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An encouraging dry bulk trade outlook

A fairly promising outlook for world seaborne dry bulk trade growth during 2014 is unfolding. In many countries commodity imports seem set to increase, probably by quite large amounts. Crucially, in the coal and iron ore trades, together comprising more than half of the total, solid upwards trends continue.

Tentative signs of strengthening momentum in global economic activity are still intact. This improving pattern could assist demand for the products of various industries importing dry bulk commodities. Despite widespread expectations of slowing in China's economy, the global outlook is for " a further strengthening in the recovery" according to the IMF's end-February assessment.

Iron ore

World seaborne iron ore trade could grow by about 5% in 2014, a rise of 63mt (million tonnes) to 1,269mt, as shown by table 1. Some other forecasts suggest a much higher expansion rate is likely. As in previous years, most of the extra volume probably will be contributed by China, the dominant importer. Consequently, predictions reflect varying assumptions about how the key influences shaping Chinese purchases will evolve.

The overall iron ore trade forecast incorporates a rise in China's imports this year of about 6%, raising the total to 870mt. One key factor expected to support firm expansion is a sustained emphasis on increasing the proportion of ore from foreign suppliers, displacing domestic supplies. Elsewhere, among other importers including Europe, Japan and South Korea, additional volumes are envisaged.

Coal

Prospects for both steam and coking coal trade during 2014 are positive. The largest part, comprising three-quarters of the total, is steam coal, which is still benefiting from growing power station usage of imports in numerous countries. In the coking coal segment higher steel production at blast furnace mills using this coal type, in many areas, could provide additional impetus.

Within the overall forecast of about 5% growth in world seaborne coal trade during the year ahead, reflecting an estimated 57mt rise to 1233mt, Asian importers are prominent. The focus of attention is not only China but India as well, and a number of other countries. While the pattern in China is surrounded by considerable uncertainty, India's upwards trend appears set to continue at a very strong pace.

Grain

Global grain trade forecasts are more conjectural. This characteristic arises because it is difficult or impossible to predict the weather patterns which will determine both domestic harvests in importing countries and output in exporting regions. Therefore a predicted 2% growth rate for seaborne trade to 345mt (including wheat, coarse grains and soyabeans) this year is provisional.

Calculations based on the conventional crop year, used in statistics, show a much higher percentage increase for wheat and coarse grains trade during the current period ending mid-2014. A large part of the incremental volume reflects China's additional import demand for wheat and corn. Expectations of higher Chinese import requirements for soyabeans are also incorporated.

Minor bulks

About one-third of global seaborne dry bulk trade comprises the large and varied minor bulks sector. An overall 2% growth rate is foreseeable in 2014, boosting the total to over 1,550mt. Industrial bulks related to manufacturing and construction, the largest part, could derive some advantages from reviving economic activity in several regions including Europe.

Bulk carrier fleet

The world fleet of bulk carriers is set to grow briskly this year, although less rapidly than seen in 2013, continuing the established deceleration trend, as shown by table 2. A 37m deadweight tonnes or 5% increase to 758m dwt at end-2014 is estimated. Newbuilding deliveries are likely to be lower, but signs point to sharply lower scrapping as well, reflecting many perceptions of an approaching freight market recovery.

TABLE 1: WORLD SEABORNE DRY BULK TRADE IN 3 MAJOR COMMODITIES (MILLION TONNES)

	2009	2010	2011	2012	2013	2014*
Iron ore	905	1005	1069	1124	1206	1269
Coal	842	951	1013	1107	1176	1233
Grain (including soyabeans)	295	297	313	326	338	345
Total major bulks	**2042**	**2253**	**2395**	**2557**	**2720**	**2847**
% growth from previous year		10.3	6.3	6.8	6.4	4.7

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

TABLE 2: WORLD BULK CARRIER FLEET (MILLION DEADWEIGHT TONNES)

	2009	2010	2011	2012	2013	2014*
Newbuilding deliveries	43.6	80.4	98.9	99.3	63.0	55.0
Scrapping	10.6	6.5	23.2	33.4	21.6	18.0
Losses	0.3	0.4	0.4	0.1	0.4	0.3
Other adjustments/conversions	9.2	4.3	4.1	-1.2	-0.8	0.0
Net change in fleet	41.9	77.8	79.4	64.6	40.2	36.7
Fleet at end of year	**459.5**	**537.3**	**616.7**	**681.3**	**721.5**	**758.2**
% growth from previous year		16.9	14.8	10.5	5.9	5.1

source: Clarksons (historical data) & BSA 2014 forecast **forecast*

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China's bulk imports slowdown ahead?

After another period of vigorous growth in China's dry bulk commodity imports, the upwards trend looks set to continue in 2014. But the expansion rate this year may be much less rapid than the impressive 13% increase seen last year, although opinions vary. Some forecasters point to influences which justify optimism about another strong performance.

Prospects for China's commodity purchases are a key aspect of the outlook for global trade because these comprise such a large part. Following phenomenal growth over the past decade, dry bulk cargo imports into China now comprise about one-third of world seaborne trade in this sector. There is still potential for further sizeable advances.

The pace of economic activity in China over the twelve months ahead will have a noticeable effect on commodity consumption, although other factors could modify the impact on imports. Last year, according to official figures, GDP growth was maintained at the previous year's 7.7% rate. Signs of changes likely to lead to a slowing were evident, however.

A recent (late January) IMF forecast suggested that a slightly less rapid 7.5% growth rate is foreseeable in 2014, possibly followed by sustained slowing. The Chinese economy performed robustly in last year's second half mainly due to accelerating investment spending. This strength is expected to prove temporary, amid restrictions on credit availability and higher interest rates.

Iron ore rising

Over half of China's dry bulk imports consists of iron ore. Last year saw another huge increase, almost 75mt (million tonnes) or 10%, compared with the figure for the previous twelve months, raising the annual iron ore imports total to 820mt, as shown by the table. This volume, including some land movements but mostly seaborne, comprises two-thirds of global iron ore trade.

To a large extent this rise reflected higher steel production at Chinese mills. Crude steel output in 2013 was up by over 7%, at 779mt. The more specific indicator, pig iron production at blast furnace mills, showed an 8% increase, to 709mt. These provisional World Steel Association figures probably will be revised upwards when more accurate data is available.

Decelerating expansion of iron ore imports is envisaged this year. But some forecasters remain optimistic, suggesting that a surge in global iron ore export availability could weaken international prices, improving the competitiveness of foreign supplies compared with domestic Chinese ore. Nevertheless, recently rising iron ore stocks are seen as a possible restraint on import demand. Also, there are doubts about the strength of steel demand.

Coal growing

In 2013 China's imports of coal, including lignite, expanded massively by 38mt or 13%, reaching 327mt. The largest incremental volume was coking coal for the steel industry, which grew by 18mt (33%), to 71mt. Steam coal, mainly used by power stations, was 8mt (4%) higher at 189mt while low-grade lignite, also used in power generation, was 11% up at 60mt.

These volumes are large in the context of global coal trade. As a proportion of the Chinese domestic coal market though, imports are still a small proportion despite rapid growth over recent years. Most consuming industries are mainly supplied by domestic coal mines. Import purchases are greatly affected by differences between the delivered cost of foreign supplies and domestic prices.

Further growth in coal imports seems likely over the year ahead. Predicting how large an increase is more difficult. In addition to uncertainty about relative prices, there are other complicating factors. Measures to control air pollution from coal-fired power stations is one aspect, together with attempts to reduce imports of low-grade coal, especially lignite mainly derived from Indonesia.

Grain and soya increasing

Positive influences affecting cereals and oilseeds imports into China are visible. A strong upwards trend in consumption is accompanied by weaker domestic production growth (or, for soyabeans, declining output). Consequently, widening opportunities for exporters are unfolding in the Chinese market.

Soyabeans form the biggest element of imports in this category, and official statistics shown in the table reveal that there was a 5mt or 9% increase last year, raising the annual total to more than 63mt. Imports of the main grains — wheat, corn, barley and oats — were almost flat at about 11mt.

Last summer's domestic grain harvest in China was recently revealed to have been larger than estimated earlier, rising by about 4% to reach 348mt. This increase has limited import demand potential, but foreign purchases in 2014 are still likely to grow. Soyabeans output, a much smaller part of that market segment, was lower last autumn and, together with rapidly expanding usage of soyameal and oil, the result is expected to be additional imports.

Minor bulks advancing

Among China's imports many other dry bulks are prominent. Bauxite/alumina and nickel ore have become large elements, while manganese ore, steel products and woodpulp also are sizeable. Most of the growth last year was seen in minerals, especially bauxite/alumina which increased by 30mt or 67% to over 75mt.

The outlook for this diverse sector is mixed. Imports of some commodities may increase further in 2014. Conversely, decreases are quite possible elsewhere. Some of last year's expansion was connected with stockbuilding in advance of minerals export controls now implemented in Indonesia, a major supplier. Any destocking over the next twelve months could adversely affect imports. *Richard Scott*

CHINA'S DRY BULK IMPORTS (MILLION TONNES)

Main bulk commodities

	2009	2010	2011	2012	2013	% change*
Coal	132.5	184.6	222.2	288.9	327.2	+13.3
Iron Ore	628.3	619.1	687.0	745.5	820.3	+10.0
Soyabeans	42.6	54.8	52.6	58.4	63.4	+8.6
Steel products	22.2	17.2	16.8	13,6	14.4	+5.9
Bauxite/alumina	24.9	34.7	47.1	45.1	75.4	+67.2
Nickel ore	16.6	25.1	48.3	65.0	71.2	+9.5

source: China Customs, USDA, BSA * *2013 compared with previous year*

World grain trade

Maria Cappuccio

Large 2014 crops pressured by demand anticipated to remain strong

The International Monetary Fund's (IMF) most recent assessment confirmed that global economic activity strengthened last year with further improvements likely, largely due to the recovery in the advanced economies, with global growth forecast slightly higher in 2014, rising to 3.9 percent in 2015, with downside risks remaining in both advanced and emerging economies. But this assessment came before geo-political tensions surfaced — Ukraine ousted its pro-Russian president and Russia deployed troops to seize control of key military installations in the Crimea region of Ukraine, provoking international outrage. This serious conflict so far contained, but unresolved, increased political and financial risk for global investors, prompting an emerging-market sell-off. Stocks around the world fell, the rouble plunged to an all-time low-propped-up by a 12 billion sale of Russia's central bank reserves. Treasury bonds, gold and the yen rose as investors sought safety, while prices for oil, gas, wheat and corn, climbed higher. Russia and Ukraine are major exporters of wheat and corn onto the global grain market. Since the crisis began stocks have staged a recovery on the major exchanges, prices of corn and wheat have remained firm.

Against this backdrop, the preliminary outlook for grain and oilseed crops for 2014 is generally favourable; large crops expected to allow a further rebuilding of global grain and oilseed stocks, and a further moderation of crop prices with global demand expected to remain strong and to continue to keep

GLOBAL WHEAT PRODUCTION (MT)

	2010	2011	2012	2013	2014
Europe	140	142	138	147	149
EU	137	138	134	143	145
E.Europe	3	4	4	4	4
CIS Baltics	81	115	77	104	100
Russia	42	56	38	54	54
Ukraine	17	22	16	20	17
N & C America	87	83	92	99	98
US	60	54	62	57	58
Canada	23	25	27	29	26
South America	28	26	18	20	16
Argentina	17	16	11	12	10
N East Asia	40	40	37	38	38
Turkey	17	19	16	18	18
Far East Asia	227	236	248	247	247
China	115	117	121	122	122
Africa	21	25	23	27	26
North Africa	16	18	17	20	19
Australia	28	30	23	27	24
Total	**652**	**697**	**656**	**712**	**697**

Source IGC, USDA, UN trade-totals may not add due to rounding

pressure on supplies. While global stocks have improved over the past crop year, they remain tight and prices are likely to remain sensitive to market conditions, and vulnerable to supply shocks.

Global plantings to increase but wheat output forecast marginally lower in 2014

In the northern hemisphere, most of the winter wheat crop is in the ground and prospects for the wheat harvest in 2014 are mostly favourable. The International Grains Council (IGC) forecast the global wheat area to expand by 5.5 million hectares (m/ha) to 224m/ha, and expect the area sown to wheat to increase in the major producing countries including, China, India, Pakistan, CIS Countries, and the EU; some countries have yet to plant the 2014 wheat crop, but with wheat production remaining relatively more profitable to other crops wheat plantings are expected to increase. While the lack of snow cover in some areas, increases the threat of winterkill, the IGC forecast the global wheat crop at 697mt (million tonnes), the second highest crop on record, reflecting a 2% decline year-on-year, as yields are unlikely to match last year's exceptional level.

North American wheat plantings to fall in 2014

USDA forecast lower wheat sowings at 55.5m/acres in 2014, due to a 1.1m/acre decline in Soft Red Winter (SRW) wheat seedings grown largely in the Midwest; even with an increase in spring wheat plantings up by 0.5m/acres to 13.6m/acres, will only partially offsets the drop in the winter wheat area. Hard Red Winter (HRW) wheat is expected to take acres away from corn in the Plains, due to price differential (wheat $6/bu/corn low-mid $4/bu); Hard Red Spring (HRS) acreage is expected to grow slightly in 2014, especially in the key areas of the Dakotas, Minnesota and Montana. Preliminary estimates forecast a US wheat crop of 59mt; Canada is also expected to harvest a smaller area (9.9m/ha) than the 10 year high achieved in 2013 (10.4m/ha).

EU larger wheat crop and increase in feed wheat use in 2014

The EU wheat planted area is expected to rise, at the expense of corn and barley, by 0.4m/ha to 26.1m/ha, mainly due to an increase in the UK planted area up to 1.9-2m/ha. Both the EU Commission and Strategie Grains forecast the EU crop at c. 145mt (soft wheat 137.5mt, durum 7.6mt); the threat from winterkill and damage to crops from heavy rains in western areas, limited. Exports are expected to fall to over 23mt including durum; while EU livestock producers are expected to increase wheat for feed use by 5mt at the expense of corn and barley, with a modest rise to EU wheat inventories to just under 12mt, by end 2014/15.

GLOBAL WHEAT SUPPLY & DEMAND

2010–2013/14mt

	2009/10	2010/11	2011/12	2012/13	2013/14
Production	687	652	697	656	712
Consumption	654	656	697	679	703
Trade	135	134	154	147	156
Stock	202	199	199	176	184
China	54	59	56	54	58
Major Exporters	71	65	58	58	47

Source: USDA/FAO/IGC

CIS spring plantings expected to rebound

Winter plantings are lower this season due to adverse wet conditions in central regions, while low snow cover in the south has left crops vulnerable to cold weather, and plantings are reported to be down in both Russia and Ukraine; while 'moderate frost-kill events' in some parts of southern Russia and central Ukraine are highlighted, the threat of winterkill diminishes as spring approaches. The IGC expects spring plantings will rebound, however recent reports confirm that Ukraine's winter wheat crop, which accounts for the vast majority of its production of the grain, faces severe drought prompting a downgrade of wheat production prospects, besides a warning over the impact of civil unrest on their spring sowings programme.

China and India planted area to increase

In Asia, the winter wheat area is forecast to increase in China to 24.3m/ha and in India to 31.5m/ha some 6% higher than last year, helped by abundant monsoon rains. In North Africa, conditions mostly favourable for winter wheat planting but more rains needed across the sub-region to ensure optimal crop establishment and development.

'El Niño' casts shadow over 2014 Australian crop

With wheat planting not beginning until May in Australia, the preliminary outlook highlights concern for soil moisture following soaring temperatures and drought in the south and southeast areas, and the heightened threat, especially to wheat, from "…an even stronger probability of *El Niño*, developing this year," according to Paul Deane, Australia & New Zealand Bank's senior ag economist. *El Niño* forming later in the calendar year is typically linked to lower wheat yields in Australia's eastern areas, where tight supply is already evident. Commerzbank expects US wheat prices to increase further in the months ahead, due to the risk of winter damage and *El Niño* effect in 2014/15.

Wheat prices forecast to fall to $5.30/bu in 2014/15

Looking ahead to next season, USDA forecast global wheat stocks, by end of 2014/15 to be broadly similar to this crop year, due to a fall in world wheat output and rise in food use; trade is expected to fall from this season's peak, predominately on lower needs from China, with prices lowered to $5.30/bu down 22% from last year. Rabobank, forecast rising wheat stocks by the end of 2014/15, and cut their forecast for wheat to $5.60/bu with prices continuing to decline throughout the year.

Record wheat production rises to 712mt in 2013/14

Global wheat production rose by over 56mt to a record 712mt in 2013, lower prices for wheat accelerating overall global consumption, expected to rise to 703mt; food/industrial use is forecast higher by 26mt to 569mt, while global feed wheat fell by 1.5mt to 135mt, due to more competitive feed ingredients, including corn.

Russia/Ukraine crisis creates uncertainty

Exports of wheat from the Black Sea region are forecast to rise this season to 33mt (Russia16mt, Ukraine 10mt, Kazakhstan 7mt). The Russian/Ukraine conflict has created uncertainty about exports and future supplies. So far, there is little evidence of disruption to grain exports — Ukraine has shipped the bulk of its exports with some 8–9mt remaining to be exported by end of the crop year; however, reports confirm that many

GLOBAL COARSE GRAIN SUPPLY & DEMAND

2010-2013/14mt

	2009/10	2010/11	2011/12	2012/13	2013/14
Production	1097	1099	1151	1133	1260
Consumption	1113	1129	1152	1134	1233
Trade	119	116	133	132	143
Stocks	197	166	165	164	191
China	52	50	60	66	73
Major Exporters	62	46	41	42	56

Source: USDA

producers are possibly holding stocks as a hedge safeguard, should the Ukrainian currency collapse — dollar-denominated crops offers a hedge against a falling hryvnia; additionally financial constraints, lack of credit, lack of adequate soil moisture, may affect output in 2014. Elsewhere, record wheat exports are expected to rise in the major exporting countries including, the US 32mt, EU 27mt and Canada 23mt, with smaller exports from Australia 19mt. With India's agricultural policy subject to international scrutiny, following last year's exceptional exports of 8.5mt; despite the potential of another large crop, exports are forecast lower to 5.5mt this season.

Low inventories encourages record wheat trade in 2013/14

Global wheat trade is forecast at a record 156mt in 2013/14, as importing countries replenish wheat stocks that were drawn-low due to higher wheat prices last year. Egypt will be the largest single buyer importing 10.5mt while China is forecast to triple imports to 8.5mt, larger imports are forecast for to Iraq 5mt and Mexico 4.5mt. Despite a recovery in global wheat futures prices, Egypt's General Authority for Supply Commodities (GASC), bought 235,000/t of wheat from Russia and 60,000/t from Romania in February, at an average price of $292/t CIF (cost, insurance, freight) ($289-$293), the lowest since September helped by lower shipping rates and a weaker rouble. Shipping rates have tumbled some 45% this year, undermined by jitters in emerging markets and their impact on commodity demand; freight from Romania offered as low as $10/t down from $15.73/t and from Russia between $11–13/t. Following record global wheat exports, wheat stocks are expected to rise by 8mt to184mt, while major exporters stocks are forecast lower at 47mt by the end of this season.

Black Sea crisis drives wheat futures higher

The crisis and ongoing unrest in Ukraine and potential problems in moving grain into export channels as local currencies are driven to record lows against the dollar, drove wheat prices, which had been drifting-up, on reports of damage to crops, cold weather and transport logistics, much higher. May CBOT wheat futures contract soared to $6.458/bu before falling back only to rise again to close up $6.46/bu (Mar 6).

While on the EU and UK futures markets, prices rose — UK May 14 wheat futures settling at £162/t (Mar 3) up £5.25/t ($8.78/t) in one day, rose further to close at £165.50p (Mar 7). Export prices markets have risen further over last month US (HRW) FOB Gulf $318/t; French wheat FOB Rouen $293/t (Mar 6).

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Sharp increase in grain throughput at Hamburg

The total volume of grain handled at Germany's Port of Hamburg increased by a staggering 90.4% in 2013, to 3.5mt (million tonnes). On the import side, 452,000 tonnes were handled, an increase of 52.9%. Exports totalled 3.048mt, up 97.6%.

One reason for the increase was the strong, high-quality harvest, which attracted strong demand in the below mentioned regions. In addition to this volume, around 260,000 tonnes of grain were handled in 2013 as container loads. The ocean freight imports came mostly from Germany, Denmark, France and Russia in 2013. The majority of exports via the Port of Hamburg went to the Persian Gulf and the Arabian Sea as well as to North and East Africa and the United Kingdom. The port expects that this strong increase in exports will continue in 2014.

Record plantings, raises prospects for bumper global corn crop in 2014

The global planted area for corn is expected to rise 1m/ha to a record 175.5m/ha, due to increased sowings in China and the Ukraine, and less sowings in the US and EU; assuming normal weather conditions, the IGC does not expect yields to outperform last year, and forecast the global corn crop at 954mt down from 967mt but still a record crop. While US corn acreage is forecast to fall to 92m/acres (harvest 86.4m/acres), and with a return to more normal yields for spring-planted crops, USDA expects corn yields to jump by 4.1% this year, potentially producing another record US crop of 355mt (13.985Bn/bu) similar to last year; boosting US corn stocks to 54mt, by the end of 2014/15, some 43% up on this season; corn prices are projected to fall to $3.90/bu down by $0.60/bu, the lowest season average price for corn since 2009/10.

Strong demand for feed drives consumption in 2013/14

While record high prices boosted plantings at the start of the season, global output of coarse grains, rebounded significantly on-track to rise to a record 1.26Bn/t in 2013/14, mainly due to a huge corn crop but also better crops for barley, sorghum and other small grains. The combination of a steep fall in prices, strong demand for feed, food and bio-fuels, is expected to drive consumption up by 100mt to 1.23Bn/t; food/industrial use to rise by 28mt, to 495mt; while feed use is expected to rise by 70mt to 738mt buoyed by robust demand for livestock feed. Global coarse grain trade is expected to increase by 11mt to a record 143mt as buyers take advantage of competitive prices, while global stocks, including those held by the major exporting countries, are forecast to rebound.

Large supplies and competitive prices boost corn use

Global corn production is expected to rise to a record 967mt due mainly to a huge bin-busting US corn crop 354mt, better crops in China 217mt, and sizeable crops in Brazil 70mt, Argentina 24mt, EU 65mt and Ukraine 31mt. The steep 35% fall in prices of corn, accelerated consumption to a record 943mt; feed use expected to grow by 58mt to 574mt; with food industrial use starch and sweeteners, to rise by 24mt to 370mt, including a 9mt increase in ethanol use. Demand for corn has rebounded due to robust demand in many countries, and, the competitive price of corn relative to other feed ingredients has made it one of the cheaper feed ingredients, available. US corn feed use is forecast to rise by 25mt to 135mt following the drought; China up by 12mt to 156mt, and in countries like South Korea, corn prices have made it attractive to import more corn and less feed quality wheat.

Strong ethanol demand boosted by exports up to 1Bn gallons in 2014/15

Despite on-going discussions regarding the Environmental

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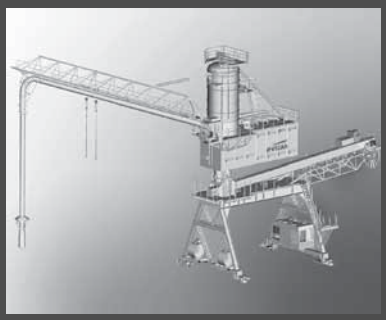

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Protection Agency's (EPA) decision, on the volume of renewable fuels to be established for 2014, under the Renewable Fuel Standard (RFS). So far, proposed volumes for total and advanced RFS categories, implies smaller corn-based ethanol volumes. Although, USDA forecast strong ethanol export demand to rise to 750M-1Bn gallons in 2014/15, likely to keep corn used for ethanol at127mt (5Bn/bu), and also produce 38mt of high-quality livestock feed (35mt DDGS and 3mt Corn gluten feed and meal) in 2014/15. The Renewable Fuels Association (RFA) confirmed there has been a brisk start to ethanol exports at the start of 2014; last year exports to a large number of countries totalled some 630Bn gallons with Canada and Brazil importing around two-thirds of US ethanol. Changes within the US domestic market are also shaping the ethanol market-favourable blending economics and higher RIN values encourage blending and sales of E85; while an increase in the number of retail outlets selling E15, contribute to increase the penetration of ethanol beyond the 'blend wall'.

Record US corn exports marred by rejected cargoes to China

With global export prices tumbling from last year's summer peaks, and seasonally slower exports from Brazil 21mt and by Argentine government policies limiting new-crop corn sales forecast at 13mt. US corn exports have become more competitive on the global market and are expected to more than double to 41mt this year. Sales are forecast to rebound in Asia, reflecting comparative advantages in price and freight, but in recent months US exports of corn have stalled following the rejection of shipments due to the presence an unapproved insect resistant MIR 162 gene, found in cargoes of US corn and corn products. USDA reported (Feb 6) there were 1.5mt of undelivered contracts for China. And, with no resolution in sight, until China's Ministry of Agriculture reviews the safety of MIR 162, a number of major US grain companies including, Consolidated Grain and Barge Co, ADM, Cargill and Bunge, confirmed they will not accept crops containing Syngenta's Duracade product for export contracts; ADM has extended that remit to apply also to domestic processing. Corn seeds containing Duracade, engineered to fight rootworms, were cleared by US authorities in 2013, and available for planting in the US this year, but have not been approved for import by China or the EU, both major buyers of US crops and products.

Concern for Ukraine's future corn output

While Ukraine is forecast to export 18.5mt of corn this season, questions have been raised over whether grain output and exports can be sustained at their present level. The Macquarie bank flagged that falling prices has led farmers (like those in Argentina) hoarding grains during the crisis as a dollar-denominated hedge against a tumbling local currency, and warned the crisis would wreak longer-term damage to Ukraine agriculture through a weaker hryvnia, lifting the cost of imported inputs including, fertilizers, such as potash, and agrichemicals.

Global corn stocks are expected to rise to 157mt in 2013/14, with US stocks almost double those of last year to 38mt. Average export prices for Corn (YC3), have risen since January on brisk demand FOB $237/t (Mar 6) almost $75/t lower than last year; a rebound in other grains, uncertainty about the availability of Ukraine's grain supplies, are the primary reasons for the strong recovery in corn futures CBOT May corn closed at $4.91/bu (Mar 6).

Canada's logistical issues limit barley sales

Barley output rose to 145mt in 2013/14 due to much improved harvests in the EU, CIS countries, Canada and Australia with overall demand expected to rise to 142mt; mainly due to feed demand up by 8mt to 98mt in major producing countries. With better crops in several countries and corn more competitive, trade is forecast lower at 20mt — Argentine farmers are reluctant to sell their barley due to the ongoing currency problems; Canada's logistics caused by ice and snow are further limiting export activities; while China continues to cover its needs primarily from Australia. Global barley stocks are increased to 24mt. Like other coarse grains, barley export

GLOBAL MAJOR OILSEED PRODUCTION

2010–2013/14 mt

	2009/10	2010/11	2011/12	2012/13	2013/14
Production	447	461	446	474	502
Soybean	260	264	239	268	284
Trade	107	108	111	118	129
Crush	359	378	396	397	414
Use: Meal	239	252	263	264	274
Use: Oil	139	146	153	158	164
Stocks	75	84	65	68	86
Soybean	61	70	53	59	73
US	4	6	5	4	4
S. America	39	45	28	38	51

Source: USDA/Meal use incl. fishmeal c.5mt

prices have strengthened since the conflict in the Black Sea, EU Barley (France) FOB Rouen $259/t (Mar 6), $29/t lower than last year. Paris Futures Malting Barley May contract closed at E215.00 ($298.21) (Mar 6).

Chinese import 3mt of sorghum in 2013/14

Production of sorghum increased by 5mt to 62mt in 2013/14 helped by a bumper harvest in the US, Sudan, Nigeria, India and Mexico. Consumption rose by 5mt to 62mt, especially in China, US, Mexico and Brazil. Trade is driven higher to 7mt, with rising imports to China of 3mt for feed, up from 600,000/t last year; Sorghum export prices FOB-Nola $256.28/t (Mar 7).

US soyabean acreage to increase in 2014

Soyabean planted acreage to rise to 79.5m/acres in 2014 at the expense of corn. Based on typical yields would imply another record US soyabean crop of 95mt (3.49Bn/bu), which should improve extremely tight stocks of 4mt in the current season. USDA forecast the average farm price to fall to $9.65/bu, the lowest season average price since 2009/10.

Record harvests of soya lifts global supplies in 2013/14

Much larger soyabean crop forecast at 284mt, lifts global oilseed output for the major oilseeds, to a record 506mt, with increased output expected for rapeseed 70mt, sunflowerseed 43mt, palm kernel 14mt and Copra 6mt and smaller crops of cottonseed 44mt and groundnut 39mt. Global oilseed consumption is forecast to rise by 9mt to 269mt with trade driven by strong feed demand up by 11mt to 129mt.

South American soya output marred by drought conditions

While overall soyabean output is expected to increase, led by the US with a 90mt crop, analysts differ on the crop output for Brazil and other South American countries. USDA forecast almost 159mt (Brazil 90mt Argentina 54mt, Paraguay, Uruguay, Bolivia combined 15mt); while Oilworld cut their forecast to almost 151mt (Brazil 84mt, Argentina 53.5mt — Paraguay, Uruguay, Bolivia combined 14mt), citing considerable irreversible losses due to drought conditions, in Brazil's eastern areas cutting yields, with further downward revision likely. For several months persistent heat and dry conditions, during the growing season, raised fears that the country's soyabean crop expected to set a record, would damage yields and come in lower than expected. While excessive rainfall has caused delays and hampered the harvest in Mato Grosso, raising further quality issues and field losses; but even with the downgrades the crop is still likely to be a record.

Argentine limit sales of new crop soya

Argentine soyabean producers continue to build stocks, and to limit sales, in the current inflationary environment, only to meet current expenses. This has inflated the March 2014 carryover to a record 9mt. The absence of large commercial sales has been one of the contributing factors in keeping soyabean and meal prices above earlier forecasts. However, as stocks climb, the potential grows for producers to flood the market with soyabeans if/when market conditions improve.

Yellow sorghum.

SOYABEANS MAJOR PRODUCERS

2010–2013/14 mt

	2009/10	2010/11	2011/12	2012/13	2013/14
US	91	91	84	83	90
Brazil	69	75	67	82	90
Argentina	55	49	40	49	54
China	15	15	14	13	12
India	10	10	11	12	12
Paraguay	4	4	4	9	9
Others	14	17	19	21	21
Total	260	264	239	268	288

Source: USDA

OILSEEDS AND MEAL SUPPLY/DEMAND 2013/14 (MT)

	Oilseeds				Meal		
Oilseeds	**Prod**	**Trade**	**Crush**	**Stocks**	**Prod**	**Trade**	**Use**
Oilseeds	Prod	Trade	Crush	Stocks	Prod	Trade	Use
Soybeans	288	109	239	73	189	61	185
Sunseed	43	2	38	4	16	6	16
Rapeseed	70	14	65	6	38	6	385
Copra	6	*	6	*	2	1	2
Palm kernel	15	*	15	*	8	6	7
Peanuts	40	3	17	2	7	*	7
Cottonseed	44	1	34	1	16	*	15
Total	**506**	**129**	**414**	**86**	**280**	**83**	**274**

*Source: USDA; *less than 200,000/t. [1] Oil meal totals incl. fishmeal (Prod c.5mt, trade 3mt, Use 5mt)*

Record Asian demand and tight US stocks drive soyabean prices

Global soyabean trade is forecast to increase by 9mt to a record 109mt in 2013/14 mainly due to increased soyabean imports to China, expected to rise to 69mt this season and to other Asian destinations (Taiwan, Thailand, Indonesia, Vietnam, South Korea), combined imports expected to increase by over 0.7mt to 9.1mt. Poultry feed has progressed more rapidly than other meats, driving feed demand, despite damaging outbreaks of Bird flu strains H5N9 and H5N1 in China and also in other Asian countries like Vietnam, where according to the Ministry of Agriculture recent Bird flu outbreaks have raised food safety concerns leading to a drop in poultry consumption and prices by over 20%.

Soyabean complex has been supported by tight US supplies, limited South American availability due to delays/logistical problems in Brazil and limited sales in Argentina. Average export prices for Soyabeans No 2 FOB Gulf $570/t (Mar 6); Argentine up river $576/t (Mar 6) some $24/t above last year. CBOT Futures-May soyabeans soared to close at $14.578/bu (Mar 7).

Large supplies, boost crushings in 2013/14

Larger crops of soyabean, rapeseed, sunflowerseed, and other oilseeds, are expected to boost crushings by 17mt to 414mt. Soyabean crush margins throughout the world have so far been positive-soya crush is forecast to rise by 10mt to 239mt. While global oil meal consumption is expected to increase by 10mt to 274mt, by the end of 2013/14, mainly due to robust food and feed demand in China, where rising incomes and changing tastes, have increased demand for animal protein, and for greater incorporation of higher-protein ingredients in feed rations; and also in a number of countries including the EU, US, Russia, Brazil, India, Indonesia and Japan.

Challenging outlook as China's crush margins deteriorate

China's crush sector c.140mt has been expanding almost entirely on imported soyabeans, since much of the domestic soy crop is used for food or purchased by the State Reserve.

But despite the timing of large supplies of South American soyabeans entering the market, compared to the progressively tight stocks of soyabeans in the US, China has persistently bought US supplies; sending elevated soyabean prices even higher. But with soyabean crush margins turned negative, "…problems in China continue to mount as the soyabean crush margins continue to deteriorate..." according to Darrell Holaday; with strong indications that China may postpone a large amount of Brazilian soyabeans that are to be shipped in Mar/April, to July or August, or later.

China cancelled a shipment for 245,000mt with traders expecting more cancellations to follow; soyabean crushers have built-up supplies at import ports expected to rise to over 6mt by next month.

While China's feed demand is strong, the impact of Bird flu (H7N9) on the poultry industry has been significant, and has cost some U$3.27Bn in the first two months of the year, with consumers switching to pork, beef, fish and other proteins. Additionally, pig and pork prices continue to fall in China, down year-on year by 19.4% and 13.1% respectively. Lower prices provide less incentive to pig producers, with some industry forecasts that prices are likely to remain low at least through the first six months of this year.

Longer term, and adding to producers woes, China's State Council suggests that the country's overall consumption of pork by 2020, when the population is expected to reach 1.35bn, is likely to be more than halved to 24.6mt from 54.9mt last year. DCi

SOYABEAN & SOYABEAN MEAL MAJOR PRODUCERS

	2010–2013/14mt					
	2011/12	**2012/13**	**2013/14**	**2011/12**	**2012/13**	**2013/14**
EU	12	11	12	21	17	19
Asia	70	75	76	16	16	17
China	59	63	69	-	-	-
L. America	1	1	1	4	5	6
N. America	4	4	5	3	2	3
Mexico	3	3	4	2	2	2
MidEast/Africa	4	4	2	6	6	8
Others	2	2	2	7	6	4
Total	93	97	105	58	54	58

Source: USDA

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Eco-friendly scrubber from Langh Ship

Langh Ship first installed a mini-scrubber on the Aila *(pictured) prior to installing a functioning scrubber on the* Laura*, where results have been excellent.*

The tightened environmental regulations in the sulphur emission control area (SECA) are strongly affecting the maritime industry. In order to comply with the sulphur limit of 0.1% at the start of 2015, shipping companies will need to switch to diesel or install a scrubber on their vessel.

Langh Ship's commercial manager Laura Langh-Lagerlöf was invited to speak at Lloyd's Maritime Academy & Informa Maritime's 'A Practical Guide to Scrubber Systems' event in London, and to discuss Langh Ship's solution to the current problem.

The audience listened intently as Langh-Lagerlöf recounted how the tightening sulphur regulations led Langh Ship to develop a scrubber in-house. It all started with a mini-scrubber on Langh Ship's *Aila* vessel, where a small amount of the emission gases was led to the mini-scrubber, and the resulting washing water was cleaned ashore. A functioning scrubber was installed on Langh Ship's *Laura* in May 2013, and the results have been very good.

Langh Ship's commercial manager Laura Langh-Lagerlöf.

The goals of the scrubber project were to fulfil the IMO requirements, not to compromise the ship's seagoing properties, and to only cause a minimal reduction in the ship's cargo-carrying capacity. Langh-Lagerlöf told the audience that these goals have been met, and that the scrubber is on its way to being classified as a system that fulfils all of the IMO regulations.

The Langh Scrubber's eco-friendliness has been an important aspect from the start. Langh-Lagerlöf proudly pointed out that Langh Ship is one of the few operators in the maritime industry that has been successful in developing an eco-friendly scrubber that releases no harmful substances to the sea, which, in turn, helps protect the vulnerable Baltic Sea.

Langh Ship is a Finnish family-owned company whose goal is to stay at the forefront of technological development in order to serve customers as effectively as possible. For us, high technology helps us bear our share of responsibility for the environment. Langh Ship's fleet comprises five multipurpose cargo vessels.

Campaign to urge governments to adopt IMO Places of Refuge Guidelines

Shipowners, salvors and insurers – through their respective trade associations – have jointly called for the prompt and proper implementation of international measures to provide a Place of Refuge for stricken vessels, following a series of incidents where casualty vessels have been delayed in accessing a safe harbour.

The International Chamber of Shipping (ICS) says that it has noted "with dismay" the refusal by some coastal states to make places of refuge available, thereby risking lives and the environment even after the high profile cases of the *Stolt Valor* and the *Flaminia* in 2012. And the plight of the *Maritime Maisie* currently off the coast of Japan has brought this subject back into sharp focus. The 44,000dwt chemical tanker is being held at sea by six tugs after a collision and fire on 29 December 2013. The cargo fire has now been extinguished through the efforts of the salvors in the face of difficult conditions at sea.

The vessel has been seeking a place of refuge in either the Republic of Korea or Japan for more than a month. The salvors have indicated that it is a priority to take the vessel to calm waters to manage the remaining cargo in a safe manner and so to minimize potential damage to the environment.

The International Union of Marine Insurance (IUMI); the International Salvage Union, (ISU) and ICS all recognize that the issue of Places of Refuge for casualty vessels is sensitive and that the risk of pollution from casualties cannot be completely removed. They also recognize that decisions with regard to handling casualty vessels carry political implications and may impact coastal communities.

At the same time, failure to offer a suitable Place of Refuge may prevent successful salvage intervention and therefore allow a casualty's condition to worsen and ultimately lead to pollution that might otherwise have been prevented, and that pollution may affect a wider area than need have been the case.

Peter Hinchliffe, ICS Secretary General, said: "Guidance on the handling of requests for places of refuge was agreed at IMO but often when a case arises the coastal states concerned take a 'not in my backyard' attitude. This is in marked contrast to attitudes to aircraft in need of assistance. This current case shows that recent lessons have simply not been learned."

Commenting on the matter, President of the ISU, Leendert Muller said: "Our members are right on the front line of this issue. Too often they are unable to follow the best course of action which is to take the casualty into shelter, which does not necessarily have to be a port. We have seen infamous cases like *Castor* and *Prestige* and more recently the *Flaminia* and *Stolt Valor* and now the *Maritime Maisie* where our members, attending damaged vessels, experienced great difficulty in finding an authority willing to accept the casualty."

Ole Wikborg, President of the IUMI, points out: "The potential impact of environmental damage has to be reduced as much as possible and the safety of crews is paramount and we have to minimize material damage to ships and equipment. Coastal states must be able to make the best possible decision to prevent further damage following a maritime accident. Some countries have a system that seems to be functioning. IUMI is of the strong opinion that the prevailing regulations as set out, for example, by IMO and the EU are sufficient but that the necessary steps have to be taken to make the rules work."

