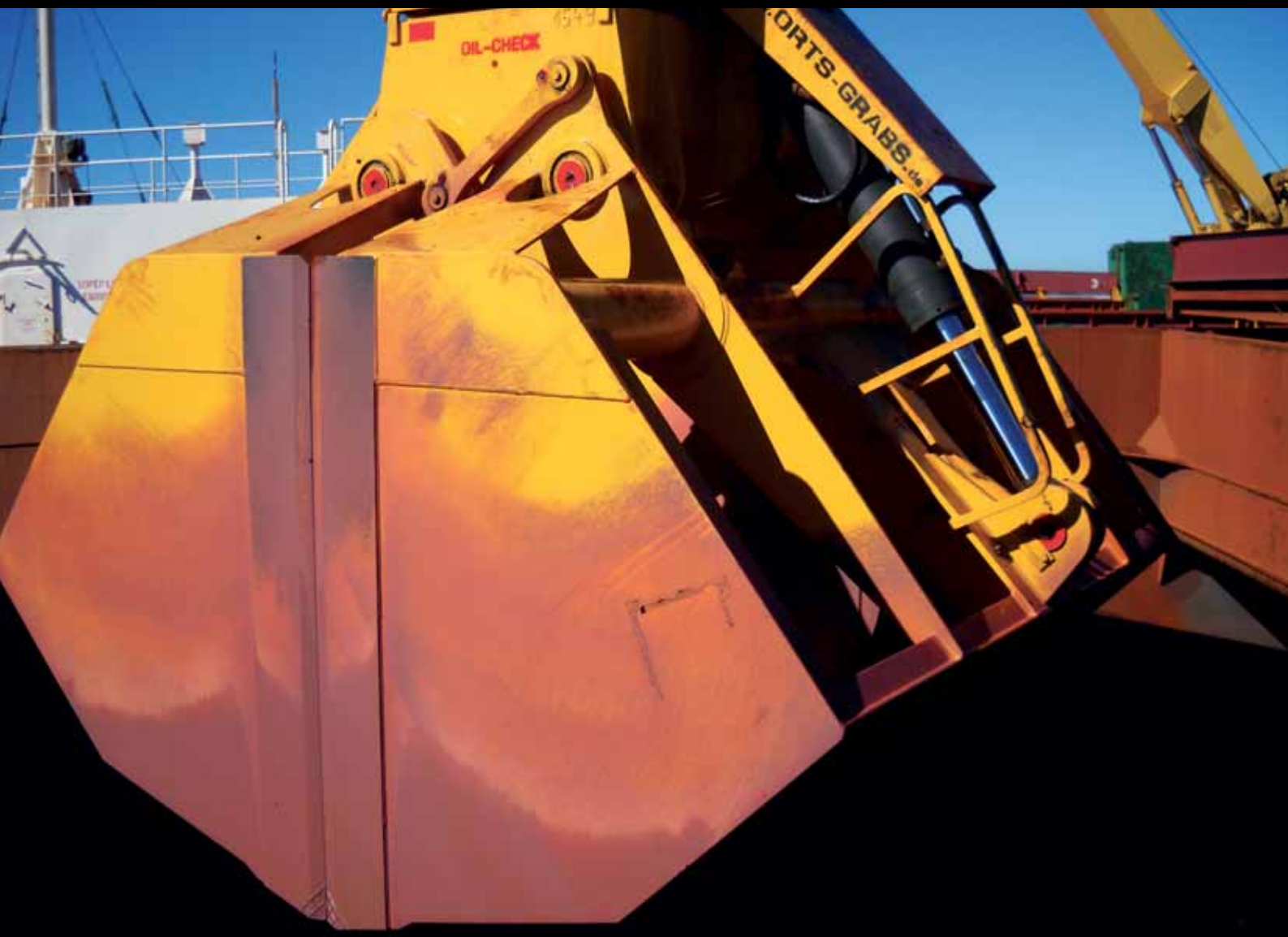
DC: DRY CARGO international

ISSUE NO.145 MARCH 2012



FEATURES

- Global Grain Trades
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DCi

A fully radio controlled diesel- hydraulic grab DHS-B 12m³ from Orts Maschinenfabrik discharging iron ore from **Alina II**. **Alina II** *was loaded with 176,000t iron ore, but suffered damage to her double bottom. Therefore she was not allowed to sail laden and had to be unloaded in the shortest possible time. For this successful project, CRC Cargo Recovery used four ORTS radio controlled diesel-hydraulic grabs.*

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ISSN 1466-3643

MARCH 2012 issue

featuring...

Dry bulk trade growth continues

Signs point to further growth in global seaborne dry bulk trade during 2012. Despite uncertainty about how economic activity in many countries will evolve, the outlook for trade in commodities related to industrial production remains positive. Prospects for agricultural commodities trade, especially grain, are fairly bright. But the overall advance may not match last year's increase.

Doubts about the world economy's future progress were emphasized by the European Commission's end-January report. This assessment concluded that the eurozone is likely to see a return to recession in the current year, with GDP declining by 0.3%. However, recent indications suggest a pick-up in the USA is now under way. Also, while China's economy seems set to continue slowing, growth could stay strong enough to benefit dry bulk imports.

Iron ore

Some elements of the steel industry background may not be supportive for raw materials trade in 2012. Growth expectations are heavily dependent upon a continuing upwards trend in China's import needs, which currently seem quite favourable. World seaborne iron ore trade is forecast to expand by about 4–5% to reach 1,123mt (million tonnes) this year, as shown by table 1.

Amid a downturn in Europe's economy, domestic steel output could decrease in the current year. Moreover, there are no signs yet of a strong recovery in Japan's production after last year's decline, caused by the natural disasters. But China's steel demand and production is widely expected to increase, and its iron ore imports could grow robustly over the next twelve months.

Coal

After last year's reduction, the coking coal sector, comprising about one quarter of overall seaborne coal trade, appears to be set for a revival. The much larger steam coal sector also could benefit from extra import demand in a number of countries. Consequently the global seaborne coal trade total in 2012 is estimated to increase by just over 4%, reaching 1,040mt.

Output trends in power stations, steel mills and other industries relying on foreign coal supplies point to further support for coal trade. Asian countries are the most promising area in the twelve months ahead. Rising volumes into India may be accompanied by larger purchases in China. Japan's requirements seem likely to reflect further emphasis on coal-fired electricity generation.

Grain

As this year begins, grain trade prospects look positive. There is uncertainty about the second half, because key northern hemisphere importers' domestic harvests in the summer are not yet predictable.

The outcome of these will have a major impact on foreign purchases. Provisionally, global seaborne grain (including soyabeans) trade in 2012 may increase by about 2–3%, to 311mt.

Recent forecasts on a crop year basis, for the year ending mid-2012, have become more encouraging. Imports into the Middle East area are evolving strongly, while volumes into sub-Saharan Africa, Mexico and some other countries could rise. China's relatively small wheat and coarse grains imports are predicted to double, while its much larger soyabean imports also increase.

Minor bulks

A substantial part of the extensive minor bulk trade sector is comprised of commodities related to industrial usage in manufacturing and construction, such as bauxite/alumina, steel products, forest products and cement. Extra import demand for these dry bulks is foreseeable in a number of areas during 2012, possibly resulting in minor bulk seaborne trade growth of about 3%.

Bulk carrier fleet

During the next twelve months, rapid expansion of bulk carrier fleet capacity is set to remain a prominent feature, as shown by calculations in table 2. The world fleet's growth rate in 2012 could be around 10%, boosting the total to 673m dwt by end-year. Newbuilding deliveries are expected to continue at a very high level, with less than one-third offset by massive scrapping.

TABLE 1: WORLD SEABORNE MAJOR DRY BULK COMMODITY TRADE (MILLION TONNES)

	2007	2008	2009	2010	2011	2012*
Iron ore	787.5	844.0	905.0	1005.0	1073.0	1123.0
Coal	810.6	823.6	841.7	950.5	997.0	1040.0
Grain (including soyabeans)	274.1	290.3	294.4	296.5	305.0	311.0
Total major bulks	**1,872.2**	**1,957.9**	**2,041.1**	**2,252.0**	**2,375.0**	**2,474.0**
% growth from previous year		4.6	4.2	10.3	5.5	4.2

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

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

	2007	2008	2009	2010	2011	2012*
Newbuilding deliveries	24.7	24.4	43.1	80.2	97.0	90.0
Scrapping	0.6	5.5	10.5	6.4	22.2	28.0
Losses	0.3	0.1	0.3	0.4	0.4	0.4
Other adjustments/conversions	-0.2	6.8	8.9	4.2	0.6	0.0
Net change in fleet	23.6	25.6	41.2	77.6	75.0	61.6
Fleet at end of year	**391.7**	**417.3**	**458.5**	**536.1**	**611.1**	**672.7**
% growth from previous year		6.5	9.9	16.9	14.0	10.1

source: Clarksons (historical data) & BSA 2012 forecasts **forecast*

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China's bulk imports continue

Imports of minerals and other dry bulk commodities into China grew strongly again during the past twelve months. Could another sharp rise occur in 2012? Many signs point to a continuing positive trend, but expectations of how vigorous it will be vary. What is clear is that this market sector is highly significant for exporters, shipowners and port operators: Chinese imports now comprise almost 30% of global seaborne dry bulk trade.

The performance of China's economy and industrial output will have a great impact on iron ore, coal and many other commodities imported. Most forecasts suggest that economic activity probably will slow further, after a deceleration to 9.2% GDP growth in 2011. Recent IMF calculations estimated a reduction of one percentage point to 8.2% this year, followed by a gradual pick up over the next twelve months.

Steel furnace in China.

Iron ore's rapid growth

Around the middle of last year, doubts about China's iron ore imports trend intensified amid figures showing a sharp downturn during the second quarter. However, monthly quantities rapidly regained momentum in the second half. Consequently, the annual total for 2011 increased by 68mt (million tonnes) or 11%, reaching 686mt.

Steel industry output performed strongly. Crude steel production during last year as a whole was up by 9% at 695mt, despite some slackening in the second half. Pig iron production at the blast furnace mills where iron ore is consumed rose by 7%, to 630mt. These figures may be revised upwards eventually when more complete information becomes available.

Further substantial growth in China's iron ore imports seems likely in 2012. Despite a possible further expansion of the huge quantities of ore produced by domestic mines, and relatively high stocks levels at ports, signs pointing to additional foreign buying are quite positive. Steel demand and production is widely expected to continue growing as construction and manufacturing activity remain robust.

Coal imports moving upwards

Imports of coal into China weakened abruptly in the early part of last year after massive expansion over the previous twelve months. But a progressive strengthening during the remainder of the period resulted in the annual 2011 total rising by 16mt (10%), reaching just over 182mt.

There was a sharp contrast between changes in coking coal imports for the steel industry, and steam coal volumes for power stations and other industries. Steam coal imports were 16% higher, at 138mt, while coking coal imports were 5% lower at 45mt. Another aspect, adversely affecting seaborne trade volumes, was a large rise in overland coking coal movements from Mongolia, which rose by one-third to 20mt.

What is the outlook for 2012? Key influences are demand from the main consuming industries, domestic coal output and internal transportation, and relative prices of domestic and foreign supplies. China's massive domestic coal production, which apparently expanded by over 10% last year, seems set to maintain an upwards trend. The Chinese market probably will remain tight, however, amid strongly growing usage in power stations and steel plants.

Grain and soya positives

During the 2010/11 marketing year ending September 2011, imports of grain (wheat, corn and barley) plus soyabeans and meal into China increased only marginally by 1%, to 56mt. This result followed several years of very strong expansion. In the current 2011/12 year, based on US Dept of Agriculture calculations, a much greater 12% increase can be expected.

CHINA'S DRY BULK IMPORTS (MILLION TONNES)

Main bulk commodities	2007	2008	2009	2010	2011	% change*
Coal	51.0	40.8	126.6	166.3	182.4	+9.7
Iron ore	382.8	443.5	627.8	618.6	686.1	+10.9
Grain/soya#	30.3	39.2	43.5	55.6	56.3	+1.2
Steel products	17.2	15.6	22.3	16.8	16.2	-3.4
Total of above	**481.3**	**539.1**	**820.2**	**857.3**	**941.0**	**+9.8**
% growth		12.0	52.1	4.5	9.8	

*source: China Customs, USDA, BSA * 2011 compared with previous year # October/September marketing years*

to perform strongly

Last summer's Chinese domestic harvest of grain was good, rising by 6% to a record high 316mt. But market tightness is still a feature, as consumption growth continues. Corn usage for livestock feed is especially strong, requiring some additional foreign purchases. Wheat and coarse grains imports totalled 3.6mt in 2010/11, and are forecast to more than double to 7.4mt in the current period.

Within the much larger soyabeans category, a 6% rise in imports to 56mt is predicted in the current 2011/12 year, after a 4% increase in the preceding twelve months. Last autumn's domestic soyabean crop was lower, and consumption of soyameal in livestock feed manufacture, and soyaoil usage in food manufacturing and home cooking is growing robustly. These changes point to greater buying from foreign suppliers.

Promising prospects

Other dry bulk commodities are also prominent. Large elements include steel products, bauxite/alumina, nickel and manganese ores, and woodpulp. The outlook for these 'minor bulk' imports is generally favourable. However, steel products imports may not develop positively, because Chinese domestic steel mills are competing more vigorously in the high-quality products category.

A broadly favourable outlook for dry bulk imports depends on China's economic growth staying robust. Despite some fears of a 'hard landing' for the economy ahead, recent predictions are mostly encouraging, indicating only limited further slowing. Nevertheless, a more severe setback for the advanced countries than currently envisaged (possibly caused by greater eurozone problems, or surging oil prices, or both) could have adverse effects on China.

One reason for optimism is that great emphasis in China is still being placed on industrial developments which imply support for raw materials consumption and import demand. Large-scale infrastructure projects are still a key part of plans. Also, although the programme for building a vast number (36 million) of social housing units seems to have faltered, compared with the original timetable, it appears set to continue.

Richard Scott

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World grain trade

ample supplies and lower prices anticipated in 2012

Maria Cappuccio

While the second Greek bailout package put together by the International Monetary Fund (IMF), the European Union and European Central Bank rescued Greece from a looming default.

WORLD WHEAT PRODUCTION (MT)

	2008	2009	2010	2011	2012
Europe	156	144	140	142	142
EU	151	139	136	138	138
Eastern Europe	5	5	4	4	4
CIS Baltic's	116	114	81	114	113
Russia	64	62	42	56	56
Ukraine	26	22	17	22	19
N &C America	101	92	87	84	92
US	68	60	61	54	60
Canada	29	27	23	25	26
S America	21	22	27	25	23
Argentina	11	12	16	15	13
N East Asia	30	38	40	39	40
Turkey	17	19	17	19	19
F East Asia	219	227	227	235	233
China	113	115	115	118	115
Africa	21	26	22	25	22
North Africa	14	20	16	19	16
Australia	22	22	28	30	25
Total	**683**	**685**	**648**	**694**	**690**

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

Much will depend on how the unpopular austerity measures, promised by the Greek government to secure the E130bn package, will be implemented. Addressing a group meeting of the G20 finance ministers and central bank governors, managing director of the IMF Christine Lagarde concluded that while a number of measures had already been taken in the Eurozone, the decision to boost the IMF's lending capacity to $500bn combined with an equally credible properly-sized firewall at the European level, would help restore confidence and guard against further shocks. High-frequency indicators suggest an uptick in activity, mostly in the US, but the global economy remains in the danger zone; the IMF revised global growth down to 3.25% in 2012, due to the combination of recession in Europe and slower growth across much of Asia, including China.

For global crops, it is widely anticipated that the 2012 season will be a transition from the current environment of tight stocks and high prices, to large crops, ample stocks, and lower prices. The UN's Food and Agricultural Organization (FAO) expect crop prices to stabilize, easing fears of food inflation, as the season progresses in the main producing countries. And, while there is general agreement on the likely direction of production and stocks in the year ahead, a number of uncertainties remain.

Outlook for 2012 wheat crop broadly favourable

Despite dry conditions in parts of the US and Ukraine, and the severe cold-snap in early February, which affected parts of Western and Central Europe, the condition of winter wheat in the northern hemisphere is mostly reported to be good.

Plantings have increased in many countries and expected to expand to over 225m/ha, in response to strong prices; but a return to average yields is expected to occur, where record highs were achieved last year — the International Grains Council (IGC) forecast world wheat production at 690mt (million tonnes) in 2012.

North American and EU plantings to rise

In the US early indications point to a considerable increase in the area planted to wheat, higher than initially expected at 58m/acres with production forecast at 60mt in 2012. The winter wheat area is forecast up by 3% to 41.9m/acres (Hard Red Winter 30.1, Soft Red Winter 8.37 and White Winter 3.49); while, spring wheat plantings are expected to rebound from last year's levels. In Canada the bulk of the wheat is spring planted and farmers are expected to expand the area significantly.

Despite competition for land in the EU, the wheat area is expected to increase, with growers planting over 23m/ha, with the EU crop forecast at 138mt. The threat from drought in parts of Portugal and Spain — with rainfall less than 20–50% of normal levels and bitter cold weather in many areas including France, Germany and Poland, where losses are likely.

Ukraine experiences significant winter losses

Winter cereal plantings in the Russian federation, are estimated to increase by 11% (13.1m/ha) due to attractive prices and beneficial weather conditions at sowing time, with spring wheat plantings also expected to record a small increase. In the Ukraine, due to a combination of a dry autumn and higher winterkill following February's cold-snap and limited snow cover. Although some replanting with spring wheat is expected, wheat output in 2012 is forecast to fall from last year. Poor weather conditions have also affected Kazakhstan, although the bulk of the wheat crop is spring planted, but due to last year's record production, there is a shortage of elevators, storage and transportation equipment, with no plans to increase the area planted to wheat in 2012.

Northern parts of China subject to persistent dryness, although no significant change in area is expected, output may fall slightly from last year's record high, assuming a return to average yields while the Indian Rabi season rains have been much below the long-term average, reservoir levels are plentiful; record high crops are forecast, for India and Pakistan, as good price prospects encourage an increased use of inputs to boost yields.

Southern hemisphere

Wheat supplies were further bolstered by a high-quality bumper Australian wheat crop of almost 30mt with up to 75% milling grade quality.

Record output adds to ample wheat supplies

While global wheat production is on track for a record 694mt in 2011/12. Consumption is also growing at a faster than average pace hitting a new high of 684mt. Feed demand increased by 19mt to 131mt, boosted by ample supplies of lower cost wheat, with several countries, EU, China, Kazakhstan, Ukraine, Canada and the US posting increases; food/industrial use also increased by 11mt to 553mt. Even with growing consumption, world stocks are projected to rise to a record 210mt by the end of 2011/12.

As a result of strong demand for feed-quality wheat, global trade is forecast at 142mt. With export restrictions lifted, Russian shipments surged and are expected to quadruple to

WORLD WHEAT SUPPLY & DEMAND

	2007–2011/12mt				
	2007/8	2008/9	2009/10	2010/11	2011/12
Production	612	683	685	652	694
Consumption	618	643	650	654	684
Trade	116	143	134	132	138
Stock	127	167	202	200	210
China	39	46	54	60	62
Major Exporters	29	47	56	51	52

Source: USDA/FAO/IGC

21mt, Kazakhstan 9mt, while Ukraine's exports at 6mt. From 2012, while Black sea exports declined, due to severe weather conditions snarling-up port traffic in deep water and the shallow water ports in the Azov Sea, US grain became more competitive. Spain bought a 30,000t cargo of US soft red winter wheat from Louis Dreyfus c. $286/t C&F (February 22). Prompt feed wheat in leading grains port Tarragona was quoted flat 221–223 EUR/t ($287.55/t – February 22). Recently, Black sea exporters are rumoured to be offer wheat from the 2012 harvest at $255/t, some $20 below the nearby market. Futures prices for wheat fell in March, as weather turned more helpful to farmers, with dry areas shrinking in the south, and improving weather conditions in the northern US Plains following months of dryness; slower economic growth in China, contributing to the bearish tone — wheat for May was down at $6.38.6 (9 March 2012-07:42 CST).

Record corn and barley sowings in 2012

With coarse grain plantings under way in the northern hemisphere, the global corn area is forecast to increase to a record 167m/ha. World barley sowings are set to increase by 8% from last year's low level, with the spring barley area in particular to expand after a very harsh season for winter crops.

USDA forecast US farmers will sow crops on a record 254m/acres this year reflecting a drop in land for conservation projects and a scramble by farmers to cash in on higher prices; expected returns for corn and soyabeans are against historically high, reflecting strong new-crop futures and cash forward prices. Corn acreage to rise to a record 94m/acres (Informa forecast 95m/acres), amid favourable conditions with yields expected to rebound to 164bu/acre (well above trend), implying a huge crop of some 356mt; while corn use is expected to increase by 19mt, USDA forecast a decline of over 1mt in corn use for ethanol in 2012/13 offset by higher corn exports.

In contrast the Food and Agricultural Policy Research Institute (FAPRI) forecast corn use for ethanol to increase by 3mt, and do not expect to see a drop in corn use for ethanol, for several years. FAPRI also forecast lower corn yields (161bu/acre), resulting in a lower stocks-to-use-ratio of 10%, tighter than the 12% foreseen by USDA.

China's corn imports a hot topic

A dry autumn and drier-than-normal winter in China's key growing corn areas left soil moisture levels low, making timely rains around planting more important than normal for the region. FC Stone's senior risk manager, Mike O'Dea, said that China's corn crop was unlikely to reach 187mt this year, well below last year and not enough to satisfy growing feed demand, implying imports may need to rise significantly above the 4mt forecast in the current season and in 2012/13; Chinese officials

WORLD COARSE GRAIN SUPPLY & DEMAND

2006-2010/11mt

	2007/8	2008/9	2009/10	2010/11	2011/12
Production	1,081	1,111	1,116	1,099	1,144
Consumption	1,058	1,081	1,115	1,129	1,152
Trade	129	111	119	116	121
Stocks	164	194	195	166	158
China	40	52	52	54	59
Major Exporters	62	74	79	52	40

Source: USDA

fiercely deny purchases are necessary, claiming the corn harvest will be large, and that feed mills can switch to wheat or to other feed by-products including distillers Dried Grains and Solubles (DDGS) to replace corn in the rations. Investors remain sceptical-noting that China's corn crop may be overstated by as much as 14%, pointing to future corn imports that could squeeze already tight global supplies of corn.

Higher prices and robust demand drive coarse grain output

Global coarse grain production rose to a record level of 1,144mt. Growing feed industrial and ethanol use has driven demand to a record 1,152mt, outstripping production by 8mt. Feed use is forecast up by over 17mt, to 665mt, mainly due to increased use in China and recovery in the CIS countries, while food/industrial growth is forecast to increase by 6mt to 487mt. Amid solid buying by a number of importers in Asia (principally China), Middle East and North Africa, world trade is forecast to rise to a four-year high of 121mt. With demand outpacing supply, stocks have been drawn-down to 158mt, the lowest level for five years.

