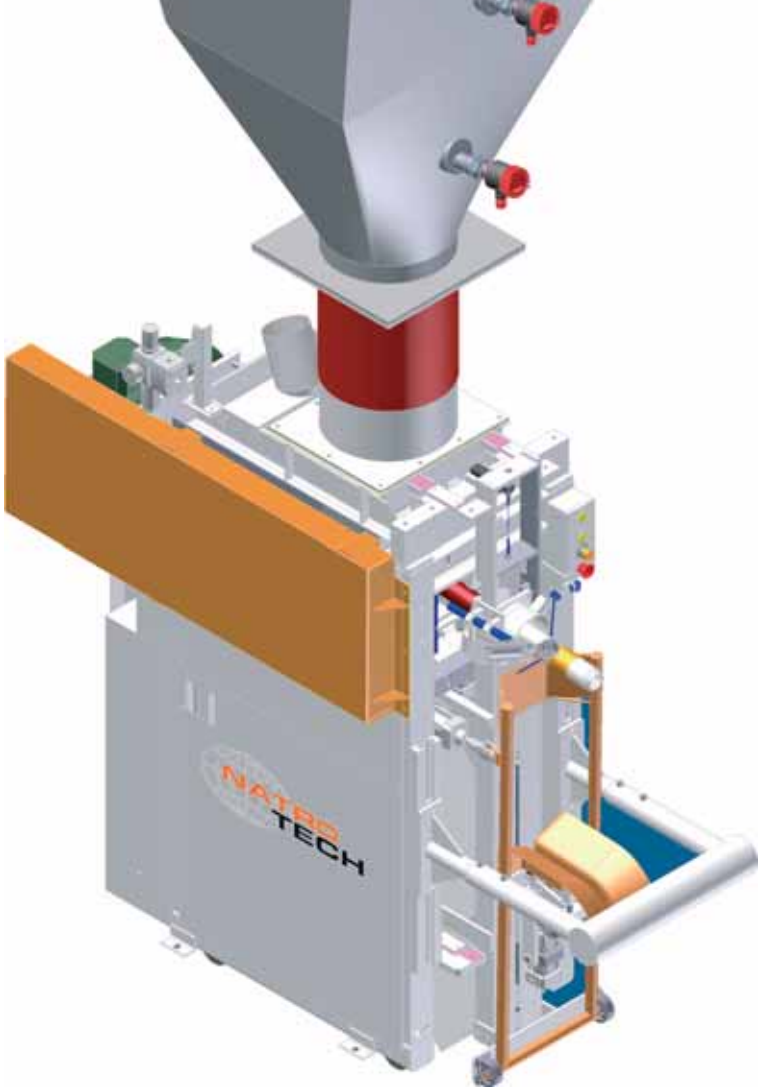
About Mondi

Mondi is an international packaging and paper group, with production operations across 30 countries and revenues of €5.8 billion in 2012. The group's key operations are located in central Europe, Russia and South Africa and as at the end of 2012, Mondi employed 25,700 people. Mondi Group is fully integrated across the packaging and paper value chain, from the growing of wood and the production of pulp and paper (packaging paper and uncoated fine paper), to the conversion of packaging paper into corrugated packaging, industrial bags, extrusion coatings and release liner. Mondi is also a supplier of innovative consumer packaging solutions, advanced films and hygiene products components. Mondi Group has a dual listed company structure, with a primary listing on the JSE Limited for Mondi Limited under the ticker code MND and a premium listing on the London Stock Exchange for Mondi plc, under the ticker code MNDI. The group has been recognized for its sustainability through its inclusion in the FTSE4Good Global, European and UK Index Series (since 2008) and the JSE's Socially Responsible Investment (SRI) Index since 2007. The group was also included in the Carbon Disclosure Project's (CDP) Carbon Disclosure Leadership Index for the third year and in CDP's Carbon Performance Leadership Index (CPLI) for the first time in 2012.



Starlinger: Machinery for the production of dry bulk packaging

Equipment

Starlinger is a machinery manufacturer that specializes in equipment for the production of woven plastic packaging. Machinery is supplied for every production step in the bag-making process: tape extrusion lines, tape winders, circular looms for weaving of endless tubular tape fabric, coating and lamination lines, flexographic printing machines, and sack conversion lines.

Major markets and clients

The company's customers are mainly packaging producers who cater to the construction and building materials industry (cement, lime, gypsum, etc.) but also the chemical (powders, resin, etc.) and food (flour, grains, cereals, dry pet food, etc.) sectors. A growing share of cement producers have started to produce their own packaging in the last years, many of them using Starlinger technology to produce woven block bottom sacks to provide durable and highly protective packaging for their product (AD*STAR® technology). Woven tape fabric is also used for FIBC (flexible intermediate bulk container) production, providing adequate strength and durability.

The main markets are the Middle East, Maghreb and Central African countries, China, India and the South-East-Asian region, as well as Latin America.