ISU, ICS and IUMI all note the international legal context for the issue and the significant relevant legislation that is in place internationally and regionally, in particular, IMO Resolution A.949, "Guidelines on Places of Refuge for ships in need of assistance"; Resolution A.950 (23) (recommending all coastal States to establish a Maritime Assistance Service) and the 1989 Salvage Convention as well as the European Union vessel traffic monitoring and information system (Directive 2002/59/EC as amended by Directive 2009/17/EC) which prevents member States from issuing an outright refusal to provide a place of refuge and states that safety of human life and the environment are of over-riding concern.

The industry bodies do not see merit in pursuing additional international legislation which will be a lengthy process and will consume resources. Instead they will campaign for better application of, compliance with and enforcement of existing rules and guidance. ISU has already formally presented views on Places of Refuge to EU member states through the EU Commission; the issue will be raised in IMO fora this year and there will be direct engagement with the governments of individual coastal states.

In short, coastal states should be encouraged to recognize that granting a Place of Refuge to a casualty vessel may be the most appropriate course. States should establish an authority to assess each case on its merits without political interference. Such an assessment must include a visual inspection and conclude with recommendations for managing and mitigating the risk of any impact on local coastlines and communities. The assumption should be that a Place of Refuge will be granted if needed and that there should be "no rejection without inspection".

IUMI, ICS and ISU would like to see wider adoption by coastal states of simple, robust, 'single point' command and control models akin to that of the United Kingdom's SOSREP system.

The Maritime Maisie.

Bulker safety

Wet nickel ore in the hold.

Michael King

Indonesia could restart exporting nickel ore again at any time. If it does so, the dangers to seafarers will rapidly escalate.

Indonesia's ban on mineral ore exports is all that stands in the way of further bulk carrier casualties and loss of life due to the carriage of nickel ore mined in the archipelago and destined for China's steel mills — shipping's notorious 'deadly trade'.

Five bulkers have been lost and 81 seafarers have perished since late 2010 after loading nickel ore in Indonesia and setting sail for China. The cause of each loss was liquefaction of the cargo, a chemical process which rapidly transforms certain minerals from a solid state into a liquid sludge if loaded with excessive moisture and then subjected to vibration.

Indonesia banned exports of mineral ores including nickel on 12 January, finally implementing a law passed in 2009 designed to encourage miners to construct smelters on its islands and generate value and jobs in Indonesia, rather than simply extracting the country's resources and shipping them overseas. This prevented exports of nickel ore during the worst of this year's wet season, which was drawing to a close as *DCI* went press.

However, as the world's premier miner of nickel ore and a major supplier of many other important raw materials such as copper concentrate and bauxite, Indonesian legislators are coming under considerable domestic and international pressure to overturn the export ban, a step that could again put seafarers at risk.

The World Trade Organization is eyeing the legality of the ban under pressure from Japan, which sources more than half of its nickel ore from Indonesia for use in its stainless steel industry. China, which also relies heavily on Indonesia's nickel ore, has been making noises about investing in smelting facilities in Indonesia even if it has little chance of turning a profit from doing so. In the meantime, its steel industry is desperate for the export tap be turned back on.

Financial pressure to overturn the ban is also building. Indonesia's mining minister admits that the ore export ban could result in lost export earnings of $4bn this year, hurting GDP growth and putting further pressure on the Rupiah which was in freefall for most of the last six months until it began to rally in February.

Local reports also suggest that policy makers are now admitting that even though much of the value of ores such as aluminium and nickel is generated in the smelting process, banning exports alone will not automatically mean that smelters will be built. Not least this is because investors are wary of Indonesia's woeful record when it comes to building the supporting infrastructure such as power plants, roads and ports that smelters require, especially when the plants, if built near

DNV GL and SDARI introduce new bulk carrier concept

DNV GL and Shanghai Merchant Ship Design & Research Institute (SDARI) have introduced the Green Dolphin 575 concept design for a Handymax bulk carrier.

This second design builds on the success of the Handysize Green Dolphin 38 for which around 80 orders have been placed with the major share to DNV GL class. Green Dolphin 575 aims to be fuel and energy efficient, robust and reliable, operationally flexible and able to meet current and future environmental regulations — and improve overall safety. It uses technologies that are already available for commercial use, so it can meet ship owners' current needs in tight market conditions.

The Green Dolphin 575 is a 190m-long Common Structural Rules (CSR)-compliant Handymax bulk carrier with five cargo holds. It is available in single hull standard or double-hull (open hatch) configurations.

Similar to the Green Dolphin 38, the hull is designed to achieve optimal fuel efficiency without compromising on strength and operational flexibility. New for this project is that the hull's performance in waves has also been addressed through model testing and calculations of the added resistance on a given trade route. An operating profile consisting of full load and ballast conditions at service and slow-steaming speeds was evaluated.

"These design imperatives were chosen based on an extensive market analysis together with input from many ship owners and ship operators," says Michael Aasland, Segment Director Bulk carriers, DNV GL. "We have achieved a design that has an EEDI rating 20% below the IMO reference line for bulk carriers, and in keeping with IMO imperatives, the vessel is prepared for shaft torque and fuel consumption monitoring systems that support SEEMP and EEOI requirements."

Engine configuration and emission-reduction technologies have been carefully evaluated, says Aasland. The Green Dolphin 575 is designed to comply with current and future expected local and global emission regulations through several different alternatives: a switch to low-sulphur fuels, the installation of exhaust-gas cleaning systems or dual-fuel operation with LNG. The core design has an efficient Tier II long-stroke, low-speed main engine and a large-diameter slow-rotating propeller. As a result, main engine fuel consumption is about 22.8 tonnes/day at CSR condition with a 15% sea margin.

The vessel is prepared for cold ironing, and cargo handling operations are performed by four energy efficient electric deck cranes with variable frequency drives that reduce energy consumption, are non-polluting and maintenance-friendly. Other features include a citadel for crew protection and compliance with the revised code on noise levels on board ships.

SDARI and DNV GL have used their combined and complementary expertise to deliver the Green Dolphin 575 concept design. Next, SDARI will carry out basic and detailed design to move the concept towards production. DNV GL will carry out approval in principle.

mines, would in many cases need to be located in some of Indonesia's most remote areas.

Already some copper producers are being allowed to resume exports, albeit after agreeing to major hikes in export taxes. Analysts believe a similar fudge could see a resumption of exports of other minerals, including nickel ore.

With stockpiles of nickel ore high and miners and buyers desperate for supplies, even a temporary resumption could see a surge in exports. This could prove particularly dangerous for seafarers if this happens during the wet season, which usually starts in Indonesia around September/October.

The most recent casualty on the Indonesia–China nickel ore trade occurred in February 2013 when the 49,675dwt Panama-flagged, Rina-classed, *Harita Bauxite* sank with the loss of 15 lives after loading nickel ore at Obi Island during heavy rain. It took more than a year for the Panama Maritime Authority to confirm that liquefaction of the cargo was almost certainly the cause of the loss.

Since the *Harita Bauxite* tragedy there has been scant sign of any action on the ground in Indonesia to improve safety at load ports, or improve access for cargo inspectors, while progress aimed at making handling processes safer via legislation has been glacial.

The IMO is now pushing Member States to implement amendments to the International Maritime Solid Bulk Cargoes (IMSBC) Code, which include new rules for handling nickel ore, as soon as possible.

The amendments are designed to tighten up the loading and testing procedures for cargoes such as nickel ore which may liquefy, not least by ensuring that strictures on Transportable Moisture Limits (TML) are adhered to and testing of the cargo before loading is comprehensive. The amendments include the following welcome statement: "When a concentrate or other cargo which may liquefy is carried, the shipper shall provide the ship's master or his representative with a signed certificate of the TML, and a signed certificate or declaration of the moisture content, each issued by an entity recognized by the Competent Authority of the port of loading." The entry-into-force date of the amendments is expected to be 1 January 2015.

However, exactly how this will help in Indonesia's more remote loading spots where masters and inspectors are often subject to intimidation, testing facilities are not available and shipper declarations cannot be trusted, is not yet clear.

If exports of nickel ore fines from Indonesia do resume in the coming months, much of the safety onus will remain on vessel masters. The investigation report by Panama Maritime Authority into the loss of the Harita Bauxite obtained by *DCI* sheds some light on how difficult a job this can be.

Investigators found that the cargo presented for loading after prolonged bouts of heavy rain was not in accordance with the International Maritime Solid Bulk Cargoes Code of 2012.

The cargo seller did provide the Master with data pertaining to the cargo's moisture content and flow tests as required by SOLAS, but the report expressed doubt as to "the accuracy and authenticity of the laboratory data."

Mistakes were also made by crew, according to PMA. Contrary to IMSBC Code Appendix 1, the surface of the cargo was not checked regularly during the voyage for signs of free

water. The master also accepted the loaded nickel ore base on face value of the laboratory certificate. He did so without carrying out extensive 'can test' assessments to determine the accuracy of the laboratory certificate, "even after having doubted the result of their own can test on several occasions."

PMA concluded that the probable cause of the accident was the liquefaction of the nickel ore cargo inside the cargo holds. "The flow state of the nickel ore cargo might have developed a list to the vessel and caused it to capsize and sink," said the report.

Handling nickel ore.

"In addition, stopping the vessel at night mainly due to a no.3 generator problem could not be understood considering the vessel was equipped with three generators.

"It can only confirm the surviving engineer's statements that no.1 generator had been out of service for some time and that no.2 generator had also been in trouble since departure."

The report recommended that all vessel stakeholders should issue clearer rules and duties on how cargoes such as nickel ore are loaded and tested for moisture levels, and the master should not allow loading to commence "until he is in possession of all requisite cargo information and documentation/certificates that a shipper is obliged to provide under the Code or local regulations," even in areas where obtaining accurate shipper declarations relating to the cargo is difficult.

The report also "strongly" advocated use of an independent cargo surveyor to check and report both the Transportable Moisture Limit and the actual moisture content prior to loading. "It is highly advisable that owners and charterer should not rely just on a single point of submitted information, especially mine owner in-house laboratories," said the report, adding that this should remain the case even if awaiting adequate test results leads to significant delays. "Loading should not commence until the test results have been received and the expert is satisfied that the cargo is safe for shipment," it said.

Arthur Bowring, managing director of the Hong Kong Shipowners Association, said it was often hard for owners, managers and masters to get the correct information about cargoes in remote areas in places such as Indonesia. "The loading of dangerous cargoes such as nickel ore needs to be stopped at the berth," he said. "But often there are no testing facilities and the master is told to load the cargo, or the cargo declaration may not match the cargo," he said. "This is the danger and it's not just with nickel ore, there are other hazards such as chemicals where it is sometimes hard to match the cargo to the brand name so you can get the wrong cargo."

Intercargo has now called for the faster and more transparent release of investigation reports into dry bulk losses to help improve safety in future. "A typical time-lapse from the date of a casualty to an uploading is now about one year," said David Jones, Intercargo Manager. "Clearly there is a balance to be struck between thoroughness and tardiness."

He said that despite recent and welcome additions to the IMO's Global Integrated Shipping Information System database of accident reports, Intercargo remained very concerned that some flag states were ignoring their moral and legal responsibilities concerning the investigation of some serious casualties. "The need to investigate and act upon the recommendations of maritime accident reports provides a vitally important role in improving the safety of the maritime industry," he said.

To help address the issue, Intercargo has now formed a Casualty Correspondence Group amongst its membership which considers casualty reports and recommendations in order to enhance the learning experience for bulk carrier owners and operators.

"Intercargo has analysed over 33 Bulk Carrier incidents between 1 January 2008 and the beginning of 2013," said Jones. "At the time of writing, we cannot locate any reports containing meaningful information for 14 of those incidents."

He said some casualty reports that were on GISIS were "nothing more than a perfunctory analysis" of the factual circumstances in which the incident occurred.

"Clearly all flag states — and where appropriate to the casualty and its circumstances, some coastal states — have different methods of meeting IMO obligations for investigating maritime casualties," he said.

He called on responsible flag states to use the IMO GISIS system to upload details of serious maritime incidents using better-practice techniques such as:

information to be uploaded within one year of the date of the casualty;

- where appropriate, the flag state should make recommendations linked to the prevention of future re-occurrences;
- there should be a presumption towards openness and transparency of reporting casualties. Legal excuses should not be used to bar appropriate discussion of investigations; and
- Intercargo would like to see Casualty Reports publicly accessible on Flag State websites.

Bowring said the reluctance of Flag States to make public investigation reports that could help save lives in future was part of the blame game that holds back preventative measures in the maritime industry. "It should not be about allocating blame, but about identifying how the safety chain broke down," he said. "But it seems that usually it is the captain that ends up facing criminal charges."

Ensuring cargo hatches remain watertight with Cygnus Instruments

UK company Cygnus Instruments Ltd was founded in 1983, when it first pioneered the digital multiple echo technique which is used to obtain accurate metal thickness measurements through coatings. With successful diversification, Cygnus now carries three ultrasonic product lines — thickness gauges, hatch cover/water-tight door leak detector & industrial leak detectors.

This article will focus on the company's Hatch Sure product, which offers high-quality ultrasonic hatch cover leak detection.

Hatch covers can slide forwards, backwards, or to the side, lift up or fold up. It is essential that they be watertight: unsealed hatches lead to accidental cargo hold flooding, which has caused many bulkers to sink.

Regulations regarding hatch covers have evolved since the investigation following the loss of the *Derbyshire* in 1980. The vessel foundered during 'Typhoon Orchid', south of Japan, and all hands (42 crew and two women married to crew members) were lost. At 91,655dwt she was — and remains — the largest British ship ever to have been lost at sea.

The Load Line Conference of 1966 imposed a requirement that hatch covers be able to withstand load of 1.74 tonnes/m² due to sea water, and a minimum scantling of 6mm for the tops of the hatch covers. The International Association of Classification Societies then increased this strength standard by creating its Unified Requirement S21 in 1998. This standard requires that the pressure due to sea water be calculated as a function of freeboard and speed, especially for hatch covers located on the forward portion of the ship.

Cygnus Hatch Sure

Cygnus Instruments produces an ultrasonic hatch cover leak detector — Cygnus Hatch Sure — for testing weather tightness of cargo hatch covers. The equipment provides a quick and effective method of evaluating hatch seals and aiding the prevention of sea water ingress.

Technology

Sea water ingress is one of the major sources of damage to cargo, resulting in expensive insurance claims. As noted above, it can also lead to flooded cargo holds and present a major risk to the safety of the vessel and its crew.

Cygnus Hatch Sure provides a quick and effective method of evaluating hatch seals. The system consists of a battery powered variable output transmitter containing 19 ultrasound emitters (40kHz). The emitters are arranged to produce an omni-

Kit contents

The Cygnus Hatch Sure kit contains everything needed to test the watertightness of cargo holds:

- Hatch Sure receiver with protective case;
- two rechargeable batteries for the receiver;
- neck and waist strap for the receiver;
- telescopic extension and cable;
- two flexible inspection microphones;
- protective foam cover for inspection microphone;
- headphone 2-into-1 splitter cable;
- neck-band headphones;
- Hatch Sure transmitter with protective case;
- shoulder strap for the transmitter;
- two sets of six rechargeable batteries for the transmitter;
- fast charger for the rechargeable batteries;
- external DC power lead for the transmitter;
- emergency microphone cable;
- rucksack style carry case; and
- operation manual.

directional sound field, uniformly distributed throughout the cargo hold.

The receiver part of the system displays the sound energy level that passes through gaps in the enclosed cargo hold to enable the location of leaks to be quickly and accurately identified.

Hatch Sure is ABS type approved and accepted by P&I clubs.

Applications

- test the weather tightness of cargo hatch covers or doors;
- test seals in cargo access areas, such as bow, side and stern doors or any opening that needs to be sealed;
- sealing integrity checks on large yachts; and
- for testing watertight doors.

Features

- lightweight 3.8kg (8 lbs) — suitable to be hand-carried onto aircraft;
- digital calibration controls;
- Open Hatch (OH) value and sound level in decibels (dB) are simultaneously displayed;
- powerful and robust transmitter;
- easy transportation in a rucksack-style carry case;
- receiver supplied with neck and waist straps for hands-free use;
- the transmitter has six selectable pre-set power levels enabling the unit to be used in confined spaces;
- transmitter is fitted with shoulder strap for convenience and safety;
- inspections can be carried out with cargo in place;
- allows a rapid and thorough test of hatch cover tightness;
- environmentally friendly — can be used in place of hose testing in freezing environments; and
- three-year warranty.

Holistic approach helps Rightship improve safety of bulk vessels

Warwick Norman, CEO of ship vetting expert Rightship, believes in a holistic approach to bulk carrier safety.

Warwick Norman, CEO of Rightship.

DCI: *How many ships are you vetting each year now and how many of them are bulkers?*
Norman: We did about 34,000 vets last year. About two thirds were bulk carriers and general cargo ships and one third were for the petroleum sector. The number of bulk carriers we vetted last year increased by 7%. We also vet some containers, mainly where people are moving high value cargoes such as uranium in containers and need to assess the ship first for obvious safety reasons.

DCI: *Who are the main customers using your bulk carrier services?*
Norman: Our main bulk carrier customers are charterers and shippers. The latter may be selling FOB [free on board], but may have assets in the terminal even if they are not doing freight, or they may be protecting all the various stakeholders in the export chain by ensuring the ship is safe before it is loaded. In Australia, our customers are the west coast iron ore terminals and coal terminals on the east coast. We also vet bulkers on the South American iron ore trade as well as those carrying Central American and Indonesia coal.

DCI: *Once you have vetted a vessel via your Ship Vetting Information System, how often does this then lead to a physical inspection of the ship by your vetting team?*
Norman: We tend to do about 3,000 physical inspections globally each year. So about 1 in 10 or 11 of the ships we vet subsequently gets inspected.

DCI: *At what point does Rightship decide a ship needs to be inspected?*
Norman: It's a hierarchical process whereby we look at various factors and work through the total risk. If the ship is old — maybe it's over 18 years old if it's a bulker — then that's when we'd look at doing an inspection, for example. Statistically the risk curve increases for a bulk carrier from 15 years onwards in terms of detentions and incidents or Port State Control [PSC] performance. Other factors would be warning signs such as a ship's involvement in a casualty, something that comes up in PSC, or perhaps if it has changed its name.

DCI: *What are you looking for during the inspection?*
Norman: We take a holistic view. There is a lot involved in safety across the vessel. We make sure all the management systems are in place and running properly on the vessel. We also look at traditional risk issues around fire fighting and life-saving machinery. We also look into the effectiveness of the management system from top to bottom because incidents are usually down to human error. We try to make sure vessel owners have everything in place to minimize their exposure to human error.

DCI: *Is the shipping lane or cargo to be carried a factor in your analysis?*
Norman: Yes, it can be. For example, some customers might look specifically at watertight hatches if they are moving grain cargoes. Or if they are chartering a vessel for a long period they may have particular concerns they want us to check out. But generally we take a standard approach to the inspection process.

DCI: *What is the process by which you issue a report after an inspection?*
Norman: We have a team of inspectors that conduct the inspection and then produce the report. But they don't make a subjective call on whether it's fit for service, that's handled by Rightship. Our team in Melbourne reviews the report, then we liaise with the owner and look to work through deficiencies to rectify anything that's come up. Deficiencies that are considered to be of a serious nature and a safety or environmental risk are reported to the relevant classification society or flag by the ship owner for review. When class or flag are satisfied with the action taken by the ship owner to close the deficiency, evidence will be provided to RightShip. This is then recorded in the system against that vessel.

KEY STATISTICS FROM RIGHTSHIP

73,952 vessels had been rated by Rightship as of December 2013
2,547 global PSC detentions from January 2013 – December 2013
2,588 vessels vetted by RightShip in December 2013
4,405 terminal reports completed over January 2013 – December 2013
895 recorded incidents from January 2013 to December 2013
1,730 global vessel casualties from January 2013 – December 2013

Rightship personnel carrying out inspections on a vessel.

DCI: *Have you added any new services recently?*
Norman: Yes, we're no longer just doing safety and quality, we're also looking at ship efficiency and emissions. We've had a significant uptake on our Greenhouse Gas Emissions Rating service and we now have 22 customers, entities that represent some 1.7 billion tonnes of cargo, which is around 23% of global non-containerized shipments through 21,500 vessel movements annually. Our GHG Emissions Rating is also used at ports such as Port Metro Vancouver and Prince Rupert Port Authority which charge lower port fees for more efficient vessels and we are currently in discussion with several other ports around the world. The early adopters have significant first mover advantage and the feedback has been positive with reduced shipping costs through reduced bunkers, enhanced reputations and support of sustainability objectives.

We've also been updating our technology by using Big Data techniques based on actuarial analysis. This is more advanced predictive analysis technology for vetting and we're the only company using it. This will help us identify substandard performance far better, it's very sophisticated. We're also refreshing our online interface to provide a better platform for our customers as well.

DCI: *Are there any specific or new dangers that you are keeping an eye on in terms of bulk carrier operations?*
Norman: In terms of casualty figures and losses, yes, the liquefaction of nickel ore loaded in Indonesia is an issue. We share industry concern over the loss of vessels and lives due to these dangerous cargoes being loaded incorrectly. If exports from Indonesia resume after the recent ban, our message to owners is to take extreme care and to make sure contractually you have independent surveyors verifying the moisture content. The master should have the power to reject the cargo if he's not happy with it and the company should be on the ground for the inspectors. If access for inspectors is blocked then don't load the cargo, it's not worth the risk. DCi

UK bulk regional report

This image shows the Cascade shiploader chute fully extended and loading soda ash at rates of up to 2,200 tonnes per hour in Portland, Oregon, USA. Notice how there is no dust in the surrounding area during loading. This is down to the unique Cascade loading philosophy as no dust extraction methods are in place.

Jay Venter

Cleveland Cascades Ltd. dedicated to solving dust problems globally

Cleveland Cascades Ltd is a world leader in the design and manufacture of bespoke loading chutes for the handling of dry bulk materials.

Having achieved awards for environmental engineering, environmental achievement and export achievement, Cleveland Cascades Ltd (CCL) uses its unique Cascade system to tackle the problem of dust.

Based in the UK, the company employs the original inventors of the 'Cleveland Cascade' system together with a dedicated team of experts in design, manufacture, assembly and commissioning.

With over 700 systems operating worldwide with applications in ship, silo, road, rail and tanker loading the company's key to success is its proven ability to provide a well engineered solution with professional and committed support.

In addition to the company's patented 'Cascade Chute', CCL also manufactures conventional telescopic free-fall chutes for applications where they are a requirement, such as for damp and sticky materials, or non-dusty materials. Vehicle loading applications such as truck, tanker, and rail wagon loaders are also provided.

Since becoming a private company in 2005, CCL has grown over four times in size, both in terms of turnover and staffing. This rapid yearly growth is due to a consistent approach of manufacturing quality products and turning each new customer into a regular customer. CCL loading chutes are used on every continent, and in almost every country of the world handling a vast variety of dry bulk materials, from large lump Iron ore and coal, to fine powders such as soda ash, phosphate and alumina.

More recently, the CCL 'Cascade Chute' has been used to effectively handle biomass at large quantities. The renewable energy source is particularly dusty when handling due to its formation of compressed wood fines, and due to its organic nature this dust can be potentially explosive. By specifying the optimum handling system, and also components that are classified to operate in its particular environment, CCL is fast

A Cleveland Cascades loading chute (left) in comparison to a conventional loading spout (right). These systems are in operation on Christmas Island, loading rock phosphate at rates of up to 1,000 tonnes per hour. The conventional chute on the right is soon to be removed and replaced with another Cascade loading chute. The difference in dust emissions through loading philosophy and control is extremely evident in this photograph. Again, no dust extraction methods are being used here, showing just how much dust control and product quality maintenance the Cleveland Cascade system can provide.

Cleveland Cascades Ltd

Setting the industry standard for loading solutions

World Leader in the design & manufacture of bespoke retractable loading chutes for the handling of dry bulk materials.

- Based in the UK, Cleveland Cascades Ltd has a dedicated team of experts in the design, assembly and commissioning of loading chutes and materials handling equipment.
- With a growing range of bespoke solutions for the handling of difficult dry bulk materials, our product range includes the unique 'cascade' concept, dust-controlled conveyor transfer points and dust-controlled hoppers.
- With over 600 reference installations operating worldwide, with applications in ship, silo, road, rail & tanker loading, the company's key to success is its proven ability to provide a well-engineered solution with professional and committed support.
- Winners of prestigious Queens Awards for Environmental Achievement, Export Achievement, and Enterprise in International Trades.

Contact Cleveland Cascades Ltd

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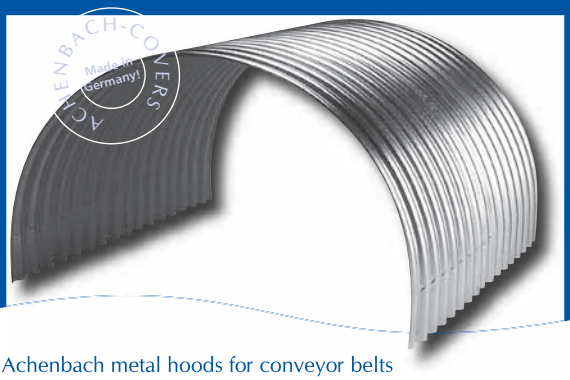

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Cleveland Cascades shiploader handling biomass pellets at rates of up to 2,000 tonnes per hour in Prince Rupert, BC, Canada.

becoming the solution to the industry's biomass handling needs. To date, CCL have supplied systems for loading into trucks, silos and also ships at varied rates. By engineering the exact system to suit each customer's requirements has resulted in systems capable of handling biomass with significantly reduced dust emissions, whilst also maintaining the quality of the product.

The most recent biomass project for CCL has seen two more truck loading systems delivered to the growing biomass operation at Port of Tyne in South Shields. This latest order now sees six CCL systems in operation at the Port, each handling biomass at rates of up to 600tph (tonnes per hour).

CCL's customers to date include ThyssenKrupp, TAIM Weser, FL Smidth, FAM, SMB, Sandvik, Cargotec, BHP, PHB, Tenova, Telestack, BRUKS Rockwood, Odebrecht, Texas International Terminals, TRIO Engineered Products and many more.

Recent projects include a Cascade system in Japan to handle cement clinker. The shiploader, attached to a luffing boom, will handle the clinker at rates of up to 650tph. Another project is the manufacture of two telescopic tubular chutes that have been despatched to Brazil. These systems will handle soyabean at eventual rates of 2,000tph.

CCL approaches every project with the same attention to detail, thorough engineering process and high standards of quality, believing that every system produced is a direct reflection of the company and the best possible form of advertisement to potential new customers.

CCL are also implementing new products and product developments to the current product range such as the new, patent pending 'Cascade VariFlow' chute which represents the second generation Cascade chute, with the ability to automatically adjust cone inclination during loading to ensure absolute minimal dust emissions at all times, regardless of fluctuations in product feed rate. The 'VariFlow' can also be used to handle multiple products through the same chute more effectively than the original Cascade.

In addition to the VariFlow, CCL have also developed and supplied Cascade transfer chutes to solve the dust emissions problem created at conveyor transfer points. This represents a logical step for CCL, as for years we have provided the means for materials loading from conveyor to receptor, ship, rail wagon or tanker etc. And so now we are providing materials loading in the same controlled manner between two conveyor belts.

The transfer chutes combine existing Cascade and materials flow technology and experience with innovative design and engineering solutions. The Cascade transfer chutes are able to work between belts positioned at 90° to one another, inclined belts, and also height adjustable belts. The chutes are lined in hard wearing materials such as ceramic tiles, stainless steel, or UHMW (ultra high molecular weight) plastics to ensure effective resistance to abrasive wear from the materials handled. The transfer chutes also use an outlet which presents material onto the belt in its natural profile, creating maintenance free and dust free delivery onto the belt.

In addition to developing new products, CCL also look to improve its current ranges where possible. More recently, the requirement for equipment to be as light as possible in terms of weight has become more and more prominent. In an effort to deliver the exceptional quality that CCL is renowned for, but also be able to offer these systems with an effective weight saving, CCL has moved to offer GRP fibreglass cones in its Free Fall system range. Where originally steel would be used to manufacture the cones, CCL have found that, with some materials a weight-saving of up to and over 50% can be achieved by switching to GRP fibreglass cones with a suitable liner for the product being handled. The most recent project where this has been offered is for three loading chutes for operation in the Ukrainian Port of Illichevsk. Each system is 30 metres in length; therefore the weight-saving by utilizing the GRP cones has been hugely significant.

Cleveland Cascades Ltd hopes to remain at the forefront of innovative design within the bulk industry, taking its technology and experience and applying it where possible to solve dust and material degradation issues.

With this ethos of continual improvement and expansion, CCL hopes to further develop itself into a well established figure within the bulk industry.

Eka Bulk Handling Software Solutions for Efficient Commodity Management

Eka provides smart commodity management software solutions. Eka's analytics-driven, end-to-end Commodity Management platform enables companies to efficiently and profitably meet the challenges of complex and volatile markets.

The company's best-of-breed solutions manage commodity trading, procurement, logistics, storage and handling, processing, enterprise risk, and compliance. Eka partners with customers to accelerate growth, increase profitability, improve operational control, and manage risks and exposures.

Through its acquisition of MatrixGroup in 2013, Eka now also provides process management, task execution, and business intelligence systems tailored for the bulk handling industry including mining operations, grain facilities, and export terminals for all types of commodities.

Ninetye-five per cent of the grain exported out of Australia is through Eka's platform.

With Eka's software platform, customers' physical assets (machinery, storage locations, ports, etc.) operate at maximum efficiency in the storage or movement of physical bulk commodities – giving them the most throughput for the least amount of downtime and cost.

With Eka's bulk handling software platform, customers can effectively manage their sites and save money:

- Automate process decisions
- Improve utilization of plant assets
- Gain real time visibility into all operations

Eka's bulk handling product portfolio includes:

- **Eka.Bulk Handling:** An end-to-end solution to manage the physical processing of raw materials such as coal, iron ore, and grain in mining operations, grain facilities, and export terminals.
- **Eka.Site Automation:** A dynamic plant management and control tool, incorporating high level process planning, scheduling, task execution and product tracking.
- **Eka.Anti Collision:** 3D modelling of mobile machines and structures providing precise position to prevent collisions.
- **Eka.3D Stockpile Manager:** 3D model of stockyard, including quality, for better stacking and reclaiming decisions.
- **Eka.Commodity Site Manager:** Physical operations management of bulk commodity handling sites including stock, cargo receipt, shipment, and billing.

Eka's software platform consists of proven machine control code, dynamic plant representation, and comprehensive reporting packages, all within an advanced architecture running on industry standard hardware platforms. Key benefits of the software include:

- Ability to improve operational awareness and control – Through real time product tracking and smart sequence control.
- Well-suited functionality – Modular and scalable nature of the product allows systems to be implemented in increments targeting specific areas that are required at the time. Then permits future expansion of software modules as suited to your needs.
- Better utilization of plant assets – Using smart sequence control options allowing common plant to remain running.
- Faster tasks — Dynamic user interface displays the information relevant to the current production activities.
- Anti-contamination — Advanced anti-contamination control that does not allow mixing of incompatible products at any stage, from task planning through to execution.
- Better evaluation of causes of downtime — Delay accounting captures all delays and, where possible, analyzes and assigns reasons for these delays.
- Real time visibility into all operations — Comprehensive reporting suite provides complete reporting of operations and productivity, equipment usage, tonnes passed over equipment, run hours, inventory, quality management, and maintenance reports.

With Eka's configurable commodity handling and management software platform, customers can streamline their commodity handling processes to decrease costs and maximize profits.

About Eka

Eka is a team of 400+ staff with offices in Asia, Australia, Europe and the Americas, serving a rapidly growing global client base across multiple commodity segments.

Inspectorate sets up new facility at Immingham

A new coal sample preparation facility has been set up at HIT in Immingham by Inspectorate.

Inspectorate is a wholly owned subsidiary of Bureau Veritas, one of the world's leading independent testing, inspection and certification companies.

The sampling and preparation will be fully consistent with ISO 18283:2006.

The new facility, staffed by Inspectorate employees, opened in February and is equipped with two QHS Hammermill crushers, a Retch SR300 Rotormill, drying ovens, and Gilson riffle dividers. From the initial bulk sample of several tonnes, the facility can rapidly produce representative laboratory samples of <0.2mm to test the coal quality for its customers.

Inspectorate believes that the on-site capability will help reduce turnaround times for proximate analysis significantly. This will be a major benefit to customers who need initial constituent readings before the material can be used to maximum efficiency.

Erwin Oosterveen, Inspectorate's Solid Fuels Business Development Manager for the UK and Northern Europe, said: "This major new development in on-site sampling should be tremendously helpful to the industry. It's a one-stop shop for the energy industry that is convenient and quick. And that's all backed up by the accuracy of testing and analysis for which Inspectorate International is renowned.

"Our new Immingham facility complements Inspectorate's (and its parent company Bureau Veritas'), existing large global network of coal and solid fuels sampling and testing facilities, which includes the USA, Canada, Russia, Colombia and South Africa. The facility means we can now offer an end-to-end service to clients importing these products into the UK.

"In time we can see the facilities we offer being extended to cater for more industry needs. Our main aim now, however, is to make sure that the new service gets off to a flying start. We are confident that it will and look forward to proving ourselves to clients."

Inspectorate is part of the Bureau Veritas Commodities Division. Bureau Veritas acquired Inspectorate in 2010, making it one of the world leaders in commodities inspection and testing. Inspectorate is the core of Bureau Veritas' Commodities Division. Its customers can look forward to continued expertise and excellent customer service, supported by a global network and a brand name synonymous with quality, professionalism and integrity.

GUARDIAN anti-piracy barriers go from strength to strength in 2014

Following on from the proven success of the product over the last 12 months, the GUARDIAN™ brand of anti-piracy barriers restructures under a new company name.

With immediate effect, GUARDIAN will now be provided by Guardian Maritime Limited.

In taking their whole operation back in-house the original inventors and owners, David and Teresa Stevens, plan to further expand the company, adding to the team and increasing worldwide representation as well as further developing a range of additional anti-piracy products. The team has already expanded with the addition of Jean Winfield as its new Marketing Director. She has more than 20 years' experience in PR & marketing, with the last 15 years being specifically in maritime having been involved with many shipping companies and events across the globe. She joins Guardian Maritime's board having already worked with the company through her PR & marketing company Jeanius Consulting and is delighted to take on the new additional role.

"From the very first time I saw GUARDIAN I knew it was both a product and a company I would like to work with, a company passionate about tackling piracy and safeguarding seafarers. I am looking forward to working with the sales team to promote and extend GUARDIAN's reach, continuing to provide ships with both a highly visual deterrent as well as a practical and cost effective anti-piracy system. GUARDIAN is both safe and easy for crew to use, meaning no more cuts from razor wire and is environmentally friendly by being recyclable too."

Welcoming her appointment, David Stevens, Guardian Maritime's Sales Director, said: "I am delighted that Jean has joined our team and look forward to seeing her continue to drive the business forward. GUARDIAN anti-piracy barriers ensure shipping and more importantly seafarers are protected while operating in high risk areas.

The first real alternative to razor wire, GUARDIAN works by covering a ship's safety rails with a specially designed barrier. Once installed, GUARDIAN provides a highly visible, robust and simple way of making access to ship or rig virtually impossible.

Manufactured with UV protection, resistant to water and most chemicals (acids, alkalis, oils etc) and remaining robust over the temperature range experienced by vessels, it is ideally suited to a maritime environment. GUARDIAN's sections are interchangeable between vessels, providing a strong and rigid structure, tailored to fit around fairleads and unique structures. It is also very adaptable – being available in any choice of colour or pattern to suit any type of sea going vessel. Easy to use and far safer to handle than traditional razor wire for crew, GUARDIAN also saves operating costs by lasting three to five years, and is recyclable. The system is currently protecting some of the world's biggest fleets including CMA-CGM, Maersk, BW Tankers as well as being used to protect offshore rigs and drilling ships.

The system is currently protecting some of the world's biggest fleets including CMA-CGM, Maersk, BW Tankers as well as being used to protect offshore rigs and drilling ships.

"GUARDIAN remains the original, best quality and only readily available product with a proven track record. It has a 100% success rate in protecting ships and rigs which is crucial for those ships operating in high risk areas." says Teresa Stevens, Director of Guardian Maritime Limited. "We are sadly aware that there are companies reportedly offering ship owners and operators an alternative, inferior product. We are currently taking full legal action against such companies for infringement of design rights, patent and licences. There is only one genuine GUARDIAN for ships and only one product in production ready for the market."

The success since its launch in 2012 is echoed by ship operators "The GUARDIAN system is a perfect and cost effective way of refusing boarding to pirates and stowaways. After numerous and extensive tests we found the GUARDIAN system impregnable and effective. I highly recommend GUARDIAN for any Marine Company whether they be low and slow or high speed with freeboard" says Rob Twell, Quality, Safety & Security Manager CMA CGM Group.

LNG as a bunker fuel: future demand prospects and port design options

UK based Ocean Shipping Consultants has recently published a detailed report, *written by David Bull, Senior Consultant, Maritime & Waterways, Ocean Shipping Consultants*, on the current hot topic within the marine sector of LNG as a bunker fuel.

There is much debate regarding the pricing of LNG as a fuel and the current pricing structure for the fuel is opaque. Understanding that there is much speculation, Ocean Shipping Consultants' new Report — *LNG as a Bunker Fuel: Future Demand Prospects and Port Design Options* — examines the economics of LNG as a fuel for several vessel types. These include containerships, bulkers, Ro-Pax and platform supply vessels. As well as investigating the economics of LNG as a fuel, there is also discussion in to the costings and options that are currently available to ports that wish to install LNG bunkering infrastructure.

The reason for the investigation is that new environmental regulations coming into force during the near future will have significant impact on those vessels that pass through the UK's waters, especially the 500 vessels that pass through the English Channel per day. These new regulations are focused on emissions of sulphur oxides (SO_x). The UK has an emissions control area (ECA), covering the English Channel and the North Sea, meaning that within that area sulphur content of fuel must not exceed 1.00% and by January 2015, will further reduce to 0.10%.

To enable vessel owners to comply with the ECA rules LNG utilized as a bunker fuel will help reduce ship-borne emissions within UK waters. By utilizing LNG compared to HFO, SO_x emissions are reduced by virtually 100%. There are other benefits such as NO_x emissions which are reduced by 80%, CO_2 emissions are cut by 30% and particulate matter is reduced by 90%. However, major developments of the LNG bunkering infrastructure need to take place before it can be viewed as a viable alternative to conventional fuels. Currently there is limited bunker development within the UK.

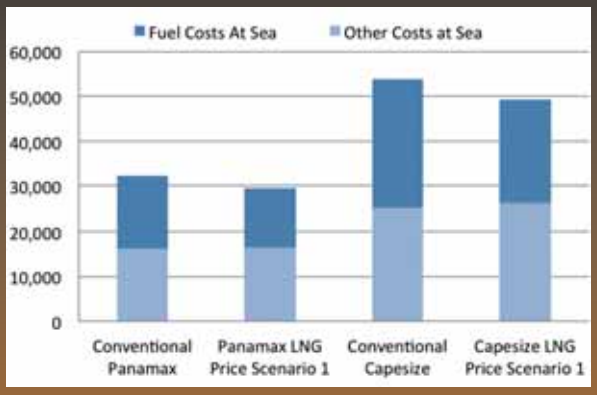
There are currently around 50 vessels that now utilize LNG as a fuel with a similar number of vessels on order. Owner/operators from the Baltic and the Scandinavian countries have been the prime movers in this sector, but now more owners, operators and ports are investigating the benefits of LNG as a bunker fuel. Vessels such as the *Viking Grace* have shown the potential of LNG as a bunker fuel.

The European Commission (EC) have launched through the European Sea Ports Organisation (ESPO) its 'Clean Fuel for Transport Package'. This consists of a directive on the use of alternative fuels and accompanying infrastructure for road and water borne traffic.