Global corn production is forecast at 864mt in 2011/12, 37mt more than last season. Bumper crops in several countries including China 192mt, Ukraine 23mt, Brazil 62mt (helped by planting a second corn crop in response to dry weather), the EU 65mt are likely to compensate for a smaller US crop 314mt, and the drought-reduced Argentine crop 22mt. Improved supplies in some countries are boosting consumption, with overall use forecast at a record high of 868mt. Feed use of corn is expected to increase especially in EU, Ukraine, Russia, Brazil, Mexico and China.

Feed use in 2012 driven by strong demand in pig and poultry sectors

China's pig production is set to recover to almost 52mt in response to strong demand for pork, sharply higher prices and recent government incentives; while swine inventories are less likely to fully recover in 2012 — small-scale operations not helped by higher feed costs and swine disease threats-large-scale operations land constraints prevent expansion. Despite the devastating foot and mouth disease (FMD) outbreak that slashed South Korean production by 25%, and even with higher compound feed prices, record swine and pork prices have encouraged producers to quickly rebuild, with production forecast at 1mt, but unlikely to reach pre FMD levels due to new environmental regulations. Russian production is also up to 2mt supported by government investment, positive producer

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gains (breeding herd expansion), in the face of lower feed prices, less competition (sharp reduction in the import quota). Global pork production is forecast 2% higher to a record 103mt. Poultry, growth will be slower than the previous two years given the rising cost of feed and a slowdown in US output, with global production forecast at 83mt up by 3%, driven by strong domestic demand in China and Brazil.

Global beef production has declined and is forecast at 57mt — a significant cut in US production offset by gains for India, Brazil and Argentina, while the EU and China will remain relatively stagnant; the sector is characterized by strong demand from Russia, Southeast Asia, the Middle East, North Africa and tight supplies. Beef exports from Australia, Brazil and India are forecast to rise 5% in 2012 to over 8mt — India's price competitive beef shipments to emerging markets forecast to overtake the US, for the first time.

Ethanol outlook slowing but future secure

The USDA, forecast an increase in demand for corn used by the paper and construction industries with high fructose corn syrup (HFCS) to stabilize — but expects corn use for ethanol to fall by over 1mt to 126mt (producing 13.8Bn gallons of ethanol and 39mt of feed products) in 2012/13, due to slower US economic growth (lower gasoline consumption and less E10 biofuel), and to smaller exports to Brazil, whose production of cane-based biofuels is expected to recover.

While some significant changes in US ethanol policy at the beginning of 2012, VEETC blending credit and tax on imports have been removed — London-based EIC Consult forecast US ethanol production to increase in 2012, with greater amounts for export. Last year, US ethanol exports tripled to 1.1bn gallons (worth around $2.5Bn) with 33% destined for Brazil — the remainder to other countries. The EIC view that ethanol production and exports, will increase is shared by the Renewable Fuels Association (RFA). According to the RFA, the US ethanol industry has for some time focused on widening the appeal of blends like E15 and other advanced biofuels, that increase the proportion of bio-fuel to every gallon of gasoline, with ethanol production likely to increase as more vehicles with the capacity to utilize higher blend biofuels come onto the market. A more efficient transport sector is a fundamental aspect of US ambitions to move towards a lower emissions economy, securing a long-term demand for ethanol. According to Pike Research, future production of biologically based fuels, such as ethanol and biodiesel are likely to increase in value from $82.7Bn in 2011 to $185.3Bn by 2021, with the US followed by Brazil accounting for 71% of total global biofuels production for most of the period 2012-2021.

Corn exports at a four year high

Global corn trade is forecast to rise to a four-year high at 96mt, up 5mt on last year lifted by solid demand by a number of importers including, Japan 16mt, China 4mt and Mexico 10mt, where imports are forecast to rise. Despite recent higher prices, South Korean feed grain companies returned to the US corn market, buying over 323,000/t — post-FMD Korean imports are expected to rebound in 2012. US corn exports are forecast at 44mt, with Ukraine's to almost triple to 14mt as loadings take priority over wheat and barley (both lowered). Argentine exports have been cut to 14mt reflecting smaller supplies and Brazil 9mt. Global corn stocks are expected to fall to 125mt, with US stocks down to 20mt-stocks-to-use-ratio of 6.5%. Average export prices for Corn (yc3) FOB $279/t (March 8). Futures prices reflected active interest in old crop supplies and sharply reduced competition from the Argentine's new crop supplies US Corn 6.37.4/bu (9 March 2012 — 07:42 CST).

Improved yields and Russian crop recovery boost barley output

Even with a lower planted area, improved yields and recovery in Russia's-17mt crop, lifted barley output to 134mt, despite a smaller EU crop. Trade is also forecast up by 2mt to 17mt. Global consumption rose to 136mt, due to increased demand for feed barley, notably in Russia, Saudi Arabia, while in Australia increased use has been tempered by a switch to wheat as international prices for barley and sorghum have risen. Stocks are forecast lower at 22mt with export prices remaining firm — EU (France) Barley FOB Rouen $275/t (March 8).

Global sorghum output due to smaller US crop

Global sorghum production is forecast at 60mt down 7mt in 2011/12. Mainly due to a much smaller crop of 5.4mt in the US and to smaller crops in Ethiopia, Mexico, Nigeria, India and Sudan, and lower consumption. Prices for sorghum have tracked corn-Sorghum FOB Nola at $281.48/t (March 9). Australia is a major supplier of sorghum to East Asian countries, including Japan and South Korea.

US soyabean acreage to increase in 2012

US farmers are expected to increase the planted acreage for soya to 75m/acres in 2012; based on yields of 43.9bu/acre, implies a soyabean crop of 3.25Bn/bu (90mt). Falling global soyabean output and rising prices-triggered by poor crop prospects in South America, reduced global stocks-much tighter-than-envisaged by the end of 2011/12.

Significant downgrade to South America soyabean harvest

USDA estimates global oilseed output to fall in 2011 to 446mt mainly due to poor weather in South America cutting output; soyabean production is forecast lower at 245mt. Larger crops of groundnut 35mt, cottonseed 47mt, palm kernel 13mt and sunflowerseed 39mt, only partly offsetting the decline in soya. Global exports of oilseeds similar at 108mt — larger exports of Rapeseed 11.5mt and Sunflowerseed 2.5mt, lower exports of soyabeans 91mt, cutting global stocks to 68mt.

World — major Oilseed Production

Last year many US farmers prompted by high corn prices,

WORLD MAJOR OILSEED PRODUCTION

2007–2011/12 mt

	2007/8	2008/9	2009/10	2010/11	2011/12
Production	390	396	444	455	446
Soyabean	220	212	261	264	245
Trade	92	94	108	109	108
Crush	339	339	358	376	388
Use: Meal	232	229	244	256	264
Use: Oil	129	134	141	147	153
Stocks	61	56	72	80	68
Soyabean	52	43	60	69	57
US	6	4	4	6	7
South America	41	29	38	45	35

Source: USDA/Meal use includes fishmeal appx.5m/t.

OILSEEDS AND MEAL SUPPLY/DEMAND 2011/12 (MT)

	Oilseeds				Meal		
Oilseeds	Prod	Trade	Crush	Stocks	Prod	Trade	Use
Soyabeans	245	91	225	57	178	60	176
Sunseed	39	3	34	3	15	5	14
Rapeseed	60	12	59	5	35	5	35
Copra	6	*	6	*	2	1	2
Palmkernel	13	*	13	*	7	5	6
Peanuts	35	3	16	1	6	*	6
Cottonseed	47	1	35	1	15	*	16
Total	**446**	**108**	**388**	**68**	**264**	**80**	**261**

*Source: USDA — *less than 200,000/t. Oilmeals totals include fishmeal approx.5mt*

planted corn, soyabean sowings fell to their lowest level in more than a decade, with production forecast down to 83mt. Additionally, poor crop prospects in South America-Oil World downgraded its forecasts for Argentina, Paraguay and southern Brazil-where significant drought increased losses to 25%, and unlikely to be offset by better yields in some areas of the centre-west and north-east regions of Brazil. The *La Niña* weather pattern, blamed for dryness in southern Brazil, is also seen as responsible for heavier-than-normal rains in central areas of Goias and Mato Grosso, boosting yields, but requiring greater input of fungicide to guard against Asian Rust.

Meanwhile drenching rains in many areas in Argentina have helped the crop to stabilize, while several analysts have downgraded their forecasts for South American output. Informa, surprised many investors at the beginning of March, by cutting the estimate for Brazil to 68mt (at the low-end of the range), Paraguay 4mt with Argentina 47.5mt; USDA's recent estimate for soyabean production has been revised down to 245mt.

China's soyabean imports to hit 59mt in 2012/13

The drop in soya production, fast pace of exports (October–December) and higher crush has reduced supply from the previous year. Global soyabean trade is lowered to 91mt as the pace of imports in major buying countries is slower than anticipated, while forecast exports by Brazil and Paraguay are further reduced due to deteriorating crop prospects. China's recent purchases from the US (3.3mt and 285,000/t), are proving particularly strong in 2012 due to disappointing South American crops. China's imports expected to increase to 55mt in 2011/12 and to 59mt in 2012/13-well over half of world trade. In

SOYABEANS MAJOR PRODUCERS

2007–2010/11mt

	2007/8	2008/9	2009/10	2010/11	2011/12
US	73	81	91	91	83
Brazil	61	58	69	76	68
Argentina	46	32	55	49	47
China	13	16	15	15	14
India	9	9	10	10	11
Paraguay	7	4	7	8	5
Others	11	13	14	16	17
Total	221	212	261	264	245

Source: USDA

contrast, minimal increases are anticipated in soyabean demand in the EU-27, Japan, and South Korea. US soyabean prices have risen sharply, especially since mid-January, coinciding with a near 12 mt drop in South American production over the past two months — with average export bids for soyabeans $518/t (March 8), the strength in prices attributed to shrinking crops and shipping delays (port strikes in Argentina and reported delays for up to 150 ships).

Global oilseed crush is expected to rise by almost 12mt to 388mt, with China and Russia accounting for two-thirds of the increase. Larger crops of sunflowerseed and cottonseed boosted crushings up by 5mt and 3mt respectively; soya crush is expected to rise by 4mt to 225mt. Demand for global oil meal is forecast to rise to 261mt by the end of 2011/12, 10mt up on last year. China's consumption of oil meals is increasing driven by growth in the rapidly maturing animal husbandry and feed industries (including aquaculture), expansion in crush capacity and growing consumption of vegetable oils. For crush levels to continue at the same rate, would make a sizeable dent in global stocks-while renewed competition for land, between grains and soyabeans in 2012/13, adds further uncertainty.

SOYABEANS & SOYABEAN MEAL

Major importers 2009–2011/12mt

Importers	09/10	10/11	11/12	09/10	10/11	11/12
	Oilseeds			Meal		
EU	13	13	12	21	23	22
Asia	60	69	68	14	15	16
China	50	52	56	—	—	—
L. America	—	1	1	5	4	6
N. America	4	4	4	1	2	3
Mexico	4	4	4	1	1	2
Mid East/Africa	4	6	5	6	7	7
Others	5	3	3	8	7	4
Total	93	92	91	56	58	60

Source: USDA

Chinese oil meal consumption driven by rising feed demand

Larger imports of soya were prompted by a smaller Chinese domestic crop, dwindling stocks and growing consumption of oil meals forecast to rise by 4mt to 67mt, in response to growing pig herd expansion and booming demand for pork, poultry and aquaculture products.

Chinese officials revealed that domestic crushers' appetite for soyabeans was suppressed for much of last year by negative processing margins that are now operating at a profit, with planned expansions to capacity. Imports of rapeseed meal to China are expected to come from Canada, following the Chinese ban on Indian rapeseed meal from 1 January, due to the detection of hazardous chemicals.

Strong demand for soyabeans, shrinking supplies and news that China's inflation had fallen, drove soyabean futures to their highest level since September ($13.55) before settling lower at $13.51 (March 9th, 2012 – 07:13 CST). DCi

Turnkey solutions from Scanjet Group

Scanjet, major Swedish provider of tank cleaning machines, has announced the acquisition and subsequent merger with Ariston cargo and ballast control systems, now renamed Scanjet Ariston.

"Joining the group means the Scanjet Ariston Multipurpose Monitoring & Control System, already installed on over 550 projects worldwide, is now available to Scanjet's customer base of 3,500 installations," said Stavrin Bosnov, sales director of Scanjet Ariston. "We are delighted to have joined a leading global sales team".

Magnus Wallin, group CEO and architect of Scanjet's rapid growth in recent years, said: "The Ariston team, products and expertise complete the Scanjet ability to offer customers turnkey solutions from our global network of offices and service partners. When combined with our Scanjet Macron products already used on over 400 installations, the Scanjet range gives our group the class-leading global capability for cargo and ballast monitoring combined with integrated tank cleaning."

Richard Boughton, Chairman of Scanjet Systems and Scanjet Ariston added: " "We are very excited to build on the success of Scanjet Ariston 'Surveyor' as the tank monitoring control system platform already applied worldwide to the marine market as well as to land-based oil storage tank farms and terminals.

The Scanjet Group product portfolio to the marine and industrial market now comprises:

- fixed and portable tank cleaning machines(turbine, air or hydraulic-driven);
- cargo tank level monitoring (radar or electric pressure sensors) with VRC & pump control;
- ballast tank monitoring (air purge type or electric pressure sensors);
- overfill alarms (floats or acoustic);
- water ingress monitoring systems;
- automatic oil-water interface detection system for oil/product tanks;
- vapour emission control systems; and
- MPS anti-piracy systems (passive non-lethal).

Proven 15-year tank protection… Intershield®300 leads the way

Intershield®300 continues to prove its outstanding durability in service, remaining in excellent condition after 15 years in the cargo oil tanks of the *Samco Raven*.

The 301,653dwt crude oil tanker had the upper and lower areas of her cargo oil tanks coated with the abrasion resistant, aluminium pure epoxy coating Intershield®300 immediately after delivery in June 1996. At her third special survey and planned maintenance at Yiu Lian Dockyard (Shekou), China in 2011, nine of her 15 cargo oil tanks were assessed and the coating condition was rated as excellent throughout.

In addition, very little breakdown was observed on edges, weld seams, cut-outs and scallops throughout the tanks with only a small number of minor, isolated spots of corrosion present. No breakdown was visible directly above, at or below the cargo load lines and the coating was in excellent condition in areas surrounding bellmouths and on sharp edges around cargo wells.

François Rascle, Superintendent, V. Ships France SAS, who supervised the drydocking, said, "After 15 years in service the coating is in very good condition…in fact, better than good. The tanktops are in excellent condition with very few areas of breakdown".

International Paint Business Development Manager, Andrew Cass said, "The condition of the cargo oil tanks was astonishing after 15 years in service. With the IMO PSPC for Cargo Oil Tanks being introduced in 2013, this outstanding performance can give vessel owners confidence that when they select Intershield®300 as the anticorrosive protection system for their cargo oil tanks, they are investing in a coating that is proven to meet and exceed legislative requirements. With only minimal repairs, the coating is set to continue protecting the cargo oil tanks for many years to come."

In January 2012, Intershield®300 passed the very demanding IMO PSPC Cargo Oil Tank laboratory tests in accordance with IMO MSC.288 (87) SOLAS regulations for cargo oil tankers. In 2008 the product was awarded the first Lloyd's Register IMO PSPC Type Approval Certificate for sea water ballast tanks.

The *Samco Raven* is the first vessel in service to demonstrate Intershield®300's proven anticorrosive performance over 15 years in cargo oil tanks. This follows the first 15 year sea water ballast tank inspection at special survey of the Panamax bulk carrier *Eleranta* in 2010, when a Lloyd's Register surveyor confirmed Intershield®300 in the double bottom tanks to be in "good" condition.

The Intershield®300 track record now stands at over 12,000 vessels worldwide.

Inchcape Shipping Services expands into Thailand and Venezuela

Inchcape Shipping Services (ISS), a major maritime services provider, will open a new office in Bangkok on 1 March. The opening of the ISS Thailand office, with newly recruited management and staff, follows the ending of a franchise agreement between ISS and ISS Thoresen Agencies.

The new team is drawn from large international shipping agencies and their experience encompasses all vessel and cargo types in all major Thai ports. They will be led by general manager, Thaveesak Chowchankit, who joins ISS from the Bangkok Shipowners & Agents Association. The operations manager is Captain Sunchai Sanguanpao, who since coming ashore in 1997, had worked for ISS Thoresen for over a decade.

Tony Brazenor, regional operations manager of ISS Asia Pacific, said: "Following a period in which we have relied exclusively on partnership and franchise arrangements in Thailand, the opening of a well-staffed Bangkok office marks a real commitment to shipowners using Thai ports."

ISS is also set to capitalize on local and global customer demand for services in Venezuela with the opening of its first office in the country. The new office is part of ISS's South America expansion strategy which will see it open more offices in Venezuela and other parts of the subcontinent.

ISS, which has worked in Venezuela for many years through qualified sub-agents, has opened the office in Puerto La Cruz to meet the country's growing demand for shipping services, particularly in the tanker, offshore and liner sectors. The office will also enable ISS to take advantage of the growth in cruise business in the country.

Juan Carlos Trujillo of ISS Venezuela, said: "The Venezuelan economy is steadily expanding and we are now well-positioned to service the needs of shipowners and operators using her ports.

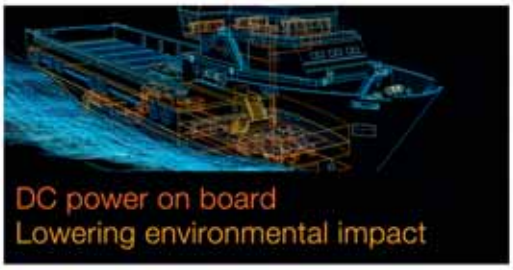
"The new office enables us to capitalize on market opportunities and also enhance the service to existing customers. In seeking to become the largest proprietary agency network on the subcontinent, this will be the first of a number of new offices in the Venezuela and across South America."

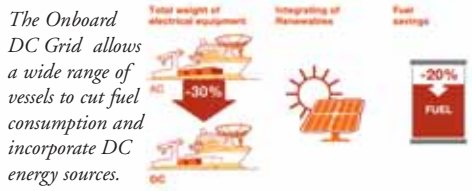
Inchcape Shipping Services is a renowned maritime services provider. With over 270 proprietary offices in 67 countries, and a workforce of over 3,500, the company's diverse global customer base now includes owners and charterers in the oil, cruise, container and bulk commodity sectors as well as naval, government and inter-governmental organizations.

ISS provides landside commercial and humanitarian logistics, transit, offshore support, informational and other associated marine services. The company also provides a growing range of outsourcing services including global crew and marine spares logistics; port hub agency management; and sophisticated Enterprise Resource Planning solutions through its subsidiary ShipNet.

Breakthrough order for DC technology

Major power and automation technology group ABB, has won an order from ship owner Myklebusthaug Management to supply the first ever direct current (DC) power grid on board a ship. The equipment will allow a new offshore platform support vessel, under construction in Norway, to operate at the highest energy efficiency level to minimize emissions.





The Onboard DC Grid allows a wide range of vessels to cut fuel consumption and incorporate DC energy sources.

In traditional electrical propulsion vessels, multiple DC connections are made to thrusters and propulsion drives from an alternating current (AC) circuit, accounting for more than 80% of electrical power consumption. ABB's Onboard DC Grid represents a step forward in optimized propulsion by distributing power through a single DC circuit providing significant power savings.

Launched in May 2011, ABB's Onboard DC Grid is part of a revival of power solutions using DC, and will provide highly efficient power distribution and electric propulsion for a wide range of vessels. It is designed for ships with low-voltage onboard circuits, such as offshore support vessels, tug boats, ferries and yachts, and can reduce fuel consumption and emissions by up to 20%.

"With this solution, the vessel will be ready to maximize opportunities in energy savings with supplementary DC energy sources, such as solar panels, fuel cells, or batteries connected directly to the ship's Onboard DC Grid," said Veli-Matti Reinikkala, head of ABB's Process Automation division. "The Onboard DC Grid will help the vessel operate from the very first day at the highest levels of fuel efficiency with low emissions."

ABB will provide its full onboard DC system, including all power, propulsion and automation systems for the 93m-long, 5,000-tonne multi-purpose oil field supply and construction vessel, which is scheduled for delivery in the first quarter of 2013.

A key advantage of ABB's Onboard DC Grid is that the ship's engines no longer have to run at a fixed speed, so the engine's speed can be adjusted to optimize fuel consumption. By eliminating the need for bulky transformers and switchboards, the footprint and weight of the electrical system can be reduced by up to 30%, leaving more space on the vessels for passengers or cargo while also providing greater flexibility in the positioning of system components in the vessel.

Lomar announces order for up to six bulkers

Lomar Corporation, a subsidiary of the Libra Group, has signed an order with COSCO Group in China for up to six Ultramax bulk carriers. Scheduled for delivery starting from early 2014, the *Dolphin* 64,000dwt vessels have been designed by leading Chinese design institute SDARI (Shanghai Merchant Ship Design and Research Institute) and meet the highest standards for fuel efficiency and environmental compliance, including the latest IACS Common Structural Rules (CSR). The investment restates Lomar's dedication to the dry bulk sector with renewals and additions to the fleet which can carry a wide range of bulk cargoes and benefit from the latest eco-friendly, fuel-efficient designs.

The order takes Lomar's current fleet to over 40 vessels. The new Ultramax bulk carriers have been designed to carry up to 11% more cargo than conventional Supramaxes whilst consuming around 13% less fuel.

Lomar already has a longstanding relationship with COSCO Group for ship repair and dry docking works and looks forward to working with the group on newbuildings. Between 2004 and 2007 Lomar sold 69 vessels, re-entering the market in 2009 with the US$325m acquisition of Allocean and its entire fleet of 26 ships.

"These new vessels are the latest in design and efficiency," said Achim Boehme, CEO of Lomar. "They complement our existing bulk carrier portfolio and allow us to stay competitive in the dry bulk markets. Our substantial investment demonstrates real commitment to operating a modern, fuel-efficient fleet."

Investigation after ships collide in Belfast Lough

A passenger ferry and the cargo vessel *Union Moon* have collided in Belfast Lough, a large, natural intertidal sea lough (loch) at the mouth of the River Lagan on the east coast of Northern Ireland.

The collision took place on 7 March, close to the Fairway buoy about a mile and a half from shore between Carrickfergus and Helen's Bay. No one was injured. The ferry was on its way from Birkenhead, Merseyside, to Belfast when the collision happened.