Measures for staying competitive

To keep its customers one step ahead of the competition, Starlinger continuously improves existing technology and develops new technical features that improve production efficiency, output and product quality. The aim is to reduce the production costs of the sack and thereby ensure competitive prices.

An important cost factor for producers is raw material: as natural resources are getting more and more scarce, raw material prices continue to rise — in case of polypropylene, prices have increased by more than 9% since 2008. Following the motto 'make more of less', Starlinger gears production technology towards less raw material consumption, ensuring at

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the same time that the required packaging characteristics are achieved. The special properties of woven polypropylene tape fabric make the produced sacks extremely durable, break- and tear-resistant despite being very thin and lightweight, and ensure that their content is protected against humidity or other environmental impacts. To give an example: a woven sack that holds 50kg of filling weight, can weigh as little as 55g — and less weight means less raw material input.

Starlinger also develops new packaging products made of woven tape fabric in order to open new markets for its customers. One of those innovations is the AD*STAR® block bottom valve sack that was developed in the mid-1990s. Recognizing the advantages of polypropylene tape fabric especially in the field of cement packaging, Starlinger combined it with the brick shape and suitability for automatic handling of paper bags and created a new packaging concept that is used

Photo: courtesy of PPC Pretoria Portland Cement Ltd., South Africa.

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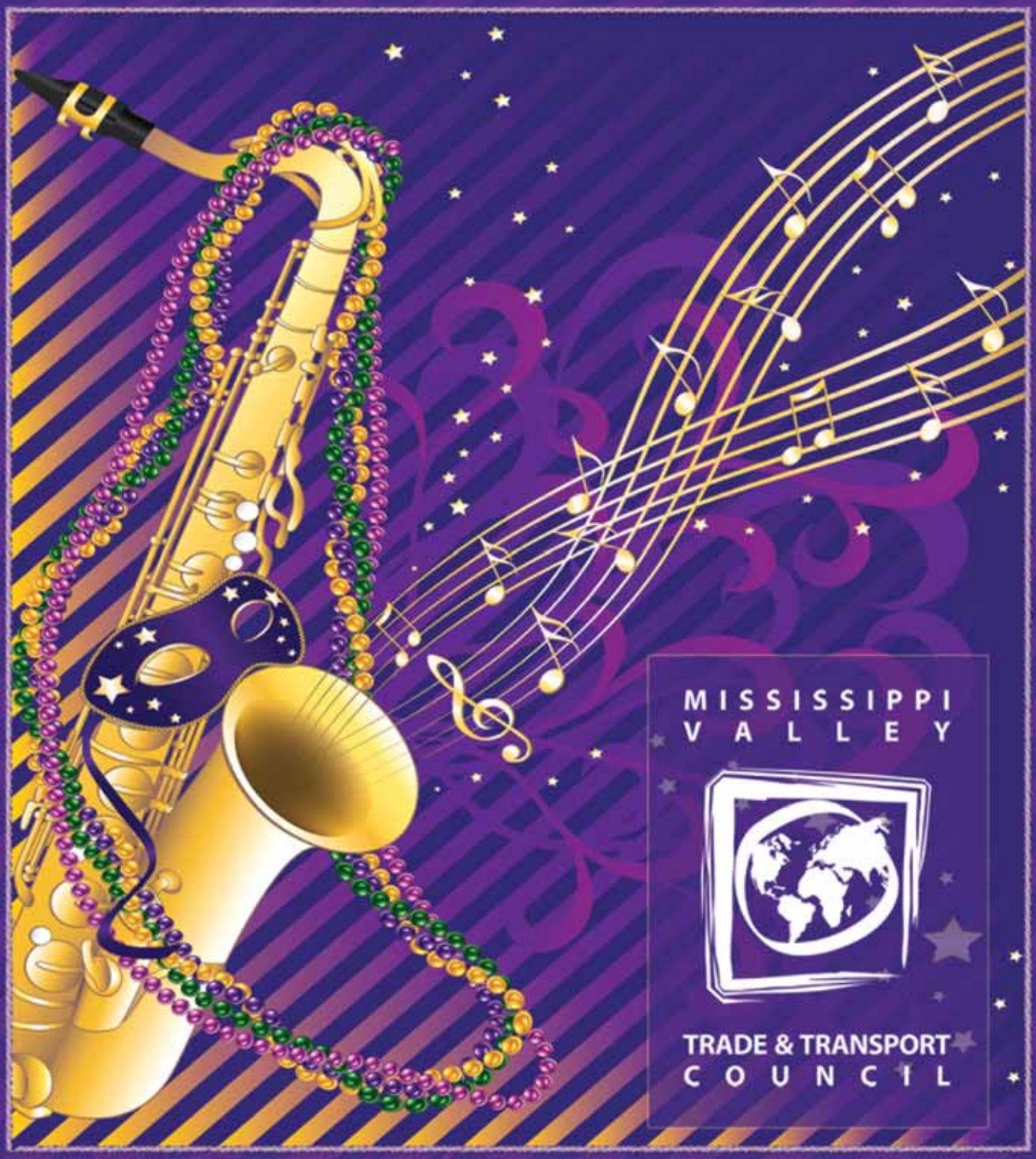

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*AD*STAR® filling machine (photo: courtesy of PPC Pretoria Portland Cement Ltd., South Africa).*

worldwide today.