The plan is to develop LNG bunkering facilities in all European ports within the Trans European Core Network by 2020. A similar obligation outlines that all core inland ports will also have LNG refueling stations by 2025. In total LNG refuelling stations are to be installed in 139 maritime and inland ports. The ports will not all be major gas terminals but will be facilitated through either fixed or mobile refueling stations. Through this project the true potential and scale of LNG as a bunker fuel can be seen.

Within the report there are various vessel types that are examined with regards to the economic benefits of utilizing LNG as a bunker fuel. An example of the bulk sector is provided here. For a Panamax bulker utilizing LNG compared to HFO identifies an overall reduction of approximately $2,750/day at sea (for Price Scenario 1 - where LNG is priced at 80% of HFO). For Capesize vessels the overall reduction is $4,500/day at sea for Price Scenario 1, compared to conventional HFO, as detailed in Figure 1.

Figure 1.



Conventional versus LNG Bulk Carrier Costs at Sea (Costs at Sea - $/day)
Source: Ocean Shipping Consultants

A further example of a reduction in costs by utilizing LNG compared to MGO as a bunker fuel is highlighted by an example of a PSV operating in the North Sea. Under LNG Price Scenario 1, the overall reduction in costs approximates $5,500/day ($6,400/day for Price Scenario 2 – where LNG is priced at 60% of HFO), as outlined in Figure 2.

Figure 2.

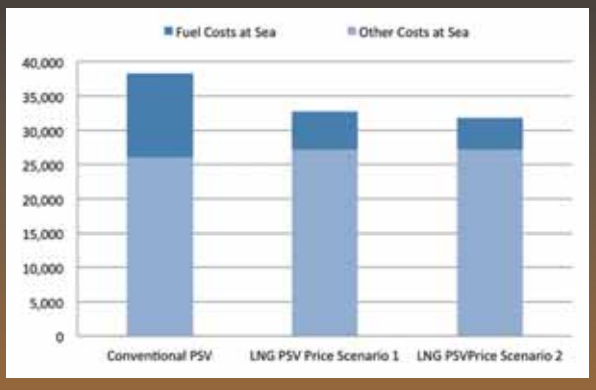


Fig. 2: Conventional versus LNG PSV Total Costs at Sea (Costs at Sea - $/day)
Source: Ocean Shipping Consultants

These are a few examples of the cost comparisons that are outlined in the new Report.

In addition, the Report includes forecasts of the future volume of LNG as a bunker fuel as well as a forecast for the number of LNG-fuelled vessels, and highlights that this is an important and growing area of the shipping business for the UK ports to be involved in.

New 2013 edition of the International Maritime Solid Bulk Cargoes (IMSBC) Code

IMO recently published the 2013 edition of the International Maritime Solid Bulk Cargoes (IMSBC) Code and supplement, incorporating amendment 02–13, which may be applied from 1 January 2014 on voluntary basis, anticipating its envisaged official entry into force on 1 January 2015.

To keep pace with the expansion and progress of industry in recent years, the Code has undergone many changes, including:

- Fully updated individual schedules for solid bulk cargoes
- New individual schedules for such cargoes as nickel ore, alumina hydrate, aluminium smelting and remelting by-products, clinker ash, coal tar pitch, coarse iron and steel slag, crushed carbon anodes, grain screening pellets, granulated nickel matte, granulated gypsum, ilmenite, sand, silicon slag, torrefied wood and solidified fuels recycled from paper and plastics
- References to the most recent SOLAS amendments
- Updated information from the 2012 edition of the IMDG Code

The publication also presents additional information that supplements the IMSBC Code, such as the Code of Practice for the Safe Loading and Unloading of Bulk Carriers (BLU Code, including BLU Manual) and Recommendations on the safe use of pesticides in ships applicable to the fumigation of cargo holds. The International Maritime Solid Bulk Cargoes Code and supplement is commended to Administrations, shipowners, shippers and masters and all others concerned with the standards to be applied in the safe stowage and shipment of solid bulk cargoes, excluding grain.

About IMO

As a specialized agency of the United Nations, IMO is the global standard-setting authority for the safety, security and environmental performance of international shipping. Its main role is to create a regulatory framework for the shipping industry that is fair and effective, universally adopted and universally implemented.

In other words, its role is to create a level playing-field so that ship operators cannot address their financial issues by simply cutting corners and compromising on safety, security and environmental performance.

Poseidon Marine Security launches ProtectaDeck – a new anti-piracy product

New anti-piracy product

Poseidon Marine Security has launched a global marketing campaign for its new product ProtectaDeck, an anti-piracy barrier for the shipping industry to protect vessels and oil rig platforms from the increased number of piracy attacks throughout the world. ProtectaDeck prevents intruders from boarding, is inexpensive, as well as being easy to install and maintenance free.

Whilst attacks in the traditional piracy areas such as Somalia have reduced, there have been increases in other piracy hotspots in particular the Gulf Of Guinea. Pirates are extremely ready to resort to violence, loot cargoes and other valuables or abduct crew members and hold them for ransom. Other hotspots include Indonesia, Malaysia and the Malacca Strait South China Sea and even nearer to home, cargo barges on the River Danube where there have been attacks by Eastern bloc mafia groups.

Managing Director Luis Labaton says "We offer a bespoke service. ProtectaDeck works by covering the ships safety rails with a specially designed barrier preventing access to pirates whose main method for gaining access is by use of roofing ladders and grappling hooks.

The risk of attacks is high, with over 15,000 ships a year passing through pirate infested waters a year. If ships have anti-piracy devices on board it not only provides protection but gives financial benefits such as reduced insurance premiums. Luis adds, "we are proud that all our products are made in the UK"

Poseidon Marine Security is backed by serial entrepreneur and inventor David Salon of Gravitas International who says, " we have worked hard developing several anti-piracy products and believe ProtectaDeck will be the latest must have for the shipping industry "

Boiler plate

Poseidon Marine Security has developed ProtectaDeck to complement its range anti-piracy products. Although many ships have anti-piracy product devices on board such as barbed wire and water hoses ProtectaDeck is cheaper, safer to use by crew and eliminates the no risk of unwanted deck boarding.

With piracy attacks increasing in new hotspots we expect a high demand for our product not only from the shipping industry but also from oil rig operators. A similar product is due to be launched in the summer aimed at protecting government building and military bases.

Poseidon Marine Security is backed by David Salon, an inventor and the founder of the Daley's group who recently sold his business to 3M before forming Gravitas International which specializes in anti-flood barriers. DCi

IMSBC CODE

International Maritime Solid Bulk Cargoes Code

2013 EDITION

INCORPORATING AMENDMENT 02-13

and supplement

IMO INTERNATIONAL MARITIME ORGANIZATION

Angamos strike results in lost income

Chile's national copper producer, Codelco, has announced that the strike that ended at the end of January in the northern port of Angamos resulted in revenue from exports dropping by $130 million by the end of December, when 13 working days were lost.

Port operator, Ultraport, noted that some 3,400 tonnes of copper had been adversely impacted by the stoppage.

In its nine years of operation, Angamos has handled some 12mt (million tonnes) of copper, making it Chile's leading port in terms of this product. In 2012, it reported handling 1.4mt of copper, equal to 60% of the product in the Antofagasta region. *Barry Cross*

New fertilizer terminal for Riga

Russia's URALCHEM Group and Riga Commercial Port LLC (RTO) have finalized their joint venture agreement to build Riga Fertilizer Terminal. The new facility will handle transhipment consignments and also undertake short-term storage of bulk fertilizer.

The initial agreement was signed in 2009, with the port holding 51% of the equity and the private investor 49%. Between them they will invest more than €60 million. The first phase development of the terminal will have an annual capacity of two million tonnes.

From Riga, fertilizer will be shipped to South America, China, India, Europe and Australia, among others. *BC*

Essar to build three iron ore berths at Vizag

Essar Vizag Terminals Ltd has been awarded a 30-year concession by Visakhapatnam Port Trust to develop and operate three iron ore berths. Two of these will be in the outer harbour, the third in the inner harbour, with a combined capacity of 23mt (million tonnes).

The project will be developed at a cost of $1.9 billion over a period of three years.

In the 2013 financial year, Vishakhapatnam Port handled 12.3mt of iron ore. *BC*

Puerto Mejillones reports excellent business in 2013

Puerto Mejillones in Chile marked 2013 with the achievement of several milestones. In terms of cargo transfers, the port achieved remarkable results. It also enjoyed an excellent relationship with the community and the environment, contributing significantly to the country, the region and the local community.

In terms of cargo movements in 2013, Puerto Mejillones recorded movements of over 4.5mt (million tonnes) in liquid and solid bulk.

Liquid cargo (sulphuric acid) report an increase of 4% over 2012. In July last year, cargo movements of liquid and solid bulk reached 500,000 tonnes, 6% higher than the record achieved in August 2012.

Community

During 2013, Puerto Mejillones kept its commitment with the community, being an active and responsible neighbour in environmental, social, cultural and sports matters, implementing programmes and initiatives to develop the area and its citizens.

In March 2013, and after two years of close work together with the Municipality of Mejillones, the port implement the first Puerto Mejillones Social Business Responsibility Program. A ballet school was opened in the area, with 50 students chosen to be part of the academy. The school's students performed several times at the Gamelín Guerra cultural centre, displaying their talent and all they had learned. The end of the season was marked with a successful performance of Tchaikovsky's Nutcracker ballet. In 2014, students will continue their programme, giving continuity to teenagers in the community.

Puerto Mejillones also participated in the 4th Mejillones Expo, where more than 1,500 neighbours were able to gain insight into the work performed at the port.

Another activity in 2013 was the 6th Puerto Mejillones Running, which brought together over 500 athletes, from the area and from surrounding cities, who filled the streets of Mejillones in an atmosphere of friendship and healthy competition.

Puerto Mejillones also participated during the 3rd 2013 Mejillones Theater Festival, presenting the play 'Amores de Cantina' (Canteen Loves), a tragi-comedy enjoyed by more than 600 district people.

Also, during 2013 port terminal implemented a programme called 'Meet Puerto Mejillones'. In this, the terminal was opened to families of workers, and to the community in general, to enable them to witness the facilities and operational processes at the port.

All these initiatives are part of the CSR programme that aims to make the port a strong part of the community, and to contribute to Mejillones' citizens and the development of the district.

Environment

In terms of environmental stewardship, the port retained its passion for respecting and caring for the environment by ensuring clean and sustainable operations. For this reason, in the third edition of the environmental performance study 'How green are companies in Chile?', carried out by the Universidad Catolica Measurement Center, MideUC, Puerto Mejillones was recognized as the fourth best evaluated company in environmental matters and the only recognized port of the 2nd Region.

Along with improvements in performance year-on-year in the port's facilities and in the quality of the air and marine environment, the port has also achieved a series of important milestones within its sustainability policy.

In 2013, the port achieved second place in the Carbon Footprint Measurement for 2012. This analysis was carried out by Pricewaterhouse Coopers Chile and the ABS audit company. At the same time, in August 2013, the port successfully finished recertification process in ISO 9.001; ISO 14.001; and OSHAS 18.001 standards.

All these efforts have involved different national and international recognition. Besides the outstanding place in the recent MideUC ranking, in 2012 the port was accepted into the international programme World Ports Climate Initiative, a project that reunites 63 world class ports in sustainability matters.

One of the last port terminal milestones, was the renewal of its website. With modern and friendly navigation, this website is of great use to customers, the Mejillones community and other users that requires information about work at the port terminal.

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LOOK TO THE FUTURE AND PLAN AHEAD

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

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

EMO

energising your business

Tubarão to automate operations

The Brazilian port of Tubarão is to become more automated in the near future, with new machinery for handling iron ore and iron ore pellets to be installed. In total, $1.8 billion is being invested in the terminal up to 2015. New sensors will also be installed in storage areas to avoid automated equipment colliding.

According to the company's director of planning and of logistics development and operation, Fábio Brasileiro, "The aim is to have a more stable and secure operation with concomitant better results."

At Tubarão, new simulators will allow staff to be trained in the use of the new equipment, in both the handling of commodities on the quayside as well as dealing with inbound block trains. *BC*

Copenhagen Malmö: substantial investment

The newly appointed Danish Transport Minister Magnus Heunicke is taking over in an exciting period, where massive investments will give the Danish infrastructure a badly needed boost. Copenhagen Malmö Port (CMP) asked the Minister whether freight transport in the Öresund region will also be accommodated.

CMP: *How can we strengthen the Öresund region's importance from the Danish side in relation to freight?*
Magnus Heunicke: "It is important that we have a satisfactory framework within which CMP can develop its operations. As Minister for Transport, I can be involved in this. However, the port is also responsible for developing and investing in those business areas which it deems to have long-term perspectives. It is important for growth in the region that the port is doing well."

CMP: *Investment in growth is taking place on both sides of the Sound. Can CMP position itself as a strong strategic partner?*
MH: "I feel it is positive that CMP is investing in the long-term on both sides of the Sound. We know that the volume of goods will increase in the future, and CMP's plans to expand terminals on both the Danish and the Swedish side provides an opportunity for CMP to consolidate its position as a hub for freight transport."

CMP: *How will the overall investments in infrastructure support growth in the region, and particularly in Copenhagen?*
MH: "The arrangements we have made in the transport area in recent years represent a substantial investment in infrastructure in Denmark, as well as in projects which promote the mobility of freight transport in the Copenhagen region. It is first and foremost the expansion of the Køge Bugt Motorway, but also the new railway between Copenhagen and Ringsted, which will facilitate the passage of freight in the region. We will shortly be presenting a proposal for a port tunnel underneath Copenhagen's port. If viable financing can be found, and local problems of access etc. can be resolved, this is a scheme which can create development in the capital. For CMP too, which will obtain better access conditions."

CMP: *What is the significance of the EU designating CMP a Core Port?*
MH: "I am delighted that the EU Commission has prioritized making CMP a core network port in an EU context. It means that the port has been designated a central hub in the trans-European transport network, and it will be better placed to obtain EU support in collaborating with other actors in the region. It goes without saying that I hope CMP exploits the opportunities that come with being a core network port."

CMP: *How will the increased environmental requirements affect the shipping and transport sectors in the coming years?*
MH: "From 2015, international requirements will be introduced demanding that ships sailing in the North Sea and the Baltic reduce their emissions of sulphur and other pollutants. I know that the industry is working hard to meet these requirements. It is therefore important that ships are able to refuel with alternative fuels such as liquefied natural gas in the ports, and I hope that as a core network port CMP is involved in making it possible."

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Sandheads commences coal handling

Sandheads, located at the mouth of the Hooghly River in northeastern India, is handling imported coal, which is then being barged along National Waterway Number One to an electricity generating station at Farakka. The contract has been awarded to Jindal ITF and involves the deployment of 20 barges able to handle between 2,000 and 2,200 tonnes each. The total flow of coal could amount to around 3 million tonnes annually.

Nevertheless the riversea vessel class 2 barges are not viewed as being particularly well-suited for operation at Sandheads, because they do not have proper hatch covers, meaning that they become slightly unstable when wave height is more than 2m. Ideally, class 4 barges are mandated for this type of operation. *BC*

Sical seeks permission to use iron ore terminal to handle coal

Sical Logistics wants to handle thermal coal at its moribund iron ore terminal at the Indian port of Ennore, which has been idle for two years following an export ban on iron ore. Some $76 million was invested in the terminal, with more than $600,000 being spent each month simply to service the principle, interest and other expenses. To offset its investment, Sical wants to handle coal for the Tamil Nadu Electricity Board, for which approval has already been given by Ennore port. However, the final go-ahead is still awaited from the Shipping Ministry, which may block the move given that the Chettinad group is already undertaking coal handling at the port. *BC*

Mobile unloader for Yeysk in Russia

Cargotec is to deliver a Siwertell 5000S mobile unloader to the Russian Black Sea port of Yeysk, where it will be used to handle cement. The unit, which is being built in Sweden, was expected to be delivered in February and provide a flexible, low-cost option for cement handling.

The operator will be the UK company TAD Enterprises, which currently makes use of a mobile pneumatic unloader, but is not happy with its performance, particularly since the unit requires high levels of maintenance. Once operational, the new unloader will be able to handle cement at a capacity of 300 tonnes per hour. It will also be fitted with a dust filter for environmental impact reasons. *BC*

Vostochny obtains Mitsui shiploader for coal handling

A Mitsui shiploader has been put into operation at the coal terminal in the Russian port of Vostochny. It commenced operations on 1 November 2013 at berth 49, which accommodates Capesize vessels. It can handle around 3000 tonnes per hour and work on vessels up to 45m in width.

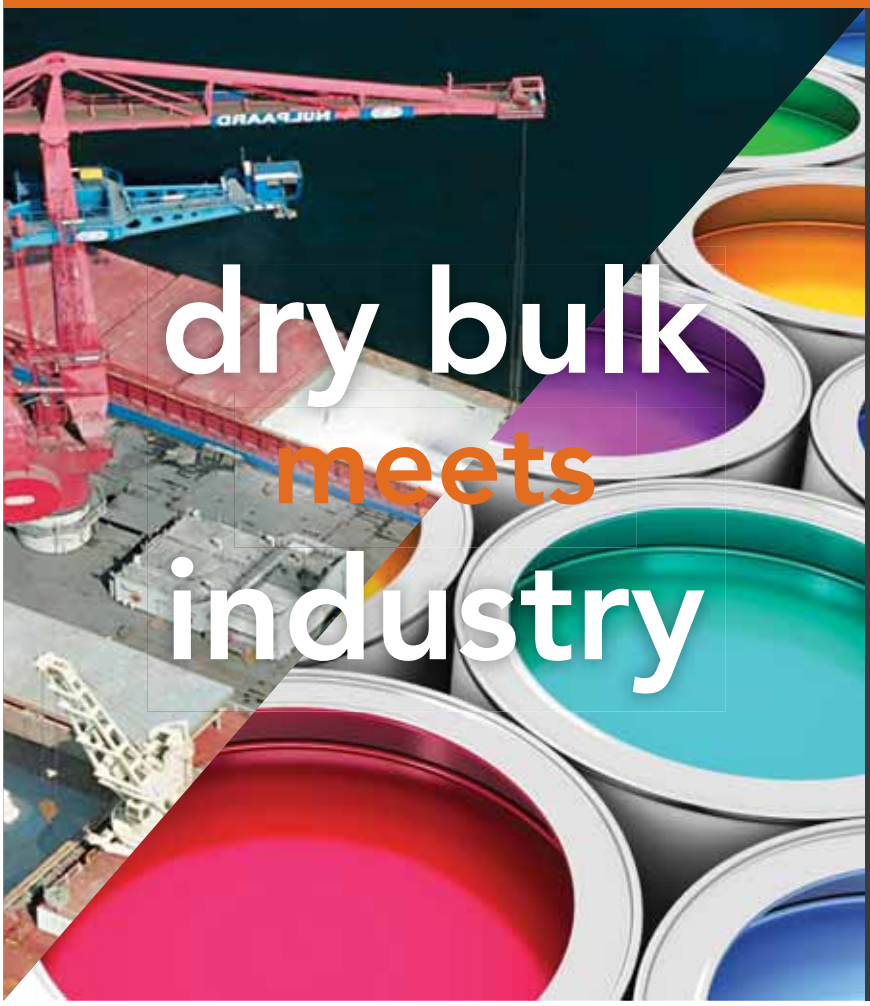
Vostochny port is the largest stevedoring company in Russia specializing in coal transshipment traffic, with export coal accounting for 98.5% of total turnover. *BC*

Antofagasta to quadruple copper concentrate exports

The Chilean port of Antofagasta is planning to quadruple its existing 780,000 tonnes of copper concentrate exports. Current projection suggest that, by 2024, exports of this mineral will have reached 3.4mt (million tonnes), based on an average annual increase in production of 7% between 2013 and 2032.

This has prompted Antofagasta Port Company (EPA) to announce its intention to implement a 300m southern quay extension, whilst safeguarding the area around La Chimba for a possible fourth quay.

By 2017, copper concentrates from that part of Chile should have become the major export, amounting to 4mt per year. This is because the production of metallic copper (cathodes and anodes) will be reduced due to the depletion of existing copper mineral fields. *BC*



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Ideal location with 13 m draft

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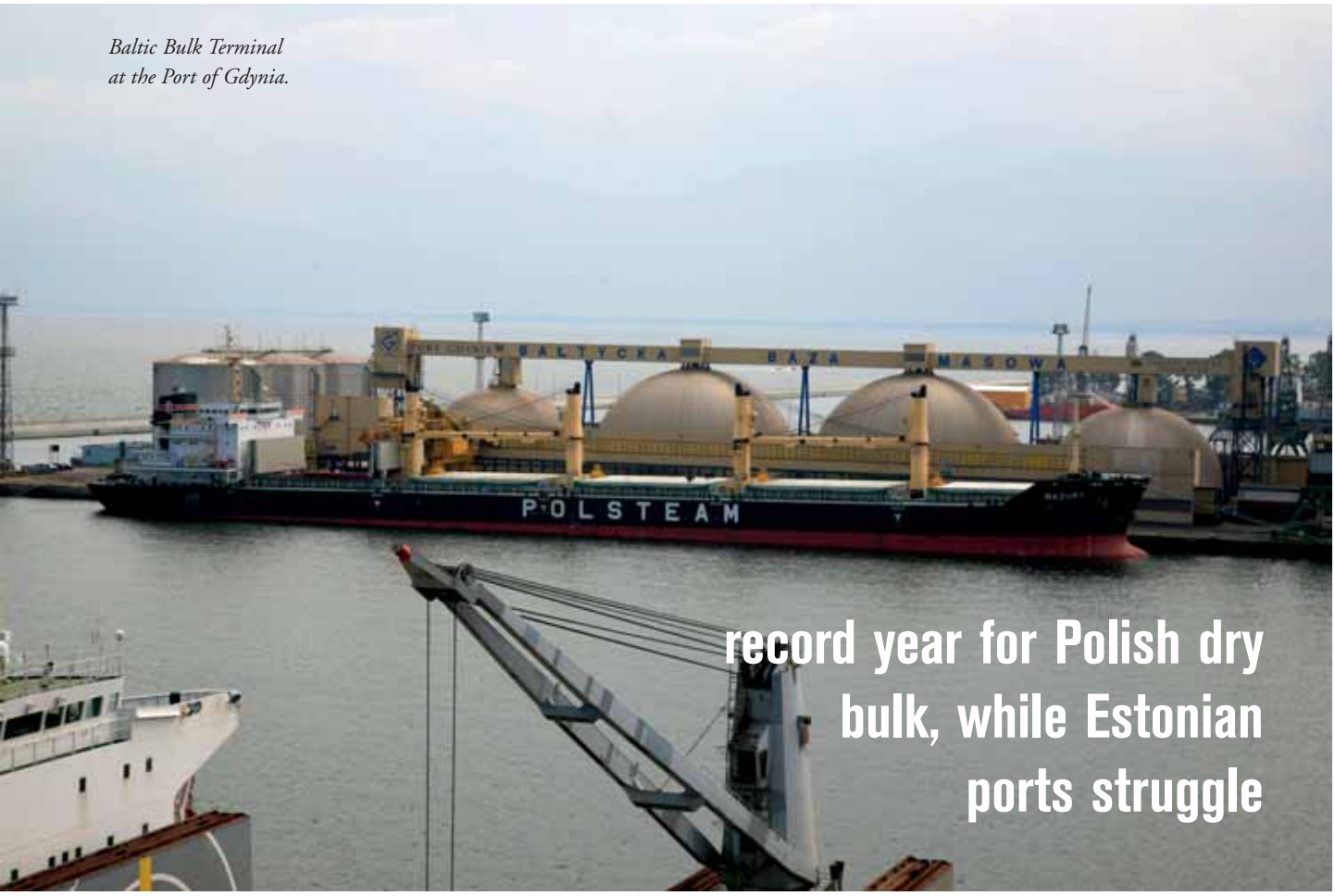
Continuous investments have made it the leading dry bulk port in Finland.

The draft of 13 m allows Panamax class vessels to load full loads of 75,000 ton, and larger vessels (120,000 DWT) have loads of more than 100,000 ton.





Baltic ports in 2013



Baltic Bulk Terminal at the Port of Gdynia.

record year for Polish dry bulk, while Estonian ports struggle

Two-thousand-and-thirteen, whilst something of a banner year for Polish dry bulk ports, proved a much more difficult challenge for those in Latvia, ***writes Barry Cross****.*

Poland's Port of Gdynia saw dry bulk traffic rise by 16% last year, from 5.127mt (million tonnes) in 2012 to 5.943mt. Coal and coke remained the most important commodities, amounting to a combined 2.640mt, compared to 2.050mt in 2012. Grain, similarly, performed well, increasing from 1.782mt to 2.178mt. Others bulks, however, declined by about 13% to 1.125mt.

Asked what factors influenced traffic, port authority president Janusz Jarosinski notes that the dredging of the port channel in 2011 was a significant determinant, as was the reconstruction and deepening of the Holenderskie (Dutch) Quay, which allowed larger vessels to access the port.

"Moreover, all bulk terminals in the port have been privatized, which has led to the acquisition of new clients with larger cargo volumes and also to the introduction of new management styles and efficiency. New cargo handling equipment has also been acquired. All of these are contributory factors, explaining why dry cargo traffic is in the ascendency," he says.

There are now three main solid bulk handling terminals, all of them privately operated: Maritime Bulk Terminal Gdynia [MTMG] (coal and coke, fodder, aggregates etc.); Baltic Grain Terminal [BTZ] (grain); and Baltic Bulk Terminal [BBM] (both dry and liquid fertilizer).

Significantly, 2013 was the Port of Gdynia's best ever in terms of cargo turnover and this was true for all cargo types. The only major decrease was in imported aggregates, which Jarosinski explains was due to the completion of the A1 motorway and other construction works.

"We expect results in 2014 to be similar to those in 2013 and all indications from the beginning of the year show signs of improvement over last year's results. Generally, we are now expecting growth of 3–5%, which is in line with Poland's forecast for GDP growth," he says.

Current capacity at Gydnia can sustain any increase in cargo volume for the next few years. However, terminal operators have plans to construct new warehouses in the near future. Indeed, two new warehouses are currently under construction. In addition, reconstruction work is also ongoing on the Szwedzkie (Swedish) Quay, deepening the available draught to 15.5 metres, which will make it possible for Baltmax vessels to access the port by 2020.

The earlier deepening of the draft meant that the port was able to receive Capesize vessels as of 2011. Among ships that have visited the port after the dredging are the *Linda Fortune*, *Cape Fortune* and *Capri*. This means that, nowadays, Gdynia, can handle the largest ships able to enter the Baltic Sea.

Rail, stresses Jarosinski, also plays a significant role in the

Baltic Grain Terminal at the Port of Gdynia.

transport of goods to and from the port. All movements of coal, coke and fertilizer, for example, is undertaken by this mode. Even though grain and fodder is mostly handled by road transport, a recent trend has been for larger volumes of these cargo types to switch to rail for longer hauls.

"We expect this trend to grow, especially for transit cargo to/from neighbouring countries when the new Adriatic–Baltic Rail Corridor is fully operational. Moreover, completion of renovation work on the E65 line from Gdynia to the southern parts of Poland and beyond will give a significant boost to rail traffic," he says.

In terms of being able to add value, Jarosinski points out that, based on the wishes of the port's clients, all terminals have the capability of further processing dry bulk commodities, if this is required.

Finally, asked about productivity, he says that handling rates at the various terminals varies between 20,000–25,000 tonnes over any given 24-hour period, which he says compares favourably with other neighbouring ports.

Gdynia's Maritime Bulk Terminal (MTMG) reported a 15% growth in dry bulk traffic last year, handling around 6mt of various commodities. This increase, notes account manager Andrzej Grubalski, was down to very good wheat exports and increased coal imports.

"To date, 2013 has been our best ever year," he says. "Our goal in 2014 is to maintain the same tonnage as we handled last year. We are a public terminal, so we want to attract new traffic and cargo, whilst maintaining the business we have from our key clients."

He concedes that, as a dry bulk terminal, there is also pressure on handling quality and also a need to offer clients added value services. At the same time, MTMG is constantly looking to expand and is currently in an investment process in respect of a new warehouse, which will be able to store an additional 60,000 tonnes of agribulk, using modern, fast discharging technology.

He insists that MTMG does not simply handle bulk consignments, but, depending on the individual client, can also offer tailor made services, including value-added services such as

Bulk vessel at the Port of Gdynia.

Coal handling at the Port of Gdansk.

blending and screening.

"Due to our location and very good connections, our rail link is one of our main assets. Most of our coal and coke traffic is moved by train, since rail wagon capacity is higher than that of road trailers, while over longer distances it's more convenient for our clients to handle traffic by rail," says Grubalski.

In fact, the higher capacity that rail offers over road is important, since MTMG can accommodate partially loaded Capesize vessels at its terminal during discharge operations. Currently, the maximum draft is 13 metres. However, one quay, where draught is limited to 10.5 metres, is being dredged to 13.5 metres, with the possibility of further upgrading this to 15 metres in the future, which would allow the terminal to handle Baltmax vessels.

Asked about productivity, Grubalski says that, being able to offer tailor-made services means that the terminal has carved out a strong competitive position in the market. Its main advantages, he stresses, are the draught, which enables it to easily handle Panamax vessels; a fast loading/discharging rate; direct connection to the Polish rail network; plus good road connectivity and expansive on-terminal storage.

The Port of Gdansk also had a record 2013, reporting traffic of around 30.3mt compared to the 26.9mt posted the previous year. Nowadays, dry bulk accounts for about 22% of all traffic handled.

Although 2013 dry bulk traffic was half a million tonnes lower than that the previous year, there were huge variations in how individual commodities performed. On the up were coal (from 1.92mt in 2012 to 4.59mt in 2013) and grain (from 1.02 to 1.48mt), although aggregate and sulphur volumes dipped (from 4.30 to 2.64mt).

"The substantial rise in aggregate imports, which hit a peak of 5.01mt in 2011, were due to extensive road investments prior to the Euro-2012 Football Championship," notes port authority spokesperson Mr Kasprowicz.

He points out that, in future, it will be the new dry bulk terminal in the port's deepwater harbour, as well as the activity of the company operating at the Basen Górniczy and at the grain quays in the inner port, that will determine future results at the Port of Gdansk.

"The envisaged dredging of the port fairway and modernization of the quays on both sides should enhance the profitability of this older part of the port and also streamline the operation of short-sea vessels," he says.

In terms of capacity, Kasprowicz notes that the port is now equipped with sufficient dry cargo handling equipment. Furthermore, the Bytomskie Quay grain handling area has also been considerably expanded. The Gdansk Bulk Terminal (GBT), which is located there, has fully automated flat warehouses and silos able to store up to 36,000 tonnes, as well as equipment

aimed at both loading and discharging vessels. It handles mainly grain and meal, and has comprehensive grain drying technology available, which allows it to process around 45 tonnes per hour, and also a cleaning facility, capable of processing 150 tonnes per hour.

In 2013, the Dry Bulk Terminal located on the deepwater pier at Port Północny, in Gdansk's outer harbour, was also completed. The existing coal terminal handling facility, which had a productivity of 50,000 daily tonnes, was joined by a second facility aimed at imported cargo, which could load either trucks or rail wagons at the rate of 30,000 tonnes in any given 24-hour period.

"This terminal is fitted with automatic wagon de-icing and unloading equipment, as well as facilities for sorting, storing and loading bulk carriers. There are also two 75-tonne cranes, supported by dumping and loading machines, as well as a conveyor system capable of handling 4,000 tonnes per hour," says Kasprowicz.

In addition, the deepwater terminals are backed up by crude ore and coal quays at Basen Górniczy, which have been operating since the inter-war period. These can berth ships drawing up to 10.2 metres of water.

Around one-third of the port's traffic — liquid bulk — flows by pipeline, with container and dry bulk traffic split fairly equally between road and rail. Kasprowicz characterizes road access as "excellent", although notes that the rail network needs the implementation of a number of key projects that would upgrade infrastructure linking Gdansk with both the south of Poland and with border crossings to neighbouring countries.

"The most significant project for us would be the new railway bridge over the 'Dead Vistula' river and the double-track railway to Pruszcz Gdanski, which is where the main railway line connects with Silesia," he says, noting that this latter forms part of TEN-T Corridor 1. The EU has promised subsidy and, if everything goes to plan, they should be in place by the end of 2015.

"Any postponement of these projects could jeopardize further development of our port. Their implementation is also linked to the modernization of the Port Północny rail terminal. This will involve a road-rail access to the Gulf of Gdansk development basins, which are adjacent to Port Północny's deepwater port scheme."

With such vast volumes being handled, Kasprowicz stresses that processing of coal, coke and aggregates does take place in the port, since the market requires these in a variety of different forms. Processing these raw materials has therefore become a profitable activity, he notes.

Quizzed as to vessel sizes, he notes that at Port Północny's deepwater quays, it is not uncommon to see 100,000dwt bulk carriers docked. Meanwhile, at Basen Górniczy and the grain quays, smaller vessels of up to 40,000dwt are the norm.

"Vessel sizes are in line with market needs around the Baltic," he says.

In stark contrast, at the Port of Tallinn, port authority business manager Margus Sitsi told *DCI* that volumes of dry bulk are not as good as they would like them to be. Last year, for example, there was a 20% decline in dry bulk, from 4mt to 3.2mt.

Dry bulk handling takes place at two different locations: Muuga Harbour and Paldiski South Harbour. The former is mainly orientated towards transit traffic from Russia and Kazakhstan.

"We have much more free capacity for dry bulk in Muuga than we currently handle," conceded Sitsi. The specialized coal terminal, for example, can handle up to 5mt annually, while the grain terminal could, theoretically, handle 5mt of imports and 2.5mt of exports. In addition, the fertilizer terminal has a 2.5mt annual capacity.

The draught, however, is excellent, being 17 metres alongside the quayside.

"The amount of available storage capacity in the terminals plus the unloading speed for railway wagons and the vessel turnaround times all give us advantages, especially for the loading of large vessels," says Sitsi. "The amount of coal suppliers increasing on the European market and the price is not high, the fertilizers market demand was variable in 2013 and most of the grain was moved via ports in the Black Sea."

As for the Paldiski South Harbour, this is used mainly for Estonian imports and exports. Main commodities are scrap metal, crushed stone, peat, woodchips and pellets. There is also some transit of scrap metal, which is transported to the port by smaller vessels and then reloaded onto Handymax size vessels.

Dry Bulk Terminal Muuga (DBT) also had a disappointing 2012, when it handled 1.7mt of dry bulk, compared with 2.4mt in 2012, which was its best ever year since starting operations in 1998. As a benchmark, it should be noted that the average cargo traffic over the last ten years has been around 1.7mt annually.

DBT's main traffic, fertilizer, was adversely affected last year by the global drop in price for this product.

"The difficult mineral fertilizer market situation and the global drop in price for fertilizer products are the major factors for the freight flow reduction through DBT in 2013," says the terminal's head of external relations and the commercial department, Viktoria Jurjeva. "As for this year, we estimate that traffic will be broadly similar to 2013."

She explains that traffic is determined by various market factors. For example, last year, the price of urea dropped to a level whereby the cost price — because of high purchase price of gas — made production unprofitable. As a result, the only local (Estonian) fertilizer producer was forced to suspend production in the autumn.

"Their export freight deliveries through our terminal therefore declined too, which is significant in that they have an annual volume of around 200,000 tonnes. We don't expect them to restart production before the spring, all of which negatively impacts on traffic," she says.

Because DBT is a specialist facility, designed to handle mineral fertilizer, it is therefore difficult for it to seek alternative commodities to offset the decline in its core business.

Despite recent difficulties, in June 2012, construction began of three new dome-type warehouses with a total capacity of 27,000 tonnes. These were inaugurated in September 2013, allowing storage at DBT to increase to 192,000 tonnes. As each of the domes is independent, they provide maximum product segregation, ensuring no product cross-contamination and giving the terminal the ability to guarantee that quality and commodity properties will not be damaged in any way.

Rail plays a significant role in the movement of mineral fertilizer in Estonia. Railways, notes Jurjeva, have several advantages over other modes, namely high capacity, reliability and relatively high speed.

"Our main clients are big fertilizer producers in neighbouring Russia and so rail is very important to our business. In general, fertilizer is transported by rail from the main manufacturers for onward shipment by sea to Central, South and North America, Europe, Asia, Africa and Australia," she says.

However, during the transit, it is possible for DBT to add

The Dry Bulk Terminal at the Port of Muuga.

value to the basic product being handled, with both bagging and blending services offered on-site.

The blender uses a continuous process, being equipped with four hopper compartments. Each hopper is mounted on a digital scale and is fitted with an automatic dosage correction system, which ensures high dose accuracy, guaranteeing that the end-product blend meets the customer's specifications.

As for bagging, there are two FIBC (big bags) filling stations, capable of handling 500–1,250kg big bags.

Physically, DBT is able to operate all year round, since Muuga Harbour is ice-free and there are no draught restrictions in the port. The terminal has a 288m quay with alongside draught of 14.5m, allowing Panamax bulk carriers to berth. However, market changes last year resulted in an absence of large shipments of phosphate fertilizer (DAP, MAP) to Pakistan and India, resulting in a reduction in the size of consignments.

In general, loads of 30,000–35,000 tonnes are despatched to Latin America, Africa and India, while the European average is in the 3,000-5,000-tonne average. However, vessels en route to China invariably load up to 70,000 tonnes. The average DWT, calculates Jurjeva is around 30,000 tonnes, while the largest is 82,000 tonnes.

Quizzed as to productivity at DBT, she notes that the terminal has no direct competitors in Estonia specialized in transshipment of bulk fertilizer. However, in the wider Baltic Sea region, there is a lot of competition, with terminals equipped with transshipment and warehouse capability, as well as modern equipment and infrastructure.

"They are also able to offer value-added services and other facilities that are of critical importance for successful operation in this industry. However, at DBT, we have always focused on high level of customer service and on the provision of high quality services, these being the most significant factors for our terminal being able to compete," says Jurjeva

Despite problems in Estonia, in neighbouring Latvia, Riga Fertilizer Terminal opened for business on 18 December 2013. It is a joint venture between Urlalchem and Riga Commercial Port (RTO) and is dedicated to the handling and short-term storage of bulk fertilizer.

The two companies originally signed an agreement in 2009, with the project being implemented by Riga Fertilizer Terminal Limited, 51 % of which is owned by the Uralchem holding company and 49 % by RTO. The total investment in the project exceeds €60 million. At start up, the terminal has a annual capacity of 2mt.

According to Dmitry Mazepin, chairman of the board of directors of Uralchem, "The construction of the terminal has been a good example of mutually beneficial co-operation between ... Russia and Latvia. This co-operation has made it possible for us to implement a large-scale state-of-the-art infrastructure project in a relatively short period of time."

Notes Ralfs Klavins, chairman of the board of RTO, "Riga Fertilizer Terminal is one of the few terminals in the port ... that provide manufacturer-owned cargo transshipment. It is an important factor for pricing policy and the economy as a whole. Direct supplies from the manufacturer to its own terminal enable us to considerably accelerate cargo delivery to the end recipient. Ships carrying fertilizer will go from Rīga to South America, China, India, Europe, Australia and many other destinations."

Dmitry Konyaev, general director of Uralchem, adds that the new terminal will strengthen the position of Riga as a major European port and enhance the development of the city as an important North European transit hub.

The terminal, stress the owners, has been built using the most up-to-date environmentally friendly technologies and materials. It also meets the most stringent EU requirements for safety and environmental impact. Furthermore, all cargo handling operations are carried out in enclosed facilities that are completely isolated from the external environment.

The Port of Pori gets ready for the year 2015 – powered by LNG

Bulk handling at the Tahkoluoto harbour.

On 1 January 2015 — only a few months from now — there will be drastic changes taking place in the Baltic Sea Area. Just how drastic these changes will be is uncertain.