The Coxswain of Donaghadee Lifeboat, Philip McNamara, said the *Union Moon* was badly damaged. "A large section of her bow was missing and we just stood beside her with a salvage pump ready to go aboard if required," he said.

"It was just — get the lifeboat up as quickly as possible, have the salvage pump ready and prepare to evacuate anybody that had to come off. We were concentrating on how to deal with the situation."

The passenger ferry later docked at the Stena terminal. The *Union Moon* was brought back to Belfast.

It has emerged that the captain of the *Union Moon* was over the alcohol limit while being in charge of his ship.

The Union Moon *in happier times, prior to its involvement in the collision.*

Miroslaw Pozniak, 55, from Poland appeared in court in Bangor on 9 March. He was charged with excess alcohol by the master of a ship. Through his lawyer, Pozniak pleaded guilty to the charge and was remanded in custody.

Pozniak appeared in court wearing his captain's uniform and confirmed through an interpreter that he understood the offences. The court heard that his captain's record was clear and that he had been fully cooperative with the police during questioning.

His ship has been impounded and its cargo will be taken off.

The Maritime and Coastguard Agency, the Marine Accident Investigation Branch and the police are all investigating.

PRS recognized as classification society for inland vessels

On 2 February 2012, the European Commission issued a Commission Implementing Decision 2012/66/EU on the recognition of the Polski Rejestr Statków S.A. as a classification society for inland waterway vessels, stating the Society's conformity with criteria given in Directive 2006/87/EC. PRS may thus operate as a recognized organization for floating units throughout the Community inland waterway network.

This Commission Decision was addressed to the Member States that have inland waterways.

Recognition means that PRS performed technical inspections and documents issued provide grounds for state administrations to recognize the compliance of the vessel with the requirements of Directive 2006/87/EC and to issue Community inland navigation and admeasurements certificates.

UK Club debuts innovative scheme at Shipping Hong Kong Week

Marine mutuals like the UK P&I Club are committed to reducing the number and size of insurance claims they receive. After all, in the P&I world, members own their respective clubs and through pool arrangements within individual clubs, they in effect pay their own claims. The lower the level of claims, the higher the probability that the cost of insuring through the club will reduce

After much study and only after in-depth trials with certain shipowners, the UK P&I Club is now launching an innovative risk management scheme utilizing a 'BowTie' approach to identifying areas of risk and minimizing the occurrence of incidents.

The initial public announcement was made in London in front of members of the UK trade press and was presented publicly for the first time in Asia during the Shipping Hong Kong Week (27 February – 2 March 2012). At the Business of Shipping conference on 1 March, the UK Club's Loss Prevention Director, Karl Lumbers, explained the concept in detail and was available afterwards to answer any questions the audience asks.

He explains: "Working with those members who wish to identify the various threats to the smooth (claim-free) running of their vessels, we conduct reviews on those areas which may cause claims. Thomas Miller P&I Ltd, the manager of the UK Club, has access to an incomparable amount of claims data resulting from extensive analysis of previous incidents over a period of 23 years and it is this that has enabled the Club to identify 'threats', 'consequences' and 'controls', the foundations of developing BowTie reports on individual vessels."

Management and technical developments at Massoel

Massoel, the Swiss based owner and operator of 14 bulk carriers, has appointed a new CEO and made a number of changes to its management and operational team.

The Giorgio P Sulser-headed company has appointed Lionel Fluckiger as the new CEO as from 1 March, following the departure of Michael Deslarzes at the end of 2011. " We have looked at a number of candidates over the past two months and are now delighted to make the appointment from within our team" says Sulser.

Lionel Fluckiger was appointed CFO of Massoel in January 2010 and retains this role within the group. He holds a bachelor's degree in Accounting and Finance from the University of Geneva and a masters in Finance from the University of Southern Queensland, Australia.

Philip Lord has been appointed as General Manager, Commercial, Operations and Insurance, again working out of the Group's Geneva office.

Stewart Hayes moves up to the position of Fleet Manager, working under General Manager, Trevor Shaw, at Massoel (UK) Limited, based in Liverpool, which provides technical ship management services to the group's fleet of bulkers, ranging in size from 7,400dwt to 50,500 dwt.

Massoel Group Chairman, Giorgio Sulser says he is also particularly pleased to be able to welcome Lock Parker to the board of directors at Massoel (UK) Limited. "Lock Parker worked with me at Acomarit as Chief Technical Officer and more recently has been Technical Director of V.Ships. Lock brings a wealth of experience to Massoel and will play an important role in assisting in the coordination of various added value projects we are running with V.Ships in the areas of planned maintenance and advanced management systems."

Lionel Fluckiger comments, " Having worked with the Massoel Group for the past two years, I fully understand the potential we have and am delighted to take up this new challenge. We have an excellent fleet of the right size in a difficult market and happily a good percentage of our vessels on charter with quality partners. These new developments at Massoel are the right ones to take us through to the next stage of development"

ABS Group announces acquisition of Genesis Solutions

In February, the ABS Group of Companies, Inc. announced its acquisition of maintenance and asset management solutions provider Genesis Solutions, headquartered in Ridgefield, Connecticut. Says ABS Group CEO, Tony Nassif, "The acquisition of Genesis Solutions will enable ABS Consulting to immediately expand our capabilities to deliver full-service EAM [Enterprise Asset Management] solutions to our extensive customer base in the maritime, oil and gas, nuclear, renewable and government market sectors."

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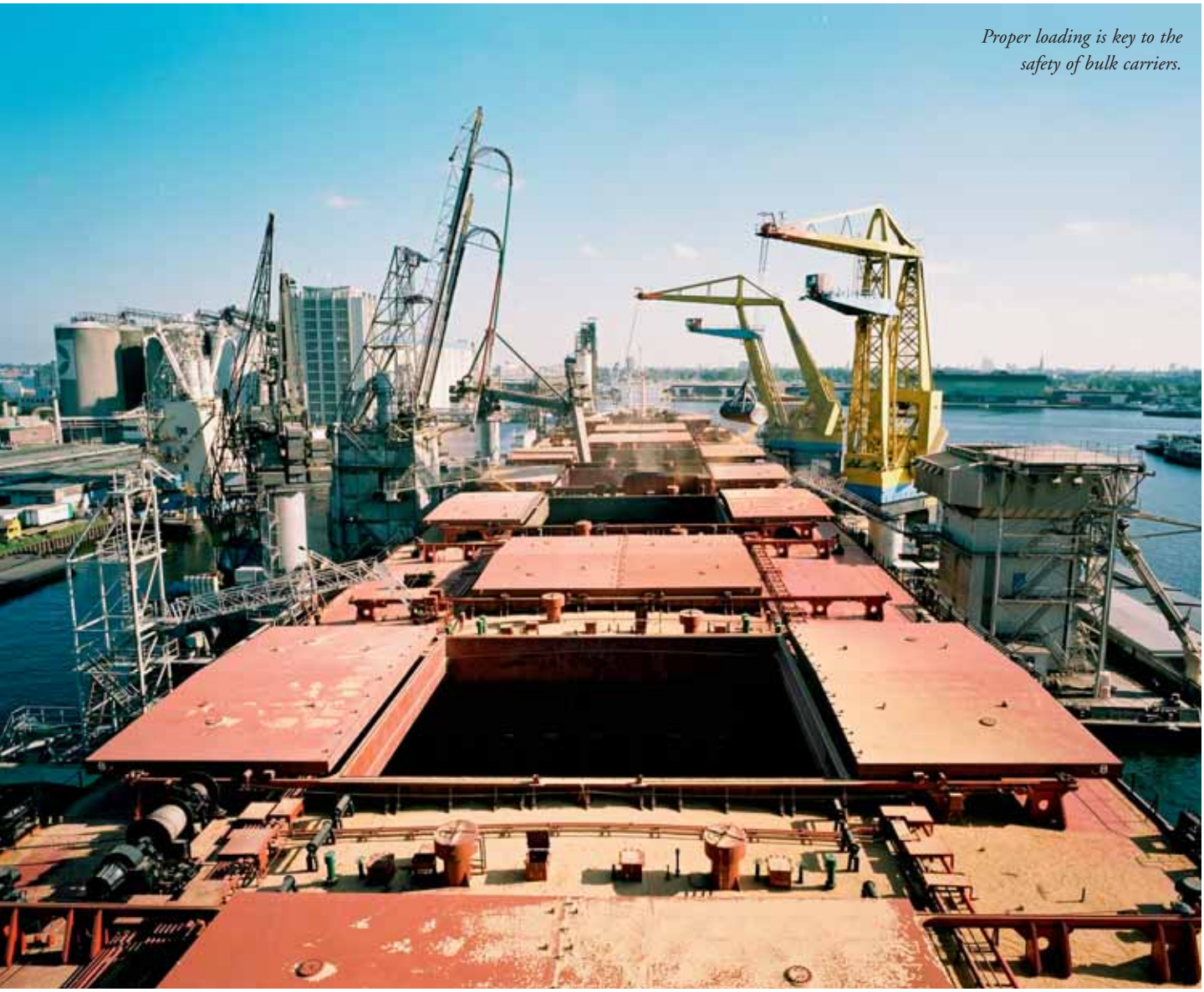

Proper loading is key to the safety of bulk carriers.

A number of shipping associations have now issued support for Intercargo's battle to prevent the unsafe loading of nickel ore in Indonesia, a trade that is responsible for more deaths over the last two years than piracy, despite constituting only a miniscule proportion of global trade.

Try running a Google News search for 'pirates'; the results run into the millions with much of the information generated by shipping organizations citing 'seafarer welfare' as their common cause. Attempting to find anything about the ongoing loss of life on bulk carriers because of poor loading is altogether more difficult. But based on lives lost rather than business disruption caused, it can be argued that the results should be reversed.

According to figures from watchdog the International Maritime Bureau a total of eight seafarers were killed in 2011 by pirates, the same number as in 2010. However one very low volume trade — the export of nickel ore from Indonesia — cost the lives of 22 seafarers last year, almost two thirds of all those lost at sea on the bulk carrier fleet of over 8,000 vessels in 2011.

The tally of dead on the nickel ore export trade from Indonesia in 2010 was a staggering 44 seafarers!

The most recent tragedy was the loss of the Vietnam-flagged *Vinalines Queen*. The 2005-built Supramax bulk carrier was carrying 54,400 tonnes of nickel ore from Morowali port in Sulawesi to Ningde port in China but was reported missing on 25 December. The vessel is understood to have developed an 18° list North East of Luzon Island in the Philippines. Only one of the 23 seafarers onboard escaped with his life.

Liquefaction of the cargo — a chemical process which can turn some granular commodities loaded with an overly high moisture content into sludge that can destabilize a vessel (see box on p21) — is thought to be the cause of the casualty.

Liquefaction of nickel ore was also blamed for three casualties in 2010. The *Jian Fu Star* sank on 27 October 2010 with the loss of 13 lives. The *Nasco Diamond* suffered 21 fatalities on 10 November of the same year, while the *Hong Wei* went down on 3 December 2010 and 10 crew perished. Like the *Vinalines Queen*, all three vessels had loaded nickel ore in Indonesia and were bound for China where nickel is mostly use in steel production.

CASUALTIES OF 2011

***Oliva* – Panamax bulk carrier**

IMO No	9413705
Date of Casualty	16 March 2011
Deadweight	75208
Built	2009
Flag	Malta
Class	American Bureau of Shipping
Location of incident	Tristan Da Cunha
Loss of life	Nil
Perceived loss category	Grounding

***Costis* – Handysize bulk carrier**

IMO No	8316314
Date of Casualty	22 March 2011
Deadweight	29112
Built	1984
Flag	Panama
Class	NKK
Location of incident	70 nautical miles off Taiwan
Loss of life	Nil
Perceived loss category	Structural

***Haina Golden* — Panamax bulk carrier**

IMO No	7916519
Date of Casualty	25 March 2011
Deadweight	80170
Built	1980
Flag	Panama
Class	Unknown
Location of incident	Kandla Port Channel, India
Loss of life	Nil
Perceived loss category	Grounding

Comments: Heavy grounding resulted in total loss. Vessel subsequently scrapped.

***Mirach* — Handysize bulk carrier**

IMO No	8116881
Date of Casualty	1 April 2011
Deadweight	27192
Built	1982
Flag	Panama
Class	Bulgarian Register
Location of incident	Kanyakumar, India
Loss of life	Nil
Perceived loss category	Grounding

***Ioanna G* — Handysize bulk carrier**

IMO No	7808413
Date of Casualty	April 2011
Deadweight	16408
Built	1979
Flag	Panama
Class	Polish Register
Location of incident	Kumkale, Turkey
Loss of life	Nil
Perceived loss category	Grounding

***Sunny Partner* — Capesize bulk carrier**

IMO No	8409800
Date of Casualty	26 June 2011
Deadweight	152329
Built	1987
Flag	Panama
Class	Lloyd's Register
Location of incident	Indonesia
Loss of life	Nil
Perceived loss category	Grounding

***Rainbow* — Handysize bulk carrier**

IMO No	8106020
Date of Casualty	18 July 2011
Deadweight	33109
Built	1982
Flag	Belize
Class	Bureau Veritas
Location of incident	Off Taipei, Taiwan
Loss of life	Nil
Perceived loss category	Collision

***B Oceania* — Panamax bulk carrier**

IMO No	8806515
Date of Casualty	29 July 2011
Deadweight	70424
Built	1990
Flag	Malta
Class	RINA
Location of incident	Off Singapore
Loss of life	Nil
Perceived loss category	Collision

***Rak Carrier* — Panamax bulk carrier**

IMO No	8106745
Date of Casualty	4 August 2011
Deadweight	63695
Built	1984
Flag	Panama
Class	Lloyd's Register
Location of incident	Off India
Loss of life	Nil
Perceived loss category	Unknown

***Angel 1* — Handysize bulk carrier**

IMO No	8112964
Date of Casualty	8 August 2011
Deadweight	34942
Built	1984
Flag	Panama
Class	Bureau Veritas
Location of incident	Off Mauritius
Loss of life	Nil
Perceived loss category	Grounding

***Jui Hsing* — Handysize bulk carrier**

IMO No	7400041
Date of Casualty	3 October 2011
Deadweight	18955
Built	1974
Flag	Panama
Class	Panama Maritime Documentation Services
Location of incident	Off Taiwan
Loss of life	10
Perceived loss category	Grounding

***Bright Ruby* — Handysize bulk carrier**

IMO No	8604474
Date of Casualty	21 November 2011
Deadweight	26589
Built	1987
Flag	Republic of Korea
Class	NKK
Location of incident	Off Vietnam
Loss of life	7
Perceived loss category	Unknown

***Vinalines Queen* — Handymax bulk carrier**

IMO No	9290907
Date of Casualty	25 December 2011
Deadweight	56040
Built	2005
Flag	Vietnam
Class	NKK
Location of incident	Off Luzon, Philippines
Loss of life	22
Perceived loss category	Cargo

Comments: Contact was lost on 25 December, following a report of an 18° list in heavy weather, on voyage from Morowali to China, carrying nickel ore.

Since the start of 2011 it has been compulsory for the loading of bulk cargoes to be performed in accordance with the dictates of the International Maritime Safety Bulk Cargo (IMSBC) Code. Although shipowners and charterers must take certain steps to ensure the safety of crew and vessel via inspections of the cargo pre-loading, legal enforcement of the IMSBC Code is the responsibility of the local 'Competent Authority' (CA). The shipper should provide facilities for the proper sampling, testing and moisture content control of cargoes it declares. The CA must provide regulatory oversight and operate independently from the shipper.

In the case of the UK, for example, the CA is the Department for Transport. However, there remains some doubt about who exactly is the Competent Authority for maritime affairs in Indonesia and whether there is any oversight to ensure shippers are meeting the Code's dictates.

Liquefaction explained

Liquefaction is a chemical process that turns a previously safe commodity into a cargo with a dangerously high moisture content (MC) that can destabilize a vessel.

Granular materials, such as nickel ore and iron fines, have void spaces caused by irregular particle shape which can fill with air and/or water. When cargo with moisture is carried at sea, cargo particles compress the void spaces and pressurize any free water present in the spaces. The moisture released from the mineral structure of some types of cargo increases the amount of free water in the cargo and can lead to a further increase in the pore water pressure.

If the pore water pressure is high, it can overcome the friction forces binding the individual particles of material and the shear strength of the cargo falls to the point where liquefaction occurs. The bulk cargo then becomes a viscous fluid with flow ability. The consequence is loss of vessel stability due to the movement of liquefied cargo.

The International Maritime Safety Bulk Cargo (IMSBC) Code provides guidance on the standards to be applied to prevent liquefaction, the two key points being the determination of the Transportable Moisture Limit (TML), which is the responsibility of the shipper, and the determination of the actual moisture content of individual shipments.

If the actual moisture content portion of a representative cargo sample consisting of water, ice or other liquid expressed as a percentage of the total wet mass of that sample is higher than the TML, the cargo should not be loaded onto a vessel.

Nickel ore is particularly prone to liquefaction.

The IMO lists the Indonesian CA as the Director General of Sea Transportation within the Ministry of Transportation, although a number of sources said it was unclear what role, if any, the Ministry was taking in the oversight of remote port loading operations. *DCI's* phone calls and emails to the Ministry on the issue were not returned.

"I'm advised that Indonesia is conspicuously absent in the list of Competent Authorities and has not elected one," said David Jones, manager of Intercargo, a bulk carrier owners organization. "I guess this is one of the root causes of the problem – there is

Bulk carrier casualties in 2011

Thirteen bulk carriers of over 10,000dwt and 39 seafarers' lives were lost last year, according to Intercargo, the bulk carrier owner organization. Although the fleet expanded rapidly to reach more than 8,000 ships, Intercargo said the losses were "depressing".

Vessel age remained a factor: the average age of bulk carriers lost in 2011 was 24.3 years compared to a worldwide trading average age of 11.3 years.

"The previously reported downward long term trend in terms of vessels lost and commensurate loss of life sadly seems now to have reached a plateau, with the number of ship losses almost doubling when compared with 2010," said David Jones, Intercargo manager. "However, the ten-year rolling average loss of life still shows considerable improvement between the 1993–2002 figures and the most recent 2002–2011 figures, but clearly more now needs to be done."

He drew attention to the loss of three smaller vessels engaged again on intra-Asian trades last year, a trend also apparent in previous years.

"While great improvements have been made in bulk carrier safety, there appears to be a persistent element that is now coming to the fore relating to smaller, older, vessels operating on intra-Asian trades," he said. "Three such losses were reported in 2011, which together accounted for the 39 lives lost."

"Determining the cause of incidents remains challenging and we urge Flag States to further investigate such losses and make reports publicly available."

Apart from the *Vinalines Queen* (see main text), the loss of the 1974-built, Panama-flagged *Jui Jsing* was attributed to grounding off Taiwan during a typhoon in October. Ten people lost their lives as a result. Seven seafarers also perished in November when *Bright Ruby*, a Handysize bulk carrier built in 1987, suffered a suspected structural failure off Vietnam.

no one to report these issues to in the first place. The CA should be independent of any commercial shipper or company."

DCI also contacted Vale, the largest nickel miner in Indonesia and a major operator in the Morowali area where the *Vinalines Queen* was loaded, but both the Brazil-based parent company and its Indonesian subsidiary refused to comment when asked if its cargo was on the *Vinalines Queen*. Nor would they explain the company's current loading and stowage procedures for nickel ore and whether they were compliant with the IMSBC Code.

The international outcry against Indonesia's failure to improve oversight is now, belatedly, being heard more volubly. The Board of the International Chamber of Shipping said it was "disturbed" about the loss of the *Vinalines Queen*. "The root of the problem would seem to be the refusal of some shippers to allow the appointment of independent surveyors to conduct cargo testing in accordance with IMO requirements — plus the commercial pressure placed on masters to accept potentially unsafe cargoes at what are often remote locations," said the ICS.

The ICS pledged to put pressure on nations such as Indonesia to "help find a solution that would assist shipowners and shipmasters to resist any pressure to accept unsafe cargoes".

Secretary General of Intercargo, Rob Lomas, said his organization had previously called on shippers and cargo interests to conduct an urgent review into the testing and safety processes involved in shipping of hazardous cargoes, following the spate of accidents and fatalities in 2010, but the message was still not being heeded.

"Sadly, it seems that some shipowners still do not have the relevant experience or knowledge in interpreting the IMSBC Code and are accepting cargoes which are unsafe," he added. "But we need to receive the reassurances of the Competent Authorities in the exporting countries that their procedures and processes have integrity and transparency so that this message is received and, most importantly, trusted, by the shipowners. Competent Authorities are key to ensuring that seafarers' lives are not put in danger".

Efforts are also under way to further enhance the IMSBC Code. Although the issues with liquefaction seem to be one of general non-compliance with the Code in Indonesia, it also remains the case that it does not contain a specific loading schedule for nickel ores.

Intercargo said it had pushed the need to strengthen this part of the Code at last September's 16th session of IMO's Sub-committee on Dangerous Goods, Solid Cargoes and Containers (DSC). A prepared schedule for nickel ore is to be further reviewed and considered in March by the IMSCBC Code Editorial and Technical Group before inclusion in the IMSBC Code at DSC 17 in September.

The DSC will then report its findings to the Maritime Safety Committee which next meets in November.

Bimco will also participate in the IMO process. "We are optimistic that the amended IMSBC Code will be able to provide proper international carriage requirements of iron ore fines and nickel ore as well as improving the current regime relating to the testing, sampling and certification of cargoes that liquefy," said a statement to *DCI*.

"Taking the severe safety issues into consideration, IMO needs to come up with a fast solution. New regulations should represent an improvement to the current regulations in terms of guiding the shippers and ensuring that the competent authority of the port of loading and the shipper are responsible in executing their duties required of them under the IMSBC Code. Bimco is working diligently to ensure that this is achieved."

While the legislative process moves forward, Intercargo has been sending out its own 'Guide for the Safe Loading of Nickel ore' direct to ports and miners in Indonesia. The guide aims to help masters, ship operators and other industry stakeholders understand the risks associated with the testing, safe loading and carriage of nickel ore cargoes.

Hopefully Indonesia's shippers and maritime authority will prove more receptive to Intercargo's Guide than they have, so far, been to mandatory international maritime regulations. If not then loading nickel ore in Indonesia will remain the Asian equivalent of playing Russian roulette for unsuspecting seafarers.

Advanced design WIAS system meets safety requirements and tight budgets

Water level sensor – flange mount

Water level sensor – stilling pipe mount

It is a salutary reminder that the most recent figures for incidents from the bulker industry show an increase in tragic losses in the last three years. It is recognized that this is due in part to several accidents involving nickel ore transportation with the special circumstances related to that product. Irrespective of cause and effect issues the more people who can be alerted of a situation in advance the better the chance of resolving a situation before it becomes a crisis.