Developed in co-operation with Haver & Boecker and Sabic, Starlinger presented the woven*FFS® bag in 2010. Being the first woven bag that can be used on FFS (Form, Fill, Seal) filling lines, it brings the advantages of woven tape fabric packaging such as high tear propagation resistance, high tensile strength and low packaging weight to this sector.

Recent contracts awarded/completed

Starlinger has recently supplied equipment for AD*STAR® sack production to Mamuda Agro & Allied Products NIG. LTD.

Recent technological developments:

- High-speed conversion line for block bottom valve sacks ad*starKON SX:
- Designed for the economic production of standard, open mouth, two-ply, pocket valve and BOPP laminated AD*STAR® sacks. High production efficiency is achieved with quick material roll and format change, little machine downtime and a low waste rate. Production speed: up to 85 sacks/minute. The pin-free continuous sack transport system and the precisely working bottom forming section ensure reliable bottom and top closure without harming the fabric. An integrated fabric width monitoring system continuously checks the fabric width and automatically compensates width variations, ensuring constant high-quality bottom geometry. This does not only avoid unnecessary machine stops but also reduces the number of rejects significantly.
- Heavy-duty circular loom for FIBC fabric RX 8.0: the RX 8.0 is primarily designed for the production of PP and HDPE tape fabric for heavy-duty applications such as FIBCs, tarpaulins, as well as geo- and agrotextiles, and meets the specific machine requirements on the target markets. Nevertheless, also the production of lighter fabrics — down to 55g/m² — is possible. The new eight-shuttle loom ensures high-quality output, easy handling and smooth operation due to electronically controlled settings and well-engineered technical features. The use of new materials reduces strain and friction on the tapes and increases the lifetime of wear and tear parts, keeping maintenance and spare part expenses down. With its excellent price/performance ratio the RX 8.0 makes high-tech weaving possible at a competitive price.
- Small-size block bottom valve sack AD*STAR® *mini: to extend the size range of AD*STAR® block bottom bags and to reach the end-consumer market, it is now possible to produce also very small sack formats on Starlinger block bottom bag conversion lines. The AD*STAR*mini® is currently the smallest woven block bottom valve sack worldwide. With a capacity of 5–15kg (depending on the bulk weight of the content) it is perfect for packaging smaller quantities of dry bulk materials sold in the retail sector.

General company background

Starlinger & Co. GmbH, a Viennese family business with production sites in Weissenbach, Lower Austria, and Taicang, China, has been in the mechanical engineering industry since 1835 and has been exporting products worldwide for over 45 years. Being an expert in the field of machinery and complete lines for woven plastic bag production and PET recycling and refinement, Starlinger has an export quota of more than 98% and is a synonym for leadership in quality and technology in over 130 countries.

Branches in Brazil, China, India, Indonesia, Russia, South Africa, USA and Uzbekistan underline Starlinger's emphasis on customer-oriented service and support.

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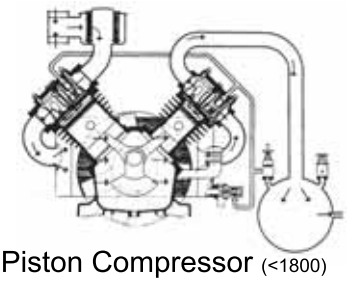
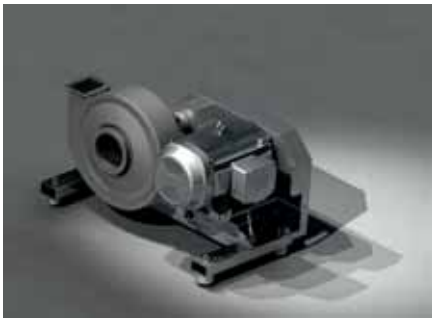


Piston Compressor (<1800)

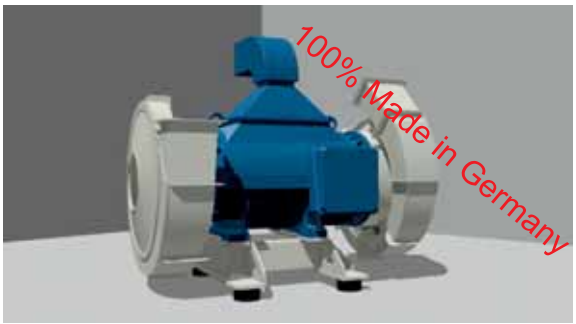
Roots Blower (1900)

Fan with Air Flow Regulator (1960)



Fan with frequency inverter and automatic belt tension (2000)

TURBO POWER single stage (2009)



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