It is very difficult to make accurate predictions; nevertheless, the Port of Pori has readied itself for 2015. The Baltic Sea, the North Sea and the English Channel form European SECA Area (Sulphur Emission Control Area). In the SECA, the highest permitted sulphur content of fuel will fall to 0.1 % from 1 January 2015. In practice, this content level means that there are two alternatives for shipping companies. They can use low-sulphur fuels like LNG (liquefied natural gas), MGO (marine gas oil) or methanol. Alternatively, the ship can be equipped with scrubbers, so that it is able to reduce the sulphur content in exhaust gases to the required level. There is, in fact, also a third alternative. This worst-case scenario is a so-called 'modal backshift' from sea to road.

All these solutions mean higher logistical costs to the shipping companies, but first and foremost to the shippers. The logistics chain must be considered as a whole, stresses Jaakko Nirhamo, port director of the Port of Pori. Choosing the right port is crucial. The Port of Pori has decided to tackle the economic disadvantages of the sulphur restrictions by using the strengths of the port itself. Theses include LNG bunkering facilities, deep fairways, the best ice conditions among the Finnish ports, uncongested hinterland connections, effective port operations and services of the M20 Industrial Park.

At the beginning of March, Gasum Oy decided to start a project aiming to build an LNG import terminal for Tahkoluoto harbour. The terminal will be the first in Finland. With a capacity of 30,000m^3, the terminal is intended to fulfill the needs of shipping, road transport and industry. The Pori region is one of the most industrialized regions in Finland, and LNG would be a new alternative energy source for the industry. Construction works are planned to start during this year and, if all goes to schedule, the terminal will commence operation in autumn 2016.

Excellent fairways and land transport connections have long

Mäntyluoto harbour: from the Port of Pori, there is also a railway connection to Russia.

The port serving vessels of all sizes

PORT OF PORI

Mäntyluoto
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- Container traffic
- Sawn goods • Dry bulk
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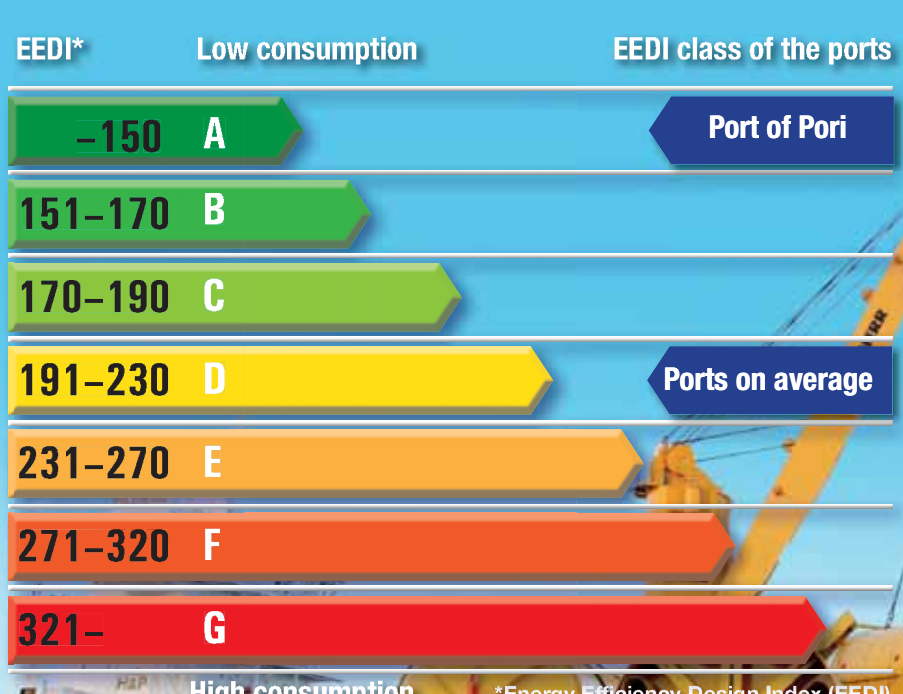
- Ro-Ro facilities

LNG available 2016

Tahkoluoto
- Dry bulk • Liquid chemicals
- Major bulk hub
- Recycled metals

- A general port handling all kinds of cargo
- Deepest fairway (15.3 m) in the Gulf of Bothnia, the sea area between Finland and Sweden
- Fairways: Tahkoluoto Deep Harbour 15.3 m, Takoluoto Oil and Chemical Harbour 10.0 m and Mäntyluoto Harbour several fairways up to 12.0 m
- The best ice conditions in Finland. Easy to navigate = No archipelago
- Uncongested hinterland connections, the same railway gauge as in Russia
- Suitable for large volumes
- Room to expand. Free areas available for industry, logistics and value-added services
- 20 advantages of M20 Industrial Park. See www.m20.fi/en
- Located far away from permanent settlements
- Dust-minimized loading and unloading systems
- Environmental and work safety are top priorities



Check before 01.01.2015*

*Check before 01.01.2015 when the new SECA sulphur regulations will come into force.

Check your port's EEDI-class before making the logistical decisions of the future

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been a trump card for the Port of Pori, but their importance will grow further in the new situation caused by the SECA decisions. Deep fairways mean larger vessels and more energy-efficient transport. In Tahkoluoto deep harbour, water under the keel doesn't run out. The depth of the fairway is 15.3 metres, the same depth as the Danish Straits. This means that all vessels that are able to pass through the Danish Straits can call at the Port of Pori. The fairway is the deepest at the Gulf of Bothnia, the sea area between Finland and Sweden. Tahkoluoto is thus a dry bulk hub in the Gulf of Bothnia area. In Mäntyluoto harbour, there is a new 12-metre berth and fairway for Panamax vessels. For example, 3,500 TEU container vessels can be handled in Mäntyluoto. Finland is famous for its archipelago, but not Pori. It has other tourist attractions. The fairways are easy to navigate. Not even winter conditions constitute a challenge. Ice-breakers are rarely seen in Pori. Short fairways from the open sea to the harbour and the best ice conditions in Finland mean lower bunker costs, fairway dues and pilotage fees.

There are no draught restrictions at the Port of Pori, so Capesize vessels pose no challenge.

Uncongested land transport connections save fuel and wage costs. Main Finnish industrial areas and the largest cities can be reached within three hours by road. From the Port of Pori, there is also a railway connection to Russia. Finland has the same railway gauge as Russia. Rail wagons only need to be loaded or unloaded once. Extra lifting costs are not incurred. Only the engine is changed at the border.

The best solution to avoid land transport costs is to settle in the M20 Industrial Park. The M20 Industrial Park operates in the immediate vicinity of the Port of Pori. The industrial park is being developed into a node with excellent traffic connections to all over Finland as well to Russia, Scandinavia and Continental Europe. The area is one of the few industrial and logistics areas in the Baltic Sea Region that still offers space for growth to both SMEs (small and medium enterprises) and large companies right next to a well-functioning general port. The traffic and infrastructure of the Port of Pori support companies and their growth. There are over 200 hectares of vacant land for industry, logistics companies and value-added services.

From the energy-efficiency viewpoint, larger vessels are key factors. But vessels must also have full loads in both inbound and outbound directions. This is, in the first place, a matter for shippers and forwarders. To prevent a modal backshift, co-operation must be increased. The port can foster such co-operation by offering favourable infrastructure and services. The Port of Pori has competence in handling all kinds of cargo and vessels. This means that both raw materials and different semi-finished and end products can flow via the port. There are prerequisites for combined cargo, and these increase the load factor of vessels.

The Port of Pori is taking part in the Bothnian Green Logistics Corridor project, part-financed by the European Union. The aim of the project is to connect northern Scandinavia's raw materials with the markets in the Baltic Sea Region and Central Europe. Also east–west connections from the Norwegian coast to Russia via Sweden and Finland are in focus. Norwegian partners are situated north of the SECA area. How much the SECA area will affect the cargo flow remains to be seen. The importance of the northern sea areas will grow in any case. Better east–west connections are needed. As a part of the east–west connections, the Port of Pori has made a study of re-opening the Pori–Haapamäki railroad line, which would open a new route to the Finnish mining areas, but also a new route to Russia.


Aerial view of the Tahkoluoto harbour.

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LIEBHERR
The Group

Liebherr maritime cranes boost scrap handling capacity in Amsterdam

Established in 1972, Maja Stuwadoors Group B.V. (Maja) is well-known for valuable expertise in loading and unloading of bulk goods, operating a fleet of seven floating cranes in various ports. In view of increasing business, the company has opted for its first Liebherr mobile harbour crane, type LHM 550, in order to upgrade its facilities. Providing a maximum lifting capacity of 124 tonnes and an outreach of up to 48 metres, the crane is equipped with two winches for highly efficient scrap handling. In four-rope grab operation the maximum lifting capacity is 75 tonnes and more than 40 tonnes at 43 metres outreach.

In Amsterdam, a major client for Maja Stuwadoors is ALBA Group (ALBA). ALBA, a provider of environmental services and raw materials, has recently opened a new export terminal in Amsterdam and trusts in Maja's long-term experience. Due to the flexibility of the new Liebherr machine, Maja is capable of successfully completing all cargo handling tasks ALBA requires. ALBA, Maja and Liebherr are family-owned companies, each with decades of experience in their businesses.

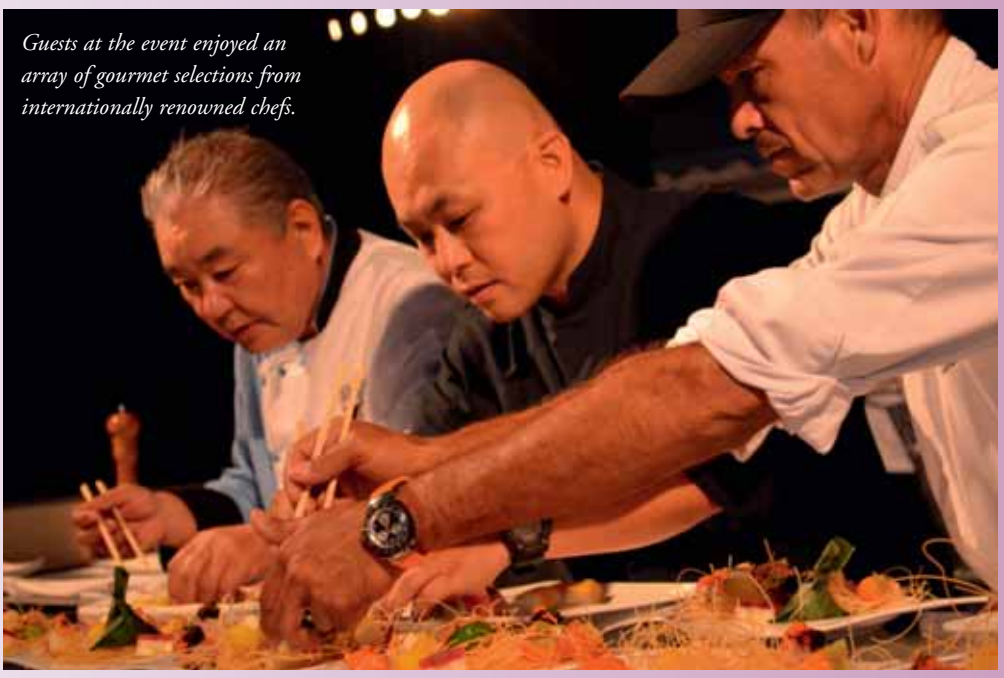
In February 2014 the new crane for Maja rolled-off at Port of Amsterdam. "The LHM 550 significantly increases our scrap handling capacity. Moreover, our portfolio comprises many other materials and thanks to its flexibility the new machine can be operated wherever it is required, especially in peak times. For that reason, our customers will also strongly benefit from this investment," said Arie Holleman, director at Maja Stuwadoors.

The short timeline of the project is remarkable. In late November, Maja Stuwadoors and Liebherr were in touch for the first time. After negotiations in December, the contract was signed in January. Manufactured and tested in Rostock, the crane was delivered fully assembled, just one month after signing. Right after rolling-off the barge, the crane was ready for operation mid of February. "Business is on the rise and fast delivery was very important for us. The close and professional collaboration between both partners was impressive and facilitated a short delivery time," added director Marco Holleman.

Before the LHM 550 moved its first load of scrap, Maja's crane drivers were well instructed on site. This practical training comprises operational topics as well as safety features. Maja Stuwadoors attaches great importance to well-trained crane drivers in order to maintain its high quality standards regarding damage-free and fast scrap handling.

The LHM 550 for Maja Stuwadoors also represents an anniversary crane for Liebherr Maritime Cranes. In total, the manufacturer has now delivered 30 mobile harbour cranes to the Netherlands.

Martin Engineering supports fund raiser for fire department and Red Cross



Guests at the event enjoyed an array of gourmet selections from internationally renowned chefs.

Organizers of the 8th Annual Sabor a Cabo (Flavors of Cabo) food and wine festival have announced that the 2013 event raised more than $90,000 to benefit local institutions and charities such as the volunteer fire department and Red Cross in Los Cabos, Mexico, where emergency services must be provided on limited funding. Hosted by CANIRAC, the restaurant industry association of Los Cabos, the festival featured international food from 40 local restaurants, along with two dozen purveyors of fine wines and liquors. It attracted some 2,000 guests to an evening of culinary art and entertainment at the magnificent Campestre San Jose del Cabo, owned by Grupo Questro, which furnished the venue on its lush golf course designed by Hall of Fame golfer Jack Nicklaus.

Martin Engineering has been an employer and supplier of bulk material handling technology for more than a quarter-century in Mexico, and is a frequent patron of such fund raisers. The company provided support this year by purchasing two VIP tables at the event, contributing $18,000 to the cause and treating 20 guests to an unforgettable evening highlighted by delicacies such as oysters on the half-shell, lobster bisque, smoked duck breast and Koji beef tenderloin, followed by treats that included a decadent ricotta cheese and pear dessert.

"We support all of the regions in which are facilities are located," commented global business development director Alvaro Chacon Prieto. "Part of our corporate philosophy is finding ways to make meaningful contributions to the local communities, beyond providing gainful employment."

CANIRAC president Carmen Carbajal observed: "Sabor a Cabo offers visitors and residents alike an opportunity to experience the very best in food and wine offered anywhere in all of Mexico. They enjoy the opportunity to partake in a vast array of gourmet selections, as well as cooking demonstrations by internationally-renowned chefs. And the proceeds benefit local organizations that help make Los Cabos a safer community." Carbajal is the managing force behind her family's highly-regarded Asian fusion restaurant, Nick-San, where her brother Angel is the chef.

Guests at Sabor a Cabo 2013 were greeted by volunteers from Building Baja's Future, a group of scholastic high-achievers identified by their distinctive red shirts. Live music was provided by international singing star Fernando Allende, as well as the charro-clad group, Mariachi Gavilancillo. Contributing to the party atmosphere in between sets was French DJ sensation Roman Rosati.

It was the largest of the annual Sabor events so far, attracting an international audience thanks in part to a major marketing campaign in conjunction with the Los Cabos Tourism Board. Local gourmands were joined this year by seasonal visitors, prompting organizers to describe it as the largest event of its kind in Mexico.

Los Cabos is a municipality located at the southernmost tip of Mexico's Baja California Peninsula, in the state of Baja California Sur. It encompasses the towns of Cabo San Lucas and San José del Cabo (the municipal seat), as well as the resort corridor that lies between the two. The remarkable setting where the sapphire Sea of Cortez meets desert and mountains is unique to Los Cabos, drawing millions of visitors each year to its warm, temperate climate with 300+ days of sunshine each year and an average annual temperature of 78° F.

CANIRAC President Carmen Carbajal (left) chats with friend Lula Luevano at Sabor a Cabo.

Martin Engineering supplies bulk material handling equipment around the world for a wide variety of applications, including mining and coal handling, biomass, cement, aggregates and other materials. Founded in 1944, the firm is headquartered in Neponset, IL (USA), with manufacturing, sales and service from factory-owned business units in Brazil, China, France, Germany, Indonesia, Mexico, South Africa, Turkey, India, the UK, Japan, Russia, Peru and under exclusive licence with ESS Australia.

Metso wins three prestigious awards

Metso's mobile crushing plant, biomass moisture analyser and scrap shear and shredder concept have received prestigious iF design 2014 awards. The jury in one of the world's top product design competitions recognized Metso's products for their design quality, degree of innovation, environmental impact, functionality, safety and branding, among others.

This year's iF design competition had over 3,200 entries in 17 categories to showcase outstanding achievements in product design. The awards were presented in Munich, Germany, on 28 February 2014.

In Metso, customer expectations and wishes guide product concept development process. The goal is to always provide the best possible user experience. Well-designed equipment provides product users with significant benefits. Ultimately, product design helps fulfill the customers' needs, makes their jobs easier and sets new standards in environmental efficiency. For Metso, industrial design is a synonym for high performance, productivity, safety, usability and competitiveness.

Information about Metso's award-winning products

The Metso Lokotrack LT106 mobile crushing plant is designed for crushing of hard rock and recycled materials for various purposes such as infrastructure construction. The design sets it apart from the competitors not just by its look, but also by the usability, serviceability and safer working environment it offers. During the past 30 years, more than 6,000 track-mounted Lokotrack units have been delivered to sites around the world. Lokotrack was also one of the award winners in the Fennia Prize design competition this year.

The Metso MR Moisture biomass moisture analyser is the first industrial moisture measurement application utilizing the magnetic resonance phenomenon. The design features competitive and easy-to-use fuel moisture measuring equipment coupled with a user interface that can be used in multiple surroundings.

Metso's EtaCut II scrap shear for crushing heavy mixed and demolition scrap, and the EtaShred ZZ shredder are both based on a globally applicable operating concept and product structure offering increased processing flexibility and low specific power consumption. The concept, which features a re-engineered design and an innovative control interface, was developed together with the German Institute for Integrated Design.

Information about the IF design award

With a 60-year history, the iF design award is regarded as one of the most important product design competitions worldwide. The award mirrors current trends in design and the economic benefits delivered by well-designed products.

Metso is a leading process performance provider, with customers in the mining, construction, and oil & gas industries. Its focus is on the continuous development of intelligent solutions that improve sustainability and profitability. Metso employs around 16,000 professionals in 50 countries.

MacGregor receives an order for K50 cranes from Indonesia

MacGregor, part of Cargotec, has won an order for two 50-tonne SWL versions of its heavy-duty grab cranes. The K5036-4HD MacGregor cranes are destined for a 68m floating crane barge, which is being built by Batam-based PT. Karya Tekhnik Utama (KTU), in Indonesia.

"Indonesia has one of the world's fastest-growing bulk export industries, and this order further increases our presence in this significant market," says Anders Berencsy, sales manager for transloading cranes at MacGregor. "The floating barge will be used to showcase the yard's capabilities and the cranes will be an important part of this."

"Historically, KTU has used other manufacturers for this type of crane, but has decided to install MacGregor cranes for the first time," notes Mr Berencsy. "This is an important vote of confidence both for the K50 model and for the quality of the products and services delivered by MacGregor."

Offering a long, reliable service life, MacGregor's K50 cranes were developed to meet the market's increasing demand for high-performance bulk handling capabilities. The company's first units of this type were delivered to Indonesia in 2011. The latest order is scheduled for delivery in November this year.

MacGregor is a world-leading brand of engineering solutions and services for handling marine cargoes and offshore loads. Its products serve the maritime transportation, offshore and naval logistics markets, in ports and terminals as well as on board ships. Its cargo flow solutions integrate cargo access, stowage, care and handling functions to suit a particular ship's cargo profile. This benefits its productivity, environmental impact and profitable service lifetime.

Latest from CommTrac

New Projects

The Bristol Port Company has chosen CommTrac to manage its Avonmouth operation. With its Portbury site already successfully using CommTrac, The Bristol Port Company decided it made sense for both operations to have a common approach to terminal management. As well as the new implementation at the Avonmouth the project will include an upgrade to the existing Portbury software.

VIGAN Engineering has awarded DBIS a contract to supply the Motor Control Centre for phase 1 of its fertilizer storage project in Ust Luuga, Russia. Having already completed the electrical design for the project DBIS will now supply a complete Siemens solution for all aspects of the control system.

Project updates

CommTrac has now gone live at Port of Tyne and a second phase has been added to the project to integrate to automation systems at the terminal and to introduce the CommTrac Planning and Scheduling Module. ABP's Hull Biomass Terminal has also recently gone live using CommTrac to manage an unmanned weighbridge operation for truck movements between the berth and the storage facility.

The new extension at Peel Ports Animal Feed Store is now operational. DBIS delivered this project as a full turnkey, with electrical design and installation as well as PLC/SCADA software all provided by DBIS. CommTrac has been extended from the original store to include management of the new storage area.

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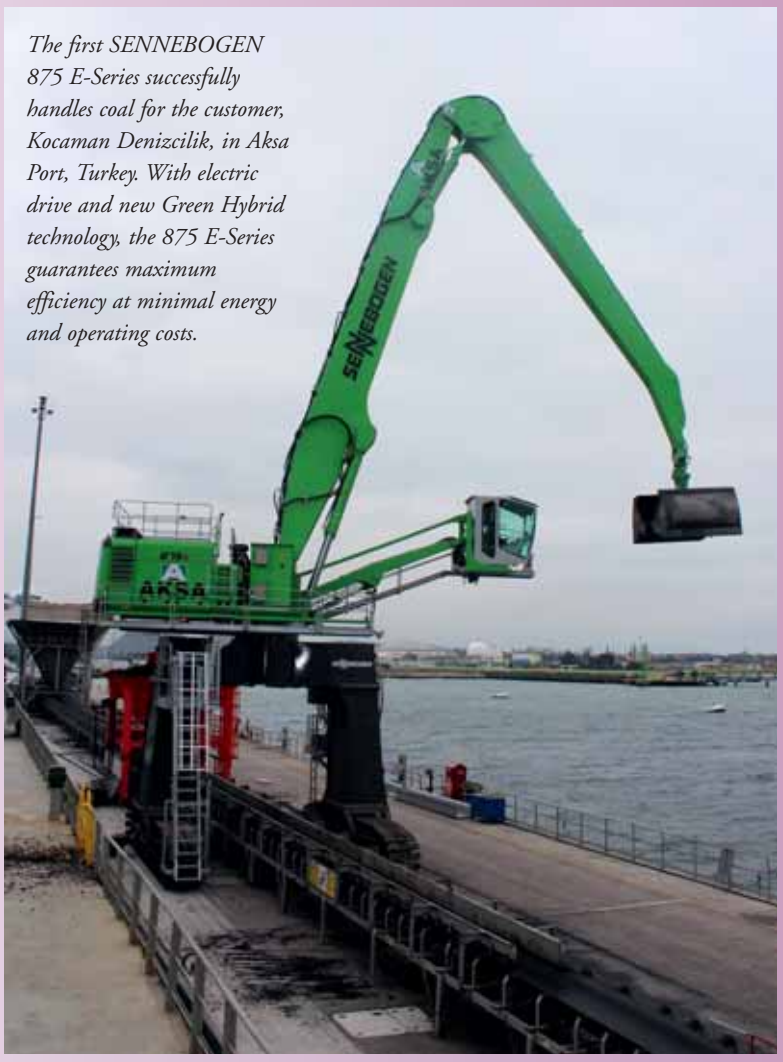
Answers for industry.

Energy efficiency – taking the concept further

SENNEBOGEN 875 E-Series with Green Hybrid and electric drive

SENNEBOGEN officially introduced the 875 E-Series at bauma 2013 as a world first. A materials handling machine of this type has been providing reliable service unloading ships for the logistics service provider, Kocaman Denizcilik, at Aksa Port in Turkey. For the owner, the newly developed machine offers double savings in operating costs: on one hand, through the innovative Green Hybrid energy recovery system, and on the other hand, through the efficient electric drive.

As a complete provider in the areas of freight logistics and port logistics, the company, Kocaman Denizcilik, founded in 1987, services the Aksa seaports in Turkey and ensures smooth handling of the loading processes. In this regard, with the new SENNEBOGEN 875 an unparalleled machine development has been placed in practical implementation. A sophisticated machine concept, including energy recovery system and electric drive, makes the machine an economical materials handling specialist.



The first SENNEBOGEN 875 E-Series successfully handles coal for the customer, Kocaman Denizcilik, in Aksa Port, Turkey. With electric drive and new Green Hybrid technology, the 875 E-Series guarantees maximum efficiency at minimal energy and operating costs.

The machine, which was delivered in the end of 2013 by the Turkish sales and service partner, Forsen, is used exclusively for unloading coal in Aksa Port. Equipped with a 7m³ double shell grab, approximately 600tph (tonnes per hour) is moved, and with just 30 seconds per cycle, the machine was able to prove its performance capacity within the first days of operation. This SENNEBOGEN 875 was especially developed for the customer's requirements and adapted to the local conditions. For this the machine was set up on a crawler gantry undercarriage with 5m clearance height and 5.80m track width. In daily operation, the machine unloads arriving ships that deliver coal by the tonne for the adjacent power plants. The existing conveyor belt transports the coal farther along the quay. To also enable work above the conveyor belt system, including feed hopper, a mobile crawler gantry variant was selected. This allows flexible work over the entire length of the quay and beyond, and cuts the slewing angle in half, since it is possible to unload coal directly underneath the machine into the funnel — an efficient saving of time and facilitation of work.

Innovative: Electric drive and Green Hybrid energy recovery system

The SENNEBOGEN 875 E-Series is driven by a powerful 355kW electric motor with a mobile power supply via a laterally mounted cable drum. Operating and service costs savings of up to 50% relative to a conventional diesel machine are achieved through the modern electric drive. Additional advantages are longer maintenance intervals, the fact that fuel stops are dispensed with, and a longer component service life.

In addition, the SENNEBOGEN 875 E-Series is equipped with the innovative Green Hybrid energy recovery system. This sophisticated system saves the energy in the system when lowering the boom and makes this saved energy available again for the next lift, virtually loss-free. Through this means up to 30% energy is additionally saved.

Everything in view: elevating Mastercab ensures an all-round view

Operators and the responsible parties at Kocaman Denizcilik have particular praise for the comfortable, elevating Mastercab. Thanks to the elevated position in the cab, which offers an adjustment range of 9m, the operator always has an unobstructed view into the ship's hull and the feed hopper, as well as all around the entire work area. This is ensured by the continuous panorama windshield, an additional armoured glass floor window, and multiple surroundings cameras.

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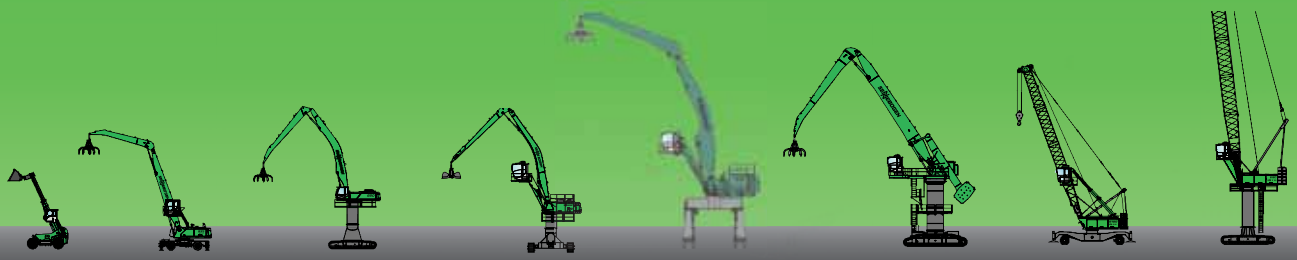

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1 **LOW ENERGY COSTS**
Balanced design reduces horsepower requirements by up to 50%

2 **BUILT TO LAST**
Purpose built for 24/7 duty cycle operation

3 **REDUCED MAINTENANCE**
Longevity of E-Crane parts results in lower maintenance costs and minimal downtime

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What's new in grain handling

The 1500 Series/Model 11264 PD-E pedestal-mounted E-Crane in operation at Terminal 6 S.A. in Argentina.

Grain handling solutions at E-Crane

The E-Crane is ideal for bulk handling applications that require heavy-duty production cycles. Recently, the E-Crane has proven to be a top solution for grain handling operations all around the world, particularly in South America. In 2013 and 2014, many companies chose the E-Crane as the solution to their grain handling needs.

E-Crane successfully handling grain at Terminal 6 S.A. in Argentina

In 2013, E-Crane installed and commissioned a 1500 Series/ Model 11264 PD-E pedestal mounted E-Crane to unload soyabeans and grain from Mississippi and Paraná-sized barges at Terminal 6 S.A. in Argentina. The E-Crane is dock mounted, and has a 26.4 m (86.5ft) outreach and a duty cycle capacity of 16.5 metric tonnes (18.2 US tons). The E-Crane transfers the grain from the barges to a hopper and conveyor system on the dock with a 13.5m^3 hydraulic clamshell bucket. Terminal 6 S.A. chose the E-Crane after realizing the many benefits of the equilibrated crane's efficient design. The goal was to increase the productivity and capacity of the port. The material was originally unloaded using a cable crane and a small material handler, with each machine achieving a production rate of about 400tph (tonnes per hour). The new E-Crane replaced the old cable crane and achieves a much higher production rate than the previous set-up.

More grain handling in Argentina

After the successful operation at Terminal 6 S.A., another Argentinian company realized the benefits of the E-Crane for grain handling purposes. In early 2014, an identical 1500 Series/ Model 11264 PD-E pedestal mounted E-Crane was purchased for a very similar operation. This E-Crane will also be used for unloading Mississippi and Paraná barges into a hopper nearby on the dock. The new E-Crane is scheduled to be installed and commissioned in the first half of the year.

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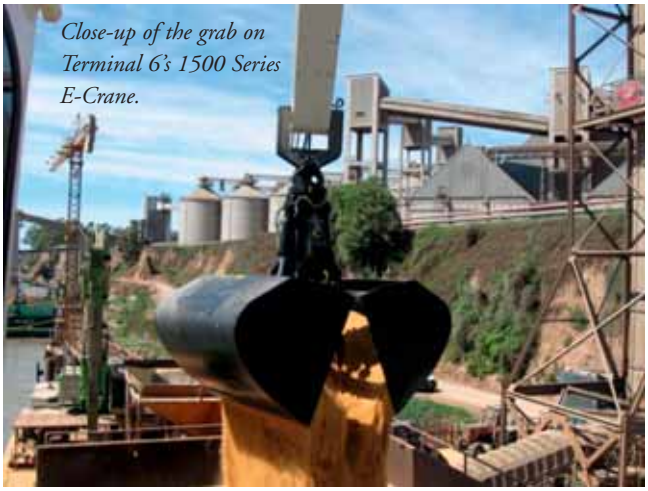
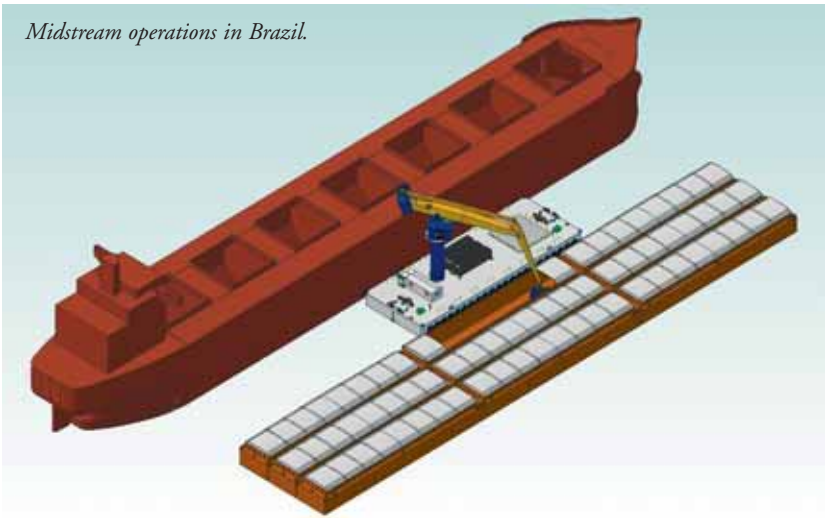


Close-up of the grab on Terminal 6's 1500 Series E-Crane.

Benefits of E-Crane midstream transfer operations

E-Crane also provided several solutions for grain handling with barge-mounted E-Cranes in 2013 and 2014. The E-Crane's balanced design makes it ideal for barge mounting. The E-Crane design is based on a parallelogram style boom which provides a direct mechanical connection between the counterweight and the load. Because of this, the E-Crane remains in a near perfectly balanced state throughout its entire working range. The E-Crane allows gravity to work for you, instead of against you, reducing horsepower requirements and power consumption by up to 50% and reducing maintenance and operating costs significantly. However, along with the significant energy savings that a balanced design provides, it also makes the E-Crane ideal for mounting on a floating barge. Because the E-Crane is balanced, the movement of the E-Crane causes very minimal listing and movement of the barge. A barge-mounted E-Crane is also beneficial because it floats up and down along with the material barges when the water elevation changes. This means that the cycle of picking material out of the barge is never affected by water fluctuation.



Midstream operations in Brazil.

Barge-mounted E-Cranes to handle grain in Argentina

Once again, a company in Argentina realized the great benefits of the E-Crane for grain handling as well as barge mounting. In early 2014, an order was placed for two E-Cranes to be mounted together on a single barge. The first crane is a 700 Series/Model 4264 PD-E with 26.4m (86.5ft) outreach and a duty cycle capacity of 5.5 metric tonnes (6.0 US tons). The second E-Crane, a 700 Series/Model 4290 PD-E has the same duty cycle capacity, but a longer outreach of 29.0m (95ft). Both E-Cranes work together to unload grain from a Paraná-sized barge into two separate hoppers also located on the barge. The hopper outputs the material onto a conveyor/shiploader system which transfers the material into a Handymax sized vessel on the other side of the crane barge.

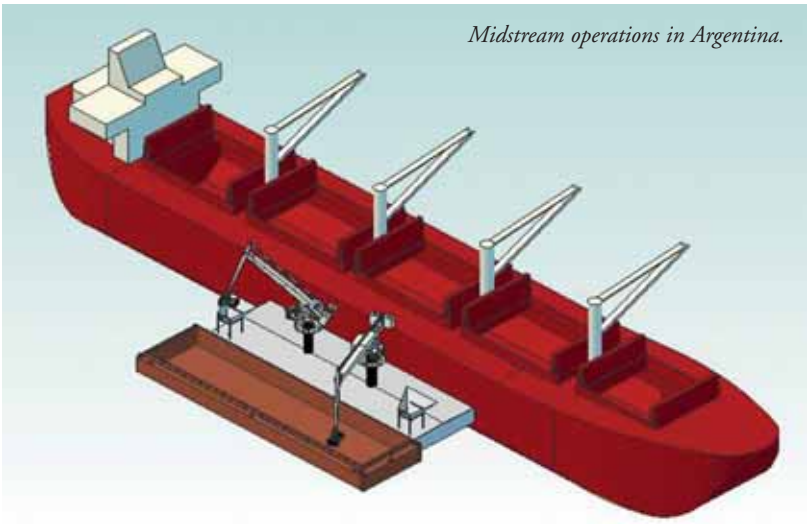
Barge-mounted E-Crane to handle grain in Brazil

An E-Crane is also to be used for a similar operation in Brazil. In 2013, an order for a large 3000 Series/Model 30382 PD-E E-Crane was placed. The E-Crane will be barge-mounted and will be used to unload material barges. The material will then be directly transferred by the E-Crane to a Panamax-sized ship on the other side of the crane barge. The midstream transfer will occur along the Amazon river and will be the largest midstream transfer operation ever accomplished for E-Crane. The E-Crane will be equipped with a 30 cubic meter hydraulic clamshell grab which will be able to transfer 24 metric tons of grain in a single cycle.

About E-Crane

Specifically designed for barge-unloading processes, the E-Crane is able to handle anything from coal to limestone to fertilizer to grain to scrap steel. The E-Crane is a truly versatile machine in that it can easily switch between commodities and still offer the high production required at many ports and industrial facilities. Built for 24/7 duty cycle operation, E-Cranes have unprecedented life cycles, high efficiency, and low maintenance costs.

The standard E-Crane product line consists of five series of balanced hydraulic cranes (Equilibrium Cranes): 700 Series, 1000 Series, 1500 Series, 2000 Series, and 3000 Series. E-Cranes provide longer outreach and higher duty cycle capacities than typical material handlers. Outreach ranges from 24.8 to 47.8 metres (82 to 157 feet) and duty cycle capacity ranges from 5.5 to 39 metric tonnes (6 to 42.9 US tons).



Midstream operations in Argentina.

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Buttimer develops grain handling systems on Poland's Baltic Coast

Buttimer rail loading station.

Buttimer Polska has delivered, or is in the process of delivering, grain handling systems for Bunge, Glencore, M.T.M.G. (Morskiego Terminalu Masowego Gdynia), ADM, Malteurop Group and others on Poland's Baltic coast. Continued growth in the volume of grains and oilseeds imported and exported each year from Poland, the development of the country's northern coastline, and the ports of Gdansk and Gdynia in particular, have created a vibrant destination for regional and global agricultural trade. Buttimer Polska Sp z o.o. has been working hard to provide expertise in dry bulk handling infrastructure to new and existing terminals, to facilitate this growth. A number of significant projects — completed, in progress and planned — demonstrate the company's capacity to deliver turnkey mechanical handling solutions and a strong knowledge of the region.

Present in the Polish market since 2005, Buttimer Polska is part of Buttimer Group; it both draws on, and contributes to, the Group's expertise and experience in mechanical handling of dry bulk commodities. Buttimer Polska primarily works with clients handling grains, oilseeds and other agri-industry products. The company is the exclusive distributor of Cimbria equipment in Poland, and works closely with the specialist grain handling equipment producer, and clients, to deliver high-quality and cost-effective mechanical handling solutions. Buttimer's range of projects and growing client list are the result of a commitment to always deliver a first-class project, and to work with clients as partners, to ensure that their engineering and commercial requirements are satisfied.

At Glencore's 'Elewator Ewa' at the Port of Szczecin, Buttimer has provided a heavy-duty belt conveying system, which handles both soyabean meal and biomass. While at ADM's 'Bałtycki Terminal Zbo owy' (Baltic Grain Terminal) in the port of Gdynia, Buttimer is designing a mechanical handling system to facilitate the storage, ship unloading, conveying and truck loading of soyabean meal. The handling of soyabean meal requires careful consideration of transfer points, aspiration, ATEX zoning and design of fire safety features in the mechanical handling process. Buttimer has recently secured a number of projects handling soyabean meal, in part due to the company's successful delivery of a turnkey soyabean meal and rapeseed meal handling terminal for Bunge in 2012, at the Port of Swinoujscie — the design and installation was managed by Buttimer and included the complete aspiration system, loading to trucks, ships and rail with significant handling throughput capacities, as well as storage.

The contract announced by Buttimer last year for M.T.M.G. at the port of Gdynia will include multiple soyabean meal handling lines, with two ship unloaders of throughput of 600tph (tonnes per hour) each, elevators, chain conveyors, truck loading stations, process aspiration and over 1.2 kilometres of conveying systems. Design on this project has now been completed with installation well under way. As with all projects, Buttimer's ability to build strong relationships with clients in the detailed design and procurement phases — getting a thorough understanding of their system requirements — prepares the way for problem-free project implementation and construction, and ultimately,





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In 2012, Buttimer delivered a turnkey soyabean meal and rapeseed meal handling system to the Bunge terminal at the Port of Swinoujscie. The success of this contract has led to the company securing a number of projects handling soyabean meal.

successful delivery to a satisfied client.

The most recent project secured by Buttimer's Polish team is a mechanical handling system for Malteurop Polska's partnership with Copenhagen Merchants at GBT (Gdansk Bulk Terminal), also on the Baltic coast. The project is likely to involve a grain handling silo storage facility as well as a shiploading and unloading capability. The facility handles grains and meals. Buttimer also has significant malting grain handling experience, having designed and installed the complete dry ingredients handling system at Diageo's famous St James's Gate, Guinness brewery in Dublin, Ireland. The opportunity to share and develop expertise across multiple sectors and geographies is one of the core reasons for Buttimer Group's success in delivering mechanical handling solutions to such a diverse range of clients and projects.