PSM's BulkSafe system for Water Ingress Detection and Alarm using self-checking active sensors has found wide acceptance amongst shipyards for new-build bulk carriers because of its low purchase cost and simplicity of installation. Further, the unique 'check from the deck' feature allows Port State Control inspection to be made quickly with the cargo holds full or empty which has many benefits for ship operators looking to maximize the efficiency of their fleets at a time when there is an overcapacity of tonnage.

An option increasingly requested by customers to provide a safety audit trail that is simple and cost-effective to include in a BulkSafe system, is an RS485 serial communications output to connect to the ship's Voyage Data Recorder to provide a permanent and secure record of WIAS operation.

Additionally, as many bulkers come to the point in their lives where refit and overhaul is planned, PSM's BulkSafe system is being widely installed to replace unreliable and expensive to maintain systems using float switches.

When it comes to WIAS systems it is hard to imagine that any supplier has been active in developing its systems beyond the basic IACS requirements but the latest offering from PSM provides operators an optional simple and low-cost remote connection facility to its successful Bulksafe system.

By combining the Bulksafe WIAS with PSM's latest ClearView system operators can get secure storage of operating activity and a real-time message delivered to their desk or via text message should a critical alarm or pre-warning be activated on board the vessel. An advance warning to operators or services may be sufficient to avoid a potential incident which is, of course the intention of the SOLAS WIAS regulation.

At this time the regulation does not require the WIAS to provide any remote alerting facility PSM believes it has taken a lead in this by providing a method using Polestar and Skywave IDP technology to provide near instantaneous transmissions of critical alarms, plus that routine data also can be sent on-line through an email format and via a low cost routing of satellite and/or broadband.

The operational benefits can be easily envisaged. Ensuring the WIAS system is remotely checked and fully functional well before PSC inspection can save time and turnaround delays. If parts or maintenance of the system is required such aspects would be resolved well ahead. With the Clearview option operators can routinely see a live and on-line 'system healthy' condition of the whole Bulksafe system ensuring the vessel's readiness for WIAS port inspections.

Does all this come at a hefty price? Not so, claims the manufacturer. With its 30 years history of marine instrumentation, PSM is fully aware of the current financial constraints within the industry.

How managing director Geoff Taylor describes it. "The technology of our latest environmental monitor, Clearview, transfers directly to our well proven Bulksafe WIAS and we are proud to be able to offer this considerable advance to the industry at a quite moderate additional investment over the compulsory SOLAS requirement. In the current cost sensitive bulk sector the Clearview option is even available on a low cost direct lease, or as part of an LRIT or communications lease contract. Considering the improvement in personnel safety and vessel security we are confident that owners and managers will also very quickly see cost benefits in operational efficiency of the entire vessel. Since the remote data acquisition is not limited to the WIAS function the ClearView system could, for example monitor bunker operations and make validations of weight and gravity at the time of delivery. Fuel efficiency can be monitored during a voyage or data may be reviewed retrospectively on the embedded comprehensive spreadsheets. Environmental issues such as oily-water overboard discharge worries can be a thing of the past, having undergone several years of tightly monitored working trials Clearview has now achieved USCG and DoJ compliance to monitor all ODME functions. As well as automatically provide an Oil Record Book log and even prevent an illegal discharge by geofence lockout."

It appears the story does not end there because PSM has made further advances to their basic Bulksafe WIAS system. With its latest offering the cost of cabling, pipework and installation will be much reduced by the introduction of its latest marine type approved MODBUS digital sensors.

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Tokyo MOU inspections highlight perils of poor maintenance

A recent state inspection campaign that raises concerns over multiple problems with hatch openings should be welcomed by the industry, is the message from Peter Peltenburg, group director of Cargo Care Solutions.

"We cut corners on maintenance at our peril. As the economic downturn bites the industry has seen a shift to lower quality products, and a less systematic approach to scheduled maintenance. This is false economy, and the results of this campaign show that ship owners are ultimately paying for these short cuts."

The comments were made after a state inspection campaign supported by Tokyo MoU revealed a large number of vessel deficiencies relating to cargo hatch openings, and reported one casualty during the campaign period.

"Whilst operators are aware of the need to keep cargo in good condition, it's all too easy to overlook the fact that hatch covers are essential to protect and keep the structural safety of a vessel," he adds. "There have been a number of vessel losses known which were due to the loss of the weathertight integrity of the hatch covers. Some include human casualties."

Approximately a third of all P&I claims are cargo-related. Numerous of these cases are related to ingress of seawater via the hatch covers of dry cargo vessels. According to P&I clubs, reports of leaking hatch covers are the most frequent cause for selecting a vessel for an unscheduled condition survey.

"Increased investment and attention to hatch cover maintenance and repairs may save the shipowners' money from cargo claims," explains Peter. "It's a simple calculation, but one which is so often overlooked. We need a report like this to remind us that seemingly minor short cuts in maintenance can lead to major problems."

Cargo Care Solutions has a long history in the field of cargo access equipment. As the former after-sales network of Macor Neptun and SEOHAE Marine System, it has more than 30 years of experience in its field and supplies parts and services for all types and brands of maritime cargo access equipment.

The approach towards a reliable water ingress monitoring

According to SOLAS regulation chapter XII/12, IMO Res. MSC 145(77) and IACS Unified Interpretation SC 180 all bulk carriers should be fitted with Water Ingress Detection and Alarm System (WIDAS) after 01 July 2004. This regulation affects newbuild vessels and older ones alike.

This regulation has recently expanded to cover smaller general cargo vessels, and will likely expand to cover all dry cargo vessels in the future.

There are currently in existence a number of technical solutions for water ingress detection — featuring sensors based on hydrostatic pressure, conductivity, mechanical floats, resistance tapes, capacitance sensors, air bubbler etc.

The intention of the regulation is to give the crew enough time to react in case of water ingress into a cargo hold or a forepeak void space.

To fulfil this purpose the reliability of the alarm system is of outmost importance. Ship's crew must trust the system, which has to produce an alarm only when water ingress is occurring. In order to establish and maintain a good degree of confidence, the system should not generate false alarms. This means that normal humidity should not trigger an alarm however entering water should reach the sensor and produce an alarm. As WIDAS is important for the safety of crew, ship and cargo at sea, its reliability has to be the most important criteria when selecting among various designs and solutions.

Ariston water ingress alarm system.

Unlike monitoring in other void spaces, monitoring in cargo holds usually implies contact or exposure of the sensors to the cargo. Diversity of bulk cargoes and cargo handling machines, tools and equipment put serious demands on the robustness of the sensor. Many systems offered in the market can be classified as indirect systems i.e. the water detector is separated from the cargo by means of a filter. These systems depend on the proper working of the filter for all types of cargoes. It is obvious that filter-based systems risk being clogged by certain cargoes.

Some makers offer a permanent filter cleaning system by means of compressed air.

The major classification societies have foreseen a performance test for such a filter arrangement. The question remains whether this test can guarantee further proper functioning of a filter arrangement. Many indirect systems have restrictions regarding the types of cargoes to be carried, which can limit the trade of the vessel.

Filter-based systems require also regular cleaning and maintenance after each voyage. For this reason the regulator has requested a physical function test before each loading. Regular maintenance and control of the sensors and the system by the crew may be costly and time-consuming.

Occasional reports from owners and crews indicate that some of the indirect systems failed, especially when ships were loading cement, soda, fertilizers or other similar.

To overcome the restrictions of the indirect systems, Ariston has developed a direct system. In a direct system the sensor is in direct contact with the cargo i.e. no filter system is required.

Ariston has developed a special sensor based on microwave technology.

The working principle is based on the reflection of microwaves by the presence of a certain concentration of water molecules. The sensor constantly checks the dielectric constant of the space 0–10cm from the microwave antenna. Reflection is processed based on medium's dielectric properties. Water ingress in the cargo hold leads to a substantial change of the reflection coefficient, which is detected by the microwave sensor.

The presence of water will switch the sensor to an alarm state — in both empty and loaded cargo compartment, regardless of the type of cargo carried.

SURVEYOUR™ WIDAS FEATURES.

- the only two-in-one water ingress detection with temperature monitoring system;
- direct contact of the microwave sensor with the cargo/space;
- temperature output integration (secondary detection in coal and grain cargoes);
- safely protected (mechanically and chemically) sensors to ensure long period of operation and proper functioning;
- continuously self-checking system – to ensure safe and continuous operation;
- no or very little maintenance — to reduce the human factor related problems;
- no filter, no moving parts, no restrictions in cargo list; and
- outputs for control of dewatering system (SOLAS XII 13).

Selecting the type of WIDAS demands a very careful consideration by the owners not only for the initial cost, but also for the cost of daily maintenance and repairs, and for the overall durability and trouble free operation over long period of time.

High technology, precise workmanship and design, not least the long guarantee period make Ariston's WIDAS a good investment in safety at sea.

False alarms put bulkers at risk

Alarm bells are ringing about water-ingress in bulk carriers. Cases are emerging of new water-ingress alarms, recently made mandatory on bulkers, sometimes being switched off because of the irritation caused by false alarms. One master says there are instances of ill-fitted alarms becoming a headache for ships' officers, who can be distracted by the sound. He explains that many are now using the traditional measures of checking for signs of water ingress through the sounding pipe.

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BIMCO Solid Cargo Database – what you need to know

The main hazards associated with the carriage of solid bulk cargoes are primarily structural damage caused by improper cargo distribution, loss, or reduction of stability during voyage and chemical reaction of cargoes, *writes Ai-Cheng Foo-Nielsen.*

The International Maritime Solid Bulk Cargoes (IMSBC) Code is not a new code *per se*. It actually replaces the Code of Safe Practice for Solid Bulk Cargoes, popularly known as the BC Code, and was made mandatory internationally under the provisions of the SOLAS Convention from 1 January 2011 via resolution MSC.268 (85) adopted at the International Maritime Organization's (IMO) Maritime Safety Committee, 85th session in 2008 guidance on the safe stowage and shipment of solid bulk cargoes by providing information on the characteristics of the cargoes, their hazards or dangers, if any, when transporting such cargoes and setting out clear carriage requirements that are required to be followed when such cargoes are contemplated for shipment. It also provides information on what test procedures to adopt for determining the cargo's properties in terms of possible hazards that could be present.

The Code is essentially aimed at shippers, shore-based staff (ship owners, ship operators etc) and vessels' crew as well as national administrations to assist them with the correct identification of a cargo and assess its suitability for carriage. This is to ensure that the transport of solid bulk cargoes can be facilitated safely worldwide, based on a set of international regulations.

The new Code, as opposed to the old BC Code, has additional features and this article will attempt to provide a comprehensive list of how to use the IMSBC Code in the most effective way and how the BIMCO Solid Cargo Database can assist members in relation to the Code.

What is a solid bulk cargo?

The IMSBC Code is only applicable to solid bulk cargoes. A solid bulk cargo is defined in SOLAS Chapter VI (Carriage of Cargoes and Oil Fuels), regulation 1-1.2 as follows:

SOLAS regulation VI/1-1.2 –

Solid Bulk Cargo

Solid bulk cargo means any cargo, other than liquid or gas, consisting of a combination of particles, granules or any larger pieces of material generally uniform in composition, which is loaded directly into the cargo spaces of a ship without any intermediate form of containment.

Though grain cargoes are solid bulk cargoes, their carriage requirements do not fall under the purview of the IMSBC Code as clearly stated in SOLAS regulation VI/1-2.1. Carriage of grain cargoes is governed by the IMO's International Code for the Safe Carriage of Grain in Bulk popularly known as the 'International Grain Code'.

Does the Code apply to all vessels?

All ships carrying solid bulk cargoes in general and dangerous solid bulk cargoes in particular will be required to comply with the new IMSBC Code, irrespective of their keel-laying date or gross tonnage.

What is the actual status of the Code?

Note that though the Code is legally treated as a mandatory instrument under the SOLAS Convention from 1 January 2011, the remaining provisions in the Code would remain recommendatory or informative:

- Section 11: Security provisions (except subsection 11.1.1 on compliance with relevant provisions of SOLAS Chapter XI-2 regarding the International Ship and Port Facility Security (ISPS) Code);
- Section 12: Stowage factor conversion tables;
- Section 13: References to related information and recommendations;
- Appendices other than appendix 1, individual schedules of solid bulk cargoes; and
- Sections titled 'Description', 'Characteristics', 'Hazard' and 'Emergency Procedures' in the Individual schedules of solid bulk cargoes in appendix 1.

In addition, the use of words 'shall', 'should' and 'may' in the text of any of the provisions of the Code would mean that the provisions are 'mandatory', 'recommendatory' and 'optional' respectively.

What is the Bulk Cargo Shipping Name of a cargo?

The 'Bulk Cargo Shipping Name' (BCSN) is an entirely new feature introduced in the Code. In accordance with Section 1.7 (Definitions) of the IMSBC Code, BCSN is defined as follows:

"Bulk Cargo Shipping Name (BCSN) identifies a bulk cargo during transport by sea. When a cargo is listed in this Code, the Bulk Cargo Shipping Name of the cargo is identified by capital letters in the individual schedules or in the index. When the cargo is a dangerous good, as defined in the IMDG Code, as defined in regulation VII/1.1 of the SOLAS Convention, the Proper Shipping Name of that cargo is the Bulk Cargo Shipping Name".

Each solid bulk cargo in the Code has been assigned a BCSN, which is the official and proper shipping name of the cargo. All sea transport documentation must identify a solid bulk cargo by its BCSN. Therefore, it is crucial that when contemplating any bulk shipment, members ask the shipper for the BCSN of the cargo.

Many members approach the BIMCO Secretariat with cargo enquiries supplying only the trade or commercial name of the cargo, which is insufficient for the Secretariat to be able to assist. Correct identification of a solid bulk cargo is extremely important as this will enable the Secretariat to advise members correctly, and in particular, provide the conditions necessary for the cargo to be carried safely as per the requirements of the Code. Also, knowing the BCSN of the cargo will enable members to use the IMSBC Code more effectively in terms of looking up the relevant information on the cargo quickly, since all cargoes in the Code are listed by their BCSN and do not contain commercial or trade names.

If a solid bulk cargo supposedly has the correct shipping name and is not listed in the Code, Section 1.3 of the Code must be complied with, which is explained in the subsequent paragraphs.

In addition, Section 4.1.1 of the Code states that if the solid bulk cargo is dangerous goods, the BCSN shall be supplemented by the United Nations (UN) number. SOLAS regulation VII/7.2 (Carriage of Dangerous Goods) states similar requirement for dangerous solid bulk cargoes:

Regulation 7-2 — Documents

In all documents relating to the carriage of dangerous goods in solid form in bulk by sea, the bulk cargo shipping name of the goods shall be used (trade names alone shall not be used).

To give a few examples of what constitutes a BCSN, let us go to an individual cargo schedule, say 'Mineral Concentrates' in Appendix 1 of the Code. 'Mineral Concentrates' is not the BCSN as it is not in capital letters. Under this schedule, there are many different types of mineral concentrates e.g. IRON CONCENTRATE', 'ZINC SINTER', 'CEMENT COPPER', 'PYRITES'. These would be the official BCSNs to be used for bulk shipment documentation as they are clearly in capital letters in the IMSBC Code. So if you have a cargo with a name given as iron ore concentrate, the official BCSN would be 'IRON CONCENTRATE'.

'Seed cake' cargoes would be another example to illustrate the use of BCSN in the IMSBC Code. Dangerous 'Seed cake' cargoes are classified by the International Maritime Dangerous Goods (IMDG) Code. To take one class of seed cake, say seed cake UN 1386 (b), it is listed in the heading of that cargo schedule in the IMSBC Code in the following manner i.e. in capital letters as well as in small letters:

SEED CAKE, containing vegetable oil UN 1386
(b) solvent extractions and expelled seeds, containing not more than 10% of oil and when the amount of moisture is higher than 10%, not more than 20% of oil and moisture combined.

What would the BCSN for this seed cake be then? Applying the definition of BCSN, one would look at the IMDG Code to ascertain what the Proper Shipping Name of seed cake would be. Rightly so, the above is the Proper Shipping Name in the IMDG Code. As such, that would also constitute the BCSN of seed cake UN 1386 (b) carried in bulk transport.

How are solid bulk cargoes classified in the IMSBC Code?

The IMSBC Code divides solid bulk cargoes into three groups which are as follows:

Group A – consisting of cargoes which may liquefy if shipped at a moisture content in excess of their transportable moisture limit.
Group B – consisting of cargoes which possess a chemical hazard which could give rise to a dangerous situation on a ship.
Group C – consisting of cargoes which are neither liable to liquefy (Group A) nor to possess chemical hazards (Group B).

Though most cargoes are either a Group A, B or C cargo, some cargoes however are categorized as a Group 'A and B' cargo, e.g. coal, metal sulphide concentrates, fluorspar, peat moss, pyrites calcined and pyritic ash.

In addition, if the cargo is a dangerous solid bulk cargo, i.e., cargoes possessing chemical hazards, apart from the Group classification the IMSBC Code would also show the IMO class of that cargo as well as its UN number in accordance with the classification criteria set out in the IMDG Code for dangerous goods.

One should also note that there is another IMO class of materials called 'Materials Hazardous only in Bulk' (MHB), which are Group B cargoes i.e., possessing chemical hazards when they are transported in bulk. Presently, there are no clear classification criteria as to what constitute a MHB cargo in the IMSBC Code and in view of the mandatory status of the Code, it was emphasized at an IMO meeting last year that such criteria must be available for assessment and identification of cargoes that fall into this category. At the time of writing, an IMO correspondence group has been tasked to look into the classification criteria for MHB cargoes.

What happens if your cargo is not listed in the IMSBC Code?

If a solid bulk cargo offered for shipment is not listed in the IMSBC Code, a shipper will have to comply with Section 1.3 (Cargoes not listed in this Code) of the Code before any loading can take place. The shipper must provide the competent authority of the port of loading, characteristics and properties of the proposed cargo for carriage based on section 4 (Assessment of Acceptability of Consignments for Safe Shipment) of the Code.

This will allow the competent authority to assess the proper carriage requirements of the proposed cargo and if no hazards are present, the competent authority will authorize/approve its carriage with the notification of the same to the competent authorities of the port of discharging and of the flag state accordingly.

However, if the proposed cargo presents hazards, the competent authorities of the port of discharging and of the flag State will have to be consulted as well, whereby the three parties would set out the appropriate carriage requirements for the cargo.

In both cases, the competent authority of the port of loading would provide the Master with a certificate stating the cargo's characteristics and its carriage requirements to be followed to ensure safe carriage. The competent authority will also have to submit an application to IMO within one year from the issue of certificate to have the cargo listed in the IMSBC Code.

What are the shipper's obligations?

The shipper's statutory obligations are set out in SOLAS regulation VI/2.1 (Cargo Information) and specifically detailed in section 4 of the IMSBC Code.

In accordance with SOLAS regulation VI/2.1, the shipper must provide the Master or his representative with appropriate information on the cargo sufficiently in advance of loading so that precautions for proper stowage and safe carriage of the cargo can be ensured. This information has to be in writing and has to comply with Section 4 of the IMSBC Code, which includes inter alia information as follows:

- The BCSN when the cargo is listed in this Code. Secondary names may be used in addition to the BCSN;
- The cargo group (A and B, A, B or C);
- The IMO Class of the cargo, if applicable;
- The UN number preceded by letters UN for the cargo, if applicable;
- The total quantity of the cargo offered;
- The stowage factor;
- The need for trimming and the trimming procedures, as necessary;
- The likelihood of shifting, including angle of repose, if applicable;

- Additional information in the form of a certificate on the moisture content of the cargo and its transportable moisture limit in the case of a concentrate or other cargo which may liquefy;
- The likelihood of formation of a wet base (see subsection 7.2.3 of this Code);
- Information on toxic or flammable gases which may be generated by cargo, if applicable;
- Flammability, toxicity, corrosiveness and propensity to oxygen depletion of the cargo, if applicable;
- Self-heating properties of the cargo, and the need for trimming, if applicable;
- Properties on emission of flammable gases in contact with water, if applicable;
- Radioactive properties, if applicable; and
- Any other information required by national authorities.

Is some statutory form of cargo declaration required?

From 1 January 2011, the shipper will have to provide cargo information in accordance with Section 4 of the IMSBC Code as mentioned above and the cargo information shall be accompanied by a cargo declaration form set out in the IMSBC Code, a copy of which is included at the end of this article.

What are the exemptions and equivalent measures in the Code?

Section 5 of the IMSBC Code covering 'Exemptions and equivalent measures' is a new section in Code. In essence, this section provides information relating to tripartite agreements in respect of any exemption or equivalent measures granted or adopted by a competent authority of either port state of loading, port state of discharging or flag state.

Under this section, a competent authority of either port state of departure, port state of arrival or flag state may authorize an alternative provision in place of a particular provision in the IMSBC Code by exemption if the competent authority is satisfied that the alternative provision is at least as effective and safe as that required by the Code. The recipient of the exemption shall notify other relevant competent authorities concerned prior to any shipment taking place, as the acceptance of an exemption by a non-party is subject to discretion by that competent authority.

The validity of the exemption is not more than five years from the date of authorization and a copy of the exemption shall be lodged with the IMO, who will bring it to the attention of all contracting parties to SOLAS and if appropriate, to amend the IMSBC Code to cover the exemption accordingly. In addition, a copy of the exemption or an electronic copy thereof shall be maintained on board each ship transporting solid bulk cargoes as per exemption requirements.

Are there new cargo entries in the IMSBC Code?

The IMSBC Code contains some new schedules and the ones that would be of most interest to members are as follows:

Direct reduced iron (C) (by-products fines): The IMSBC Code has two current entries on direct reduced iron – DRI (A) and DRI (B). Now, there is a new cargo schedule called DRI (C), which is a cargo of by-product fines generated from the manufacturing and handling processes of DRI (A) and (B) materials. It is also classified as a Group B cargo and has very strict carriage requirements e.g. moisture limit not more than 0.3%, carriage and oxygen concentration to be maintained at less than 5% throughout the whole voyage. These strict requirements are due to the difficult assessment of the reactivity of this cargo and hence a worst case scenario is to be assumed at all times.

Sulphur (formed, solid): The IMSBC Code has only one dangerous sulphur cargo schedule namely sulphur UN 1350 (crushed lump and coarse grained). Now, there is a new sulphur schedule 'Sulphur (formed, solid)' added into the Code and it is classified as a Group C cargo, i.e., non-dangerous.

This category applies only to co-products coming from sour gas processing or oil refinery operations which have been subjected to a forming process that converts the sulphur from a molten state into specific solid shapes (e.g. prills, granules, pellets, pastilles or flakes). Note that this category will not apply to sulphur co-products coming from sour gas processing or oil refinery operations which have not been subjected to the forming process described above.

Coal: The coal schedule is not a new schedule. However, it can be considered new in the sense that it has been amended to include carriage requirements of coal on gravity-fed self-unloaders.