The growing dynamism of grain and oilseed trade along Poland's Baltic coast is seen as an opportunity for the country's agriculture, industry and trade sectors to transform the northern coastline into a regional hub of ports and agri-industry. Buttimer Polska will continue to deliver high-quality engineering and project management services to the region, growing the handling capacity and trade volume potential of our clients, as well as growing the experience and expertise available to Buttimer Group. Ireland, Poland and the UK have been the principal markets for Buttimer's services to-date, though there has been growing interest, internationally, in the services the Group provides. Buttimer Bulk Engineering has been developed to make the expertise and experience imbedded in Buttimer's diverse capabilities available to a wider range of clients and geographical regions; the subsidiary will provide design, engineering and procurement services to mechanical handling projects outside the Group's primary markets.

At Glencore's 'Elewator Ewa' at the Port of Szczecin, Buttimer has provided a heavy-duty belt conveying system, which handles both soyabean meal and biomass.

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Getting carried away?

bulk conveyors make their mark

RBL-REI offers high capacity and/or very technical conveyors, and has a range of projects to be commissioned in the coming year.

Louise Dodds-Ely

RBL-REI Curvoduc™ conveyors: flexible and efficient movement of bulk material

Global bulk handling company RBL-REI is closely involved in the port, mining and cement industries, as well as others. With its main headquarters located in Paris and Angers (Loire valley area), RBL-REI has several facilities in France and abroad. It is widely represented throughout the world with commercial agencies which allow it to consider projects of the largest scale.

RBL-REI maintains a close relationship with its clients and its partners throughout a project, from the very early stages to the final commissioning. It has decades of experience and unique skills, allowing it to design innovative bulk handling solutions.

RBL-REI has the advantage of a reliable, multi-lingual engineering department, and relies on its dedicated teams to develop the associated equipment and services such as PLC, civil work and final assembly.

The company has used its skills on specific product ranges, such as the: Curvoduc™, an engineering technology dedicated to overland curved conveyors; the dedusted hoppers for port application; extendable conveyors for TBM application; pile stocking stackers; weighing towers and automatic train loading for any kind of bulk materials including cereals, cement, fertilizers, clinker, aggregates, coal, and more.

Among its most recent conveyor contract, in the past five years, RBL-REI has delivered some outstanding OLC Curvoduc™ projects. The Curvoduc™ conveyors can reach up to 17km per flight, or have a very tight radius of 250m, and with flow capacities of up to 20,000tph (tonnes per hour).

Curvoduc™ conveyors are characterized by a phase calculation and much more complex design. Calculated results determine the equipment's reliability in all phases of use encountered during its operation. The calculation software (belt tracking and dynamic calculation), which has been developed since the first Curvoduc was commissioned in 1980, is constantly being upgraded according to the monitoring of the most recent references.

World record size overland Curvoduc™

The FENGKAY (China) conveying project (twin belts of 40km each which will reach soon 53km in four flights), delivered by RBL-REI, has just celebrated its second operating anniversary. These two side-by-side belt lines, with a flow capacity of 2,500tph, each allow a daily delivery of 30,000 tonnes of limestone to one of the largest cement plants in the world. Each belt line comprises three Curvoduc™ conveyors (11km, 12km and 17km), powered by 19 750kW main drives in total, with a belt speed of 5m/s. The curved conveyors (Curvoduc™) are adapted to cross hilly terrain, roads, rivers and rice fields.

The FENGKAY (China) conveying project: these two side-by-side belt lines, with a flow capacity of 2,500tph, each allow a daily delivery of 30,000 tonnes of limestone to one of the largest cement plants in the world.

Curvoduc™ and port applications

In New Caledonia, RBL-REI faced a new technical challenge when it developed an 11km (two flights of 7km and 4km) downhill conveyor for nickel ore, and a handling system that included four 100m³ dedusted hoppers and a stacker with a 50m boom (see pictures below).

Curvoduc™, cement plant applications, river crossing & twin use

RBL-REI has increased its presence in Russia, with a remarkable technical challenge. The company has recently commissioned a 5km Curvoduc™ conveyor, crossing the Oka River on cables with a 240m span. The conveyor transports limestone and clay at 1,100tph between the quarry and the Lafarge cement plant (see picture on p73).

The Curvoduc™ range also includes very economical technical solutions such as the 6.8km belt conveyor connecting the port to the cement plant. This Curvoduc™ commissioned in 2008 and located in TongLing (China) feeds the port with clinker at 1,200tph (on the upper strand) and simultaneously supplies coal to the cement plant at 400tph (on the lower strand). It is equipped with three main drives of 500 kilowatts each. Its layout generates two 1,000m curves.

Curvoduc™ handling nickel ore in New Caledonia.

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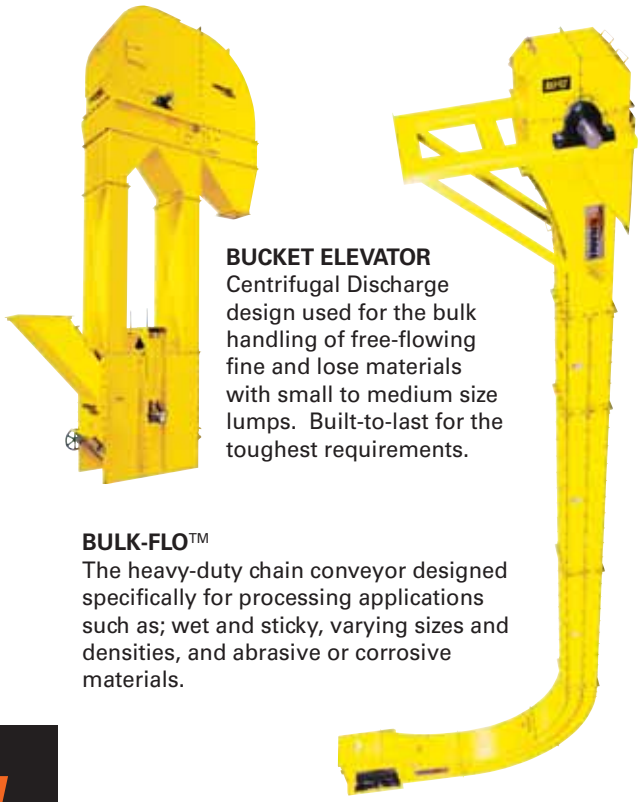

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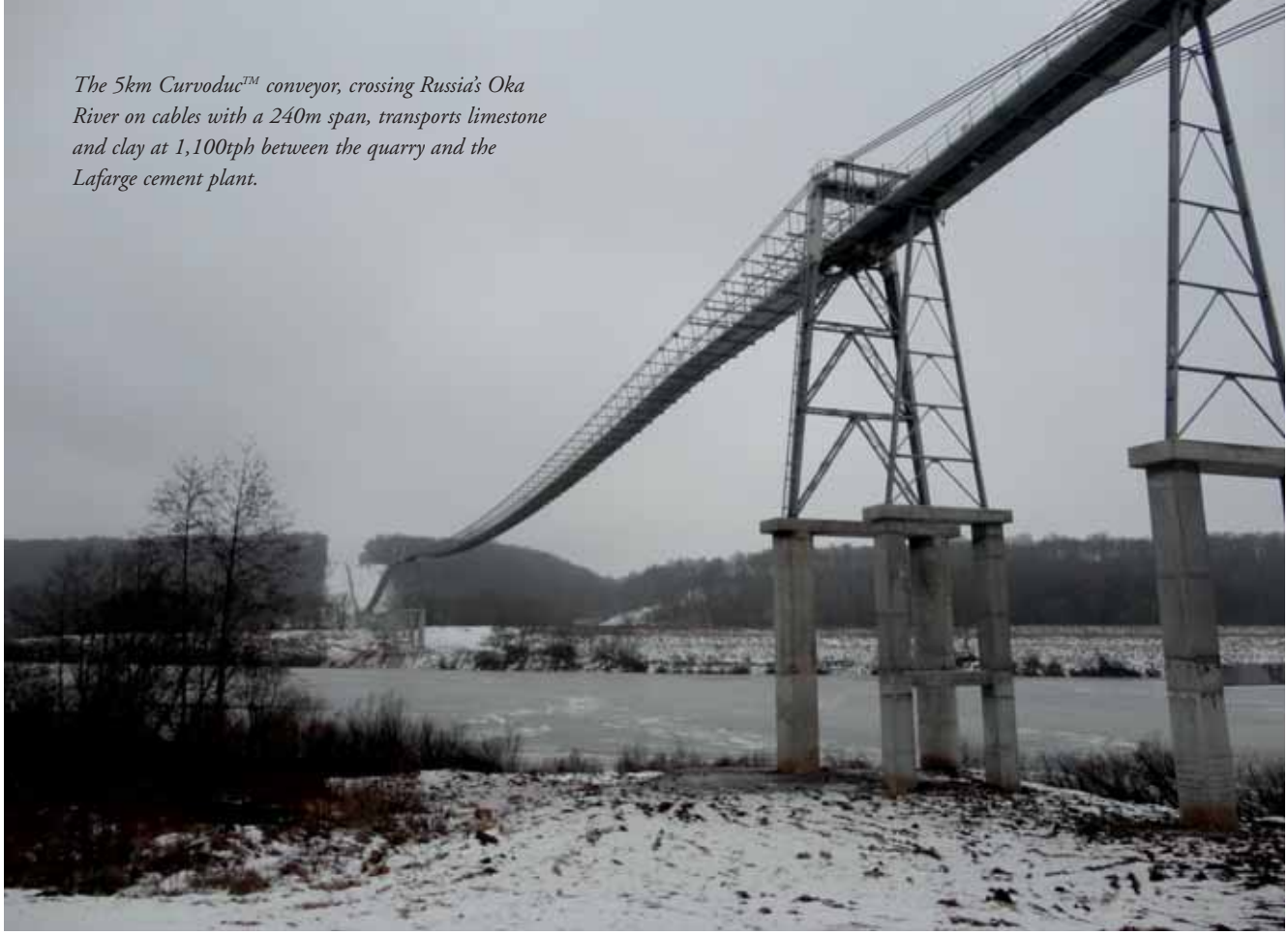

The 5km Curvoduc™ conveyor, crossing Russia's Oka River on cables with a 240m span, transports limestone and clay at 1,100tph between the quarry and the Lafarge cement plant.

Curvoduc™, river barge and power plant

The Curvoduc™ also allow paths with very tight curves. A good example is the conveyor RBL-REI supplied to a French customer. This conveyor provides coal at 600tph to a thermal power plant from the barges floating on the Moselle River. With the curve radius of 250m and 300m, the S-shape has allowed the installation of a single conveyor instead of three straight conveyors and two transfer towers. With a 1,200mm belt width, this Curvoduc™ of more than 1km crosses a canal and an ash park.

This Curvoduc™ in Springvale, Australia, has been operating effectively for over 20 years.

Curvoduc™ ongoing project

RBL-REI is currently engaged with large capacity and/or very technical conveyors in projects in Peru (gold ore), USA (manganese) and Russia (potassium) [see picture on p69] with projects to be commissioned in the coming year.

A good illustration of RBL-REI's ability to integrate multi-purpose bulk handling issue is its recent new 8mt import terminal commissioned for SEA-Invest in Gdansk, Poland.

Curvoduc™ reliability

The Curvoduc™ is extremely reliable. As proof of its reliability, some conveyors commissioned more than 20 years ago are still performing well without any noticeable failure (KOUAOUA – New Caledonia, Springvale – Australia).

RBL-REI diversification capability

Due to its wide design capabilities, RBL-REI is able to offer a diverse range of engineering solutions. These include: biomass power plant handling and stocking solutions (for example, at E.ON Gardanne, in

France, where it processes 1mt [million tonnes] of woodchips for the 150MW plant); and motorize heap leach conveyors for the dynamic handling of uranium ore (for example, TSU Imouraren in Niger, where it is supplying one heap leach system involving 19 grasshoppers and four mobile machines at 2,300tph).

RBL-REI Bulk Handling project Focus

A good illustration of RBL-REI's ability to integrate multi-purpose bulk handling issue is its recent new 8mt import terminal commissioned for SEA-Invest in Gdansk, Poland (see picture on p73 and below).

This EPC (engineering, procurement & construction) project involved the provision of bulk handling equipment for unloading, belt conveying and train loading different type of bulk materials such as coal, ore and aggregates at the Gdansk sea port in Poland.

The complexity of this project was an extension on an existing terminal in operation and especially for the automation connections between a brand new supervision system and an 1980s electro-mechanical system.

This project includes two unloading and dust-free hoppers fed by two cranes at a capacity of 2,000tph per hopper. The stacking line includes three conveyors with a capacity of 3,800tph and a total length of 1.2km up to the stacker reclaimer.

For reclaiming and train loading purposes at the terminal, another 2,000tph line of conveyors is used to feed different circuits such as:

- the existing stockyards;
- the shiploading circuit; and
- the train-loading station.

This train-loading station offers a capacity of 2,000tph with a commercial accuracy of 2/1,000 thanks to a static weighing device.

From the outset of the project until commissioning, it took 16 months to design, manufacture, erect and start up this terminal.

Inspiring times – Smiley Monroe celebrates 35 years of conveyor belt expertise

Bulk materials handling, handled – flexibility and responding quickly to the ever-changing needs of its customers has established Smiley Monroe as a major force in the production of conveyor belts for the mobile crushing, screening and recycling sector.

Smiley Monroe is celebrating 35 years in business, having experienced many changes since Vaughan Monroe, founder and managing director set up Smiley & Monroe in a garden shed, to provide local quarries with a conveyor belt vulcanizing service. Today his company is a world-renowned in the production of conveyor belts for the crushing, screening and recycling sector, with customers and distribution partners in 40 countries. The London Stock Exchange Group has just published a report entitled '1,000 Companies to Inspire Britain', which lists Smiley Monroe among '1,000 of the most exciting small and medium-sized companies in the UK.'

"An anniversary like this gives us the opportunity as a company to look back at how far we've travelled, but more importantly, to look ahead at where we're going. There are a few pretty interesting numbers in our new corporate brochure, launched at the Bauma 2013 trade fair in Munich: in 2012 we produced 340km of hot spliced conveyor belts, enough to reach from London to Paris, and we manufactured over 150,000 CNC cut rubber parts. However, the most meaningful number for me concerns word of mouth and it came directly from our customers: 97% of the 312 respondents to 2013's satisfaction survey said they would recommend us," says Vaughan Monroe.

35 YEARS UNDER ITS BELT

Vaughan continues, "There have been many highlights along the way, and of course, many challenges since we brought the first German belt vulcanizing press to Ireland in 1980 and won our first exports of synthetic screen media into the GB quarry sector in 1986, having started to manufacture two years earlier with the purchase of our first premises. In recent years, Flip Flow screens

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Smiley Monroe — global partner

Celebrating 35 years in business, Northern Ireland-based Smiley Monroe is recognized as a global leader in the production of conveyor belts and CNC cut rubber parts for the mobile crushing, screening and recycling sector. The company established an operation in India in 2011, as part of its strategic global development, demonstrating its commitment to the dynamic Asian market.

In early March, Smiley Monroe is exhibiting at CONEXPO-CON/AGG in Las Vegas, USA — the international gathering place for the construction industries — and has recently exhibited for the second time at EXCON India in Bangalore, South Asia's biggest construction equipment show, where there was overwhelming interest not only in its core products, but also in new technologies such as Belt Buddy, the rapid repair resin for conveyor belts and industrial rubber tyres.

Smiley Monroe India

Tim Monroe, Smiley Monroe's marketing manager, said "We've just appointed two new partners who are already making Smiley Monroe India's quality products available to a wide range of end users and manufacturers right across South India, where the business opportunities for us are enormous. The year 2014 will see us making further investments in our Hosur production facility and personnel to ensure we keep pace with demand."

Smiley Monroe's expertise and experience in bulk materials handling goes right back to 1979 and this has given the company a unique appreciation of its customers' specific requirements in industries as diverse as quarrying, mining, coal handling, cement works and ports — where it is trusted to help customers meet their targets for quality, safety, productivity and environmental compliance.

Passport to export

As it has continued to build its brand abroad, Smiley Monroe has seen exports grow significantly since the global economic downturn in 2009, increasing by a record 123% between Q1 in 2011 and Q1 in 2012. With a growing export sales and marketing team about to number ten, travelling constantly, the company now exports to 40 countries, with a network of distributors spanning Europe, Australasia and North and South America. In fact, 95% of the products it manufactures are exported outside of Northern Ireland, either directly or indirectly. With the company as sole supply partner to many world-class organizations, Smiley Monroe's conveyor belts and synthetic screen media are performing every day in the toughest applications and most challenging environments.

Tim continued, "All in all, 2013 was our most active year yet with trade fairs — exhibiting at: bC India, Mumbai in February; Bauma Munich in April; RWM UK; the first-ever Bauma Africa, Johannesburg in September; the Coaltrans World Coal Conference, Berlin in October; and EXCON India in November.

"And Smiley Monroe's exhibition activity is set to continue apace in 2014, including big international shows like CONEXPO-CON/AGG in Las Vegas in March and Steinexpo in Germany in June, amongst others. We're really looking forward to launching some exciting new products over the next couple of years and announcing some major new contracts. It's a very exciting time for us!"

Smiley Monroe takes pride in its reputation as a conveyor belt expert, and it believes its success at home and abroad is down to delivering on this promise of quality, reliability and friendly customer support.

A heavy duty rubber conveyor belt being prepared for hot vulcanized splicing at Smiley Monroe India.

have been a welcome addition to our range.

"With equipment funded by LEDU [Local Enterprise Development Unit], we began manufacturing rubber impact bars (for use at conveyor feed and transfer points) in 1994, which led to our first overseas exports to the North America, where we now count a number of major groups amongst our customers. We're always looking for ways to improve, which is what led us in the late 1990s into forming a lasting partnership with the world-renowned Polymer Processing Research Centre (PPRC) at Queen's University Belfast (QUB). This was our first real taste of research and development and their expertise was invaluable when it came to setting up our own in-house belt testing lab, another critical investment in safeguarding quality.

"Safety has always been my number one priority, so achieving OHSAS 18001 accreditation for Health and Safety Management back in 2006 was significant. We remain committed to raising the overall standards of safety within our industry. So we were delighted to be able to support the Health and Safety Executive for Northern Ireland (HSENI) when they requested our participation in a Safety Day recently, to illustrate safe maintenance and best practice guarding using our portable demo conveyor.

"By 2000, the year our quality systems were awarded ISO 9001, we had outgrown our original premises, as the manufacturing side of our business began to steadily develop. So we took the plunge and invested £1.2 million in building a 30,000ft^2 production facility near Lisburn, with assistance from Invest Northern Ireland and it's been our home since 2002. Soon after, we installed the first of our three CNC rubber cutting machines. And we now have a second home in India, where we established an operation in 2011. So it's really the next few years that I believe will be the most exciting in our company's history!"

Investing in sustainable growth

Vaughan continues, "During the global economic downturn we re-assessed our entire production process flow. A key strategy in achieving success has been the implementation of lean manufacturing techniques. In 2008 we were well under way with an investment in technology of £300k, adding our third CNC rubber cutting machine and several automated vulcanizing presses to double our output of hot spliced conveyor belts. As a result, we've since been able to thrive, adopting specific export marketing strategies to gain maximum benefit from the upturn and are confident we can now overcome any future economic challenges.

"We know we need to stay responsive to change, be flexible and move quickly to keep giving our customers what they need, when they need it, such as reliable, energy efficient conveyor products — usually delivered just-in-time (JIT) — which has implications right down our supply chain. Reducing waste will not only make a major impact on staying competitive, but form a key part of our roadmap for attaining ISO 14001 environmental certification. To meet these challenges, we're making our largest investment to date, to create a world class Centre of Excellence for synthetic rubber products — focusing on rip-resistant, chevron and sidewall hot cleated conveyor belts, ideal for handling sharp, abrasive and oil-based materials.

"This latest investment in innovation — part of long-term strategy for sustainable growth — will keep us at the forefront of technology, create jobs and provide new added-value products and services for our customers, enabling us to compete for new business, both locally and globally."

Back in black

"Smiley Monroe strives to be an environmentally, socially and economically sustainable business," says Vaughan. "I've personally always enjoyed supporting cross-community initiatives, especially through sponsorship of local sport.

"Economically speaking, we understand that time is money and that anything you can do to reduce downtime and waste, while increasing productivity, is money well spent. In a nutshell, that's what we believe 35 years' experience has given us — a unique appreciation of our customers' specific bulk materials handling requirements — whether you're handling coal, cement or fertilizer, a mine processing zinc, a quarry producing crushed stone and aggregates or an original equipment manufacturer. And we're always on hand to provide technical support to help keep your business running, whether you're in the West of Ireland, the West Indies or Western Australia.

Vaughan concludes, "As a family run company, we're still passionate about what we do and I'm happy to say that as we approach 35 years of putting our customers first, we continue to be guided by our original values of integrity, transparency and trust, aiming to remain 'friendly and easy to do business with', as the survey said. We take pride in calling ourselves conveyor belt experts."

Smiley Monroe's King Rollers cut workplace noise at USA-owned Irish Salt Mines

Smiley Monroe's polymer King Rollers have helped customer Irish Salt Mines (I.S.M.E.) to achieve its aim of further reducing workplace noise on an enclosed high speed conveyor at its Kilroot site in Northern Ireland.

The 1,200mm-wide, 120-metre-long reclaim tunnel conveyor running at 2.85m/s, which is housed in a reinforced concrete tunnel below Irish Salt Mines' storage facilities, transfers salt onto the shiploading conveyor. As part of its ongoing efforts to reduce workplace noise, I.S.M.E. asked Smiley Monroe for its suggestions on how this could be achieved in the tunnel. Smiley Monroe recommended replacing existing steel idlers with polymer King Rollers, and since the customer had been using these successfully on its shiploading conveyor for several years, this action was quickly implemented.

Quiet revolution

Jason Hopps, surveyor and Health & Safety officer with Irish Salt Mines, said: "I'm delighted with the performance of Smiley Monroe's King Rollers, which have reduced noise levels significantly in our reclaim tunnel conveyor. After replacing steel return and trough idlers with King Rollers, independent tests recorded greater than a 50% noise reduction. We're now actively replacing all remaining steel return and trough idlers on this conveyor with Smiley Monroe's King Rollers."

Keith Stevenson, Smiley Monroe's product manager for King Rollers, added: "We originally recommended King Rollers because of their robust design, which is ideal for coping with humid and corrosive environments, such as salt, zinc and potash mines. Unlike a steel idler, our anti-corrosive King Roller won't rust and its triple labyrinth sealed bearings are proven to increase service life. In this case, however, it's the added benefit of quieter running which results from King Roller's polymer construction that has helped solve Irish Salt Mines' workplace noise problem."

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Quiet revolution: Smiley Monroe's polymer King Rollers have just helped Irish Salt Mines (ISME) to reduce workplace noise on an enclosed high-speed conveyor.

service to Irish Salt Mines for almost 35 years, Smiley Monroe is very familiar with the harsh conditions in which its customer's conveyor idlers operate. Irish Salt Mines is now using Smiley Monroe King Rollers on all of its surface conveyors, as hanging garlands, drop-in type end supported troughing sets and return idlers.

Energy efficiency

Apart from longer service life, increased uptime and health and safety benefits, King Roller is also 50% lighter than a traditional steel idler, so it's easier to handle and can reduce a conveyor's power consumption by up to 14%. Ultimately this will help reduce the business' CO_2 emissions and operating cost per tonne of material produced. With ever-rising costs in running plant and vehicles, King Rollers can assist energy-intensive operations, from quarries and mines to cement works, in making their sites more energy efficient.

The American owned Irish Salt Mining & Exploration Company (I.S.M.E. Co. Ltd) has been mining de-icing rock salt at its Kilroot mine near Carrickfergus in Northern Ireland since 1965. Producing half a million tonnes of de-icing rock salt per annum, the Irish Salt Mines can meet the toughest demands in the harshest winters. Export is handled through its deepwater berth on the north shore of Belfast Lough, complete with a shiploading conveyor running directly from storage facilities at the mine site.

Northern Ireland- and India-based Smiley Monroe, celebrating 35 years in business, is the world's largest producer of highly customized 'endless' conveyor belts and CNC cut rubber parts for the mobile crushing, screening and recycling sector. Smiley Monroe conveyor belts and energy-efficient products can be found in bulk materials handling operations throughout the world, where they are trusted by customers to help them meet their targets for quality, safety, productivity and environmental compliance.

Dunlop fights back

Netherlands-based Dunlop Conveyor Belting (Fenner Dunlop BV) has been forced to re-double its efforts to make it even more difficult for others to create low-quality imitations of its belts. An increasing number of cases are coming to light where end-users have mistakenly purchased what they believed to be genuine 'Made in Holland' conveyor belts, only to find out to their cost that they are not genuine at all.

Dunlop is understandably proud of its 99.99% quality success ratio. "Complaints really are a very rare occurrence," says application engineering manager Sytze Brouwers. "This enables us to investigate any complaint that we do receive very thoroughly and what we invariably find is that the problem 'Dunlop' belt has been made by someone else using the Dunlop name."

"It is a growing problem," explains sales & marketing director Andries Smilda. "The Dunlop brand has always been associated with quality and I think that it is fair to say that the belts we manufacture in our factory here in The Netherlands are widely seen as being the world benchmark for quality and extended operational lifetime. The problem is that a number of organizations around the world obtained localized rights to the Dunlop name and the logo when the British-based Dunlop company was broken up and sold off many years ago."

This fact is certainly a very difficult issue because a number of companies based in Africa, Asia and South America are legally entitled to use the Dunlop name despite having no connection with Fenner Dunlop whatsoever. "Strictly speaking, they should not be using the Dunlop brand name when exporting outside of their own continent but it is almost impossible for us to control," added Smilda. "Fortunately what we can control is the quality of our products, which are head and shoulders above any would-be imitator in every respect."

On-belt branding: one weapon in the war against counterfeiting.

Tests, tests and more tests

Using its extensive laboratory testing facilities, Dunlop Conveyor Belting goes to great lengths to not only make sure that its own belts exceed international standards but also to see how its competitors perform against those same standards. "We have a great network of loyal customers and distributors so we have a ready supply of competitor belting to test and compare," says Smilda. "Some performance characteristics such as abrasion resistance directly determine the working life of the belt. In other words, the true test of value for money, but for properties such as fire resistance we are talking about very serious safety issues. Many of the so-called fire-resistant belts we test actually burn like paper."

Brand-new Dunlop.

Managing director Edwin Have believes that the best form of defence is attack. Having invested millions in a new, state-of-the-

art steelcord production line, expanded production capacity and the latest laboratory equipment for testing everything from extreme cold to ozone plus its own service network in Europe, Africa and the Middle-East, Dunlop has applied the same approach to overcoming the threat of poor quality imitations.

Although it will not disclose the precise amounts involved, Dunlop has made a further "substantial investment" in hi-tech water jet cutting machinery to create rubber branding (usually bright yellow) and the statement 'MADE IN HOLLAND' that is embedded in the surface of the belt. This has been a natural follow-on to the introduction of similarly bold branding on every form of packaging. "If the belt and the packaging does not say 'Dunlop, Made in Holland' then it almost certainly is not the real thing" says Have.

Identity theft

Dunlop is also the victim of a practice that virtually amounts to identity theft. An organization in India (as yet unidentified) has created a website using the Dunlop Conveyor Belting name and has even copied text extracts from Dunlop's own website to create the illusion that it is Dunlop's official Indian operation. This enables it to attract internet search enquiries from would-be Dunlop customers who innocently believe that they are buying genuine Dunlop quality at lower prices. Have says that it is almost impossible to deal with this kind of fraudulent practice. "Even if you manage to have one website closed down, they will quickly create another. This is why improving the branding of our products is so important. It is a never-ending battle."

Price war

Conveyor belt manufacturing has always been a highly competitive industry but in recent years the large scale 'dumping' of belting, primarily from Asia — and often of a very dubious quality — has been taking place on an unprecedented scale. One of the problems seems to lie with the fact that, at first glance, industrial conveyor belts all look very similar — big long lengths of thick black rubber!

According to Dunlop, it is almost impossible for the untrained eye to tell if a conveyor belt is of the required quality and specification just by visual examination. For example, a belt that has thinner covers than they are claimed to be can quite significantly reduce the selling price. Sadly, in a great many cases, the labelling and certification will appear to be totally the correct specification. Conveyor belt users who believe that they have saved money by buying a belt at a low price per metre are invariably paying a much higher cost in the longer term because the belts wear out prematurely and stretch and tear much more easily than they should do.

Dunlop says that 80% of the cost of making a belt is in the raw materials. For major buyers like Dunlop, worldwide prices for compound ingredients are very similar so if the quality of the raw materials is virtually equal there could never be a massive price difference. The labour cost aspect only represents around 13% of the production cost. The real key, Dunlop maintains, is what goes into the rubber compound.

Apart from using lower-quality materials in the first place, the single most effective way for a manufacturer to reduce costs is to use calcium carbonate (chalk) to bulk up the volume (thereby reducing the cost) of the rubber compound mix. This has a seriously detrimental effect on the abrasion resistance of the rubber and its overall mechanical performance.

Getting what you pay for

Regardless of the supplier, Dunlop's advice to all conveyor belt buyers is never to assume that the delivered belt is precisely what was ordered. A few basic checks should be carried out before fitting by inspecting the top and bottom surfaces of the belt to see if the manufacturer's branding can be seen. Measuring the thickness of the belt using a micrometer is also recommended. Especially where fire resistant belting is involved, for even greater peace of mind it is often a good idea to order an extra metre of belt so that it can be used for testing by an accredited testing authority or laboratory.

If the buyer is at all suspicious then they should contact the original manufacturer. In Dunlop's case, the company will either test a sample for authenticity and compliance or, wherever practical, send an expert to the site. The old adage "You only get what you pay for" certainly seems to apply to the conveyor belt industry!

Diverse product range and high-quality engineering behind Esch Group's success

The Esch Group is a major designer and manufacturer of rollers for conveyors and bearing related products for the cargo industry.

The history of the Esch Group can be traced back to 1954 when Stas BV was founded in the Netherlands and began by

designing and manufacturing conveyor rollers and tension drums. As the company grew, it expanded into bearing and bearing related products and in 1996 entered into a strategic alliance with Asahi-Europe in order to offer its customer's extremely high-quality stock bearings and linear systems. Thereafter the company was able to utilize and supply bearings from a large source of products that include aluminium, stainless steel and plastic.

During the transition period Stas BV invested heavily in new automated production systems. This resulted in improved quality and efficiency, as well as faster delivery times and more competitive pricing.

Conveyor Components BV was founded in 1986, initially trading in drum-motors, conveyors and components for flow tracks. The first establishment of Conveyor Components BV was in an old trading building in Sprang-Capelle. The company wanted to start its own production, and needed more space to do so, so it settled at the harbour of Sprang-Capelle. In 1988, various developments in machinery and products were introduced, which led to Conveyor Components BV becoming a full production company.

In 2010, Stas BV became a founding member of the Esch Group along with HTEC solutions and Conveyor Components, which together fully compliment the range of specialized products

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Subsequently the Esch Group has grown to become a major player in the global roller-conveyor market for the logistics and freight industry and in recent years has made a major investment in the purchase of nine state-of-the-art CNC lathes, as well as completely re-designing its extensive production facilities. The latest investment also included high-tech machinery for turning, milling, sawing and automated assembly lines. Today the company operates two major manufacturing facilities in the Netherlands, one in Hoorn and the other in Sprang-Capelle.

Technology-driven innovation

The Esch Group offers a diverse range of driven and non-driven cylindrical and conical conveyor rollers for a diverse range of cargo machinery and peripherals. The company's expertise in the development of tailor-made rollers and linear systems sets it at the top of the market. Rob Verdoren, the company's managing director, said, "Our high-quality conveyor rollers are divided into three distinct product groups: standard, custom and high-volume. These are all made to drawings supplied, or are fully customized with the DIN standard to suit individual customer requirements.

"We also supply non-driven rollers and ultra-smooth-running rollers for heavier applications. In addition, we produce belt and chain driven conveyor rollers, tapered rollers and coated conveyor rollers all to the highest standards and using the most advanced, high-tech production methods. We pride ourselves on being able to meet any conveying challenges and our innovative products are designed to provide optimal running and long service reliability. Our rollers are available in steel, aluminium, plastic, galvanized and powder coated variations depending upon the customer's requirements.

"Our rollers are used for a wide range of associated machinery and we ensure that the products are flawlessly transported from A–Z. We also advise our clients on the optimal type of rollers required which are specially designed to suit their particular sector.

"From the environmental perspective, we are also very waste-management conscious and all our excess materials are separated and recycled. It is also worth noting that as a fully integrated company we operate two modern factories and therefore can manage all manufacturing and assembly in-house, which enables us to keep our costs low and to offer a very fast and flexible service."

Diverse product range

The Esch Group produces a wide range of roller and bearing related products and these are shipped to major companies and converters worldwide. In addition to roller conveyors and bearing products, the company also designs and produces drums and drum motors. These offer many advantages to customers as part of the company's broad product range and a special feature for cargo companies is their exceptionally compact size.

In addition to its diverse variety of rollers, the company offers a comprehensive range of bearings and bearing blocks. The product portfolio includes items executed in cast iron as well as utilizing the full range of plastic, aluminium and stainless steel materials. The Esch Group also offers special, ultra hard bearings and is the exclusive stockist of the high-quality ASAHI bearings from Japan.

The company is therefore able to supply the entire range of tapered roller bearings, thrust bearings, spherical roller bearings, shared bearings, rod-ends and adjusting rings from stock with fast delivery available as standard.

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Edge Innovate launches new RTU220

Innovation is often cited by business gurus as being vital for business growth and sustainability. For the folks at Edge however, Innovation isn't just in the name, it's in the blood.

Based in Northern Ireland, Edge Innovate has its own in-house design academy. Equipped with the latest 3D modelling technology and backed by local universities and colleges, Edge engineers have gained a reputation for the creation of new and inventive solutions to age-old problems. The latest piece of equipment born from the design academy is the all-new RTU2200. The 'Radial Truck Unloader' is a high capacity track-mounted truck unloader.

The new RTU2200 will be showcased at the Hillhead exhibition in June. The Radial Truck Unloader has been developed with feedback from dealers and end users. It can be utilized in various applications and is as comfortable on the port as it is in the harsh environment of a quarry.

The RTU220 provides operators with a greater efficient loading method. Designed to allow operators to continuously load directly from trucks into train wagons or barges. The full HMI control panel and remote control functions provide operators easy control of the RTU functions whilst loading. The panel interface provides easy fine tuning for accurate application performance. The HMI allows for automatic start/stop operation and provides visual data output such as engine load, hydraulic oil temp and fuel consumption displayed while the machine is still operating.

The RTU220 is an independent track-mounted unit that provides flexibility and reliability. Powered by a Cat4.4 96KW (129BHP) diesel engine, the RTU220 offers huge torque whilst only consuming 12–15 litres per hour (3–4USG). Further cost savings are provided by a dual power option allowing the RTU to be tracked into position and then connected to on-site three-

phase electrical supply to power conveyors at a higher level of efficiency.

The machine has a range of applications but is specifically designed to receive material from lorries and dump trucks. The RTU can accept a full 20m³ (26yd³) load. Its high torque drive system allows the speed of the conveyor belt to be adjusted meaning the output of the machine can be regulated. Further applications include material stockpiling, and loading of ships, containers and railway carriages. Material is fed into the RTU220's large 20m³ (26yd³) hopper and is carried to the radial

conveyor via the 2,200mm (87")-wide heavy duty belt. Full length impact bars prevent belt sag thus reducing material roll back and prolonging the life of the conveyor belt. Variable belt speed via the HMI control panel controls the flow of material to the Radial conveyor. The massive 20m³ hopper capacity increases cycle times and increased on-site production. With dual access, hydraulic flared sides, the RTU hopper can be fed directly by wheel loaders and grab cranes. Unlike feeder belt systems driven via a drum roller, the RTU220's sprocket and chain design ensure against belt slippage or stalling. The RTU has the capacity to convey at 750tph [tonnes per hour] (826 US tons per hour) with a maximum feed size of 600mm (23").

Material is stockpiled via the 1,200mm (48")-wide radial product conveyor which provides a discharge height of 6,800mm (22'4"). The 180° radial function enhances the flexibility of the RTU allowing it to be utilized in a number of applications. The hydraulic folding head section allows for quick transition from transport to operating position.

All Edge products are designed, manufactured and built in a new state-of-the-art manufacturing plant based in Ireland. With a strong focus on quality assurance as a result of decades of experience, Edge products are leading the way in the materials handling and recycling equipment sectors.

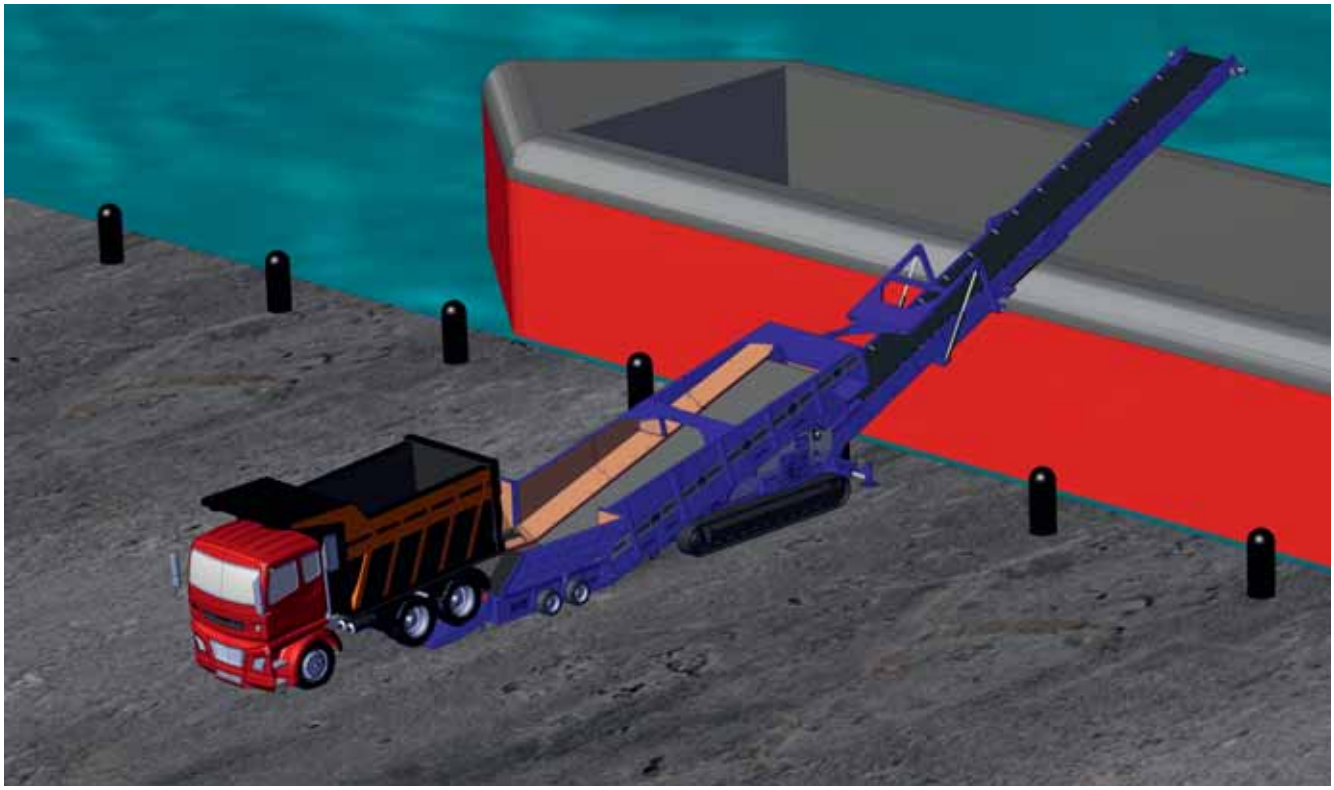
The Edge material handling portfolio boasts a wide range of mobile conveying systems that includes the MS-Series (mobile stockpilers) the TS-Series (track conveyors), the RTS series (Radial Track Stockpiler), the FS-Series (Mobile/Track Feeder Stockpiler) and new LTS-Series (low-level track stockpiler) launched in 2013 along with the 360° Unlimited Range. This growing range of equipment caters for the various needs of a rapidly growing customer base with a wide range of applications including rail loading/unloading, construction and demolition waste (C+D), sand and gravel, compost, topsoil, wood waste, mulch, scrap metal, aggregates and coal.

Edge Innovate's mobile conveying range has been developed through close collaboration with equipment re-sellers and end users. In many applications an Edge stacker can eliminate the need for a wheel loader and often removes the need to double handle material. There are therefore clear advantages in terms of reducing operational costs from investing in Edge equipment. The benefits of mobile solutions are becoming more and more apparent to people in the industry, with port and quarry managers recognizing the mobile option as being a viable cost saving alternative to fixed installations which in some instances are required to pass through lengthy planning control procedures.

The staff at Edge Innovate are constantly striving for innovative solutions. New product ideas regularly make their way to the marketplace. At the start of 2013, Edge launched the new patent-pending LTS Series. Boasting a discharge height of up to 10.3m and stockpile capacity of up to 1,718m³, the LTS has proved hugely successful and many units have been exported to over five countries since its launch. Its robust design, available in conveyor lengths from 50ft to 75ft, enables it to convey heavy aggregate such as oversized iron ore whilst providing the customer with superb manoeuvrability around site with rapid set-up times.

There were further additions to the product offering in June 2013 with the launch of the new 360° Unlimited Series. Two customized LTS 360° units along with two FTS 360° units were successfully installed and put to work in a heavy duty iron ore application just outside Sao Paolo in Brazil. By allowing the user to rotate an LTS or FTS through 360° without stopping, the 360° range maximizes operational efficiency in several applications including loading of ships, trains and barges. This unique design enables the operator to position the tracks parallel to a vessel or train, allowing the stockpiler to travel along the side of the vessel or train without the need to adjust the orientation of the machine. This option still only requires one operator to run an entire stacker that will offer up to 1,000tph for continuous loading.

Edge Innovate is exhibiting its wares at the world renowned Con-expo Show, at the Las Vegas convention centre from 4–8 March, and will be showing a selection of its product portfolio including: the Slayer XL, an LTS tracked stacker, the new upgraded TRM622 Trommel and the new EDGE Roll Sizer.



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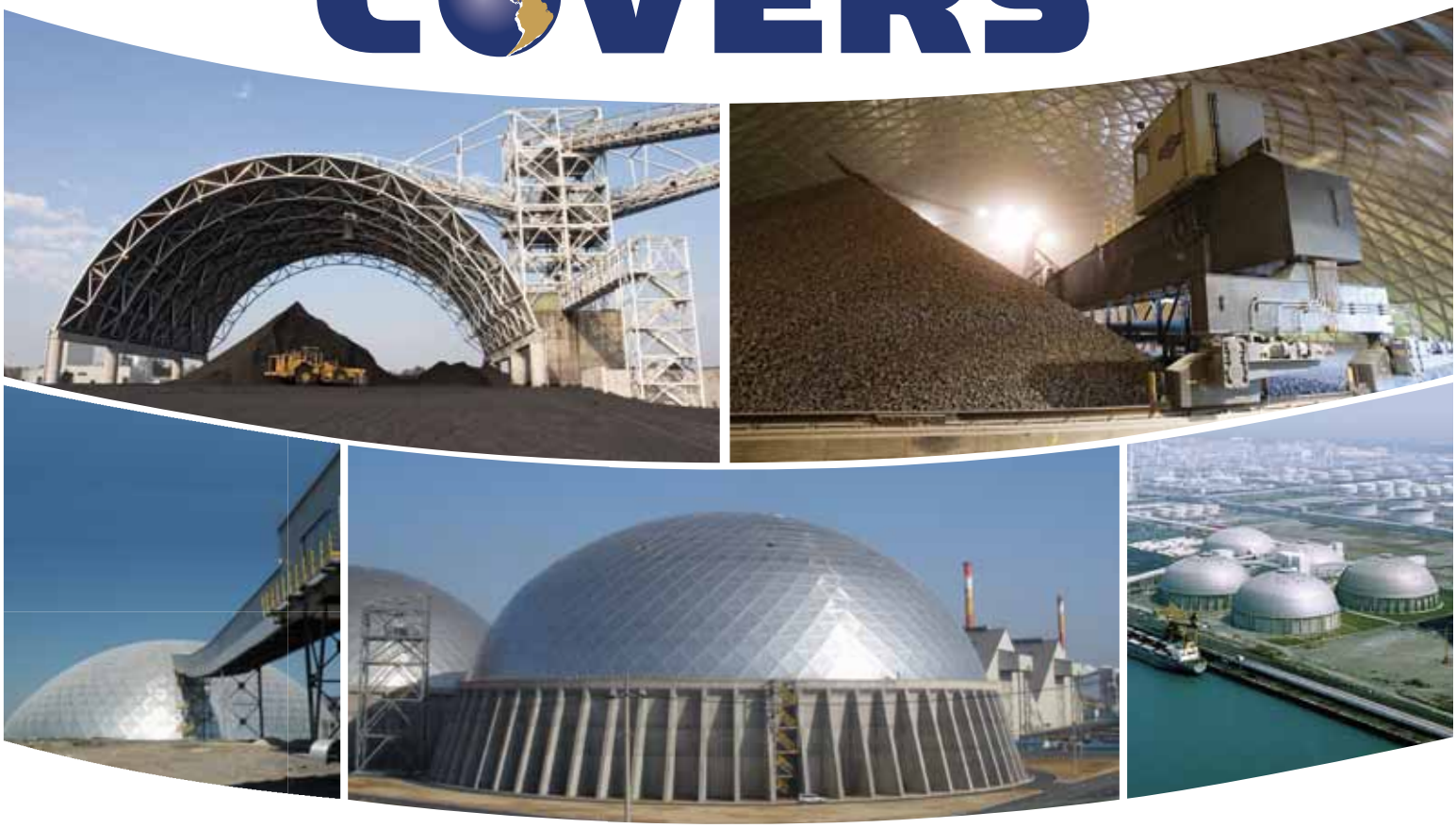

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Horizon's aluminium rollers offer light weight safety and protection

Aluminium rollers from Horizon Conveyor Equipment have proved to be a lightweight alternative to steel and an innovative solution to the problems of fire risk.

Four years ago, Horizon Conveyor Equipment launched an innovative range of aluminium rollers that have gone on to be tested in demanding conveyor installations all over the world. But while site operators have been quick to embrace the major health and safety advantages of using these lightweight rollers, their unique design is also providing an altogether new solution to a potentially explosive problem.

In hostile locations where conveyor reliability and the risk of fire are critical concerns, Horizon's tightly sealed aluminium rollers are proving to be a superior option. Specially designed to operate at stable temperatures and cut the risk of electrostatic charges, the rollers are not only lighter but also safer than conventional steel rollers in ATEX environments where any excess heat, sparks or fire could have catastrophic consequences.

Safety improvements

Horizon originally developed aluminium rollers in response to industry concerns about the health and safety risks of using standard heavy steel trough and return rollers. Often weighing up to 90kg, steel rollers can require extra manpower and prolonged downtime to fit and replace safely, particularly in high or enclosed spaces. Increasingly stringent health and safety rules mean that operators also have to carefully consider the risks posed to personnel from steel rollers during regular conveyor running.

Alan Bowler, the managing director of Horizon Conveyor Equipment, says the aluminium rollers retain the durability of their steel counterparts but boast the weight advantages, noise reduction and energy saving features that have made plastic rollers popular. Importantly, their high strength also makes them an ideal option for use on wide belts and in high impact locations.

He said: "Our aluminium roller has all the weight and handling advantages of our HDPE plastic rollers but with the added advantage of extra strength especially for long return rollers. This is absolutely critical for operators who face real health and safety issues when attempting to replace failed steel rollers."

Light and strong

Designed using 6mm-thick aluminium tube, the rollers contain a steel shaft and sealed bearings, with the bearing housings manufactured from electrically-conductive glass-reinforced nylon. A large stationary integral stone guard forms the outer primary labyrinth seal, which prevents any spillage building up between the roller and the frame which can jam the roller. Dust, debris and smaller contaminants are kept out by a greased inner cupped lip seal together with a sealed bearing.

For the past three years, the rollers have been in use at E-ON's Kingsnorth Power Station, mainly on 1,350mm and 1,800mm belts. Clive Burfoot, materials handling engineer for E-ON at Kingsnorth Power Station, says the weight of the rollers has been a major benefit on site.

"We have tested Horizon Conveyors' aluminium rollers for more than three years and have been very pleased with their performance," he said. "We decided to install them into a position of high tension, close to the pulley tail, to accelerate the tests and they have performed very well."

Lower risk

While the aluminium rollers offer immediate weight gains to site operators, their unique construction delivers superior performance and longevity in high risk environments. With heavy-duty seals and sealed bearings, the rollers offer greater resilience in areas where fine dust from the likes of biomass pellets, wheat, sugar, flour and cement can be hugely damaging to standard rollers.

Following its conversion from coal-power to biomass, RWE Tilbury Power Station began trialling the aluminium rollers after finding that its existing steel rollers were failing at an alarming rate.

Ron Pannell, lead maintenance engineer at RWE Tilbury Power Station, said that after careful monitoring and investigation it was found that extremely fine biomass dust was getting through the seals of the steel rollers and into their open cage bearings. "Once any dust ingresses the seals and bearings, the rollers were generating excessive heat and that is a real problem with biomass dust," he said.

RWE set out to find a solution that would reduce the risk of fire through excess heat and roller failure but would also be

lightweight for easy installation. Horizon's aluminium roller was chosen for its robust labyrinth and bearing lip seals and because of its electrically conductive bearing housing, which cuts the risk of sparks and prevents metal to metal bearing contact in case the roller should ever fail.

RWE's team put Horizon's aluminium rollers through an extensive trial, which involved running them for a period and then opening the seals. It found that there hadn't been any ingress of biomass dust through the seals or into the sealed bearings.

One of Horizon's aluminium return rollers in action at Kingsnorth Power Station.

New solutions

For Bowler at Horizon, the introduction of the aluminium roller range marks the latest development in nearly 30 years of research and design innovation. He was originally involved in the invention and patenting of the first non-metallic plastic-polyurethane rollers which were introduced into the South African market in 1980. He brought the designs to the UK and European market in 1995 and since then has established a range of steel, plastic and now aluminium rollers.

He said: "We originally conceived the design for the aluminium roller with health and safety in mind. With tighter regulations and more consideration to the manpower and downtime needed to change failed steel rollers, there is certainly a need for a lightweight alternative. But the way we have constructed these rollers means they are also capable of solving a wide variety of problems and reducing risks in some very hostile ATEX environments."

About Horizon Conveyor Equipment

Horizon Conveyor Equipment Ltd is based in Halesowen, UK. The company designs, manufactures, supplies and supports a wide range of high quality conveyor equipment including scrapers, cleaners, rollers — in steel, aluminium and HDPE (high density polyethylene) — and magnetic protection equipment for the mining, quarrying, ports and materials handling industries.

TMSA – the bulk material handling specialist in South America

Coal complex in Itaqui, Brazil.

44 belt conveyors, with capacities ranging from 1,200tph to 10,800tph.

TMSA Tecnologia em Movimentação S/A, is one of the big suppliers in the South American market for bulk solids material handling equipment. It is especially active in port terminals and heavy duty and long distance conveyors. It is estimated that about a third of the main Brazilian exports of grain/meals/sugar pass through TMSA's equipment.

TMSA has supplied conveyors with capacities ranging up to 20,000tph (tonnes per hour), and shiploaders for sugar, iron ore, coal, alumina, kaolin, and other heavy duty commodities ranging up to 4,000tph.

TMSA is very well integrated in the Mercosur countries. It has:

- its head office in Porto Alegre, Brazil;
- 30,000m^2 of manufacturing facility;
- 80,000m^2 of land;
- significant and highly integrated engineering capabilities;
- in-house mechanical, structural, electrical, automation and de-dusting specialists (all ISO 9001:2000-certified); and
- a workforce of 500 (including those in the branch offices in Belo Horizonte, Sao Paulo and Buenos Aires).

TMSA's main activity is to design and manufacture bulk material handling systems — including belt conveyors, bucket elevators, rail and truck loading and unloading systems, shiploaders, dust control equipment, with associated electrical and automation systems. It is fully able to deliver EPC (engineering, procurement, construction) contracts.

Conventional conveyors

Troughed belt conveyor belts are the most widely used continuous transport system for bulk materials. Since its foundation in 1966, TMSA has designed and manufactured bucket elevators and belt conveyors, mainly for agro-industrial commodities, becoming the main reference in port terminals in Brazil. This equipment has grown enormously in length, installed power and capacity all while reducing specific energy consumption.

TMSA has designed high capacity bucket elevators up to 2,000tph using Super Starco 4B buckets in pressed steel, stainless, HDP (high density polyethylene) or nylon, depending on the application, to handle commodities such as grains, rice, soya meals, flours, animal feed, fertilizers, sugar, cement and others.

The main disadvantage of conventional belt conveyors is their limited ability to achieve vertical and horizontal curves. This

Alunorte, Brazil: bauxite conveyors up to 1,500tph.

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- Equipment for solid bulk material handling
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- Shiploader retrofit and upgrading
- Dust aspiration systems

Sugar 3,000 t/h

Grain 1,500 t/h

Iron Ore - 4,000 t/h

Grain/Ore 1,000 t/h wood chips

Grain - 1,500 t/h

Grain - 2,500 t/h / wood chips

Kaolin 1,100 t/h

Grain - 1,500 t/h each tower

Dust trap - Upgrading

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Tecnologia em Movimentação

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Website: www.tmsa.ind.br

CERTIFICATE SYSTEM ISO 9001:2008

Cargill Argentina: 1,200tph soya.

Bunge Argentina: 1,500tph grains.

ability is reduced as capacity and belt tensions increase. To solve these issues, the company has searched for innovative technologies creating a unique technological portfolio.

This allowed TMSA to enter in other heavy industries finding main applications in the mining and energy industry, where belts would allow for very long flights without intermediate drives. The length of individual sections is limited by economic reasons, as the savings on transfer stations are neutralized by the additional cost of the high-tension belts.

Developments in belt fastener technology allowed the use of high-tension belts, with large installed power. With many years of good experience and confidence, combined with better understanding in the design of belt conveyors and their dynamic behaviour and loading systems, have allowed TMSA to use faster belts, with successful references for its belt conveyor installations. These include notably a particular project in Rio de Janeiro state, in the huge Porto de Açu. Here, TMSA has installed a 20,000tph conveyor to handle iron ore (density 2.20t/m^3). This conveyor is 3.1km long, and offers a belt speed of 5m/s. The contract was completed with TMSA's French technological partner RBL-REI, which has wide experience in long conveyors, even those with curves. [For more information on RBL-REI's activities, please see

LLX-Anglo, Brazil; 13,000tph iron ore.

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Left: Alumina conveyor 1,500tph. Above: VALE Carajás, Brazil: classification tower and conveyors.

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TMSA has also supplied equipment to other major projects, to convey materials include alumina, fertilizers, coal and iron ore. These include the Alunorte bauxite complex, with its port terminal (see picture above, left). Another example is the VALE Carajás mine expansion (see picture top, right), which added a further 40mtpa (million probably the biggest iron ore mining complex in the world, where TMSA has recently designed and installed 44 belt conveyors with a global extension of 3.2km long, capacities ranging from 1,200tph to 10,800tph, power drives totalling 9,980CV and 6,760 tonnes of steel works.

In the agro and mining industries, TMSA equipment is achieving the high capacities requested by its clients. These include truck receptions at 1,000tph, continuous railcar reception hoppers and continuous loading stations of 3,000tph, and internal link conveyors and shiploaders offering up to 4,000tph.

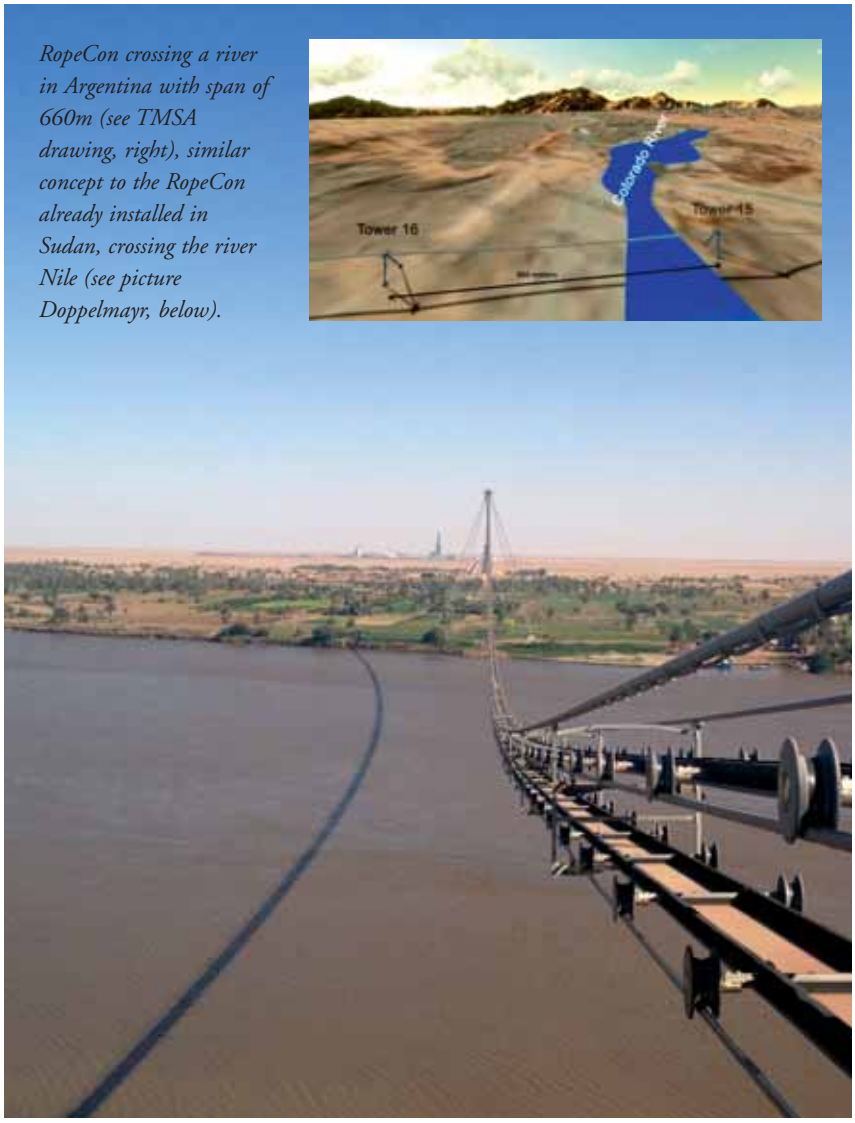
Special conveyors: a unique technological portfolio

TMSA, has developed a technological portfolio with innovative bulk solids handling systems, by developing alliances and becoming a local solution partner with worldwide technological leaders. All its systems have a common pattern: designed to minimize dust emissions, reduce environmental challenges, improve safety and reduce costs.

1. 'ROPECON®' belt conveyors:
This is a technology, developed by Doppelmayr, Austria, a world market leader in ropeways. The RopeCon® is a bulk material and unit load handling conveyor which combines the benefits of well proven technologies: the ropeway and the conventional conveyor belt.

A flat belt with corrugated side walls and integrated wheel sets runs on fixed anchored track ropes guided over towers. The hauling function is performed by the belt. The conveyor system makes it possible to pass

RopeCon crossing a river in Argentina with span of 660m (see TMSA drawing, right), similar concept to the RopeCon already installed in Sudan, crossing the river Nile (see picture Doppelmayr, below).



A pipe conveyor system for 2,400tph coal for a power plant in Brazil.

over geographical obstacles such as rivers, roads, buildings and valleys.

2. The pipe conveyor system

This is a Japanese design that overcomes several problems, including spillage of material, belt training, limited horizontal and vertical curves, and limited angles of incline. The open belt passes through a series of transition idlers to form a pipe shape, making it fully enclosed for the length of the conveyor.

TMSA manufactured and delivered a 2,400tph, 7,115m-long pipe conveyor to a privately owned Brazilian provider. It supplied another 2,400tph, 950m-long system, on a pier, to handle bauxite. Both of these were designed by TMSA and Bateman Engineered Technologies, under a licence agreement with Bridgestone from Japan for its JPCs (Japan Pipe Conveyors).

A system for 2,400tph bauxite for a port terminal in Brazil.

3. The Manutube®, a dustless conveyor technology

Designed by Absam France, this is an enclosed belt conveyor with a belt sliding inside a plastic tube with no idlers, generating a natural airflow fully enclosed. It is a dust-tight technology that

Absam truck surface unloading hopper at a coal port in Brazil, with flat feeder and Manutube® conveyor.

Your desire is our drive

Every project presents its own particular characteristics and challenges, especially in the mining industry. Tenova TAKRAF approaches each open-cast mining project from the customer‘s viewpoint to deliver an optimized solution that meets and exceeds requirements and expectations.

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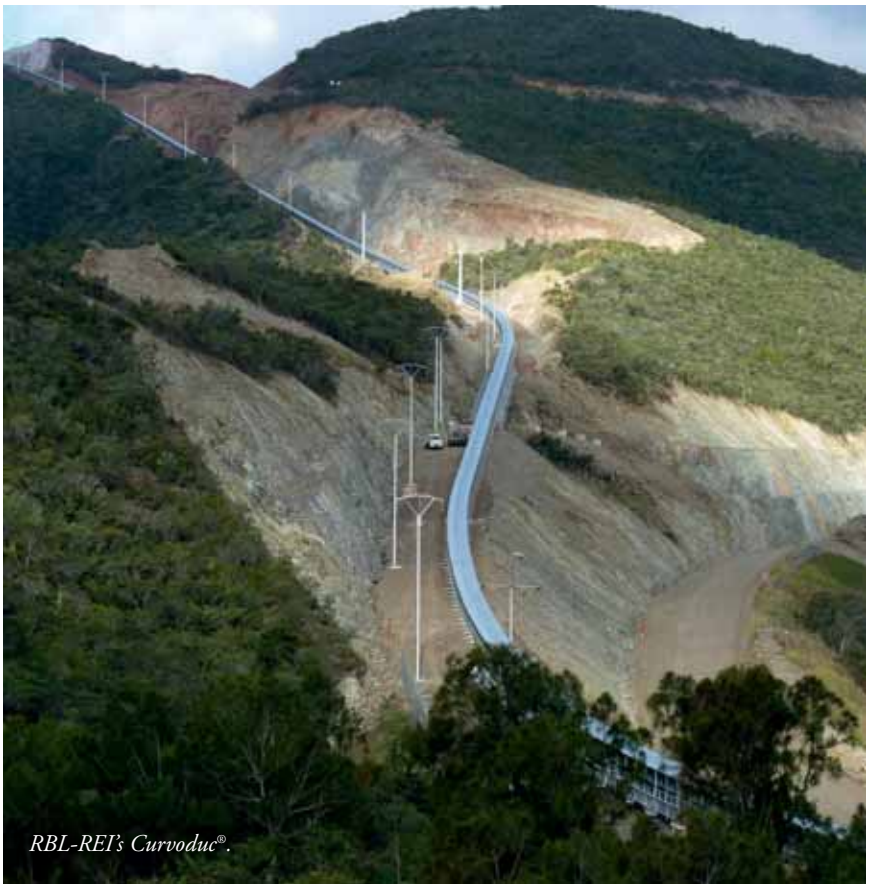
can guarantee less than 1mg of dust per cubic metre of air, for cleaner working area and longer lasting equipments.

4. Overland conveyors & Curvoduc®

TMSA is currently installing, with RBL-REI (France), an overland conveyor/Curvoduc® at the Super Port of Açu in North Rio de Janeiro State for LLX/Anglo-American. This 20,000tph unit is 3,100 metres long, has a belt width of 2,200mm, and installed power of 5 × 1,000kW. The Curvoduc® makes it possible to follow horizontal and vertical curves, in order to eliminate or reduce quantity of transfer towers (which create noise, dust emission and extra maintenance); TMSA's aim in Brazil is to propose long distance conveyors with horizontal and vertical curves. (See RBL-REI Curvoduc® picture below.)



RBL-REI's Curvoduc®.

Other technological partners

In recent years, TMSA has developed other partnerships for its South American territory, incorporating new solutions to solve chronic problems. These include:

DSH in New Zealand, for its dust suppression hopper while loading trucks, railcars, silos or vessels.

- Telestack, Ireland, for telescopic mobile belt conveyors and shiploaders;
- Transmin, Australia, for its low profile feeders, an original materials feeding system.
- VIGAN, Belgium, for pneumatic ship and barge unloaders.

All the above, added to the long tradition of good credentials, makes TMSA a preferred and consistent supplier for market leaders and multi-national companies.

These innovative technologies might replace conventional conveyor belts or not, but rather complement them under specific conditions. TMSA has the knowledge and experience for the proper selection of a conveying system which will better fit the needs and budget of each project.

One source for KOCH® conveying solutions

KOCH® – the leading name in pipe conveying – is part of FLSmidth. FLSmidth's KOCH Pipe Conveyor® is the world's most advanced. It ensures low investment costs and high availability. It also lowers noise, decreases emissions and greatly reduces environmental impact. With more than 350 installed systems in 45 countries, FLSmidth is the clear market leader. In fact, no other company in the cement and minerals industries can command the engineering resources and management expertise as FLSmidth does to supply one source for complete conveying solutions.

For more information please visit us at www.flsmidth.com

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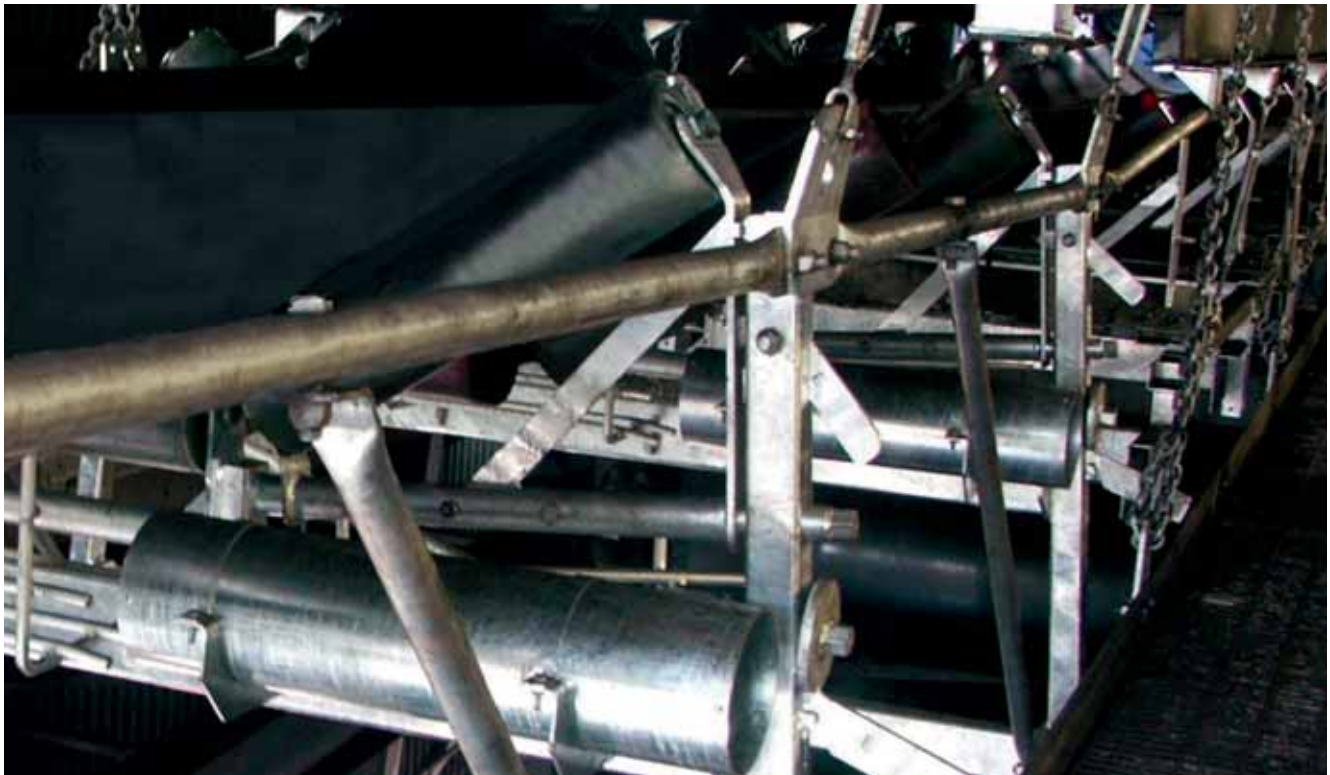
FLSmidth

Customer-focused approach enhances FLSmidth's conveyor offering

FLSmidth, a major supplier of equipment and services to the global cement and minerals industries, employs over 15,000 employees in more than 40 countries, *writes Kenyon Sharp, Assistant Manager, Marketing Communications at FLSmidth.* The group has project and technology centres located close to its customers around the world. Serving customers in the cement and minerals industries, FLSmidth offers a wide range of products, from single items of machinery to complete plants and facilities. In addition, the company also takes a full-service approach before, during and after installation; offering customers expertise in project management, engineering and other professional services.

FLSmidth has been a leading supplier of cement plants for over 130 years. This extensive experience and expertise is now being applied in the minerals industry. FLSmidth's material handling and minerals processing technology now covers the entire flowsheet. The best equipment solution can be tailored for a specific mining application such as in-pit or out-of-pit crushing and conveying, overland trough or pipe conveying, heap leach and dry tails handling solutions, and port handling facilities. FLSmidth's crushing and conveying technologies range from fixed, semi-mobile or fully mobile solutions.



A semi-mobile sizing station was just recently installed at Goldcorp's gold mine Minera Peñasquito. This sizer station has a capacity of 12,500tph (tonnes per hour), making it the largest sizer station in the world. Currently in an out-of-pit configuration crushing waste rock, the crusher station can be moved as mining progresses. The semi-mobile crushing technology will allow for shorter haul distances and lower overall operating expenses compared to traditional plant technologies.

FLSmidth is also completing installation of a dry tailings management system at a major iron ore project in Australia. The technology behind the 371m mobile stacking conveyor is well proven and there are more than 25 such FLSmidth RAHCO® systems throughout the world, operating at capacities up to 12,000tph. This system will be the first of its type in dry tailings in Australia.

An area 2km × 2km (4km^2) has been allocated for tailings storage. By comparison, should a more traditional pond storage system be utilized, an area of around 52km^2 would be required to store the tailings the project will generate. The area required for such a pond storage system is based on a 3m-deep pond. For a fully-lined 6m-deep pond, the space requirement would be halved. However, even at 6m deep, the total area required is significantly more than that allocated for the dry storage system tailings. Initially operating at 14.6mtpa (million tonnes per annum), the system has been designed to meet the increased output from the processing plant as Stage 2 of this project comes on line. When fully operational, the mobile conveyor system will stack the tailings up to 90m high (in three stages) over a 20-plus year period.

FLSmidth's material handling equipment is present in many applications including coal, copper, iron ore, gold, nickel, cement, molybdenum, and fertilizers. Additionally, FLSmidth's RAHCO mobile stacking systems and overland conveyors handle spent ore, dry tailings, and overburden material at many mine sites throughout the world.

While there are many companies in the material handling industry that also supply similar equipment solutions, FLSmidth provides another layer of technology to enhance equipment

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functionality. FLSmidth's BulkExpert™ is a patented solution that complements convectional PLC controls in stacker-reclaimer, shiploader/unloader or train loader applications. This is the only system that uses 3D laser scanning and real-time kinematic GPS technology to provide complete stockyard terrain information. Customers have realized higher equipment efficiency, reduced labour costs, and more homogenous flow rates. Lower maintenance costs and better energy utilization are additional benefits of BulkExpert. BulkExpert can also be applied to existing PLC systems that are looking to optimize stockyard productivity or move to unmanned operations.

Smart Frame™, a unique idler replacement system designed by Cove Engineering, is another equipment enhancement provided by FLSmidth. Traditionally, conveyor idlers are replaced using equipment to lift the belt and work within the confines of the conveyor structure. With Smart Frame, idlers are replaced from the safety of the walkway without lifting the belt, entering the conveyor structure or man-handling heavy idlers into position. Maintenance costs are reduced by eliminating the need for lifting equipment or elevated work platforms.

Smart Frame is the safest and easiest method of idler replacement.

Even though FLSmidth's equipment covers the complete material handling flowsheet with additional technologies like BulkExpert and Smart Frame, one of FLSmidth's greatest strengths is the people supporting the equipment solutions. Once FLSmidth has supplied equipment to a client, aftermarket support is required to keep equipment performing at optimal levels. By continuing to build relationships with clients during mining operations, FLSmidth can help develop future mine plans that best fit their needs. With clients' needs as their focus, FLSmidth truly becomes the one source solution for their clients.

CDM Systems mobile ship unloaders and conveyors

Engineered to move the commodities that move businesses

Mobile ship unloaders — superior technology for efficient port operations
Productive port and terminal operations are critical to growing and maintaining profitable logistics contracts. CDM Systems' mechanical unloaders are extremely efficient unloading systems, due to the continuous column of product flow using the proven en-masse conveying principle and the company's exclusive drop-forged chain. A CDM mobile leg unloader is not susceptible to horizontal or lateral misalignment as bucket style units are, and will operate at angles from horizontal through vertical. In addition, a CDM unloader also provides;

- vessel shifting is minimized when compared to fixed tower stationary units;
- mobile legs in eight standard sizes with capacities from 150–700tph (metric tonnes per hour) peak digging;
- multiple units working one vessel provide a more even draw-down of the vessel, which translates into better hourly unloading averages than larger single stationary units;
- the unloading legs are completely mobile and can be moved to different locations

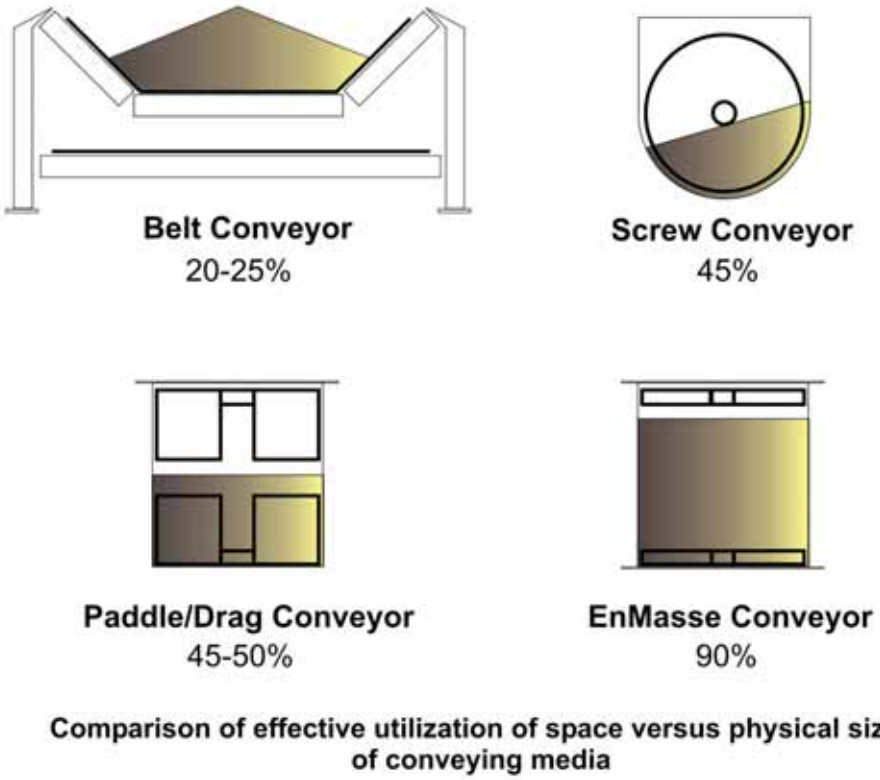
Trusted partner in bulk handling

CDM en-masse conveyors for potash milling.

CDM Systems, Inc, has been designing and building marine leg unloaders and en-masse conveyors for over 40 years. The company started as a design consulting business in the 1970s, helping bulk transport and processors effectively move material by engineering complete conveying systems. The knowledge of various conveying technologies and the experience in their application is the reason CDM transitioned the business to focus on the design and manufacturer its own equipment. The company's founders and engineers understand the full power of the en-masse technology and work to capture the advantages in recommended layouts. CDM Systems' marine legs and en-masse conveyors are the highest-rated equipment for heavy-duty industrial applications, as noted by hundreds of repeat customers from across commodity industries. Its drop-forged chain assembly is an industry standard and is used by many other en-masse conveyor providers because of the high reliability and integrity. Today CDM is wholly-owned by KMC Global, a corporation that holds a group of industrial manufacturing companies brought together to maximize buying power and breadth of material handling capabilities all over the world.

CDM Systems works with its customers to understand their specific material handling requirements and goals and provides them with an optimum material handling system to meet their needs.

either on board the vessel or by truck;
- ❖ designed to be handled by auxiliary shore cranes or the ship's gear. In many cases, several units can be applied to the customer's operation and will not exceed the initial investment of one single larger stationary tower unit.



Comparison of effective utilization of space versus physical size of conveying media

En-masse conveying: efficient material movement technology

En-masse conveyors are an extremely efficient form of high volume material handling. This is why CDM Systems uses the en-masse principle in both its conveyors and marine leg unloaders. Where other technologies have failure points due to misalignment, carry-over, and other material transfer challenges, the en-masse technology is reliable, efficient, and requires little maintenance.

In horizontal applications the en-masse chain conveyor can handle up to 90% of the cross sectional area, resulting in a smaller piece of equipment to handle the same or greater capacities over other conveying technology. These chain conveyors also provide very efficient horsepower consumption keeping operating costs low. The en-masse conveyor is often known as the en-masse chain or drag conveyor, although very different in principle from a standard drag conveyor.

CDM Systems offers a wide range of horizontal, inclined, vertical, or combinations of both in its totally enclosed conveying systems.

Other notable features and application benefits include;
- ❖ single and dual pit truck receiving;
- ❖ inline shallow pit hopper rail car receiving conveyor — allows for the positioning of the entire rail car once;
- ❖ bin/silo distribution conveyors — can be equipped with multiple intermediate gates that provide a positive mechanical sealed separation between the customer's bins/silos;
- ❖ several inlet designs can be incorporated on CDM's bin/silo draw-off conveyors;
- ❖ CDM provides its standard top flanged inlets for transfer areas where the product is metered and fed into the conveyor;
- ❖ capacities in excess of 800tph (capacities of over 1,000tph are available);
- ❖ CDM's conveyors are designed to operate on a 24/7 350 day/year schedule, while producing durability, dependability, and reduced maintenance costs; and
- ❖ optional self-metering style inlets that prevent flooding of the en-masse conveyor.

CDM Systems' material handling experience allows it to provide its customers with multiple style conveyors that include its normal single strand units, double strand, twins, or multiple strands for extreme widths. These conveyors have the ability to convey on the conventional bottom, top, or combination of both simultaneously.

ContiTech conveyor belts enable safe coal transport within the port

The ContiTech Conveyor Belt Group has supported the expansion of the Newcastle Coal Infrastructure Group's coal export terminal with several kilometres of steel cord belting. (photo: ContiTech)

Coal mining plays a major role in the Australian economy. Ten per cent of all coal deposits worldwide are 'Down Under', making Australia the world's biggest coal exporter. Large deposits are found in the state of New South Wales, where the Newcastle Coal Infrastructure Group (NCIG) is based. It operates one of the most important export terminals at the port of Newcastle. A complex infrastructure is required to ship the coal from there to destinations all over the world. For the NCIG transport system, the ContiTech Conveyor Belt Group has produced and supplied several steel cord belts in recent years,

The supplied steel cord belts also include energy-optimized conveyor belts. Thanks to a special rubber compound, energy consumption during transport can be lowered by up to 25%, allowing a reduction of energy costs and CO_2 emissions overall. (photo: ContiTech).