Is the supplement to the IMSBC Code mandatory?

The Code comes with a supplement which is not mandatory. The supplement includes the following:

The BLU Code: The intention of the Code of Practice for the Safe Loading and Unloading of Bulk Carriers (BLU Code) is to provide Masters of bulk carriers, ship owners, shippers, operators of bulk carriers, charterers, terminal operators and other parties concerned, guidance relating to the safe handling, loading and unloading of solid bulk cargoes.

Despite the supplement not being mandatory, members should take note that the BLU Code is mandatory in the European Union in its 27 member countries (reference: EU Directive 2001/96/EC) as well as in some other non-EU countries. Some flag states have also given the BLU Code mandatory status for their ships.

Nevertheless, the requirement to have a loading/unloading plan as required by the BLU Code is mandatory under SOLAS (reference: SOLAS regulation VI/7 – Loading, unloading and stowage of bulk cargoes).

The BLU Manual: The intention of the Manual on Loading and Unloading of Solid Bulk Cargoes for Terminal Representatives is to provide terminal representatives (as defined in the BLU Code) and others involved in the handling of solid bulk cargoes, including those responsible for the training of personnel, more detailed guidance in the understanding of the key issues to be dealt with at the interface between the ship and the terminal as well as assisting the ship's personnel to understand the issues involved from the terminal's perspective. The BLU manual is intended to complement the BLU Code.

MSC/Circ. 908: Uniform Method of Measurement of the Density of Bulk Cargoes: Prior to loading bulk cargo on a bulk carrier, the shipper is required to declare the density of the cargo, which must be verified by an accredited testing organization. This circular provides a method for measuring the density of bulk

cargoes by using the performance specification prescribed in the said circular.

MSC/Circ. 1146: Lists of Solid Bulk Cargoes for which a Fixed Gas Fire-extinguishing System may be Exempted or for which a Fixed Gas Fire-extinguishing System is Ineffective. This circular contains a list of solid bulk cargoes for which a fixed gas fire-extinguishing system may be exempted e.g. ore, coal, grain and unseasoned timber as per SOLAS regulation II-2/10, and cargoes which are not combustible or have a low fire risk. The circular also includes a list of solid bulk cargoes for which a fixed gas fire-extinguishing system is ineffective and for which a fire-extinguishing system giving equivalent protection must be available.

Res. A. 864(20): Recommendations for Entering Enclosed Spaces Aboard Ships. This set of practical recommendations has been made to enable ship owners, ship operators and seafarers to adopt safety procedures aimed at preventing casualties to ship personnel entering enclosed spaces where there may be an oxygen-deficient, flammable and/or toxic atmosphere.

MSC.1/Circ.1264: Recommendations on the Safe Use of Pesticides in Ships Applicable to the Fumigation of Cargo Hold. This circular provides guidance to shipmasters on the use of various pesticides (fumigants) with the safety of crew personnel in mind.

How are changes to the IMSBC Code effected?

The IMSBC Code will be revised every two years and the first amendment (01-11) is already in the process of being finalized at the IMO and will become mandatory in 2013. Just like the IMDG Code, the IMSBC Code will have a transitional period where both the first IMSBC code and the O1-11 Amendment to the IMSBC Code can be used i.e. in the year 2012. In short, a new IMSBC Code will come into force every odd-numbered year.

What about the Survey & Certification Requirements for the IMSBC Code?

The IMSBC Code does not contain any survey and certification requirements. However, it is envisaged that many ports and other authorities will require a Certificate of Compliance with the IMSBC Code from ship owners to demonstrate some form of compliance with the requirements of the Code. In this regard, the vessel's Classification Society should be consulted accordingly.

What is the BIMCO Solid Cargo Database?

Available exclusively to BIMCO members, the BIMCO Solid Cargo Database was established in 2003 by the Marine Department as part of BIMCO's continuing efforts to provide better information and service.

The database, which is live on BIMCO's website, is designed to provide information and guidance on the various types of dry bulk cargoes and is primarily intended for use by shore-based staff and vessels' crew. Members will find wide-ranging information on cargoes in database including but not limited to:

- Safe practices and appropriate precautions to be taken for hold cleaning, loading, trimming, carriage and discharge, including but not limited to information and precautions on weather, protective clothing, etc for dry bulk cargoes;
- Descriptions, characteristics and properties of the most commonly transported dry bulk cargoes;
- Guidance and suggestions on the type of certification required for the cargo and the carriage of said cargo as required by the aforementioned IMO codes or by Safety of Life at Sea (SOLAS) requirements;
- Guidance as to what occupational hazards may be posed to personnel handling the cargo, for instance as posed by alumina dust which is not only extremely abrasive but can also be toxic if inhaled;
- The type of packaging normally used for the shipment of the cargo (bulk and/or bags, barrels, etc.) and the applicable IMO requirements depending upon the type of packaging chosen;
- Emergency response section providing guidance on safety procedures in the event of fire or the spillage of the cargo;
- Synonyms or trade names commonly used for the cargo; and
- Information on the origin of the cargo.

Is your cargo a Group 'A', 'B' or 'C' Cargo?

Members involved in the shipment of solid bulk cargoes have many a times asked the Secretariat whether a cargo is a Group A or B or non-dangerous C cargo. Now, the answers can easily be found in the database. However, it should once again be emphasized that obtaining the right BCSN of the cargo is crucial in order to find the correct information in the cargo database.

New features

The BIMCO Secretariat is pleased to announce some new features in the BIMCO Solid Cargo Database that were launched in December 2010. Now, listings of Groups 'A', 'B' and 'C' cargoes as defined in the IMSBC Code are available to assist members to find the classification of a cargo easily and quickly.

For example, if you wish to see if your cargo is a non-dangerous cargo, i.e. a Group C cargo, simply go to the Group 'C' listing to find out. Similarly, if you wish to see if your cargo is a dangerous cargo, you would just need to go to the Group 'B' listing to check.

Another recently-introduced feature is easy access to the information contained in the database by linking the cargoes in the above-mentioned listings directly to the database.

This is how it works: once you have found the classification of your cargo on the list, one click on that cargo will bring you directly to the cargo information sheet of that cargo, including the carriage requirements contained in the cargo database.

A further helpful feature is that the new listings provide a general view of the typical cargoes that are usually classified under the Groups 'A', 'B' or 'C' listings, which is not available in the IMSBC Code. Any operators with a solid bulk cargo that is not found on any of the lists should contact the BIMCO Marine Department for assistance.

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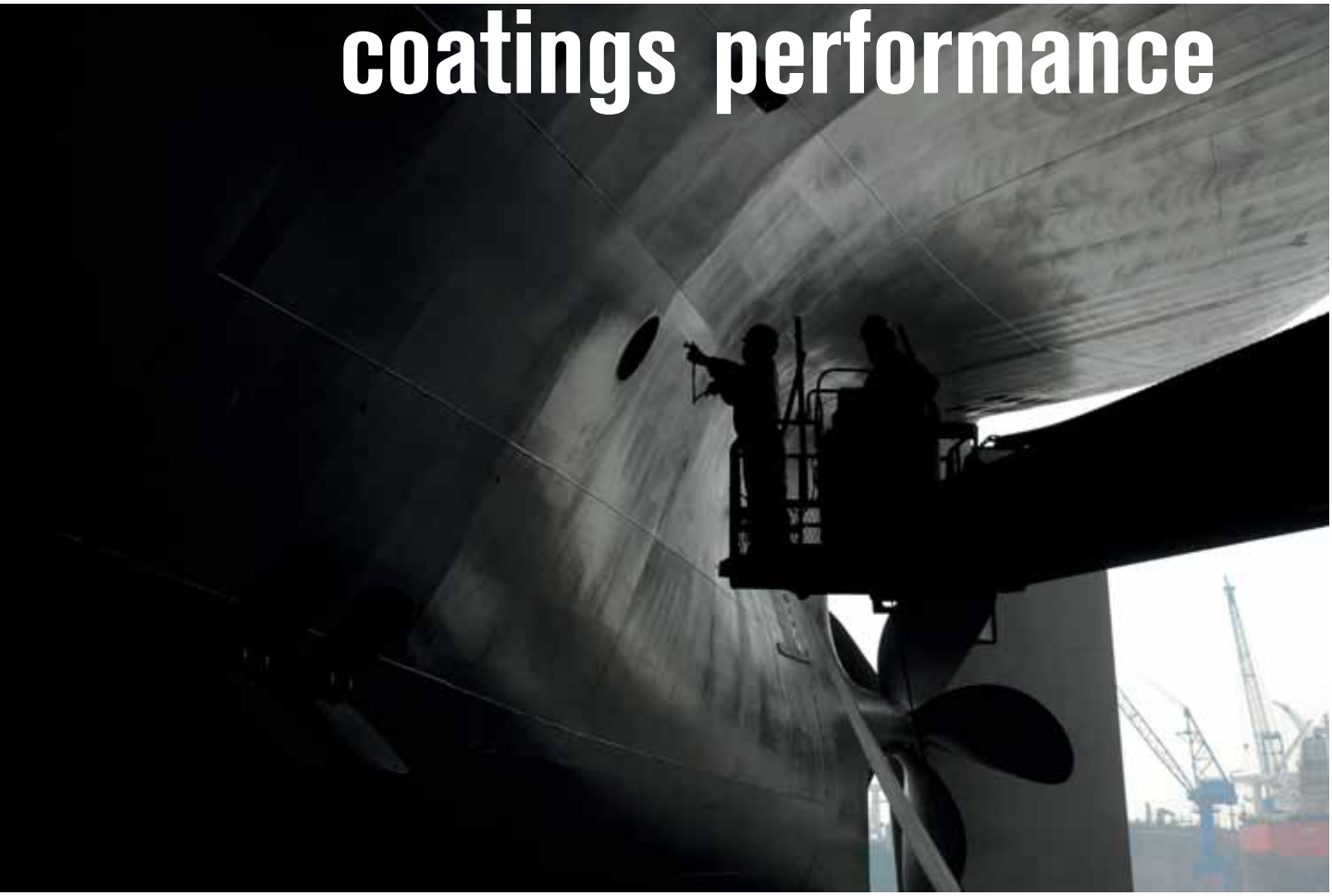
New benchmark to prove coatings performance



Strong academic research and firm ship operating evidence of the correlation between applying specific fouling control coatings and reducing fuel consumption and CO_2 emissions finds further backing, after a new industry partnership is formed that is likely to silence the doubters once and for all.

International Paint and BMT ARGOSS have come together and will utilize the new BMT SMARTSERVICES system to verify, through independent monitoring and software analysis, the contribution to vessel performance, fuel savings and reduced emissions made by International Paint's highest performance fouling control coatings, Intersmooth®SPC (self polishing copolymer) antifouling and Intersleek® foul release coating.

Understanding hull roughness is an important factor in understanding ship performance, International Paint points out. Any increase in hull roughness will increase the hull frictional resistance which will either require additional power and fuel to maintain vessel speed or, if maintaining constant power, will result in speed loss and longer voyage times.

International Paint claims fuel and emissions savings for its Intersmooth®SPC coating, citing evidence gathered from over 5,000 vessel drydock and inspections for fouling rating, combined with AHR (average hull roughness) measurements.

Behind this specific argument, the International Paint 'Dataplan' system has coating details of over 1.7 billion dwt, representing almost 200,000 drydockings that allow antifouling performance to be predicted and assessed. Results are derived from analysing the in-docking condition of a vessel, its coating performance and assessing the type, severity and extent of any fouling, if present. In conjunction with the vessel's trading pattern, operational profile and drydocking interval, an antifouling performance rating can be calculated.

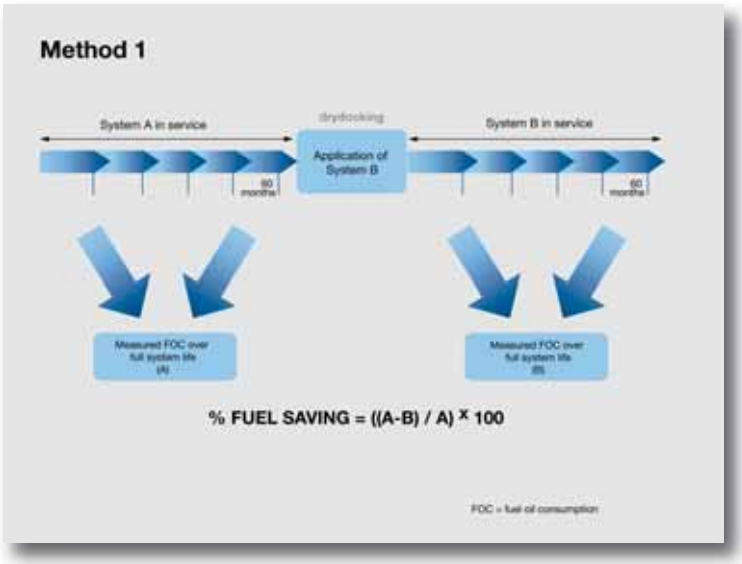
Dataplan also records the vessel's coating condition, including the type, severity and extent of any corrosion, cracking, blistering, detachment and mechanical damage, all of which contribute to and are included in, hull roughness measurement.

Full back-up

International Paint also cites the report, *Energy and GHG Emissions Savings Analysis of Fluoropolymer Foul Release Hull Coating*, by Professor James Corbett's Energy & Environmental Research Associates. The report is dated 10 December 2010.

The report analysed the latest fuel consumption data of three vessel types coated with Intersleek® 900: *Prem Divya*, a single-engine 21,126 horsepower (HP) tanker; *Ikuna*, a twin-engine 3,400 HP bulker; and five identical post-Panamax container vessels, three of which were coated with SPC antifoulings and two with Intersleek® 900.

The results are remarkable for the correlation they show between the coating applied and the fuel consumed. The report showed that fuel consumption was reduced by 10% on the *Prem Divya*, 22% on the *Ikuna* and by 5% in five container vessels (based on all five ships carrying a comparable load). The report



stated that if similar fuel efficiency results were realized by all tanker and bulk cargo vessels within the commercial fleet that: "annual fuel oil consumption could be reduced by roughly 16mt [million metric tonnes] per year, fuel expenditures could be reduced by $4.4 to $8.8 billion per year, and nearly 49mt of CO_2 emissions could be avoided annually."

At a more detailed level, the report stated that the latest generation fluoropolymer foul release coating could offer average fuel and emissions savings of up to 9%.

Challenge

For some, though, such claims are always open to challenge. Critics argue that, no matter which coating is applied, a ship will naturally move through the water more smoothly if it has been blast-cleaned during drydocking. Furthermore, they argue, the linkage between hull smoothness and reduced emissions is tenuous: traditionally, extra smoothness was more likely to lead to some ships being driven faster, not to fuel savings.

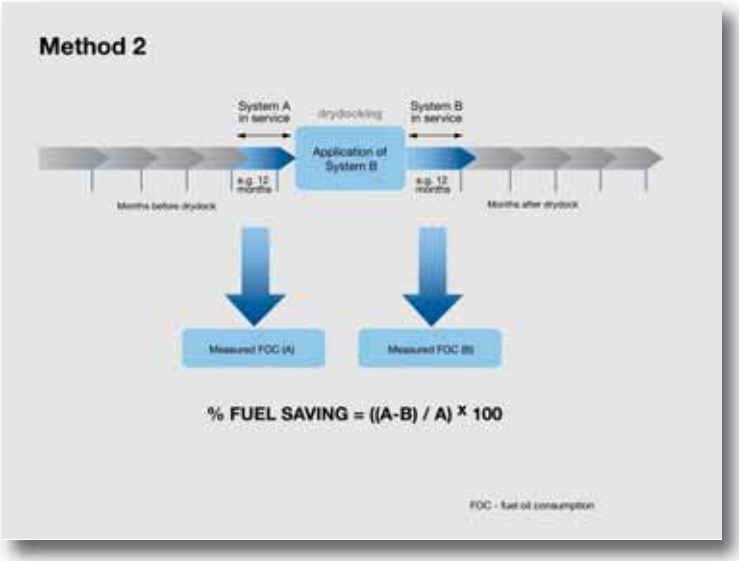
On the face of it, seemingly persuasive such arguments could be readily countered by observing the growing propensity for owners to operate slow steaming policies specifically in pursuit of fuel (and consequently emissions) savings. Again, while no one would dispute that depending upon the fouling control system employed, a newly grit-blasted or hydroblasted, freshly coated hull will perform better than a hull at the end of its docking cycle; the point is surely to measure how quickly hull performance deteriorates over time in the context of the coating systems applied.

Methods of measurement

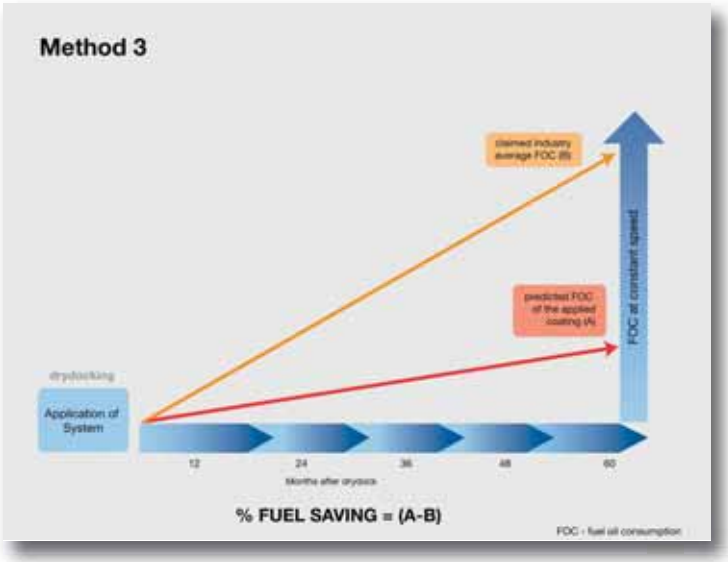
For this reason, International Paint has been explicit in detailing the alternative methods that have been used as the means of establishing linkage between the fouling control system selected and potential fuel savings.

Some common methods are as follows:

1. Directly comparing the in-service vessel performance when using one fouling control system over its full lifetime to that of another fouling control system over its full lifetime.
2. Directly comparing a period of time in-service prior to dry docking with one fouling control system to the same period after the dry docking and application of a new fouling control system. Different before and after periods can be used and in general are much less than full in-service periods, i.e. 12 months before a dry docking compared to 12 months after application of the 'new' paint system. Other factors need to remain the same e.g. no engine overhaul at drydock.



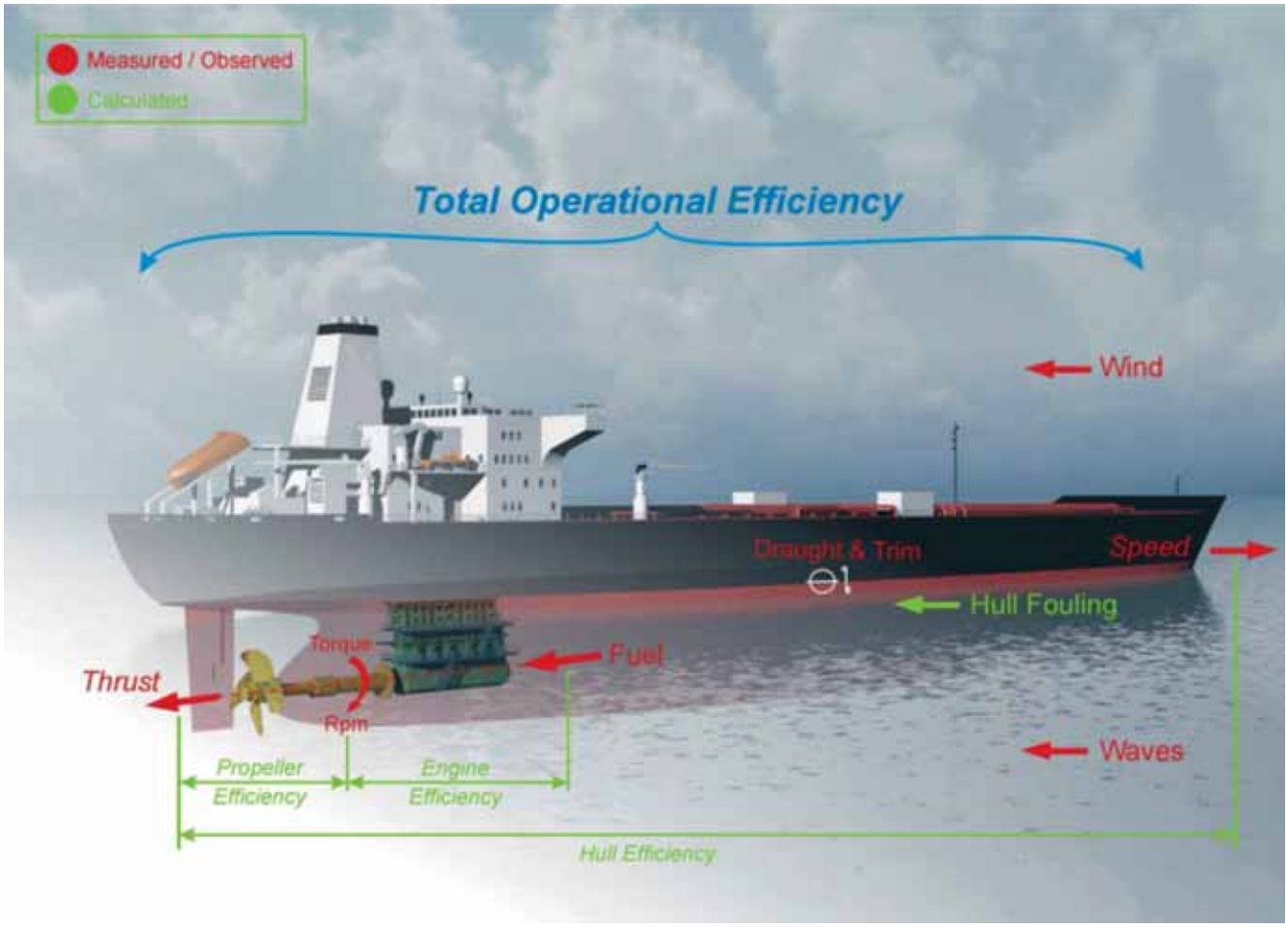
3. Directly measuring the same fouling control system over a given time period. This method uses an 'industry view' that a vessel on average will lose 5% speed over a 60-month period. This 5% speed loss would translate to roughly a maximum average of 15% increase in fuel in order to maintain speed. This assumption is not specific on fouling control type. The baseline data is then compared to the performance predicted or measured in service.



Analysis — using antifoulings as examples

Using method 1, comparing a 60-month docking cycle of a typical rosin-based system with another 60-month docking cycle with Intersmooth® SPC, International Paint has calculated an annual average 4% fuel saving for Intersmooth® SPC over the rosin-based system.