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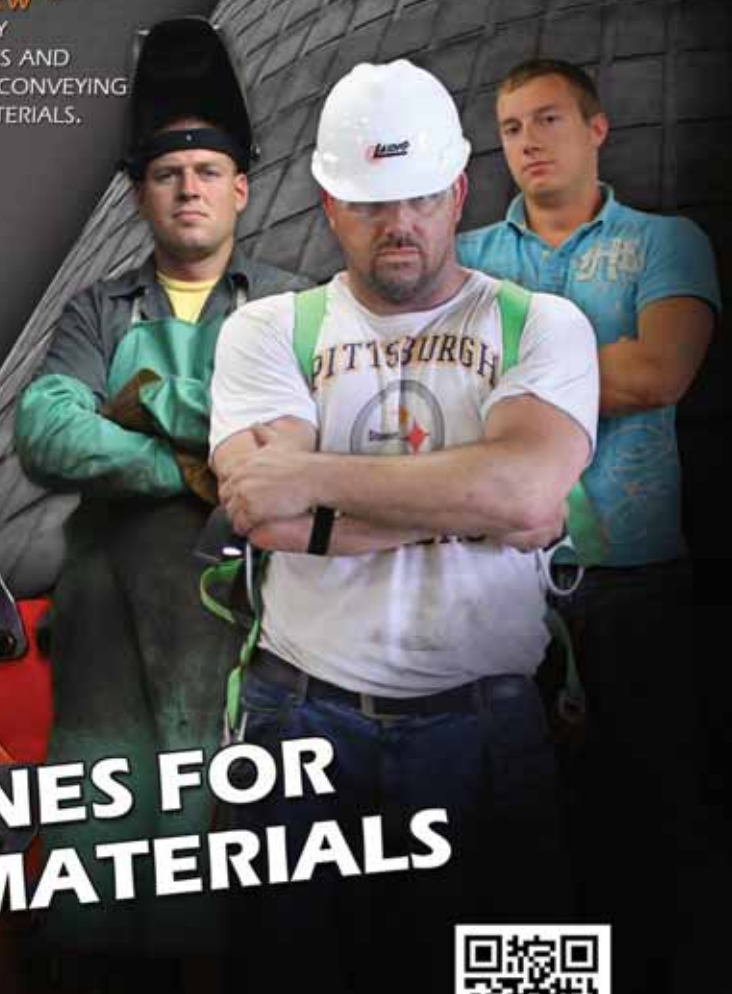
UP TO 160'



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helping to set up a total of three platforms.

After completion of the third terminal at the end of 2013, NCIG's transport system will be capable of delivering around 66 million metric tonnes of coal per year. A total of 20 conveyor belts is used to handle incoming and outgoing coal as well as for interim storage on the platform. They make for handling capacities of 8,500tph (metric tonnes per hour) in the loading stations and storage areas, with that figure rising to as much as 10,500tph in the wharf and shiploader area. "Thanks to their robust and durable design, steel cord belts from ContiTech are up to meeting the challenges of transporting coal within a coal terminal," reports Eric Van Leeuwarden, national sales manager at ContiTech Australia. "In addition, our conveyor belts represent energy-saving solutions that significantly reduce transport costs and thus help to improve the cost efficiency of the system."

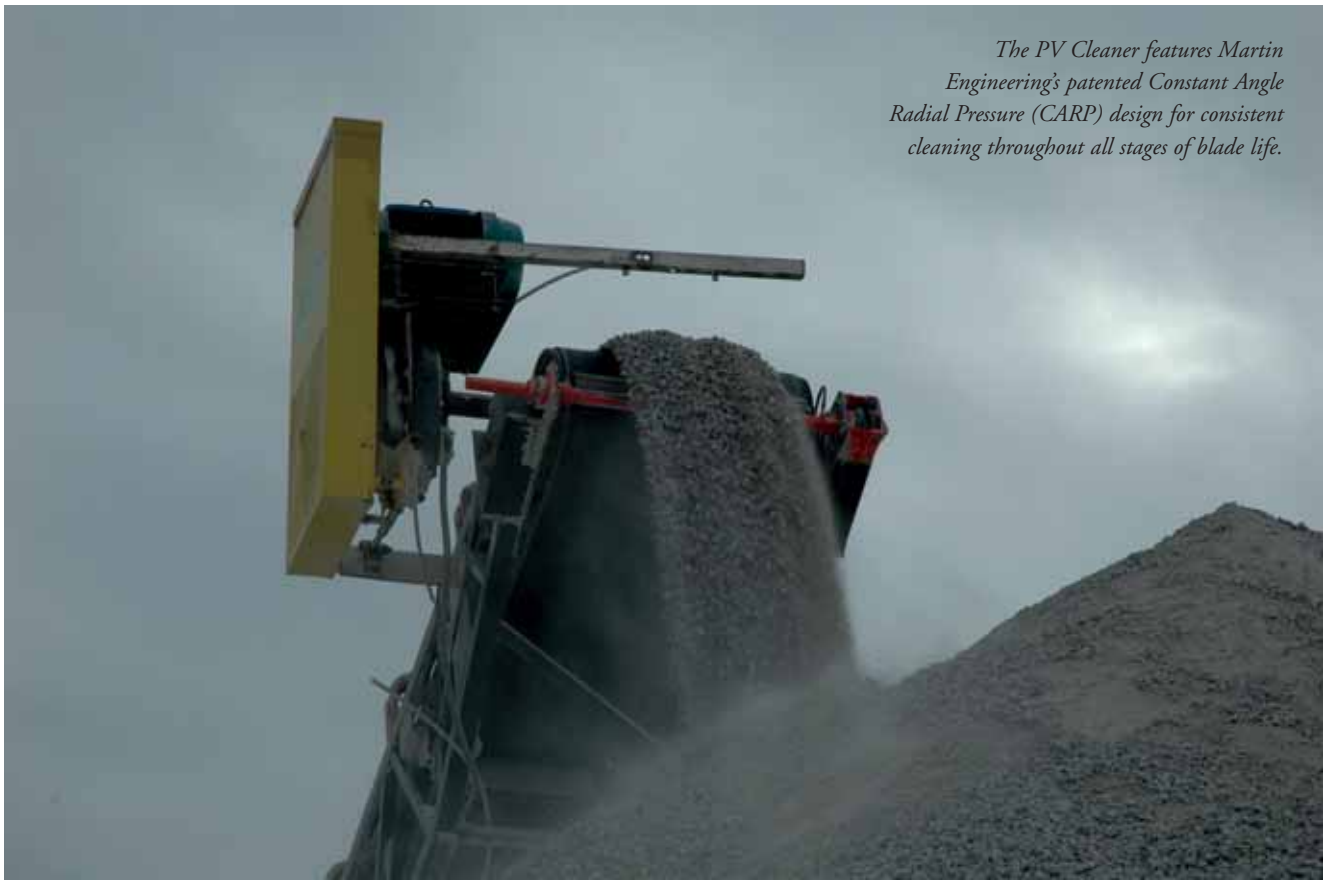
ContiTech conveyor belts are also in use in the interim storage area on the platform. (photo: ContiTech).

Via the project company Aurecon Hatch, NCIG awarded ContiTech Australia (formerly M.I.R.S.), the order to set up the first platform in 2008. The Conveyor Belt Group in Northeim/Germany produced an approximate length of 10,000m of ST 1400 steel cord belt with a width of 2,500mm. It is made of an energy-saving rubber compound that has made it possible to significantly improve visco-elastic properties, thereby minimizing indentation rolling resistance on the conveyor belt system. As a result, energy consumption during transport can be lowered by up to 25%, allowing for a reduction in energy costs and CO_2 emissions overall. ContiTech additionally produced 280m of type ST2500 steel cord belting for this stage of the project. It is used to transport the coal onto the freight ships. In order to ensure that the individually delivered sectional lengths were correctly spliced on-site to form a conveyor belt, ContiTech arranged a training course at ContiTech in Northeim in 2009. At it, the Australian installation partner received instruction as to the correct procedures for splicing the sections. "By doing this, we were able to ensure the best possible outcome," says Van Leeuwarden.

In the spring of 2010, an order then came in to set up the second platform. A further 8,000m of steel cord belting of the same belt types were used here. To help the team connect the individual conveyor belt lengths, ContiTech service staff members were on hand locally to set up the required vulcanization presses and further optimize the process. In 2012, thanks to the successful implementation of the first two subprojects, M.I.R.S. and the ContiTech Conveyor Belt Group also received the order for the third and final stage of the project — another 8,000m-long steel cord belt, which was delivered in several stages by September 2012.

"Thanks to the close global co-operation with the experts from ContiTech, we have been able to perfectly monitor and accompany the construction of the transport terminal in Newcastle during the last four years," says Van Leeuwarden. "This project has further strengthened our position in Australia and is an important reference project on this market."

Limestone producer reduces costs, improves safety with innovative belt cleaner



The PV Cleaner features Martin Engineering's patented Constant Angle Radial Pressure (CARP) design for consistent cleaning throughout all stages of blade life.

A leading Midwestern supplier of high-quality limestone to US markets is reducing costs and improving safety by using a series of innovative conveyor belt cleaners to help eliminate carryback and the problems it causes. North American Limestone Corporation (NALC) reports the cleaners from Martin Engineering (Neponset, IL) — engineered specifically for rock/aggregate applications — have been so effective that the facility no longer has service crews spend up to two hours per day shovelling and washing down accumulation from beneath the conveyors. By minimizing the need for staff to work in close proximity to fast-moving belts, the cleaners help diminish any chance of accidents or injury. Instead, by returning fines to the material flow, the company is able to reduce risk and improve overall process efficiency, saving the complex thousands of dollars in lost material and unproductive maintenance time.

NALC supplies a range of limestone products from its 243 Complex in Cloverdale, IN to a number of industries in the Midwest, including fine-grind materials and high-calcium crushed limestone. The company serves customers in such diverse applications as animal feed production, electric power generation, coal mining, industrial manufacturing and various construction segments. In order to efficiently produce a consistent volume and quality level, the facility employs an expansive series of crushers, mills, screens and other equipment, with material transported primarily by conveyor.

Over time, material handling system operators began noticing that a growing amount of material was being carried back from the unloading points, which would accumulate and eventually create mounds of spillage that piled up beneath the structure. In keeping with its long-range plans to employ industry best practices for bulk handling and fugitive material control in its operations, company officials conducted an assessment and contacted Martin Engineering for advice.

According to NALC vice president of operations Dana Boyd, "Carryback is a common problem within our industry. If not addressed, not only does spillage create safety hazards, but it also adds unnecessary work for the maintenance team, when they could be focusing on other priorities."

To rectify the issue, Martin Engineering recommended the PV Primary Cleaner with Twist™ Tensioner for key locations along the conveyor network throughout the facility. The Martin® PV Cleaner is a durable, one-piece blade that contains approximately 20 percent more urethane than comparable primary cleaners, yielding a longer life in challenging service conditions. The aggressive blade angle is able to remove even wet, sticky sand from belts 18–72 inches (450–1,800 mm) wide.

The PV Cleaner blades feature Martin Engineering's patented Constant Angle Radial Pressure (CARP) design for consistent cleaning throughout all stages of blade life. The specially-engineered curved blade maintains the same contact angle, even as the belt wears, helping to retain cleaning efficiency and allow for residual material fines on the belt to be deposited back into the material flow and not underneath the conveyor.

The belt cleaner and tensioner combination also helped eliminate material buildup on the return side of the belt, which could cause additional problems with the belt or return rollers. When foreign material is trapped between the belt and the pulley, it can allow the belt to slip, causing the non-carrying underside of the belt to wear prematurely. Even small particles and fines can grind away on the less durable, more easily damaged inside surface of the belt. Further, material that builds up on tail pulleys often causes the belt to wander, which in turn can damage the belt edge and/or the conveyor structure.

Belts at NALC include 2-, 3- and 4-ply construction, according to the load each one is designed to carry, and they run at 100–400 feet per minute (30.48–121.92 metres per minute).

Engineered to simplify maintenance, the Martin PV Cleaner mounting system delivers 'no-tool' replacement, secured with a wire lock pin.

Mechanical splices are used on all of them, which can be a concern with some belt cleaner designs. But the unique Twist Tensioner on the Martin design allows the spliced sections to pass smoothly, without damage to the belt or blade.

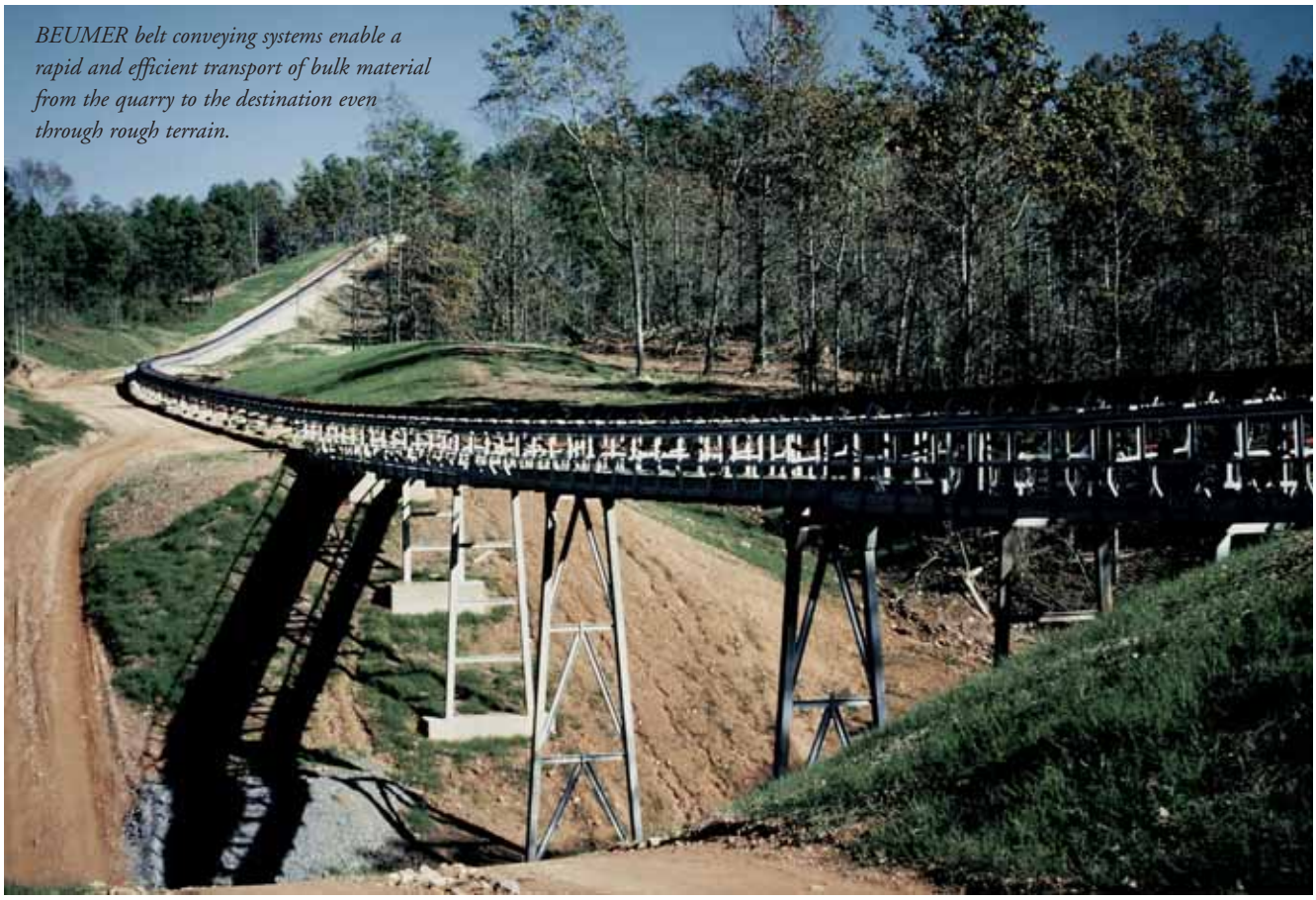
Initially installed in March of 2012, NALC has found that the PV cleaner has all but eliminated the carryback and spillage. The tensioner supplies consistent pressure to keep the blade against the belt for effective cleaning, regardless of the state of blade wear, with minimal re-tensioning required.

Engineered to simplify maintenance and reduce costs, the mounting system delivers 'no-tool' replacement, as it's simply dropped into place and secured with a wire lock pin. "This cleaner uses an aggressive angle of attack to the belt for improved cleaning efficiency," explained Martin Engineering senior product specialist Dave Mueller. "And the quick-replacement feature means never having to deal with corroded bolts or other fasteners during blade changes."

According to the belt maintenance crews, the time and cost savings was an immediate return on the investment. Now that the maintenance crew spends less time cleaning up, they are spending more time focusing on core business tasks. "Our maintenance crews have crucial functions they need to address to keep the plant running," said Boyd. "Not having to worry about carryback and spillage during these times is important."

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.

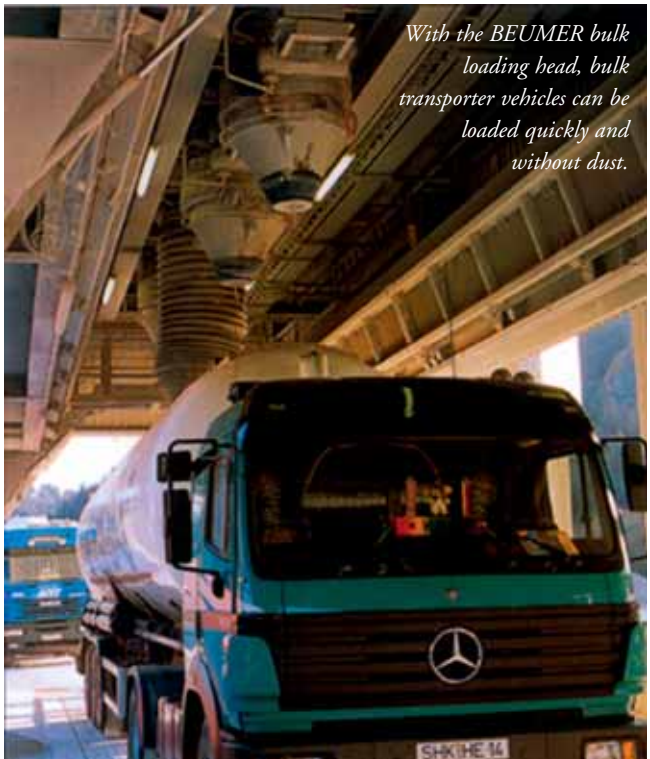
Pooling knowledge worldwide with BEUMER



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

The cement industry is a growing market worldwide. The demand for this construction material continues, especially in China. The BEUMER Center of Competence (CoC) was established for the cement business unit to provide optimal systems and plants as a full-range supplier to customers all around the world. It is designed to optimize communication among the BEUMER experts worldwide. China's biggest cement manufacturer also benefits from this.

"China and India are still the two main growth markets," says Dr. Christoph Beumer, Chairman and CEO of BEUMER Group based in Beckum, Germany. "When we went to China during the late 1990s, the country produced approximately 700mt [million tonnes] of cement per year, today that is almost 1.2 billion." According to the National Bureau of Statistics (NBS), production in China gained further momentum during the first quarter of 2013 and reached 417mt. This represents an increase of 8.2% compared to the previous year. "This positive long-term development is not going to change," predicts Andre Tissen, head of the cement business unit at BEUMER Group. "Compared to international standards, the urbanization ratio in China is rather low with just over 50%. The rate for the USA and Japan is at over 70%. This explains the continuing high demand in infrastructure and urban construction."



With the BEUMER bulk loading head, bulk transporter vehicles can be loaded quickly and without dust.

The factory built in Shanghai in 2006 enables BEUMER Group to provide optimal service to customers in China. More than 200 employees work on a production area of more than 13,000m². The BEUMER Machinery (Shanghai) Co., Ltd. covers the whole logistics value chain in China from sales, project planning, engineering to production and service for the Chinese market. BEUMER Machinery (Shanghai) is even registered as a high tech company with the Chinese authorities. The acquisition of Enexco Teknologies India Limited in 2011 strengthened BEUMER Group's presence in the cement industry. For example, the portfolio includes belt conveyor systems with horizontal and vertical curves, belt bucket elevators, heavy-duty high capacity belt bucket elevators for particularly large delivery rates and heights, and apron conveyors for clinker fitted with chains or belts as traction elements. The intralogistics specialist also provides systems for filling, palletizing, packaging and loading as well as grinding mills and silos for the Indian market. In addition to supplying the complete machines and electrical equipment for the plants, BEUMER is usually responsible for the entire process as well. This includes the design of the system, as well as the

co-ordination and supervision of the installation and commissioning.

Exploiting synergies

"As a provider of full-range solutions, it is our goal to offer optimal support to international construction materials groups such as HeidelbergCement or Holcim for their projects worldwide", says BEUMER expert Tissen. Therefore, the expertise of all BEUMER branches that are active in this field need to be pooled together and the resulting synergies need to be used effectively. For this, BEUMER established the Center of Competence for the cement segment. This centre is responsible for research and development, sales, project management, purchasing and above all the support of the group companies worldwide. Tissen explains that this requires smooth communication among each other, but it is worth it. The Chinese government supports large and profitable companies in order to further promote the cement industry and become a global leader in this segment. The supported companies benefit from low-interest loans, for example, or can acquire building areas more easily and quickly in order to expand further. The companies are also publicly supported when new projects are assigned.

Good co-operation is based on trust

China's market leader produces about 12,000 tonnes of clinker every day at several sites for different applications and requirements, such as Portland or slag cement. The cement manufacturer was significantly involved in the construction of various large-scale projects, for example, the Oriental Pearl Tower in the Pudong district in Shanghai. At 468 metres, this is currently the third-highest television tower in Asia and the fifth-largest in the world. Further projects include the Shanghai Pudong International airport as well as the Beijing–Shanghai high-speed railway. This is the second longest high-speed line in the world with a length of 1,318 kilometres. The company is selling its products now in more than 20 countries in North America, Europe, Africa and Asia.

The manufacturer places particular value on production methods that are both energy-efficient and environmentally sound. They have been using BEUMER systems such as loading systems, belt conveyors and bucket elevators for years. "Our first order from the Chinese company was in 1995," remembers managing director Dr. Beumer. In the meantime, the intralogistics expert has delivered and installed about 140 bucket elevators.

The cement manufacturer has ambitious goals to be able to compete with internationally leading companies and to stay prepared for the ongoing construction boom in China. The demand in cement is continuously rising. This is why they are permanently improving their technology and equipment and continue to rely on BEUMER. "The cement manufacturers know about the high quality of our plants and systems," explains Tissen. "But our co-operation is mainly based on trust." The president of Chinas's market leader was able to see for himself the high quality of manufacturing of the products at the BEUMER Group headquarters in Germany. There are now also discussions about the supply and the installation of belt apron conveyors, filling systems and high-level palletizers. "As the competition from local companies is significantly increasing, we offer our products at favourable conditions to the Chinese manufacturer," explains Tissen. "At the same time, our aim is to be more innovative and always one step ahead of our competitors."

Another important aspect of good business relations is the BEUMER Group Customer Support. The agreements with the customer can range from only maintenance and inspection to a long-term placement of service personnel on site. In order to guarantee trouble-free intralogistic processes and a value-adding material flow, the BEUMER employees ensure the modernization of the plants and systems to meet upcoming performance and technology demands.

"On principle, our service agreements are specially designed to meet the individual requirements of the customer," explains Tissen. "The service schedules as well as the reaction times are agreed upon in the contract." The '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, preventive maintenance and inspection, emergency plans, system and process analyses and optimization as well as spare parts and facility management. "We make sure that the customers can keep pace with the increasing requirements," explains Tissen.

BEUMER Group is an international manufacturer 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 3,700 people and has an annual turnover of about €512 million in 2012. With its subsidiaries and sales agencies, BEUMER Group is present in many industries worldwide.

The technology of the BEUMER heavy duty high capacity belt bucket elevator - the new bucket shape allows for smoother running and therefore less noise generation and can handle grain sizes up to 120 millimetres.

Impact zone technology maximizing productivity & minimizing dust for coal plant

The importance of minimizing spillage and dust is crucial to the productivity of almost any bulk handling operation. Conveyor systems with inadequate material containment will regularly experience costly downtime, cumbersome clean-up and a high incidence of workplace injuries. According to the US Mine Safety and Health Administration (MSHA), 39% of conveyor-related accidents occur while cleaning or shoveling around conveyors. Now, more than ever, operators need to focus on improving efficiency, safety and productivity at today's coal mines, coal preparation plants, bulk shipping terminals, and coal-fired power plants. Good housekeeping and dust and carryback reduction are increasingly important.

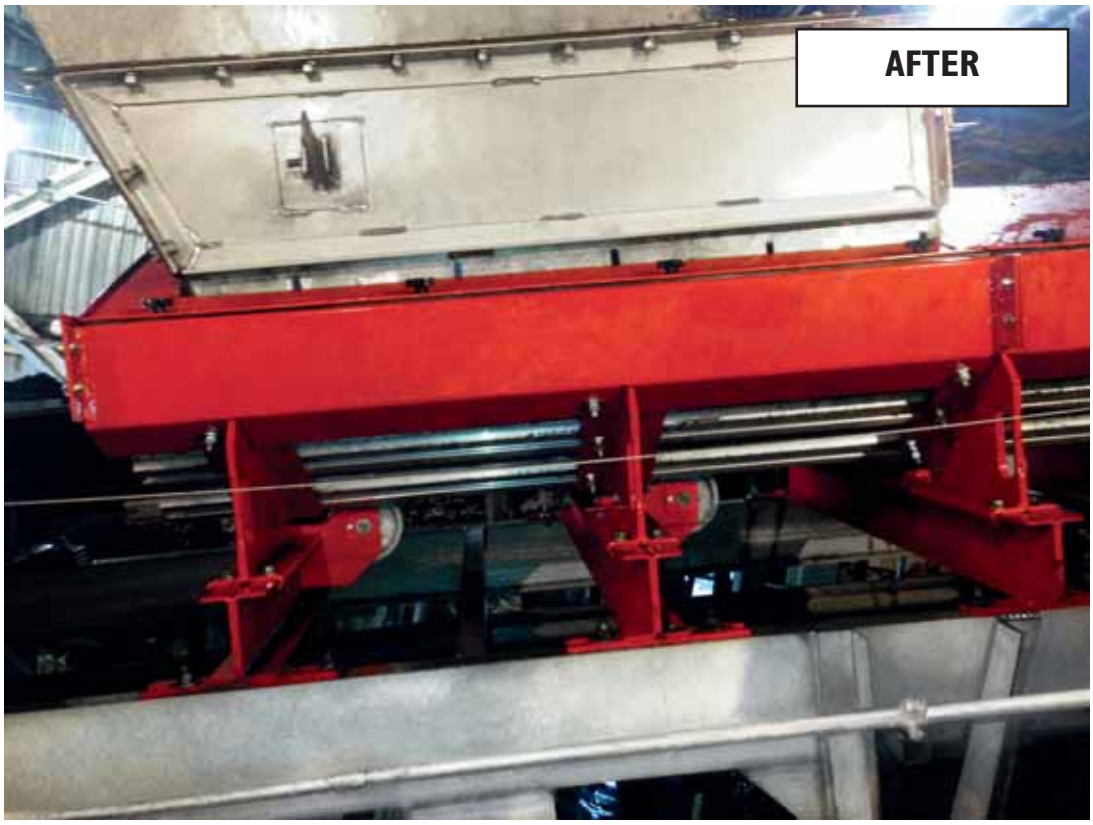
In today's bulk material handling facilities, it is important to keep dust and product spillage in the load zone area to a minimum. Many plants struggle to keep these areas clean, due to not having enough time or manpower to properly adjust skirt rubber or fix holes in the chutes. Upon visual inspection of many load zone areas, it is not uncommon to find coal piles in between troughing idlers and on the floor. This product material spillage is expensive because there is a cost to remove the coal and if not properly fixed the coal piles will reoccur again and again.

Based on input collected from plant operators around the world, ASGCO®'s team of engineers set out to create the ultimate load zone containment system available today. ASGCO®'s Pro-Zone™ system is a patent-pending modular conveyor belt load zone system that optimizes the seal for air/coal dust tightness on the receiving conveyor belt. This fully self-contained system is comprised of the company's Slide-N-Roll™ bed that supports the belt; eliminating the gaps found in a typical load zone with standard troughing idlers. The Slide-N-Roll™ has an easy 'slide out' design for effortless removal of the UHMW support bars. The new centre roll design is simple to change out, just remove the retainer clips and the centre roller can be lifted out. Side guards attach to the Slide-N-Roll™ frame to create a side enclosure that allows the angled hoods to be easily mounted. Hoods can be fabricated from aluminium or steel, which completely enclose the entire system. Inspection doors can be added to the hoods for quick assessment of chute conditions. Inside the Pro-Zone™ are dust curtains and an internal splash sealing rubber system to effectively contain the coal dust.

Case study

In the Midwestern United States, one coal-fired power plant struggled to contain dust and fugitive material at the load zone. The skirt rubber wasn't getting

adjusted or changed when needed; piles of coal that escaped the conveyor quickly built up all around the load zone area floor causing a serious safety hazard. The existing load zone was missing hoods, dust curtains and was rusting in some areas. All these problems together were causing the spillage and allowing coal dust to fill the air around the conveyor.



Recommendations

ASGCO®'s team of inspectors identified the source of the containment problems and installed Pro-Zone™ in the primary loading zones of the coal plant's conveyors.

Findings

After eight months in service, the customer has found that the Pro-Zone™ has been proven to:

- **increase productivity** — and extend conveyor belt life because the completely sealed load zone helped eliminate material turbulence and conveyor belt cover abrasion;
- **lower maintenance costs** — by having a 'skirt-less', fully contained system that needs no adjustments of metal skirt-boards or rubber skirting adjustments;
- **adapt to virtually any application** — modular design can be installed in any combination of 4' (1,200mm) or 5' (1,500mm) lengths to completely cover load zone areas. Quickly removable dust hoods, slide-out side sections and removable center rolls aid in the installation and maintenance of the system; and
- **reduce environmental impact** — due to the significant reduction of airborne and fugitive dust as well as reducing product loss in the loading area.

Conclusions

The customer has been extremely pleased with the performance of the new Pro-Zone™ system as it has effectively eliminated product loss and dust, making it far les susceptible to costly fines and workplace injuries.

There are several key components of a well-designed conveyor system such as primary belt cleaners, wash boxes, and secondary belt cleaners, but few have been as innovative as the new Pro-Zone™ load zone system from ASGCO® 'Complete Conveyor Solutions'. Proprietary technology and practical application has quickly proven to yield immediate results for bulk handling operators worldwide, in a variety of industries.

Founded in 1971, in Allentown, PA- USA, ASGCO® 'Complete Conveyor Solutions' is recognized as an authority in bulk conveyor material handling systems. The company is focused on developing cost-effective and technologically advanced products, specifically designed for optimum conveyor performance and continues to strive to make the handling of bulk materials cleaner, safer, and more productive. ASGCO® has established a global network of distributors and representatives around the world, located in Mexico, Brazil, China, Peru, South Africa, Canada and Chile.

Conveying system 'housekeeping': keeping everything clean

Conveyor belts are as important for the bulk industry as veins are for the human body. Therefore, proper 'housekeeping' of conveying systems keeps these 'veins' clear, and keeps your blood pressure down.

Conveyor belts transport bulky or powdery dry raw material to the production area or to the stockyard or silos. Every service and maintenance manager knows that it is important to ensure that conveyors can run 24 hours a day, and that it is essential to have a cleaning system that efficiently removes the bulk material that falls off these conveyors. All those in the bulk industry know that even the best covered conveyor is not able to retain and transport 100% of the material that it transports over its lifetime; it is natural that, wherever bulk product is moved, there will inevitably be spillages, dust emissions, or grains that cause waste along these conveyor lines.

The industry therefore requires powerful tools that limit the amount of material wasted in the conveying process. These tools must be simple to use, and mobile, so that qualified — and sometimes unqualified — workers are able to use them quickly and efficiently where they are needed.

Nifilsk's industry-focused Nilfisk-CFM brand has, for over 30 years, developed and distributed industrial vacuum cleaning solutions that combine the big material recovery containers or hoppers with efficient self-cleaning filter systems. At its core is the high vacuum positive displacement blower that can reach an 80% efficiency vacuum. This combination makes it possible to recover bulk material, or spillages, over long distances of over 100m.

An efficient vacuum 'housekeeping' system makes it possible to remove spills from around all systems such as crushers, milling equipment like ball mills, grinders, rotary kiln and silos — easily, quickly, and cleanly.

On conveying lines — in the case of horizontal conveyors like belts or screw conveyors, or in vertical conveyors like bucket elevators — it is necessary to keep the drive system, rubber belts and gear boxes clean and to avoid wear-and-tear on equipment, removing material fast in the case of unusual spills, perhaps as the result of a small accident.

With the right equipment, this spilled material is not only removed, but can also be directly returned to the production process, saving money.

Other applications are the cleaning of the conveyor that transports not only bulk material, but also bags in the case of rotary packers and conveying systems that transport the bags to the truck loading station. It is also possible to clean clogged screw conveyors below bag houses, and any other bulk material process.

'Housekeeping' conveying systems keeps older plants efficient, and also ensures that new systems perform safely and reliably. Vacuum cleaning the 'veins' of the production process is the best way to keep material moving, and to keep operators' blood pressure low.

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Getting *down* to business

Muhr loading systems prove the benefits of 'individualization'

BULK.ID is the official distributor of the Muhr Loading Systems for Belgium and the Netherlands.

Over the past few years, the trend of individualization has become ever more significant. In the field of consumer goods, individualization is predominantly used to denote the personal characteristics of the user. This is very different to the field of technology, where individualization — and customization — serves a significant economic purpose. When the individual components within a process are precisely tuned, this can result in much better efficiency.

Muhr Loading Systems are a perfect example of individualization in action. It is one of the few companies in its field to offer such a wide range of systems and optional accessories.

As well as offering basic open and closed loading, Muhr also offers loading systems of almost every size, with a very wide range of bellows and/or telescopic pipes. Furthermore, the company also has several wear protection systems, integrated or external filter systems, product distribution systems for optimum tank utilization, special designs for foodstuff loading, explosion protection measures, individually adjusted inlet flanges and outflow heads, filling condition sensors, loading controls, and many more.

On request, Muhr can also supply each loading system with a combined loading option. That allows both open and closed loading with just one single loading unit.

Muhr case study 4.

Together with an optional mobile unit, the loading system can be positioned in a fully flexible way over the vehicle, train or ship to be loaded.

That allows operators to increase the pace of the loading process and to reduce the costs, thanks to innovative modules.

Muhr's core competence lies in the perfect adjustment of the loading system to the specific customer requirements, such as loading capacity, product properties, product and ambient temperatures, loading conditions, etc.

Indeed, the perfectly fitting system makes it possible to achieve optimum results, resulting in maximum productivity, maximum safety and maximum quality.

Muhr case study 2.

Case studies

Case 1

For the Joy Mining company, Muhr supplied a coal loading system in Spitzbergen, Norway, for use in ambient temperatures as low as –40°C, according to ATEX21 regulations. Because of the economically sensitive environment, the system has been built to achieve an extremely dust-free loading operation with a simultaneously higher loading capacity. A costly wear protection system improves the profitability and provides, together with the loading control, an economic operation. See picture on p125.

Case 2

Combined loading system with pneumatically controlled shut-off cone for loading dolomite in closed silo trucks or on open tip truck. The customer's objective was to drastically minimize dust emissions during the loading process. After comparing several concepts, the customer decided to adopt the concept presented by the Muhr company. The peculiar characteristic of this system is the dust-free loading both during closed and open loading.

Muhr case study 3.

Case 3

Combined loading system with pneumatically controlled shut-off cone for loading cement onto open ships or tank barges.

Case 4

Closed loading system with integrated filter unit for loading graphite and cokes into closed silo trucks. DCi

Ausenco: Australian success story

Ausenco began in Brisbane, Australia, in 1991, with a small team of talented engineers offering innovative solutions to the mining industry.

The company has grown to around 2,800 employees in 29 offices around the globe, who work on some of the world's most remote and exciting projects, and Ausenco is strategically positioned to capitalize on expanding opportunities in global markets. As it has grown, Ausenco has learned the value of customizing its services to meet evolving industry needs, and of partnering with the world's best providers in each field.

In 2003, it established its Ascentis division to deliver specialized operations solutions to the minerals-processing industry.

Five years later, in 2008, it made three significant acquisitions: Pipeline Systems Incorporated (the PSI group), Sandwell International Inc., and Vector Engineering Inc.

Recognized as a world leader in the design and delivery of slurry pipeline transport systems, PSI brought to Ausenco global expertise in innovative materials-handling and control systems. PSI also extended Ausenco's global network of offices, particularly in South America.

As a specialist in ports and bulk materials-handling systems, and in energy and industrial processes for the mining, oil and gas and other heavy resource industries, Sandwell further expanded Ausenco's suite of services. With offices in Canada, the USA, South America, Asia and Africa, it also extended the Australian company's geographic reach.

Ausenco's third acquisition, the California-based Vector Engineering, contributed specialized geotechnical, civil, environmental and water resource services.

In the years following these major acquisitions, Ausenco went on to form alliances with Whittle Consulting and Meteng — specialists in business optimization for the mining industry. It also acquired 50% equity in the Kramer Group, a project management and engineering services group operating in the south-west Pacific.

And, in 2012, Ausenco acquired the Calgary-based Reaction Consulting oil sands company, formed an alliance with South African-based water treatment specialists, Proxa Ltd, and acquired Australian-based asset and logistics experts, the Rylson Group.

Following on from these acquisitions, in 2013 Ausenco acquired another Calgary-based oil sands company, PROJEX Technologies, to further strengthen its capabilities and service offerings to its clients in this area.

Today, these strategic partnerships make Ausenco a total

solution provider to the global resources industry, able to provide a full range of infrastructure and engineering services.

Coal handling expertise

This article will focus on a few of Ausenco's recent projects, relating in particular to the subject of coal handling. Ausenco does not manufacture equipment itself, but it offers custom designs of conveyors, stackers and shiploaders (selected single or dual quadrant shiploaders). It can also select a manufacturer for local fabrication.

Currently, Ausenco has several coal projects in progress and/or recently completed in North and South America as well as Australia, Namibia and Africa.

Ausenco offers the full range of services from planning concepts, prefeasibility, bankable feasibility, detailed design, EPCM (engineering, procurement, construction management) and sometimes EPC with a construction partner.

Major company clients include: Rio Tinto; BHP Billiton & BMA; Anglo American; Xstrata Coal; Glencore; Peabody; VALE; Teck; Western Canadian Coal; Dalrymple Bay Coal Terminal; Westshore Terminals; Ridley Terminals; Neptune Bulk Terminals; and Stevedore Services of America.

Recent technological developments include:

- advancements in computer simulation modelling;
- use of DEM (discreet element modelling);
- civil, structural, project management; and
- finite element modelling (FEM).

Case studies

Maintenance Improvement Project (New South Wales, Australia)

Ausenco Rylson was engaged to drive the implementation of a Maintenance Improvement Project (MIP) across two underground mines, five open cut mines and four coal processing plants operated by Anglo American Metallurgical Coal.

Ausenco Rylson delivered:

- optimized maintenance strategies for all critical assets;
- operational budgets (OPEX) for all critical assets;
- critical spares requirements for each site;
- workload profiles for each site; and
- total cost of ownership (TCO) models for critical assets.