If method 2 were to be used, and compared 12 months before dry dock for a rosin-based system with 12 months after dry dock with Intersmooth® SPC, International Paint has calculated fuel savings would be higher, at 9%. However, as the periods in service are at different time periods in the docking cycle, the company argues that there are limitations of this method, and that the resultant high value of the



improvement is misleading. It suggests that this method should not be used.

As for method 3, International Paint points out that in 1986 evidence was published of vessel performance using SPC technology. *Townsin et al** showed that the effect of hull roughness on fuel consumption could be related in a fairly simple formula:

% Power Increase = A(AHR2-1/3 – AHR1-1/3)

For every increase in hull roughness of 25 microns there would be approximately a 1% penalty in the fuel consumption of the vessel. For typical rosin-based antifouling systems, hull roughness increases by around 40 microns per year. However, due to polishing, smoothing and minimal build up of leached layer, an SPC antifouling increases in roughness by only 20 microns per year.

Therefore for SPC technology, the fuel consumption increase over the full period (of 60 months) would be just under 1% per year, reaching 4% in year five (for the vast majority of vessels that return from service in a clean condition).

Using data generated in the comprehensive Townsin paper and a detailed analysis of antifouling performance from Dataplan, the fuel consumption increase over a 60-month period for a rosin-based system can be calculated as 15%, the same figure as what has been described as the 'industry view'.

The calculation of 15% is as follows; Rosin containing systems were measured to increase in average hull roughness by 40 microns/year. Over a 60-month period, this would be a 200 micron increase. A 25 micron increase in average hull roughness equates to a 1% fuel increase. This means an 8% fuel increase on roughness alone. Between 36 and 60 months a rosin-based system is highly likely to foul, typically due to the build up of a large leached layer preventing biocide release. This results in increased roughness and drag. The effect of this on fuel consumption has been measured and then calculated to increase by 7%; this gives the total increase in fuel consumption of 15%.

If only SPC products are measured, then the fuel consumption increase over the 60 month period will be 4%. Not being specific on fouling control type highlights a potential flaw in using an 'industry view' average of fuel loss, International Paint says.

One important omission in Method 3 is that there is no allowance given for any fuel consumption rise effects that are non-fouling related such as a damaged propeller, mechanical damage to the coating or general engine wear and tear.

Going forward, International Paint has stated that it recognizes the importance of providing owners with as much information on the performance of its products as it can.

Breaking new ground

The new relationship with BMT looks to do just that; it will provide the independent monitoring that the partners believe will make both the evidence and methodology cited above incontrovertible.

The BMT SMARTSERVICES system, developed by BMT ARGOSS, will capture and compile real vessel data and independently monitor and report on vessel performance. It will record data automatically from ships' sensors to monitor engine torque, the speed log, navigational signals (heading and speed over ground), and provide performance information to the crew and to shore-based management for analysis. The system, which

*Townsin et al *paper entitled 'Fuel economy due to improvements in ship hull surface condition 1976-1986', (Maritime Technical Information Facility, last modified July 27, 1994).*

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can be installed at the newbuilding stage or as a retrofit, automatically records thousands of readings per day, providing unparalleled, accurate analysis of vessel performance.

The system will clearly and transparently measure the in-service performance of International Paint's hull coatings, drawing on BMT's 24/7 in-house high-quality and validated MetOcean data.

The significance of the MetOcean data gathered automatically from high resolution, highly accurate satellite monitoring for use as part of BMT SMARTSERVICES should not be underestimated. While it is clearly essential to monitor information on board, such as the relationship between hull roughness condition and fuel consumption, this information needs to be integrated with the environmental conditions being experienced by the ship. This MetOcean data includes factors such as wind speed and direction, currents, (speed and direction) and wave height and direction.

The system has been modelled using weighted performance coefficients to provide the basis for measurement of vessel performance against the condition of the propeller, hull, engine and fuel consumption. In-depth analysis can be used to monitor the propulsive performance of a ship and to indicate how much additional power, or fuel, would be required as a consequence of the combined effects of weather and fouling or of the isolated effects of fouling on the hull or propeller. This analysis enables data trending which can be used to optimize any scheduling of hull and propeller cleaning events and can be subsequently used to quantify the effectiveness of any such events.

To ensure complete data integrity, all information collected will be sent to BMT. The client and International Paint will be able to view vessel data in graphical or tabular form to develop trend analysis via a secure access web interface but the data cannot be changed or manipulated.

Wider benefits

The consortium points out that accurate monitoring has several benefits for the ship operator:

1. Proof of compliance to Charter Agreements
2. Ability to determine the energy efficiency of the vessel within the EEOI (Energy Efficiency Operational Index) encompassed in the SEEMP (Ship Energy Efficiency Management Plan) guidelines
3. Ability to act immediately on anything adversely affecting the optimum running of the vessel e.g. hull fouling, propeller fouling, trim optimization, hull damage etc.

In achieving these benefits, it is essential to be able to show that there is an agreed way of recording standardized data, using an agreed scientific approach that will be generally accepted by the industry.

International Paint and BMT say they want to provide shipowners and operators with information in a completely open and transparent way to provide clarity to those using the information. They want owners to get fuel saving benefits, but want to make sure that there is a complete understanding of the actual savings possible rather than just accepting the largest number. It is from many years of proven in-service performance with data from owner/operators, from Dataplan and from independent testimony that they say they know exactly what benefits each of their technology types can deliver. They believe that this new partnership will make that knowledge completely transparent. DC

Project cargo & warehousing

ALS's facilities in Hull in the UK include 3,000m² of hard standing that can take loads of up to 10 tonnes per metre.

Emerging markets are driving demand for specialist oversized and overweight project cargo handling, transport and storage services, writes Michael King.

The global financial crisis of 2008/09 hit bulk and container shipping demand almost instantly. Not so the project sector. Long lead times for most major infrastructure and exploration endeavours meant that it was only after a one- to two-year lag period that cancellations of major projects really began to bite the bottom lines of transport and storage providers.

But the recovery of demand is now showing signs of being on a far firmer footing, at least outside the troubled waters of Europe. Booming commodities markets and the need for many emerging economies to build new infrastructure to cement previous gains are driving the need for specialist handling and storage of specialist cargoes for private and public sector projects, not least in the fast-growing economies of the Middle East, Africa and Asia.

GAC, for example, reports that countries in sub-Saharan Africa and South Africa have been embarked on a number of major industrial projects recently, while the Caspian region, blessed with mineral and energy wealth, is also rapidly developing.

Laurance Langdon, GAC Group Projects Logistics Manager.

"The oil and gas industry also remains a key sector for us as the GAC portfolio of integrated services gives us the tools to provide energy operators with a unique package of shipping, marine and logistics solutions tailored to their needs," said Laurance Langdon, GAC Group Projects Logistics Manager.

"Mining also remains buoyant. As more and more inland locations are explored to meet growing demand, massive investment is being ploughed into developing the infrastructure to support operations, such as for power and refining etc., as well as product exports which require roads, bridges and ports. Those developments present many opportunities for the project logistics world."

South Korean 3PL Pantos Logistics said Indonesia's mining and power industries had created a boom in project logistics demand and he anticipated a bullish, growing market across the archipelago for years to come. "Resources are still open to explore in many sectors such as mining, power plants and also new infrastructure projects," he said.

In Indonesia Pantos offers customs handling, delivery, packaging, labeling and distribution of project cargoes nationwide using a range of handling and transport equipment ranging from cranes to jacking equipment, warehouses to barge transportation.

"We offer total logistics for projects," he added. "It all depends on the condition of the route, the jetty, the location, etc."

BDP International is another company with a strong presence across Asia which identifies Indonesia as a key market. BDP takes a non-asset approach to providing solutions for outsized

In Vilvoorde, Belgium, ALS's 20,000m² distribution centre comprises a warehouse including 20 dock shelters and floor capacity of 5,000kg/m².

or overweight shipments. Aaron Randolph Chen, Indonesia MD of the US-based logistics supplier, said this increased the company's operational flexibility and enabled BDP to offer storage facilities of any type and in any location.

"What BDP brings to the table is our experience and technology in supply chain management which can be quickly applied to any facility anywhere that internet connections are available," he explained.

"Depending on the location we have to work in, we normally use low-bed trailers, dropped-bed trailers, multi axle configurations of many kinds, shore cranes as the more conventional method and, for specific requirements, LCTs and barges for sites up river or near the shore.

"In some locations in Indonesia we have to use jacking instead of heavy lifting due to accessibility or lack of equipment available within reasonable proximity."

Where weight is an issue the company has the option of bringing equipment in from Singapore if the correct gear is not available in Indonesia.

UK-based Abnormal Load Services (International) Limited said its focus was also turning to emerging markets as Europe became more of a service economy rather than one with a strong presence in manufacturing.

"We are seeing more and more opportunities in emerging markets in a range of sectors including in the construction and energy sectors," said CEO Rene Van de Vin.

The company's own distribution facilities are located in Belgium and the UK close to major roads, international ports and airports. In Vilvoorde, Belgium, ALS's 20,000m² distribution centre comprises a warehouse including 20 dock shelters and floor capacity of 5,000kg/m². In Hull, in the UK, the company's 3,000m² of hard standing can take loads of up to 10 tonnes per metre. Jacks, skates and overhead gantry cranes provide the handling capacity.

ALS's own facilities are supplemented on a global basis by the lease of third party warehousing plus support for clients requiring specialist solutions from the firm's in-house specialists in agency, cargo handling, chartering and marine warranty.

"We can source and arrange alternative warehousing and storage solutions globally dependent on our clients' needs and requirements," said Jillian Peacock, group marketing manager.

Most companies offering specialist transport storage and handling for project cargoes use, like ALS, a variety of in-house and third party capacity.

DHL is a case in point. It claims it can supply clients with whatever facility and associated manpower they might require anywhere in the world. The 3PL global giant offers project logistics solutions to industrial clients both as standalone, one-off shipment services, and as part of more complicated all-in contracts which can cover thousands of shipments of various sizes and spread over a number of years.

"We are only restrained by physical dimensions and availability of suitable storage," said Richard Jones vice president of global business development in the Industrial Projects division of DHL Global Forwarding. "It can be difficult to find a suitable warehouse that is safe and secure and measures up to DHL's stringent HSSE policies. Additionally, warehouses are often required where the jobsite is and this could be in a remote location. Very often, therefore, we or the client purpose build a warehouse for a project.

"We also have strategic agreements with all the major heavy lift ship owners, barge owners and heavy hauliers."

ALS's own facilities are supplemented on a global basis by the lease of third party warehousing.

GAC has waterside facilities and warehousing with full packing capability in a number of key locations, including Rotterdam, Aberdeen, Singapore, Houston, and throughout the Middle East. This enables the company to consolidate multiple cargoes, pack and prepare for export at low costs for movement and handling, and provide sophisticated tailored services.

"Every project is viewed as a unique challenge to be analysed and understood in order to provide the best-suited solutions for each case," said Langdon.

The size limit on a single shipment is usually restricted only by vessel size, and equipment and infrastructure limitations. "While design engineers are constantly pushing the boundaries of size to achieve greater economies of scale, sourcing the equipment required to move, lift and fit large cargoes can prove problematic," he admitted.

"In some cases, a unique design decision may be made, to create a new type of rail wagon to handle extra weight, manufacture special cranes, engineer special landing jetties, etc. But of course, such a decision ultimately comes down to cost and risk."

Cranes and multi-axle hydraulic trainers are the most common equipment deployed by GAC, although Langdon insisted that skilled personnel were the most important part of any successfully completed contract.

Storage of cargo can also be customized in cases where pieces are too large to fit into an existing facility. If the necessary storage capacity does not exist then it can be created if the cost structure of the project allows. "Planning is vital in this respect," said Langdon. "The project logistics company should be engaged at the design stages of a project, in order to provide valuable advice on potential problems and the solutions available."

Historic and unprecedented investment by the

On 13 February this year, the Port of Sept-Îles proudly announced the financial support of the federal government for the construction of the multi-user dock in the Bay of Sept-Îles with a maximum contribution of $55 million, which is 25% of the project costs. The port and its partners are very pleased with this announcement, which is the culmination of considerable work and efforts over the past few years. The announcement was made in the presence of the Honorable Denis Lebel, Minister of Transport, Infrastructure and Communities and Minister of the Economic Development Agency of Canada for the Regions of Quebec and the Honorable Peter Penashue, Minister

of Intergovernmental Affairs, along with representatives of the maritime industry and other dignitaries from the Sept-Îles region.

With the preliminary engineering phase complete, the Port of Sept-Îles unveiled the conceptual plans for the new dock. Construction of the multi-user dock, at a cost of $220 million, will be completed over a period of 18 to 24 months. Located at Pointe-Noire, the dock will be built on the site of the old Gulf Pulp and Paper dock. Built on piles, the multi-user dock will have a 420-metre-long approach. The dock itself will be 450 metres long, with two berths. Construction is expected to start upon receipt of approvals this spring.

The Sept-Îles Port Authority believes that the completion of the multi-user dock will have a major impact in terms of job creation. Close to 1,000 jobs will be created during the two-year construction phase. Between 150 and 200 new jobs will be created locally for various rail transport, storage, and port handling activities. There will also be 2,500 to 3,000 new jobs that are directly related to the implementation of the new terminal and associated with the booming iron market that northern Québec and Labrador is experiencing with the arrival of many new mining companies.

This long-awaited dock will meet the growing and urgent needs of current and future Port of Sept-Îles users. “Many mining projects are advancing rapidly toward the launch of their activities and it is part of our mission to support them by providing state-of-the-art facilities that allow them to compete in the global marketplace. This new terminal will strengthen the Pointe-Noire sector’s major role in iron ore shipping in Canada, and with a capacity of 50mt (million

federal government in the Port of Sept-Îles

tonnes) annually, the terminal will become a focus of strategic development for the Port and its users," explained Port of Sept-Îles president and CEO Pierre D. Gagnon.

The financial support of the federal government marks the eagerly awaited kickoff of this major project that will allow the Port of Sept-Îles to expand to meet the needs of the market. "The federal government's assistance strengthens the financial basis of the project and once again reflects the government's desire to be a major partner in the port's long-term development and fully support the iron industry and economic development in eastern Canada," added board chair Carol Soucy.

The Government of Canada's contribution comes from the Gateways and Border Crossings Fund, which supports transportation infrastructure projects to develop and operate gateways, trade corridors, and border crossings. The Fund supports the objectives of the Canada–Ontario–Quebec Continental Gateway initiative, which aims to develop efficient transportation networks in Ontario and Quebec for international trade. The fund is part of the Building Canada plan, which makes it possible to provide long-term, stable, and predictable financing to help meet infrastructure needs across Canada.

With a full range of high-performance equipment, the Port of Sept-Îles is North America's leading iron ore port and will now become Canada's second largest in terms of annual volume handled, with close to 34mt expected in 2012.

Sept-Îles' port facilities play a vital and strategic role in the operation of a number of businesses from the region's primary sector. The port's annual economic impact is estimated at nearly $1 billion, with some 4,000 direct and indirect jobs. Port activity at the Port of Sept-Îles therefore remains a significant source of wealth creation in Quebec and Canada.

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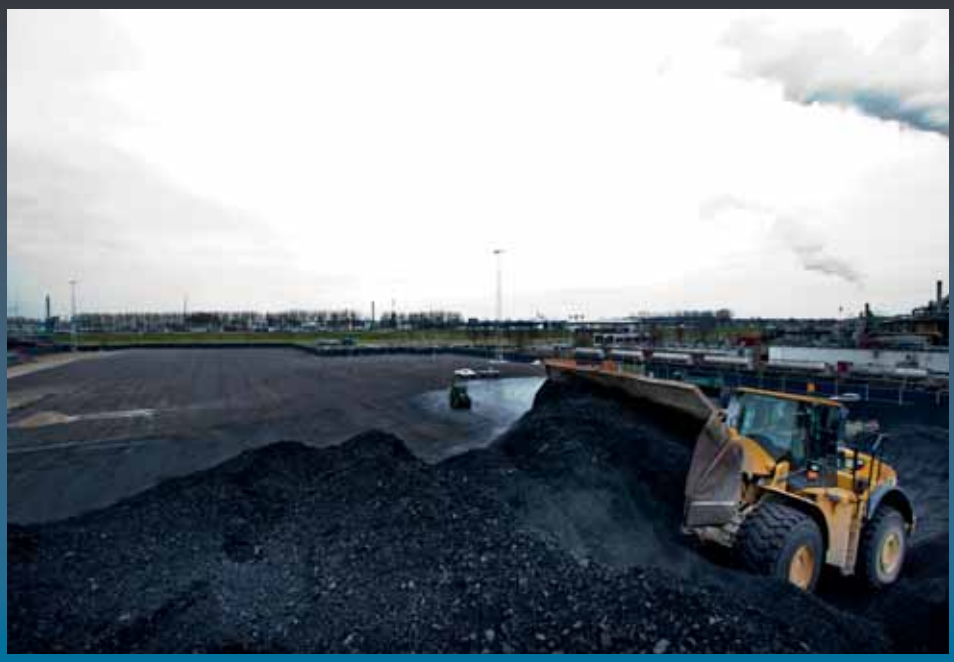
Operations begin at EBS's West 4 facility in Rotterdam



European Bulk Services (EBS) B.V. has officially begun operations in its new West 4 facility at Montrealweg 50 in Botlek, Rotterdam. The first shipment of coal was stored at the West 4 area in the middle of March this year.

The company leased the area from the Port of Rotterdam Authority in January 2011. Following an intensive period of construction, the West 4 area is now 80% complete, although the finishing touches are being made to the civil engineering projects and a new conveyor belt system.

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

European Bulk Services (EBS) B.V. is an internationally respected stevedoring company with a focus on the storage and transshipment of dry bulk goods. EBS operates from two strategically located terminals in the Port of Rotterdam and has its own fleet of crane vessels. Approximately 180 full-time employees work for EBS, generating €35–45 million in revenues per year. EBS is a wholly owned subsidiary of H.E.S. Beheer N.V.

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Queues to load Brazilian sugar decrease

The average number of vessels waiting to load sugar at Brazilian ports has fallen from around 30 to 28. Of the total tonnage loaded, the port of Santos accounted for 38%, with sugar handled at two terminals: Cosan and Copersucar. Paranaguá accounted for a further 29%. *Barry Cross*

Tubarão receives 400,000dwt VLOC

At the end of January, the Brazilian port of Tubarão, received a call from the *Vale Rio de Janeiro*, a very large ore carrier (VLOC) which can transport up to 400,000 tonnes of minerals. This is the first time that one of these giant vessels has called at this facility. CVRD has looked into using these at the port since 2008, eventually resulting to the use of a simulator to see whether it would be possible.

The vessel in question had previously called at Ponta da Madeira, Taranto and Rotterdam, and will shortly berth at Sohar in Oman.

It is one of a fleet of 35 sister vessel ordered by CVRD, being 362m long and 65m wide. Its deployment should make the transport of iron ore from Brazil to both Asia and Europe more economical, in addition to being more environmentally friendly. Because of its size, it is currently limited to just four global ports, although Subic Bay in the Philippines is now operational as a distribution hub, with services to Malaysia due to commence in 2014. *BC*

Manzanillo to issue agribulk terminal concession

Manzanillo port authority in Mexico is to issue a tender in the second quarter of this year for a new agri-bulk terminal, which will cover an area of 110,000m².

In 2010, agribulk traffic at the port rose by 4.1%, increasing by a further 11.4% in 2011, when throughput amounted to 5.274mt. *BC*

Abkhazia to build grain transfer terminal

Abkhazia is planning to build a 2.5mt (million tonne)-capacity grain transshipment terminal, which aims to target Russian grain being transported to countries around the Black Sea and Mediterranean Sea. At present, Russian ports on the Black Sea and Azov Sea handle an estimated 20mt each year. The aim is to boost this to 40mt by 2015.

Several locations for the transshipment terminal have been identified, although the favourite is at the village of Lower Escher, close to the town of Sukhumi, where there is already an existing silo in place. This site could be expanded to encompass a storage area of 80,000m².

A simple renovation of the silo would cost around $2 million, but to produce a fully operational terminal would require investment of at least $25 million. *BC*

Vysotsky coal exports grow

Coal shipped from the Russian port of Vysotsky grew by 39% last year to 3.2mt (million tonnes), according to the port stevedoring company. Tonnage has grown steadily, from 2.3mt in 2009 to 2.9mt in 2010.

Dredging work carried out in the port's access channel has deepened draught to 12.7m, allowing vessels drawing up to 11.9m of water to be accommodated, whereas previously this was limited to 9.3m. It is now possible for 45,000dwt bulk carriers to access the coal terminal. *BC*

Spanish dry bulk makes modest gains in 2011

Despite having been one of the most badly affected sectors during the downturn in the economy post-2008, dry bulk traffic seems to be making something of a comeback in Spain. In 2011, overall tonnage handled grew by 0.77% across all Spanish ports to 79.25mt compared to 78.64mt in 2010. However, only the ports of La Coruña, Alicante, Almería, Avilés, Cádiz, Barcelona, Cartagena, Castellón, Ceuta, Ferrol, Málaga, Motril and Santander saw traffic rise; all the others reported a continuing downturn. *BC*

New coal port mooted for Mozambique

Ncondezi Coal Company and Rio Tinto have signed an agreement to undertake studies for the construction for an integrated transport corridor in Mozambique, where both companies have existing coal mining interests. The focus will be on development of a new port in Zambézia province, which will be used to export coal mined in Tete. This would have a capacity to handle 25mt (million tonnes) to 100mt annually. Ncondezi alone has the right to export up to 10mt of coal per annum. *BC*

Vitol buys into Maputo coal terminal

Vitol Group, which is one of the world's largest energy trading businesses, has acquired a 35% stake from Grindrod in the company which owns the Maputo coal terminal concession, paying $67.7 million.

Grindrod was awarded the concession for Terminal de Carvão da Matola up to 2033; the agreement includes a possible ten-year extension option. A total of $70 million has so far been invested in renovation of the infrastructure to expand capacity to 6mt (million tonnes)d. Dredging of the channel, completed in 2011, enables Panamax vessels to access the facility.

A feasibility study has also been completed to assess the possibility of expanding capacity to 20mt, which would require an investment of $800 million to reclaim an area of 120ha, in which two new berths would be built, as well as a stockpile area and new railway infrastructure.

According to Grindrod, Vitol has extensive experience in building terminals and also an established global trading business. However, the equity sale will still have to be approved by the government of Mozambique. *BC*

CVRD undertakes coal transshipment in Mozambique

The Brazilian company CVRD, which has mining interests in Mozambique in the central Tete province, has undertaken the first ever vessel-to-vessel transshipment of coal in the country. This took place at the port of Beira between the vessels *Bulk Zambezi* and *Green Phoenix*, with the latter transporting 37,600 tonnes of coal to the Indian port of New Mangalore. This operation showed it would be possible to load very large vessels that currently cannot proceed directly into Beira because of draught restrictions on the access channel and at the quayside. *BC*

China blocks calls from Brazilian VLOCs

China's Ministry of Transport has said that large ships exceeding approved capacities will no longer be allowed to dock at any of its ports. Previously, requests to do so were considered on a case-by-case basis. The move has been deliberately taken to exclude Brazilian company CVRD's latest generation of mega-bulk carriers from being deployed on routes to China.

The surprise announcement was doubtless influenced by complaints by the China Shipowners Association, which was outraged by the arrival of one of these 388,000dwt vessels at the port of Dalian, where it unloaded imported Brazilian iron ore. Currently, the maximum permissible vessel size allowed in Chinese ports is no more than 300,000 tonnes. The Chinese fear that Vale's very large ore carriers will effectively monopolize the movement of coal and iron ore at the expense of Chinese shipping lines.

Faced with this ban, Vale will serve China in future via a more expensive transshipment hub that it has established in the Philippines.

Freeport recommences shipments from Papua

After a three-month strike in Indonesia, Freeport-McMoRan Copper & Gold, has reportedly loaded two vessels, one bound for India and the other for Japan, although details as to the exact consignments remain unknown. Workers at the Grasberg copper and gold mine in Papua went on strike for higher salaries, prompting the mine owner to invoke *force majeure* measures. *BC*

Export taxes on coal hurt Indian ports

Several major ports in India have suffered due to a curb on iron ore exports and also on increased duty on outbound shipments. Those most affected are New Mangalore, Ennore, Visakhapatanam, Paradip and Mormugao.

In the last fiscal year, iron ore exports from India dropped to 97.64mt (million tonnes) compared to 117.3mt in 2009/10. In the current fiscal year, iron ore exports are down by a further 28%. Export duty in the same period has gone up by 30%, prompting mining companies to suggest that just 50mt will be exported in this fiscal year, which is also bound to damage port revenue.

Karnataka has completely banned iron ore exports as of July last year, prompted by allegations of illegal mining. A further 45 mines in the state of Goa have also been closed for environmental reasons, further reducing exports. *BC*

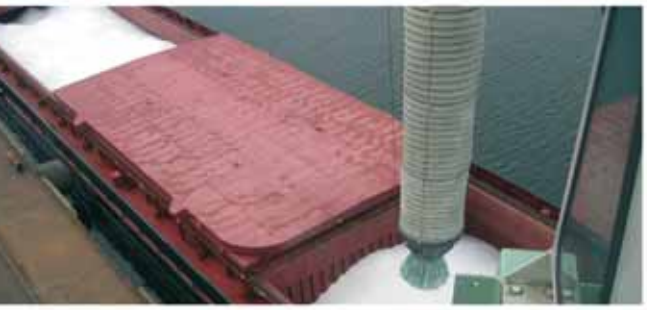
Chennai loses traffic to Ennore

The ban on shipping coal via the port of Chennai, which was imposed for environmental reasons, resulted in Ennore making significant traffic gains. In the first nine months of the current fiscal year, Ennore handled an additional 2.4 million tonnes of thermal coal as well as 251,000 tonnes of coking coal, compared with none at all in the previous year. In the same period, Chennai reported a loss of 400,000 tonnes of thermal coal and around 140,000 tonnes of coking coal. *BC*

Major bulk port in Finland

Port of Pori

The port of all size vessels



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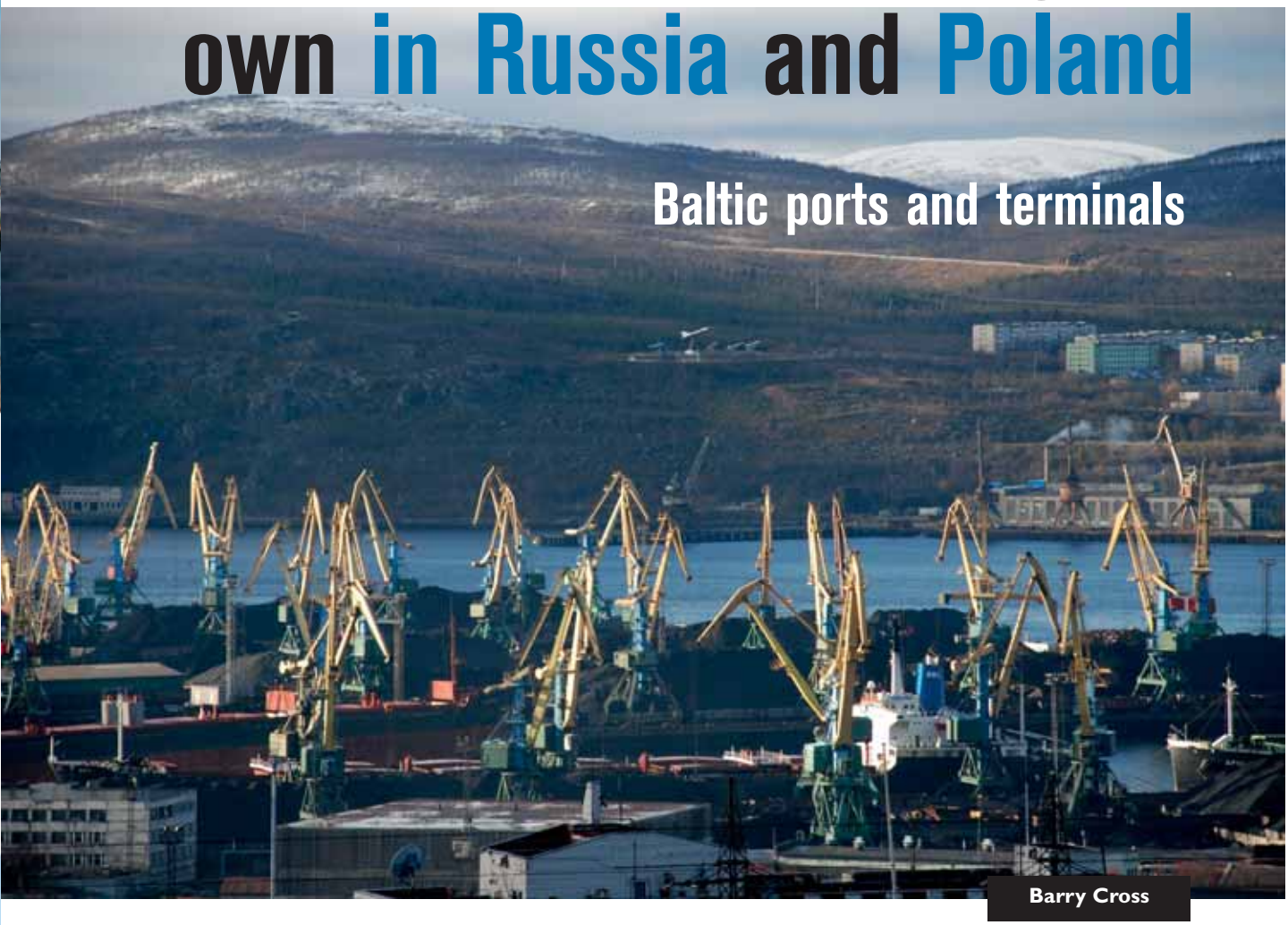
Coal traffic holding its own in Russia and Poland

Baltic ports and terminals



Barry Cross

Despite the economic downturn in most of Europe, coal imports and exports around the Baltic seem to be almost immune to market influences.

Murmansk, situated some 2,000km north of Moscow on the Kola Peninsula, is Russia's largest ice free port. In terms of dry bulk traffic, two commodities predominate: coal and apatite.

Harbour master assistant, Alexander Bengert, notes that 80% of the coal handled by the port is exported, to mainland Europe, the British Isles and to the Baltic region for use in power generation. With draught of 15.5 metres on the berths, bulk carriers of up to 150,000dwt can be accommodated and are the mainstay of this trade.

"Practically 100% of the coal that we handle comes overland by rail from Siberia, on a journey that takes the best part of a week," Alexander says.

From the rail wagons, coal is discharged directly into the ships' holds. However, a full range of value added services is available on shore, consisting of screening, washing and grading.

"Murmansk is warmed by the Gulf stream throughout the winter, so we remain ice free, which means coal can be loaded all year round. We don't yet have axle heaters for the rail wagons, but we are planning to introduce these in the near future," he says.

Apatite, which is used to make fertilizer, is sourced much closer to home, and brought in by rail over distances of around 150km. Grab cranes are not used on this traffic, which is loaded at two dedicated berths using elevators. Vessels sizes of between 3,000dwt and 40,000dwt are more modest, although countries importing this material are similar to those consuming Russian coal.

Overall, Murmansk has a capacity of around 20mt (million tonnes), although, on average, it handles 11mt of coal and approximately 4mt of other cargoes (such as apatite, iron ore, general cargoes etc.). Last year, notes Alexander, traffic rose slightly, despite a decrease in the amount of coal extracted in Siberia, which meant that fewer ships called.

"Overall, both coal and apatite traffic remain relatively stable, so for 2012, we are once again expecting to handle around 11mt of the former and 2mt of the latter," says Alexander.

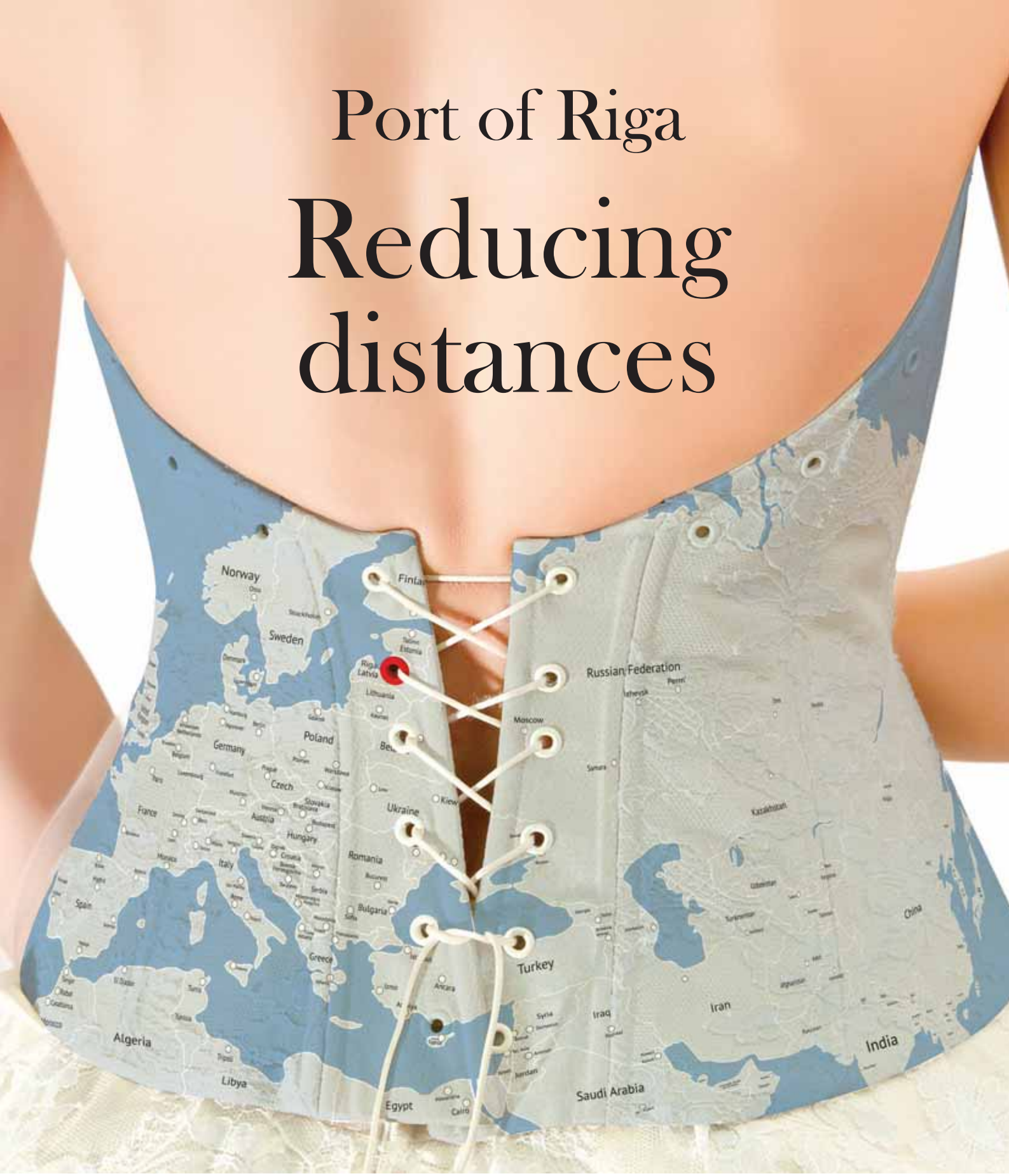
Asked about regional competition, he says that on the Kola Peninsula, there are just two other ports. Vitino is an oil handling facility, while Kandalaksha, which is on the south side, also has significant coal traffic, handling approximately 1mt annually.

Murmansk, nevertheless, remains the regional power house and is currently advancing plans to build an entirely new harbour area on the east and west of the peninsula, which will bring 60mt of new capacity to the port, half of which will be taken up by coal traffic and the other half by oil. This will become operational in 2020, having been jointly promoted by both the government and private sector in equal proportions.

The development of the so called Murmansk Transport Hub is one of the biggest ever port infrastructure projects in Russia. It aims to modernize existing facilities and also build new ones, focused on the transshipment of cargo. The decision to develop

Port of Riga

Reducing distances



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BCT posts impressive traffic gains

Baltic Coal Terminal (BCT) at the Latvian port of Ventspils handled a total of 4.79mt (million tonnes) of coal in 2011, compared with around 2mt the previous year. Most of the consignments it handled were transported to the UK, Belgium, Spain and Morocco.

If necessary, BCT can store 210,000 tonnes at its indoor warehouse.

Murmansk in this way was due to a number of important advantages it possesses.

Firstly, it has open access to the sea, requiring little in the way of diversion from international shipping lanes. Furthermore, it remains ice-fee and has good storm protection. In addition, the eastern shore of Kola Bay already has in place well developed infrastructure, while the undeveloped areas on the western coast are also ideal for the construction of new terminals.

Existing, reliable transport links with the developed industrial regions of Russia were also key, particularly as the port lies at the end of a freight corridor linking Asia to Europe and America.

Finally, the proximity to already explored oil and gas deposits weighed heavily.

The main element of the project is to create an all-year-round deep-water hub, capable of handling containers, oil, coal and mineral fertilizers. The new infrastructure will allow bulk carriers of up to 300,000dwt to dock.

An electrified railway line will have to be built from Vihodnoy to Lavna and a 20mt capacity coal terminal constructed on the western shore of Kola Bay, where the main investor will be Commercial Sea Port Lavna, Ltd. Rail sidings for the coal terminal are also planned, with the project being taken forward by Lavnatrans, Ltd.

This is in addition to a 35mt oil terminal, also on the west coast and a one million TEU container terminal on the east coast.

In the meantime, the existing coal terminal on the eastern shores of Kola Bay will be upgraded, with the cost bankrolled by Murmansk Commercial Sea Port.

A special port economic zone is also to be built around Murmansk as a means of keeping construction costs low for the new port terminals and also expedite project implementation, as well as acting as a means of attracting investors.

Russian coal producer and trading company, TALTEK, has the ability to produce around 3mt of coal each year, although plans to increase this to 6mt by 2015. Around 80% of the coal it

produces is exported, to countries including Bulgaria, Finland, Great Britain, Germany, Greece, Italy, Latvia, the Netherlands, Poland, Romania and Turkey.

In addition to land shipments, coal is also transported to Western Europe through the Russian Port of Kandalaksha, while for Southern Europe and North Africa, shipments are made via the port of Mariupol.

Kandalaksha is located in the north-western part of the White Sea, on the Kola Peninsula. Its initial development took place during the Soviet era, with the main flow of both general and bulk cargoes shipped via inland waterways and via the Arctic sea route.

In 2004, the port was sold to private investors. It became part of the investment company Yukas Holding — the consolidated company of the TALTEK group — as of 2007. Since then, overall traffic has continued to rise. In 2007, volumes handled amounted to 671,600 tonnes, rising to 981,900 tonnes in 2008 and 1.2mt in 2009.

The Port of Kandalaksha in Russia.

Development plans envisage raising capacity from between six and 11mt, depending on demand.

According to TALTEK spokesperson, Vladislav Lozin, Kandalaksha is still something of a "traditional" port, although it is being modernized. It has a maximum draught of 9.8 metres, which means that Handysize vessels can be accommodated, with the average bulk carrier currently being in the order of 25,000dwt. However, TALTEK does have plans to deepen the draught to 11m-12m in nearest future.

"Total capacity is in the order of 2mt, although in 2010 and 2011 throughput averaged 1mt and we expect to export the same amount in 2012. This is steam coal and it has been the mainstay of the port for the last four years," he says, adding that no major dry bulk is imported through Kandalaksha at present.

Unlike nearby Murmansk, Kandalaksha, along with the whole of the White Sea, has problems with ice from the beginning of February to the middle of May. The port therefore contracts ice breaking services from RosMorPort in this period every year allowing access to be maintained year round.

Asked whether Kandalaksha competes with Murmansk for Siberian coal traffic, Lozin says that it doesn't. "Murmansk is used by the bigger coal players, such as SUEK, whereas we deal with output from TALTEK's own mines. Unlike Murmansk, we aren't active in the apatite market, either."

The port is equipped with modern high-powered equipment that, among other things, can clean the coal of metal impurities. Rail wagons discharge directly onto conveyor belts, which feed some 16 grab cranes on the quayside, although customers can also ask for coal to be crushed prior to despatch.

The existing rail terminal is absolutely enormous and can handle up to 11mt of goods a year, which is considerably higher compared to Kandalaksha port's current capacity.

There are a total of five available berths, although not all are used for coal traffic. However, berthing dolphins are invariably used when handling vessels in the 20,000–30,000dwt range to take advantage of a slightly deeper draught.

Loading rates of 7,000 tonnes are claimed for coal.

The company also delivers coal to customers in Southern Europe, mainly using the Black Sea port of Mariupol, with the odd use also made of Izmail and Kerch.

Mariupol, which is located in the north-western part of the Taganrog gulf, in the Azov Sea, can handle ships of up to 240 metres in length, drawing up to eight metres of water. The port, which offers the mechanical cleaning of the coal, handles in the region of 500,000–600,000 tonnes, with consignments sent to Slovenia, Italy, Croatia, Bulgaria, Romania, Turkey, Greece, and countries in North Africa.

"It should be noted that our company has long-term partnerships with all these ports, which allows us to fulfil all our commitments to our clients," says Lozin.

St Petersburg Big Port reported total traffic last year of 59.9mt, which was an increase of 3.3% over 2010. Two of its most important exports are wood and mineral fertilizer, of which 90% is handled by Baltic Bulk Terminal, which is owned by Uralki. Fertilizer traffic at the port increased just slightly, while grain exports grew by 67%, as the previous embargo on exporting Russian cereals was lifted last autumn.

Significantly, coal and coke exports fell by 87% and those of minerals by 93% as the Fourth Stevedoring Company concentrated purely on container traffic as the expense of dry bulk. Instead, coal and minerals traffic moved to another UCL Holding company, the Universal Handling Complex at the Port of Ust-Luga.

Here, overall traffic almost doubled to 22.73mt, while the number of rail wagons handled, at 340,043, was twice as high as in 2010, as they brought in much of the coal displaced from St Petersburg.

The Port of Vysotsk, which also specializes in handling coal exports, had something of a banner year too, seeing volumes passing through its terminals grow by 40% to 4.5mt. On the whole, this was the result of dredging work and quay re-construction to allow much larger vessels to call. With its terminals regularly accommodating 45,000dwt bulk carriers, Vysotsk was able to despatch coal much further afield than it had been originally. So, from a core market encompassing Germany, Finland and Poland, it now also serves the UK and the Netherlands.

The port complex of Szczecin and Swinoujscie is the largest bulk cargo centre on the Polish sea coast. It handles the majority of the country's coal imports and, until now, it has handled nearly 100% of its imported maritime iron ore shipments. Beside coal and coke, the other main dry bulk cargo handled in the two ports are grain and grain products, iron ore, fertilizer, chemicals and construction aggregates. The vast majority of these are imports, notes one of the port's marketing specialists, Karolina Bierdzinska.

Last year, the twin ports handled a total of 10.4mt of dry bulk, compared to 11.1mt in 2010. Reasons for the slight dip are explained by a decrease in coal and grain/grain products, although the 'other bulks' category rose by 66% mainly because of huge quantities of imported building materials being received for building operations related to the construction of a new breakwater in the new outer harbour at Swinoujscie.

"For 2012, we forecast handling around 9.5mt of dry bulk cargo, which will be down to an additional slight decrease in coal traffic and also a fall off in imported building materials, since construction of the outer harbour at Swinoujscie is due to be completed by the end of the year," says Bierdzinska, who also concedes that problems in the Eurozone could also result in a reduction of coking coal imported by the steel industry.

Export coal, for a long time the mainstay of both Szczecin and Swinoujscie, has decreased in importance in the last few years, replaced in part by imported consignments. At present the proportion is about 40% exported and 60% imported.

"Another dry bulk commodity making news is the rapid growth of biomass, which began last year and is forecast to keep increasing over the next few years. In both ports, there are facilities in place to handle imports and exports. We can also store this in concrete yards or in covered warehouses," says Bierdzinska.

At present, neither port suffers from capacity issues, plus there is enough development area to enable capacity to be boosted if necessary.

In regard of investment in the dry bulk sector, this divides between money being spent by the port authority and that spent by private operators.

In respect of the former, investment is being made on rebuilding both road and railway infrastructure at Szczecin and Swinoujscie ports. Interior-port roads totalling some 5,794.78m are being rebuilt at Szczecin, while similar work on 2,883.47m is being undertaken at the port of Swinoujscie, where additional parking space for trucks and passenger vehicles is also being built. As for rail, which handles the majority of dry bulk movements (along with inland waterways) 35,927m of sidings and 134 points will be subject to restructuring and modernization.

Apart from the Port Authority, last year, private operators invested in two new flat warehouses for grain and grain product storage dedicated mainly to imported soyabean meal. Each warehouse can hold up to 50,000 tonnes.

"Investment made by the operators tend to reflect current market conditions. In the port of Swinoujscie, for example, the company handling and storing coal has recently converted facilities previously given over to export coal to allow them to be used for imported coal," says Bierdzinska.

However, she sees the port authority's biggest challenge as that of the construction of the outer harbour at Swinoujscie, where the western part of this new port will be dedicated to a variety of cargo handling, including that of dry bulk.