The project required a large on-site team as well as back office support to deliver within the specified timeframes. Maintenance strategies were optimized using a facilitative workshop approach. Significant input from client personnel ensured project buy-in as well as development opportunities for client staff. TCO models for all critical assets were developed using Ausenco Rylson's enterprise-grade asset management tool, Rylson8.

Achievements

In excess of 150 asset types were analysed during the process. Maintenance strategies were optimized and revised strategies implemented across all sites. Full lifecycle costs and resource profiles were established for each mine site, highlighting high cost assets. This allowed the organization to define a replacement strategy for the high cost assets and quantify the cost savings.

Ausenco Rylson succeeded in transitioning the organization away from traditional top-down maintenance budgeting to zero-based budgeting by ensuring maintenance budgets were fully justified and transparent. The organization as a whole benefited from increased knowledge of Reliability Centred Maintenance (RCM), reliability engineering, activity based budgeting and lifecycle costing.

Largest scale coal production facilities from a single mine in Australia (Queensland, Australia)

The Alpha Coal Project is a thermal coal deposit in the Galilee Basin in central Queensland, Australia and includes:

- an open-cut coal mine with associated infrastructure and utilities;
- 6,000tph (tonnes per hour) coal wash plant;
- a 495km rail line from the mine to Abbot Point port; and
- construction of a port and materials handling facilities.

The project pioneers access to the Galilee Basin coalfields and incorporates the largest scale, single coal production facilities in Australia. Production capacity is scheduled to expand from opening production levels in 2014 of 30mt/year (million tonnes a year) to 60mt/year by 2019.

In a JV role with WorleyParsons, Ausenco and Worley combined to deliver 'programme management contractor' (PMC) services, accountable as the owner's representative, to manage project delivery. The contracting strategy incorporated an early contractor involvement (ECI) process, leading through to a formal tender process and award, followed by, management and closeout and for functions associated with project delivery. The PMC was also accountable for HSEC (health safety environment and community) management, construction management, project controls, quality management and commissioning services.

In Phase 1 of the project, the PMC was required to support the owner's development of a bankable feasibility study. Most importantly, the ECI process was designed to deliver inputs to a contract-based estimate for execution of the project which underpins financial approval applications. Ausenco's objective was to deliver the project at a value equal to, or lower than the contract based-estimate.

- Phase 1 concluded at the point of financial approval.
- Phase 2 was the implementation, construction and commissioning phase.

Key challenges

- The owner required to operate this plant from a remote operations centre several hundred kilometres away from the site, which introduced some unique challenges in automation and the application of cutting-edge technologies.
- The plant site is located in an area where black soils presented unique construction challenges and a degree of seasonal variability in access conditions to work areas. For example, in January 2011 the minesite and surrounding areas were isolated by floodwaters.

Surat Basin coal chain: optimizing a coal supply chain (Queensland, Australia)

Xstrata Coal Queensland engaged Ausenco to evaluate and

Ridley Terminals in British Columbia, Canada.

optimize the Surat Basin Coal Chain.

This supply chain will take coal from the proposed Wandoan mine to marine terminals at the Port of Gladstone and Port Alma.

The key analytic tool developed for this analysis was a simulation model of the entire supply chain. The model included the proposed Surat Basin rail line, the existing Moura, Blackwater, and North Coast rail lines, eighteen mines, five types of trains, four coal export terminals, and two ship access channels.

The model reported the operating cost for several scenarios, quantified the benefit of extra infrastructure, and was used to determine the optimum expansion pathway over a multi-year ramp up of coal production.

The project was completed in five months by a team of bulk handling, rail, and simulation specialists using Ausenco's Transportation Logistics Simulator software.

Isaac Plains Project (Australia)

Ausenco utilized its operations and maintenance expertise to significantly improve the plant production at Isaac Plains CHPP plant (see picture on p127).

After taking over the O&M (operations & maintenance) of the plant from another provider, Ausenco O&M specialists concluded that the feeder breaker (crusher) equipment was undersized, thus increasing failure potential and preventing the plant from reaching its design capacity of 500tph.

The crushing equipment was the cause of regular failure at the plant thus reducing the annual throughput of saleable product. Ausenco's engineering specialists concluded that the equipment required upgrading to allow it to provide the necessary crushing capacity.

The project included:

- planning the project for completion in a tight schedule to minimize down time;
- completion of an engineering review on the equipment;
- assistance in the redesign of the drive shaft;
- liaison with equipment manufacturers regarding the design and modifications required;
- procurement of the equipment and OEM support required to complete the upgrade;
- planning the shutdown for efficient completion;
- upgrading the crusher equipment, associated cooling and lubrication systems;
- commissioning of the upgraded crusher;
- monitoring crusher performance and wear patterns; and
- optimization adjustment and maintenance for the upgraded crusher.

Outcomes

- plant production increased from an average of 372tph prior to upgrade to 500tph — a 34% improvement in throughput;
- design nameplate production was achieved;
- project was completed under budget;
- reduced wear and stress on crusher components with revised maintenance routines resulted in decrease in maintenance costs for the crusher by 50%;
- crusher has not failed since the upgrade; and
- improved plant availability and production for CHPP operations.

Ridley Terminals — coal export terminal (Prince Rupert, British Columbia, Canada)

This shipping terminal on Ridley Island in northern British Columbia (BC) has a handling capacity of 12mt/year of coal and design capability for expansion to handle 24mt/year (see picture above). Principal features of the terminal are:

- a train unloading system with thaw shed, frozen-coal handling equipment and systems for dust extraction and collection;
- two 6,000tph stacker/reclaimers;
- a 2,000 tonne capacity surge bin;
- a coal sample collection system with a testing laboratory;
- two quadrant shiploaders;
- a system of conveyors with capacities of up to 11,750tph; and
- a computer-based terminal operations management system.

The terminal is located on a rock site, which presented significant design challenges, especially for the marine foundations.

Ausenco Sandwell provided full EPCM project management services for the coal handling and ancillary facilities, including all design, time and cost control, procurement, expediting, scheduling, reporting, construction management, quality assurance and commissioning.

Silo-cleaning service

relieves pressure at ready-mix plant

The Martin Heavy Duty Whip is a portable, remote-controlled tool that is lowered into storage containers through an access door at the top.

Stark Excavating is one of the Midwest's busiest construction firms, with revenues of $100+ million annually and a fleet of over 200 pieces of equipment valued at more than $30 million, *write Jeff Jackson, Concrete Production Manager at Stark Excavating and Gregg Pickering, Silo Supervisor at Martin Engineering*. The company's broad expertise extends from earthwork, sewers, foundations and pile driving to bridge construction, flatwork, curbing and demolition. Stark currently operates four offices, three concrete batch plants and three sand/gravel quarries in Central Illinois.

To help feed its sizable project flow, the firm's Commercial Acres Ready-Mix Plant in Normal produces an average of 60,000 cubic yards of concrete each year, with approximately 65% used in private and commercial construction, including walls, flatwork, footings and parking areas. Around 25% goes to public and DOT sector projects, such as parking structures and bridge construction, with the remaining 10% to outside sales.

Accumulation increases pressure

Commercial Acres features a Treyco RMC Plant that's capable of producing more than 200 cubic yards per hour. The complex includes three 125-tonne storage silos measuring 30' × 30' × 57', two used for cement storage and one for fly ash/pozzolan storage. The facility also has an aggregate bunker with four 25-tonne truck dump hoppers that transfer material via conveyor into four 150-tonne, climate-controlled aggregate storage silos. Cementitious material is hauled to the plant in pneumatic tankers and blown into the silos through 3-inch lines.

Over time, material dust in the three pneumatically-loaded silos began building up, first on walls and ridges and eventually clinging to all the interior surfaces. As a result, the air flow became constricted, raising the pressure within the silos and exerting greater force on the structure, connections and piping.

The compacted build-up continued to collect particles, effectively shrinking the internal space as the pneumatic blower forced more material through the silos. The severity of the problem became apparent to system operators when they noticed the walls of the silos actually starting to bulge outward. During a shutdown and inspection, the staff could observe gradual interior damage and decided that over-pressurization had compromised the structural integrity of the three storage vessels.

The need for repairs was clear and immediate, but the material build-up presented a serious obstacle. While

The severity of the material build-up became apparent to system operators when they noticed the walls of the silos starting to bulge outward from over-pressurization.

investigating possible solutions online, operations personnel located a recent article in an industry publication on the subject of silo cleaning, authored by Martin Engineering (Neponset, IL). Already familiar with the company from using its conveyor belt cleaners and other components, Stark researchers sent an email inquiry, briefly explaining the problem and the urgency of a resolution. They received a phone response the same day, and a Martin Engineering Field Supervisor scheduled a site visit for Saturday, during which he visually assessed the situation.

The entire process at Stark was completed in just ten working hours, with all three silos cleaned out and ready for repairs after a one-day outage for the service.

Whipped into shape

A two-man crew arrived on Monday morning to begin work. It was determined that the best approach was to employ the Martin® Heavy Duty Whip, one of several technologies that make up the company's Silo Solutions product line.

The Martin Heavy Duty Whip is a portable, remote-controlled tool that can be lowered into storage containers through a manhole opening. Powered by compressed air, the patented gyro motor can use a variety of different flails and cutting edges to knock down accumulated material without damaging storage vessels. Abrasion-resistant steel chain is best suited for most applications, with non-sparking brass chain for combustible materials. Urethane flails can also be employed to protect lined vessels that could be susceptible to damage from metal tools.

Martin's top-access cleaning technology eliminates the need to send a man inside a storage vessel and risk potential injury. The equipment is set up outside the silo, and it's portable enough to manoeuvre around various bin sizes and shapes. The modular boom of the Whip extends up to 28 feet (8.5 metres) and can clean vessels up to 60 feet across (18 metres) from a central opening of just 18 inches (450mm) in diameter. Air hose is protected with double wire braid, and the pneumatic motor delivers powerful cleaning action from the rotating head to remove buildup.

Part of the success of the Whip is its straightforward, air-driven design. Competing systems that run on hydraulics tend to be heavy and cumbersome. They also present the possibility of a fluid leak, which could damage otherwise-salvageable material. The pneumatic whip requires no hydraulics; it needs just 100 CFM at 90 PSI, which can usually be supplied from a plant's existing compressed air system. In locations where compressed air is not available, a portable compressor can be brought to the site.

In most situations, the crew lowers the whip through the blockage, starting at the bottom and undercutting the material as they work their way up.

Problem solved

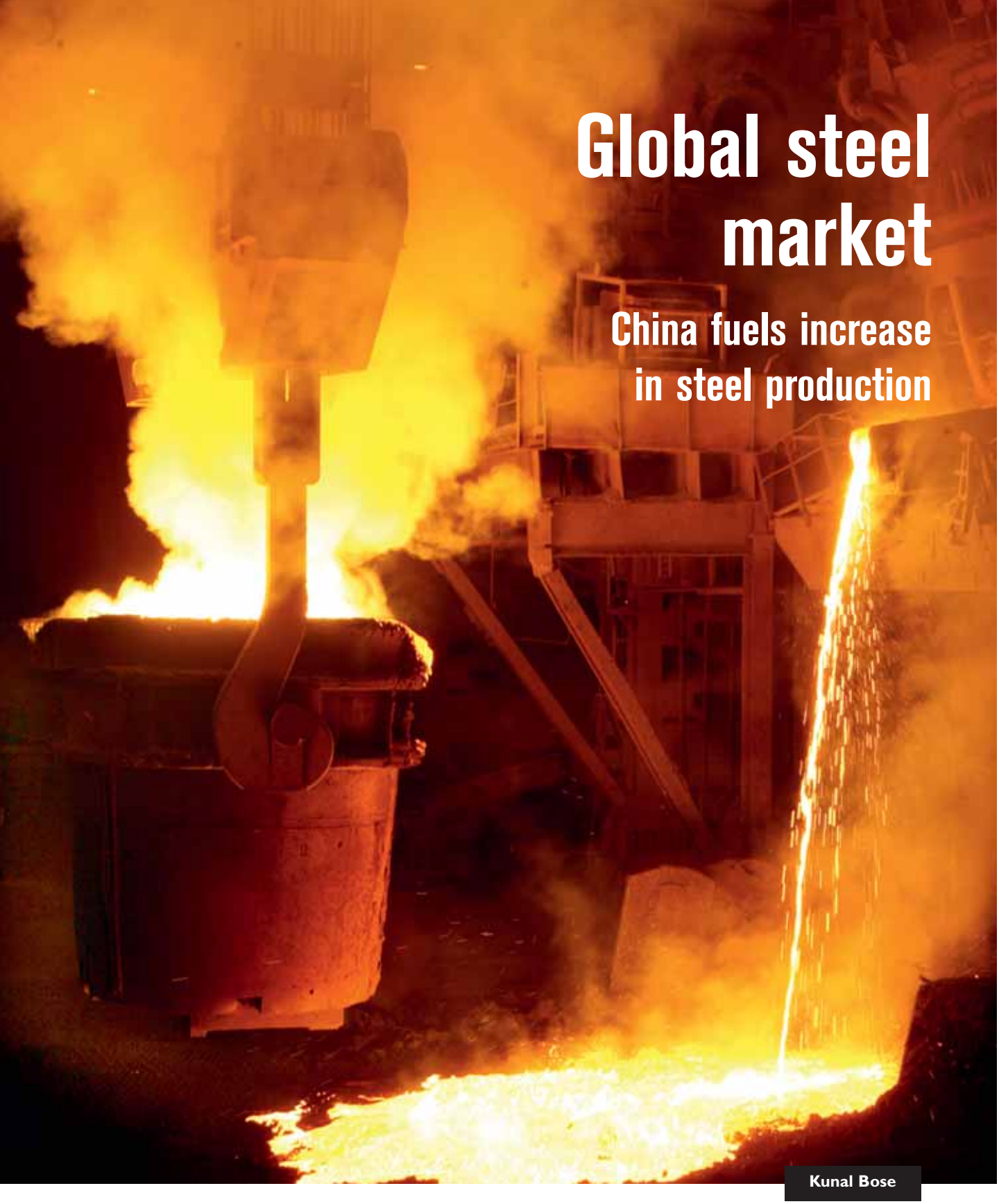
The technicians secured the equipment through an access hatch at the top of each vessel at Commercial Acres. Though all Martin silo cleaning crews are OSHA and MSHA certified for confined space entry, they instead used remote control from outside the bin to safely guide the cleaning head. The two-man crew lowered the whip through an opening in the blockage, starting at the bottom and undercutting the material as they worked their way up. In most cases, the technique allows material to be recaptured and returned to the material stream, and Stark was able to salvage the entire 40 tonnes of cementitious product removed from the silo.

The entire process was completed in just ten working hours, with all three storage vessels cleaned out and ready to schedule repairs after just a one-day outage for the service. The silo restoration will include removing all internal horizontal supports, pulling all sidewalls back to their original flat position, then replacing the horizontal bracing and adding further dimensional support.

Exit feedback from Stark management was a clear indication of the company's satisfaction with Martin Silo Services, which helped the facility quickly resolve a difficult issue and prepare for the required repairs as soon as possible. The report showed work was completed in a safe and timely manner, precisely on the predicted schedule.

Stark Excavating was formed with the creation of a modest excavating company by Lyle Stark in 1946. With a third generation of family members now managing the firm, it's grown to include 400 employees, four office locations, three quarries and two RMC plants. All material extracted and/or produced at the various Stark Materials facilities is subject to quality testing to confirm the grading accuracy in each of its plants and quarries, allowing the company to sell the products as certified materials under the guidelines established by the Illinois Department of Transportation.

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



Global steel market

China fuels increase in steel production

Kunal Bose

Chandra Shekhar Verma, chairman of Steel Authority of India Limited, India's largest producer of the ferrous metal, will tell any inquirer to navigate through the World Steel Association data for 2013 to get an insight into the regions which will stay in the forefront of global steel production and consumption growth. "Over the past many years through periods of high growth rates followed by a frighteningly long world economic crisis triggered by 2007/08 economic recession and now finally green shoots of recovery seen in the US and Europe, Asia has led growth in global steel production," says Verma. World steel production last year was up 3.5% to 1.6 billion tonnes defying setback in output in European Union and the US. Progress in global steel production became possible principally on the back of China where, to the surprise of many, experts the steel growth engine was very much at work.

While steel production in China in 2013 rose by 7.5% to 779mt (million tonnes) that in Japan was up 3.1% to 110.6mt in one more confirmation that Abe economics is at work and in India by an even healthier 5.1% to 81.2mt. One point of disappointment was South Korea, which has path-breaking Corex and other steelmaking technologies to its credit, where production dipped 4.4% to 66mt due to largely to industry

Chandra Shekhar Verma, chairman of Steel Authority of India Limited.

restructuring. The dominant might of Asia in the world steel industry is evident in its cumulative 2013 production of 1.08 billion tonnes. And China alone had a share of 46.7% of last year's global steel output.

Venting a common global concern, Verma says the world steel industry remains structurally impaired because of high excess capacity as use of 78.1% of installed capacity last year would show. When so much excess capacity is floating around even after some major industry restructuring in the West carried out by way of scrapping ageing high cost blast furnaces and rolling mills and retooling of struggling businesses, the pricing power of steelmakers stays compromised. The restructuring has been led from the front by industry leaders ArcelorMittal with 6% share of global steel production and Tata Steel, which bought Corus at top dollar price of $7.6 billion in 2006 becoming the world's sixth largest steelmaker.

The others too, particularly in Europe and the US have shed quite a few haemorrhaging plants braving opposition from trade unions and governments. ArcelorMittal's brush with the French authorities over its move to shut two loss-making blast furnaces at Florange in Lorraine in November 2012 degenerated into trading of charges where logic of economics was sacrificed at the altar of political convenience. The group has also clashed with politicians and unions in Belgium over steel business restructuring.

For chairman Lakshmi Mittal the taste of pudding is in the eating. The confirmation of this is in his observation that the steps taken in recent periods to strengthen the business are giving positive results. ArcelorMittal EBITDA (earnings before interest, tax, depreciation and amortization) for 2013 recorded an improvement of 10% on an underlying basis to $6.9 billion. Equally importantly, the company, which made steel shipments of 84.3mt and iron ore despatches of 59.7mt, had a positive cash flow and ended 2013 with net debt of $16.1 billion, the lowest since Mittal acquired Arcelor in 2006. ArcelorMittal packs in itself capacity that is more than the combined capacity of the next two big producers. Naturally, it is seen as the broad gauge for the health of the industry. So when Mittal says that he is "cautiously optimistic" about the prospects for steel in the current year when the company EBITDA should rise to around $8 billion, other producers see hope.

The change in the underlying sentiment becomes evident when Mittal declaration is seen against his saying a year ago that the "challenges" would continue after a disappointing 2012. World overcapacity has not deterred ArcelorMittal to selectively restart projects mothballed in the wake of breakout of the much dreaded recession. As it thought time was ripe for expansion of a Canadian mill dedicated to making auto grade steel and Brazilian operations supplying materials to infrastructure projects, ArcelorMittal has regained traction to scout for and buy operating assets. In equal partnership with Nippon Steel & Sumitomo Metal, ArcelorMittal recently bought a 5.3mt finishing mill from ThyssenKrupp in Alabama in the US designed to make high grade coil. Ahead of the $1.55 billion deal, it was a complex protracted dance of some steel biggies in which among other participants were Nucor of the US and CSN of Brazil.

One gets an idea of value destruction in the steel industry in recent years as ThyssenKrupp had to sell Alabama finishing mill at a big discount to its building cost. The ownership of the mill with the Japanese partner acknowledged as world leader in steel technology will further reinforce ArcelorMittal's leadership status in automotive steel in North American market where it already has 40% share. The market buzz now is ArcelorMittal is showing interest in buying part or all of Italian steelmaker Ilva, which owns Europe's biggest steel plant in the southern Italian city of Taranto. Controlled by the Riva family, Ilva makes flat steel finding application in automobiles to electric appliances to shipbuilding. The world's largest steelmaker wants a part or the whole of Riva because that would give it levers to control prices in southern Europe. Expect ArcelorMittal to only eye for assets that will fit in nicely with its existing operations and give it a bigger share of a market. The takeover specialist that he is, Mittal, if he could help it, will not let go of the opportunity to acquire capacity at the present bargain prices.

"The determinants of M&A in the world steel industry have undergone significant changes. These are much in evidence in ArcelorMittal acquisition of ThyssenKrupp mill. Or in case it finally bags Ilva, the gain of pricing power in an important market will be the driving force. The future such deals will mostly be multi-layered. Like ThyssenKrupp will be supplying 2mt of steel from its Brazilian plant to the disposed of Alabama finishing mill for six years. Rest of steel requirement of the mill will be met by ArcelorMittal plants in the US," says a sector expert. This is why Mittal while declaring the Alabama mill as the "most modern finishing facility finds it "ideally complementing our existing operations in the US and the Americas."

The rub will, however, be in large volume imports. Countries, including the US are finding occasions to invoke anti-dumping investigations leading on many occasions to levying of anti-dumping taxes on imports of steel products in order to give protection to domestic steel producers. High production leaving considerable surplus for export and its price advantages smacking of hidden subsidies have made Western importing countries and also Australia and Indonesia to look at China with suspicion. At the same time, Japanese steel products are now targets for anti-dumping investigation into 27 categories of steel in as many as nine countries. Paradoxically China, which has the largest number of anti-dumping investigations to its credit, says it

is victim of Japanese export of 'high class iron pipes' at a discount to production cost. Washington goes on receiving complaints that China is dumping steel sheet in the US hurting the interest of local producers.

According to an official with financial services group INTL FcStone, "spreads between US and overseas steel (perhaps hinting at China) have gotten to the point when even customers who don't normally import steel just can't say no. The discount just got huge." Nomura Holdings says steel from China is trading at a discount to US prices for the longest stretch since at least 2006. Very high production and therefore, excess supply is the reason for comparatively low prices of Chinese steel. Nomura thinks cheaper overseas supplies will lead to 3.4% rise in the US steel imports in 2014 on the back of 2% import gain last year. Mittal is hoping for a 4% expansion of the US steel market this year and a more modest improvement of 2% in EU. If there is a slowdown in consumption growth in China, as Mittal fears, then it will be under pressure to step up exports.

Lakshmi Mittal, the chairman of ArcelorMittal.

In any case, China has got off to a slow start with both HSBC and NBS purchasing managers' indices registering falls in January. Standard & Poor's says Chinese growth rate in 2014 could be 7.4% followed by 7.2% next year against 7.7% achieved in 2013 beating the target of 7.5%. Beijing inspired slowing economy combined with anti-pollution and austerity campaign will be the reason for arresting the growth of Chinese automobile industry to 10% in 2014 to 23.8 million cars and light trucks, down from 14% last year. Most experts are saying Chinese steel production growth rate will be down to 4% this year against 7.5% in 2013. But the important thing is, the growth will happen on a large base of 779mt. The world steel industry is keenly watching as to what extent Beijing will be successful in scrapping unviable and environment damaging capacity in the face of opposition from provincial satraps. Moreover, as the Chinese steel industry continues to work at losses or on very thin margins, Beijing will continue to push for consolidation through M&A.

China is deftly manoeuvring a soft landing for its economy by progressively moving away from investment to services and consumer spending driven growth. Among other things, this will mean its steel demand growth will be 3% in 2014. In a long time, China's steel demand growth will trail the rest of the world's 3.5%. This forecast by World Steel Association means China will come under increasing pressure to export as much steel as possible to avoid any further erosion in domestic prices. The *Financial Times* poll of a group of steel analysts reveals that a rebound in steel production in the rest of the world will compensate for a slowdown in Chinese growth. The six-year-old production decline in Europe bottomed out last year. The FT survey says Europe will be registering a 2.4% year-on-year output growth in 2014.

Such optimism finds resonance in ArcelorMittal CFO Aditya Mittal saying that steel demand in Europe is rising beyond what would amount to "just a restocking effect... We are seeing real demand improvement. We think it will have more momentum in the second half and we see industrial activity rising and construction stabilizing." Remember both had declined in 2013. Confirmation of European turnaround is in purchasing managers' indices hitting two year highs. The possibility of revival of capacity rested earlier in the wake of signs of demand revival after years of its destruction, particularly in the West is clouding the prospect of improvement in steel products prices.

ArcelorMittal foresees demand slowdown in China, Brazil and former Soviet states. India, according to Verma, will be an exception where after parliamentary elections and formation of a new government steel demand should surge on launch of major infrastructure projects. "The coming years will see India's per capita steel use rapidly rising from about 60kg now to the world average of 215kg. This financial year and the last proved difficult for India. But we have empirical evidences that at our stage of development, steel demand should be growing at a multiple of 1.2 of GDP growth rate. If the election throws up a strong government then India should be returning to 8% to 9% growth rate. That will do a lot of good to the Indian steel industry, which has a target of raising capacity to 300mt by 2025 from the present 90mt."

Weaker currency spells good news for Brazil's steel industry

The prospects for Brazil's steel industry are continuing to improve, as the weaker currency encourages exports and limits imports, *writes Patrick Knight.*

After a difficult few years, when a strong Brazilian currency encouraged imports and handicapped exports, the country's steel industry is looking forward to better times.

The Brazilian Real has fallen by almost 20% against the US$ in the past two years, and this is having a major impact on the steel industry — partly direct, partly indirect.

The situation was at its worst in 2010, when 25% of all the steel used in Brazil was imported, and exports found it increasingly difficult to compete in markets such as the United States, notably with that from China.

The economy of the United States, in recent years the leading market for Brazilian steel, was at a low ebb, with the motor industry there making many fewer cars than usual.

Last year, almost half of the nine million tonnes of steel which were exported — most of it slabs, the rest mainly flat products — went to the United States.

With 16 million cars to be sold in the US this year, compared with 12 million a couple of years ago, Brazil's steel exports will almost certainly have another good year in 2014.

It costs more than average to make steel in the United States, so about 30% of the 100mt (million tonnes) of steel used there each year is imported, with Brazil second only to China as a source.

The good news from the United States encouraged Arcelor-Mittal to start up the third of its smelters at the giant Tubarao mill in Espirito Santo state at the end of 2013.

This is the first time since 2008 that all three furnaces at the Tubarao complex will be working, taking output there, most to be exported, to 7.5mt.

Slabs are the most popular of Brazil's exports and many of those exported by Mittal will be used at a mill in Alabama, in the US, bought from ThyssenKrupp by Arcelor-Mittal in 2013.

This sale came as something of a surprise, as it had been planned for the Alabama steelworks to import most of the slabs it will need from Thyssen's 5mt-capacity 'Altantico Sul' mill, in Rio de Janeiro state.

Although Arcelor-Mittal is still a possible buyer of the Altantico Sul mill as well as the one in Alabama, this may well not happen. Bids from Brazil's CSN company, anxious to become Brazil's leading steel maker, as well as the Ternium company, owner of the Usiminas mill, have been turned down by ThyssenKrupp as being too low.

ThyssenKrupp is now concentrating on improving productivity at a mill in which the Vale company has a 27% share. Atlantico Sul cost US $8 billion to build, far more than it will sell for.

A total of 34.2mt of steel was made in Brazil last year, by an industry whose mills have capacity to make more than 40mt. The 70% utilization rate is slightly less than the world average of 74% last year.

Because imports have fallen from their 2010 peak, 22.8mt of the steel made in Brazil was used on the domestic market, 5.4% more than in 2012.

Because imports of all kinds are becoming steadily more costly, Brazilian industries are making and using more components than they have in recent years. This is good news for Brazilian steel.

Taking imports into consideration and discounting exports, a total of 26.4mt of steel was used in Brazil last year, 4.8% more than in 2012. This increase was much greater than that of the economy as a whole.

Of the steel sold, 12mt were flat products, the main markets being the buoyant motor industry as well as for consumer durables, while 10mt was long products, used largely by the construction industry. Construction was given a boost last year and early this, by the building of 12 spanking new stadiums and associated works for the World Cup, to be held in Brazil in mid-year.

Concerned with the fact that the relatively strong Real had encouraged a flood of imported cars, the government raised the tax on imported vehicles early in 2013. In return, it gave companies prepared to build brand new factories to make them in Brazil instead, a series of incentives to do so.

Half a dozen companies, including Land Rover, Mercedes, BMW, Audi and some Chinese companies have taken the bait, as have some truck makers. The tax caused car imports to fall last year, which is why more were made in Brazil itself than ever before, even though slightly less were sold in the country as in 2012.

Some of the tax incentives which have encouraged vehicle sales in Brazil in the past few years have been withdrawn this year, so slightly fewer cars are expected be sold this year than last.

But the steel industry expects to sell much more to the oil industry, for building several huge production platforms, drilling equipment and oil and gas pipelines for Brazil's ambitious oil expansion programme. About $50 billion will be spent each year by the oil industry for the forseeable future. But this should result on Brazil being self sufficient, possibly becoming an exporter of crude oil and more products, by the mid-2020s.

The government has also woken up to the fact that not enough has been spent on building new roads, railways and port installations, and making waterways more navigable by installing locks in the past 20 years at least.

Spending more on the crumbling infrastructure has become increasingly urgent. The poor state of roads and the lack of railways means it costs five times as much to get the grains grown in the west of Brazil to ports and onto ships as it does in the United States or Argentina.

This situation is tolerable when grains prices are as high as they have for the past few years. However, grains prices have a habit of falling as well as rising, and they are now slipping.

As well as spending on the infrastructure, numerous large new hydroelectric power stations will have to be built in the next few years, as will major transmission lines, all of which will require large amounts of steel.

Whether the improved prospects will encourage the big steel companies to consider a new round of expansions, remains to be seen. As it is, joint venture mills are planned at ports in the North East, by both Cosco and Dongkuk, both in partnership with Vale.

Until ThyssenKrupp sells its Atlantico Sul mill, however, it is difficult to see any Brazilian owned company deciding to build a brand new mill.

Perhaps surprisingly, Brazil's steel companies generally now make more profits from the sale and export of iron ore than from their steel making operations.

Until a decade ago, even though they had mines of their own, most companies preferred to buy their ore from Vale or from the companies Vale has swallowed up in recent years.

Because Vale has given priority to exporting, and also because the world price of ore has increased so much, all the large companies, led by CSN, which exported 7mt last year, as well as Usiminas, Gerdau and Arcelor-Mittal, now get most of the ore they need from their own mines, and have plans to export a surplus. DCi

Project cargo

big challenges call for big solutions

Michael King

While many cargo sectors are only seeing moderate growth, logistics providers are doing their utmost to get into fast-expanding project markets by offering a range of services and solutions in a bid to entice big-spending customers.

Positivity abounds for those with a stake in the global project cargo business. With energy projects continuing to be pursued globally and all manner of other mining and raw material sourcing projects underway, many in the logistics business view the provision of specialist solutions to major construction and development projects as a key earner while consumer markets in Europe and the US remain subdued and commodity prices relatively bearish.

This point was driven home in the 2013 annual results of many of the world's largest 3PLs as they were released in the first quarter. Typical was Panalpina which views project logistics as a core product, alongside its oil and gas portfolio. Group gross profit in 2013 increased 7% to CHF 1,561.0 million driven by strong growth in the company's Logistics and Ocean Freight divisions, but also by an oil & gas and projects business which saw double digit gross profit growth and was described as "thriving" by executives.

Further progress is planned in 2014 when the Switzerland-based logistics giant plans to expand its footprint. Chris Kent, Global Head of Panprojects, said that with its existing global presence, Panalpina was uniquely positioned to offer true door-to-door services under one roof. "This allows consistent and proven compliance controls and service levels throughout the supply chain," he explained.

Panalpina has been investing in the expansion of its Panprojects Transport Engineering Team to support the verification and planning of special moves across all regions and this is due to continue during 2014. "We have also centralized vessel chartering/part chartering within the Group under the Panprojects team to ensure overall quality of out-of-gauge and heavy cargoes within the Transport Engineering Team on a door-to-door basis," said Kent.

US-headquartered Seko Logistics is another 3PL expanding its project reach as part of its strategy of differentiating its service portfolio from global rivals able to offer commoditized products at low cost. Seko plans to leverage its existing global forwarding network to draw in more project contracts after its Energy division recorded strong growth during 2013, not least in Africa where the company has handled major military contracts as well as recently managing the movement of transformer equipment from Italy to Libya.

New offices are planned this year in Tanzania and Algeria, adding to the company's already long reach in North and East Africa where the company expects further demand growth. Joe Bento, chief sales officer, said Seko had been in the project business for 20 years but was now pushing its offerings more aggressively on a global basis.

"We don't want to be a typical forwarder," he said. "Customers want to know what else we can do. Very few companies are offering project cargo shipments globally but we can. It's a very high-end customer service business, very time-

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Topics

• *Outlook for the dry bulk trade and the implications for bulk carrier demand* • *Chinese steel market and prospects for seaborne iron ore trade* • *The European coal industry, coal production and prospects for imports* • *The Demand and Supply of the Dry Cargo Fleet* • *General challenges from an owners perspective, and an analysis of the Supramax shipping market* • *Big Data and Shipping* • *Industrial minerals logistics - a case study* • *The advantages of using offshore transhipment considering the current trends within the coal market* • *Terminal development related to sustainability* • *Logistical issues with inventory tracking associated with solids flow* • *BIMCO's point of view on the dry bulk market.* • *Latest developments at IMO* • *Biomass Handling Solutions Paper* • *Case study in relation to our recent coal terminal operation in Africa* • *Terminal Development Presentation* • *Bulk analytical logistical flows* • *Dust suppression - modern techniques*

Speakers

• Susan Oatway, Senior Consultant, Drewry Shipping Consultants Ltd • Jeffrey Landsberg, President, Commodore Research & Consultancy • RA Dr. Erich Schmitz - Managing Director - Verein der Kohlenimporteure e.V. • Jonathan Challacombe, Associate Professor in Maritime Studies & International Logistics Plymouth Business School • Peter Sand, Chief Shipping Analyst, BIMCO • Christian Ingerslev, Vice President, Head of Business Development Desk, NORDEN A/S • David Peel, European Manager, RightShip • Ulrich Koester, Managing Owner, Maritime Tecnet GmbH • Capt. Giordano Scotto d'Aniello, Commercial Director, Coeclerici S.P.A • Teus van Vianen, Delft University of Technology • Brian Pittenger, Director Business Development, Jenike & Johanson, Inc. • Ian Adams, Executive Director, International Dry Bulk Terminals Group • Professor Mike Bradley, Greenwich University • Han Ozturk, Managing Director, Nectar • Johan Pruisken, Royal HaskoningDHV • David Trueman, DBiS • Micha de Jong, General Manager, Wuvio Chemicals

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sensitive and skilled. But we have a good base for this in Houston and we're pushing this out."

He said the project market remained fragmented, leaving opportunities for those companies with the scale, agility and personnel to seek out new customers. "You need very experienced people," he said. "These are big budget projects, but they need to be managed cost effectively. If money were no object then anyone could do it."

Although it outsources Out Of Gauge (OOG) and heavy transport services to approved service providers, unlike many 3PLs, Panalpina has also invested in its own project cargo assets which includes barges and heavy haul equipment in the Caspian area.

Wilhelmsen Ships Service delivers a consignment of cables for a Norwegian wind farm.

Where multiple vendors and their equipment are used, management remains in-house. "With its own transport engineers Panalpina is then able to review and plan jobs with these service providers to ensure that our standards are fully met," said Kent.

Major contracts nearing completion include a power project in Ghana and a mining project in Mongolia where the distance from entry port to site is over 1,000km. "In the last quarter of 2013 we also moved the heaviest piece — 600 tonnes — yet to move on Turkish roads," said Kent. "For this move we arranged shipment from China to entry port and final delivery to a mountainous site over 100km from the port."

Agility Logistics has long been a specialist in project logistics, in part due to the company's long history of supplying niche services to energy developments in the Middle East, and its willingness to charter new logistics territories in emerging markets. Although offering its own fleet of trailers and heavy haul equipment in the Middle East, Agility primarily takes a non-asset-based approach to project logistics, drawing on a wide list of vetted support vendors to offer clients tailor made solutions.

Asked to explain what Agility offers clients, Grant Wattman, President and CEO, Agility Project Logistics, explained: "Without giving too much away, whether it is a grass roots construction or an existing plant expansion, our ability to offer turnkey project management solutions from factory to foundation even in the most remote corners of the world through our ever growing network of offices is what makes the Agility difference.

"To begin with we have computer-aided design software that allows us to determine the optimum solution not just for ocean and barge stowage but also for heavy haul and where necessary crane offloading.

"Our in house tracking system ensures that not just the large items but all the way down to a box of nuts and bolts are delivered on time. Our execution plan gives our client a working model and matrix as to how their project will be executed and the plan it will follow which assimilates their own schedule. This is a live fluid program that evolves as the project moves through its different phases towards completion."

One recent contract completed by Agility involved delivering transformers from factory to foundation pad for a major client. "We collected the transformer main tanks and accessories from the factory in Sweden, transported them to Rotterdam port where we loaded them onto an ocean vessel," he said. "Upon arrival in Milwaukee they were transhipped to a barge, sailed around the coast, then rolled them off using 12 axle self-propelled modular transport. They were then transported to site using a 6-deck-6 SPMT due to height restrictions. A jack and slide system was then used to rough set the transformer main tanks onto their respective foundation pads.

"Our success on this project was recognized by the customer who whilst auditing us during the whole process of the project gave Agility 97% overall with 99.3% on delivery and 100% on quality."

Wattman believes there is currently more than enough ocean-going heavylift capacity available to the market, given continued weak demand particularly from Europe and the number of newbuild multi-purpose vessels entering service. "Newbuild investment activity in recent years has been concentrated on the Project & Heavy Lift market segments, whilst the basic multi-purpose vessel newbuild programme has remained stagnant, suggesting that the cargo demands from shippers continues to be focused on the modularization and heavy lift capabilities resultant of the various 'fab yards' being developed especially in the Far East region," he said.

There has also been limited scrapping of older tonnage and this has seen the average age of multi-purpose vessels climb above 15 years. "Certain trade lanes are experiencing some capacity constraints, attributable to infrastructural development and/or emerging market growth, for example the South American region," he said. "Despite these regional spikes in demand, we believe that the global vessel capacity remains adequate to forecast market demand."

He also said some ports were losing their project handling expertise and/or handling facilities as they expanded in new directions, for example in Australia where Sydney and Melbourne have aligned their focus more on the container trades. "That said," he continued, "key project/breakbulk ports such as Antwerp, Houston and Singapore remain well-equipped to handle these cargoes in a professional, safe and efficient manner." DCi

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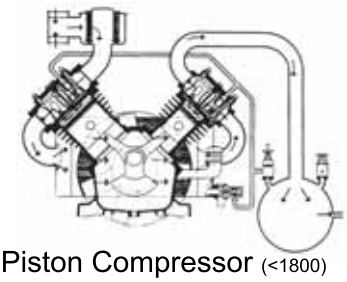

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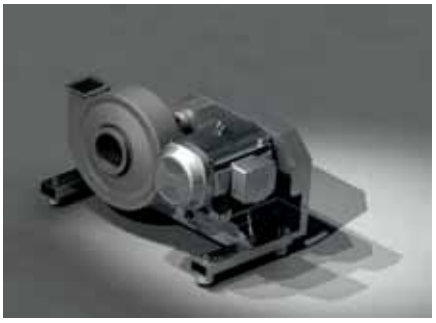

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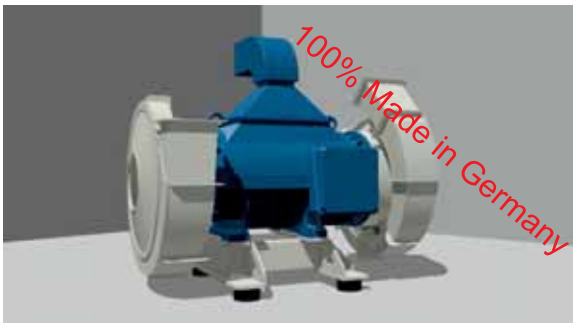

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