"The extra space will allow us to decisively increase the transshipment capacity of both ports. It will also create a chance to accommodate larger vessels," she says.

The Port of Kandalaksha in Russia.

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What will the dry bulk outlook be for 2012/2013?

What are the key issues affecting today's bulk facilities?

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Current status and outlook on international bioenergy markets and trade: exporters, importers and consequences for logistics

Chinese iron ore demand and changes in Indian iron ore exports

Global and European demand and trades analysis for scrap metal

Bulk carrier supply & demand outlook fleet analysis

Design and Operational Control of Dry Bulk Terminals — how to design or expand a terminal

Opportunities in dry bulk logistics in India

New developments in environmentally friendly bulk handling using Continuous Ship Unloaders

Case Study: J. Müller Agri Terminal — Bulk Specialist at the Lower Weser

Biomass handling at ports and terminals

Attracting Green Ships

Congestions and bottlenecks in the dry cargo logistics supply chain

Dry bulk transshipping goes larger and greener

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Lex de Ridder, Head of Logistics & Industry - The Port of Amsterdam

James Leake, Global Head of Research, Consultancy and Information Strategy — ICAP Shipping International Ltd

Olle Östensson, President — Caromb Consulting

Prof. Andre Faaij, Technical Manager — Copernicus Institute for Sustainable Development

Jeffery Landsberg, President — Commodore Research & Consultancy

Niels Boetje, European Scrap Manager, Cargill Ferrous International — Cargill

David Peel, European Manager - RightShip Pty Ltd

B. Velan, Managing Director — Scorpio Engineering Pvt Ltd

Teus van Vianen, Delft University of Technology — Transport Engineering & Logistics

Antje Tussinger, Corporate & Business Development — J. Müller Aktiengesellschaft

Dr. Holger Lieberwirth, Executive Vice President — TAKRAF GmbH

Adrian Hinderling, Area Sales Manager — Buhler AG

Ekke Oosterhuis, Project Manager Industrial Installations — Haskoning Netherlands

Professor Mike Bradley, Director — The Wolfson Centre — Bulk Solids Handling Technology

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Tenova acquires Bateman Engineering N.V.

Tenova, a worldwide supplier of advanced technologies and equipment for the iron and steel and mining industries, has acquired Bateman Engineering N.V., a major equipment supplier and engineering house for the mining industry.

The Tenova Mining division now covers most of the mining industry value chain presenting itself to customers as an all-round supplier with innovative technological products and full process and commodity knowledge.

Bateman Engineering (which includes Delkor group) joins Tenova TAKRAF and Tenova Pyromet, to form a group of Excellence in mining sector, with more than $1.1 billion revenues and more than 2,400 people operating in 16 countries on five continents.

"With this acquisition Tenova further broadens its portfolio of products in a market expected to grow constantly in the long term", declared Gianluigi Nova, CEO of Tenova. "The Bateman acquisition will also strengthen Tenova's global network of well rooted companies present in key markets and integrated in a flexible, customer-oriented organization."

Tenova is part of the Techint Group, a corporation composed of six main companies operating worldwide with an aggregate turnover of $22 billion and employing over 55,000 people. Tenova is a worldwide supplier of advanced technologies, products, and services for the iron and steel and mining industries. With about 3,100 people, Tenova operates through more than 30 companies located in 22 countries on five continents, and reports revenues of $1.5 billion before the acquisition of Bateman Engineering N.V.

Tenova is active in the mining and bulk material handling sector and offers innovative, integrated solutions for the design and supply of direct reduction plants, submerged arc furnaces, melt shops.

TKF supplies four reclaimers for sulphur storage

In March 2011, ThyssenKrupp Fördertechnik GmbH, Business Unit Material Handling has been contracted by Techint Compagnia Tecnica Internazionale S.p.A. of Italy to supply four back-stacking Portal Reclaimers to be operated at the Ruwais Sulphur Handling Terminal -2.

This new sulphur storing and ship loading facility is part of the capital investment of Abu Dhabi National Oil Company. (ADNOC) for their Habshan and Shah Gas Development Projects and will be established on a green-field plot in the Ruwais (U.A.E.) port area, at approximately 165km west southwest of Abu Dhabi City.

The granulated sulphur will be transported via rail system from Shah and Habshan producers to the Sulphur Handling Terminal-2 in Ruwais where it will be unloaded and exported by ship.

The Sulphur Handling Terminal-2 in Ruwais is designed to receive 22,000 tonnes per day of granulated sulphur.

The four machines installed in two different storage buildings (two per building) represent the key equipment of the new plant as they will be capable of either stacking the sulphur coming from the railcar unloading station, either reclaiming the stored product or by-passing the stockyard to feed the downstream shiploaders.

The design of the back-stacking portal reclaimers represents an exciting technical challenge as, with a rail gauge of 71.25m, they are not only the largest full portal reclaimers ever built but also the most efficient with a stacking rate of 2,000tph (tonnes per hour) and a reclaiming rate of 4,000tph.

The portal reclaimer itself is equipped with four scraper booms i.e. two arrangements of main and auxiliary scraper booms mounted on either side of the portal structure and connected together by a knuckle arrangement. The scraper booms are not only capable of reclaiming the sulphur stored in the warehouse but also to stack-in respectively by-pass sulphur coming from the railcar unloading station. For that purpose, the sulphur flow is fed by a dedicated belt conveyor to the tripper car towed by the main machine. Via a splitting/diverting chute arranged at the tripper car discharge the sulphur is by-passing the machine for direct feeding of the shiploaders or equally distributed in-between the scraper blades of the two main booms running in reverse direction and thus performing an upward motion of the product to build-up the stockpile.

As these machines shall run in a sulphur dust laden, extremely explosive, atmosphere, the entire machine is classified in Zone 21 according to the ATEX directives for safe operation in a hazardous area. By an appropriate selection of certified components and supply of fresh air to the electrical house, this major safety requirement is fully met. Furthermore special care is taken to reduce the dust emission during stacking or reclaiming operations thanks to the on-board water/surfactant mixture spraying system. Safeguarding the machine from any accidental self-ignition of sulphur dust deposits is achieved through local temperature monitoring of the drive components (motors, gear reducers and bearings) as well as by an appropriate fire detection systems arranged along the on-board product handling routes which triggers a fire water deluge system to protect the machine components. The electrical cabinets inside the electrical house are protected too by a fire detection system which initiates an inert gas fire extinguishing system in case of fire occurrence.

ThyssenKrupp Fördertechnik GmbH numerous references of high capacity portal reclaimers and their excellent track records were deciding factors in the contract being awarded to TKF. With this prestigious and challenging contract, ThyssenKrupp Fördertechnik GmbH will set new standards for high capacity back stacking portal reclaimers and demonstrate once again his technological excellence.

SMB's telescopic loading head enables easy bag loading

The telescopic loading head from the SMB International GmbH ensures that bags can be easily loaded into a ship's hold. The loading head ensures convenient bag loading with a telescopic conveyor.

At the end of the spiral chute is a rotating plate with bag guide, which can rotate up to 270°. Up to three telescopic conveyors take the bags from here to the ship within a radius of seven metres. A telescopic rotating spiral chute can also be used, giving the loading head a full 360° capability. One operator moves the boom by remote control, while another guides the bags into the ship's hold, without much physical effort. A further advantage is that the goods being loaded are guided very close to the final loading position, thereby enabling faster loading. This loading head is often used for larger ships.

Carton loading – telescopic loading head

A continuous-belt conveyor with a radius of seven metres transports the cartons into the ship's hold. The telescopic head can be moved up and down, and can also rotate throughout up to 270°. This allows the loading of bags as well as cartons. The conveyor equipment can also work in the reverse direction, to convey cartons or bags upwards, making this loading system also suitable for unloading. Very fragile products can also be loaded in this way, since the loader does not work by gravity, but transports the products from beginning to end on a conveyor belt. This method of loading has today been largely replaced by container loading, although it is still very useful for special applications.

Major clients

The SMB Group has clients in the logistic, processing, industry sectors with an international range, especially in the Middle East, Southeast Asia and Europe.

Recent contracts awarded/completed

For an Algerian fertilizer company, SMB International GmbH from Quickborn has designed two shiploading systems for the handling of urea. The shiploaders were installed directly at the Port of Arzew in Algerica, on the Mediterranean, near the city of Oran.

The company was asked to construct the complete connection to the quay: i.e. the take-up of the bulk cargo from the quayside belt right into the ships. With a reclaimer, the granules are brought from the silo warehouse to the conveyor technology and transported further to the SMB shiploader. This way, a fully-automated loading process can take place at any time of day and night and the material reaches the ship from the warehouse, in a protected manner.

The engineering designers also decided on a mobile system on the quay with a pivoting superstructure. In this way, the ship can be loaded at all locations. With the loading of bulk cargo, it first reaches the tripper car via the conveyor belt system. The cargo then falls on the portal belt, is conveyed to a funnel, which is in the centre of the intermediate transfer point and reaches the boom conveyor and then into the cascade chute. This has several open cones inside it, arranged in an angled position across one another, so that the material 'flows' into the belly of the ship, in order to avoid material being destroyed. The outlet section of the slide is shaped around 360°.

The SMB Group

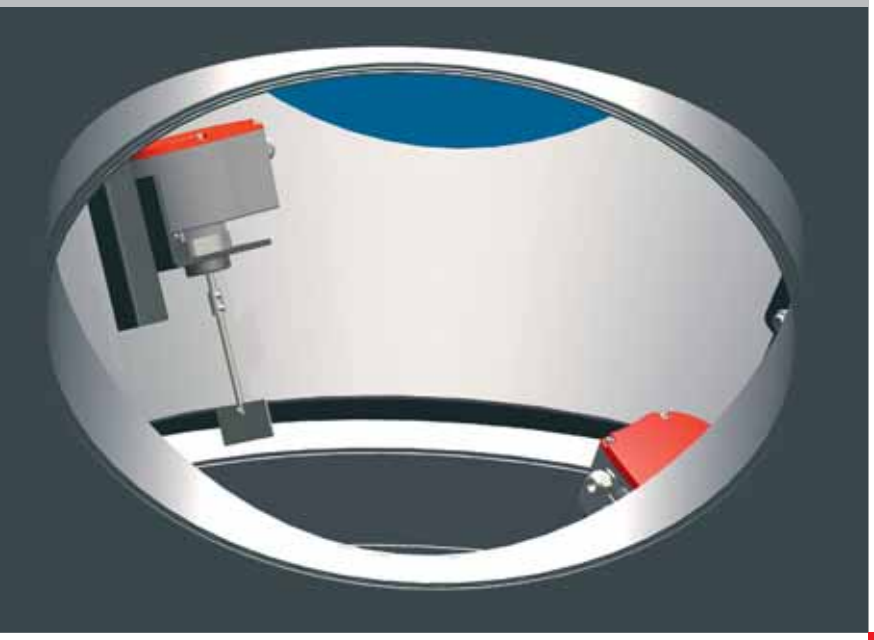
The SMB Group offers a range of services that include the areas of filling and conveying equipment, shiploading, warehouse technology, level measuring technology and conductivity measurement. The main focus of the business lies in the planning, development, manufacture and worldwide distribution and service. The SMB Group has great expertise in highly complex installations as well as warehouse logistics as a complete system provider. Many years ago, SMB took a conscious decision to have a high level of in-house production at its facilities in Quickborn. Having a great deal of manufacturing expertise means that the company is able to ensure that it supplies its equipment to a high standard and in a timely manner. The installation and service team handles national as well as international projects. An extensive, worldwide operating distribution network enables a fast response and professional representation.

SMB Group ensures:

- a high level of in-house production which is specialized with the company's own engineering and manufacturing of mechanical and electric modules;
- worldwide services and installations;
- inexpensive commissioning; and
- 24/7 standby service.

SMB allows for variety from a single source, with all of its products 100% made in Germany.

SMB Shiploading



SMB Group
best solution

Highlight of the month

All Shiploaders/Reclaimers designed and manufactured by SMB include a wide range of safety features.

- Anti-collision systems
- Firefighting – extinguishing systems
- Overflow/overfilling devices
- Lightning protection, Earthing
- Storm locking
- Acustic Signals

Ships all over the world are being loaded with know-how from SMB

All safety features are designed and implemented by SMB.
Depending on the product being loaded a fire-fighting-system may be required.
The design of this system is customized to ensure maximum efficiency.
For the safety of the ships or other mobile systems on the jetty the installation of the SMB anti-collision system could be considered.

All systems are equipped with standard devices for Lightning protection, storm warning and storm locking and all possible acoustic signals.
The material transfer points are all equipped with the MBA level switch (see picture) – this is the most reliable and robust way to avoid overfilling and spillage of material.

MBA level switches control the distance of the loading spout to the material in the ship.

SMB Filling

Line Filling System
Palett Filling System
Single Place Filling System

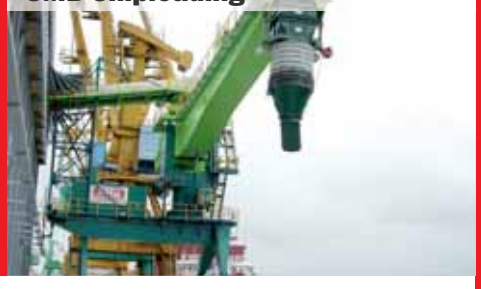
MBA Instruments

Level Detector MBA 100
Rotating Paddle MBA 200/2.2/3.2
Vibrating Paddle MBA 700
Perpendicular MBA 369
Radar MBA 300/400
Fluidization Silo-Flo
Conductivity MLA 900

SMB Logistics

Compact Storage System
Palletizing Systems
Transportation Systems

SMB Shiploading



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Indonesian fertilizer producer orders second Cargotec Siwertell unloader

Cargotec's 300th Siwertell unloader contract will see the company deliver its safe, efficient and environmentally friendly Siwertell system to the Indonesian fertilizer producer, PT Petrokimia Gresik.

In January this year, Cargotec secured a second contract for a Siwertell ship unloader with the Indonesian fertilizer producer, PT Petrokimia Gresik. "The customer chose our Siwertell technology again, because they wanted a highly efficient continuous screw-type unloader, which was also capable of safely handling potentially explosive materials, such as sulphur," says Anders Paulsson, Cargotec Sales Manager, Bulk Handling. "We have by far the most knowledge and experience of screw-type unloaders, and can offer them at competitive prices."

Cargotec supplied Petrokimia Gresik with a ST640-DOB Siwertell ship unloader in 1996, and this latest contract will see it deliver the latest version of the same type within the next 13 months. The ship unloader will be erected at its operating site in Gresik, Indonesia and able to handle rock phosphate, sulphur, urea and ammonium sulphate at a rated capacity of 1,000tph (tonnes per hour). Petrokimia plans to have the site running from mid 2013.

"With a totally enclosed system, our Siwertell unloaders offer customers an environmentally-friendly solution. Also, for handling sulphur, the unloader has a built-in safety mechanism; our award-winning 4S system," highlights Paulsson.

The 4S (Siwertell sulphur safety system) is designed to minimize the risk of explosions and detect fires. Cargotec now applies the 4S to all ship unloaders aimed for sulphur unloading, both those for larger ships and road-mobile unloaders for smaller ships.

To prevent explosions and fires, the Siwertell unit is equipped with nozzles that spray water at the inlet feeder and in the conveyor transfer points. An automatic lubrication system is installed to lubricate and cool down end bearings and intermediate bearings.

There are also fire detectors along the conveying line, and when activated these automatically start the fire extinguishing system spraying water and stop the conveyors. This is vital to prevent fires entering the storage building. To manage any explosion, the conveyor's steel casings are reinforced with extra-thick steel, and explosion-venting valves are fitted along the conveyors and dust collectors to relieve pressure.

Cargotec improves the efficiency of cargo flows by offering solutions for loading and unloading goods on land and at sea — wherever cargo is on the move. For handling dry bulk materials, Cargotec provides engineering solutions through its Siwertell brand, including design, installation and after sales services worldwide.

Siwertell ship unloaders and loaders are based on unique screw conveyor technology, in combination with belt conveyors and aeroslides, and can handle virtually any dry bulk cargo, such as coal, cement, fertilizer, agribulk, clinker, sulphur and grain. Cargotec can supply plant and terminal design, ship unloaders, ship loaders, mobile ship unloaders, mechanical and pneumatic conveying systems, and storage solutions, all designed to ensure environmentally-friendly and efficient cargo operations.

Coeclerici Group opens new Miami office

Coeclerici Group, a major international operator for the supply of integrated and innovative services for the power and iron/steel industries, has opened a new office in Miami.

The idea of establishing a presence in the USA is to enable the company to develop its business in trading coal, its derivatives and petcoke, as well as to look for new logistics opportunities throughout the American Continent.

From an operational point of view, the developing and coordination of activities will be directed by Joseph Kulbeth, who has been nominated CEO of Coeclerici Americas LLC. Paolo Clerici will be the company chairman and Bill Graybeal, the longtime CEO of Coeclerici Asia, has been nominated as deputy chairman.

"We have been working on this project for a long time. The USA is still one of the biggest coal producing countries in the world and we are convinced that being active in this market will allow us to expand even further our international activities and be able to follow the market evolution" said Paolo Clerici, chairman and CEO of Coleclerici S.p.a.

Founded in Genoa in 1895, Coeclerici Group, with a turnover of €500 million and 1,000 employees, is a renowned international supplier of integrated and innovative services for the power and iron/steel industries.

Coeclerici operates through a Mining division owning its own mines, a Trading division dealing in raw materials such as coal, anthracite, coke and iron ore; a Logistics division specialized in international offshore logistics for raw materials, providing transshipping, coastal shipping and port logistics services; and a Shipping division servicing the Trading division with time-charter vessels.

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1,000th mobile harbour crane ordered from Liebherr

Liebherr-Werk Nenzing is celebrating the receipt of an order for its thousandth mobile harbour crane. In the second half of 2012, Liebherr will deliver this milestone mobile harbour crane to Montoir Bulk Terminal in France.

Soon after achieving its second-best annual result in history, Liebherr has had an impressive start to 2012, with this sale of its 1,000th mobile harbour crane. The company's huge success is based on a constant process of technical improvement as well as an uncompromising commitment to highest quality standards.

Increasing demand

Liebherr has 38 years of experience in the mobile harbour crane business. In 1974, when it entered the market, demand for mobile harbour cranes was small. After 20 years of moderate but constant business, Liebherr made its 100th LHM delivery in 1994. The same year marks a significant turnaround, with annual deliveries being double-digit for the first time.

In 1996, the type LHM 400 was launched, which is to date the bestselling LHM model. Due to an impressive 250 deliveries, this model accounts for about one quarter of all LHMs ever supplied. Its successor, type LHM 420, was introduced into the market in 2011 and can be equipped with Liebherr's state-of-the-art Pactronic® hybrid drive system.

Thanks to a year by year increase in deliveries, Liebherr received an order for its 300th LHM in 2001. At that time, nearly 50 cranes were delivered each year. Accordingly, the 500th Liebherr mobile harbour crane was handed over in 2005, which was one year after market launch of Liebherr's reachstacker LRS 645. In the following years, annual order volume has been increasing steadily, mainly due to the market introduction of various highly competitive models, like the LHM 600 in 2006.

Liebherr launched its new lightweight series in 2008, which has been the most successful year so far, with annual deliveries being triple digit for the first time. The year after, Liebherr supplied its 800th LHM. Thanks to the market introduction of two new models, LHM 420 and LHM 550, Liebherr reached sales of 1,000 just three years later. The recent and very successful launch of above-mentioned new types provides a solid and promising base for future growth.

The exponential increase in demand for Liebherr models is remarkable. While it took 31 years to sell the first 500 Liebherr mobile harbour cranes, it has taken less than seven years to sell the next 500. This is testament to the enduring increase in demand for flexible cargo handling solutions.

1000th Liebherr mobile harbour crane

The customer to order this milestone unit is Montoir Bulk Terminal, a subsidiary of the SEA-invest Group, which is one of the world's largest terminal operators for dry bulk, fruit and liquid bulk. SEA-invest Group operates 25 ports spread across three continents.

Their new crane, type LPS 550, has a maximum lifting capacity of 144 tonnes and a boom length of 48 metres. The tailor-made portal solution allows for customer's needs and concurrently ensures maximum efficiency. The crane is equipped with the unique Pactronic® ststen. This innovative hybrid drive system boosts performance and reduces emissions at the same time, each by 30%. The green advantage of Pactronic® goes hand in hand with Sea-invest Group's business policy which highlights paying attention to the environment. Additionally Sea-invest has equipped its new machine with an electronic drive, which allows

for an even more eco-friendly crane operation.

Receiving order for this anniversary crane underlines the satisfaction of Liebherr customers who are confident in the company's innovative product range and consistently choose Liebherr products.

About the company

The Liebherr Group comprises more than 120 companies in every continent of the world and employs a workforce of nearly 33,000 people. In the past few years the Liebherr Group has undergone dynamic development and in 2010, achieved a total consolidated turnover of about €7.6 billion.

The Liebherr Group's holding company is Liebherr-International AG in Bulle, Switzerland, which is entirely owned by members of the Liebherr family. The family business is already in the hands of the second generation, and is jointly managed by Dipl.-Kfm. Isolde Liebherr and her brother Dr.h.c. Dipl-Ing. (ETH) Willi Liebherr.

Liebherr-Werk Nenzing GmbH, Nenzing (Austria), is the largest maritime crane production site. Nenzing is head of the divisional control company, the Liebherr-MCCtec GmbH, which is responsible for the Liebherr range of maritime cranes. The Liebherr-Werk Nenzing GmbH manufactures and markets an extensive range of product lines including ship cranes, offshore cranes, mobile harbour cranes and reachstackers. On the international building machinery market Liebherr offers a broad range of universal duty cycle crawler cranes, lift cranes as well as foundation equipment.

The Nenzing plant co-ordinates further production sites in Sunderland (Great Britain) and Rostock (Germany) as well as fully owned sales and service organizations in Hong Kong (China), Hamburg (Germany), Amersfoort (Netherlands), Niederhergheim (France), Mumbai (India), Istanbul (Turkey) and Baku (Azerbaijan).

Geroldinger's bulk handling expertise

Bulk handling equipment manufacturer Geroldinger GmbH was founded in the early 19th century (1921) as a family owned company.

Since 1972, it has specialized in handling complex bulk solids systems. It offers high-quality technologies for many complex applications for storing, conveying, distributing and dosing bulk solids.

The company has approximately 80 employees, two-thirds of which work in the production facilities. Turnover is approximately € 10 million.

Geroldinger exports 75% of its products, so its plants can be found all around the world. The 12,000 m² company site houses planning and design departments for mechatronically organized engineering, a laboratory for bulk-solids analysis and a modern, generous technical department for performing practice-oriented experiments.

Almost all of the company's range is produced in its four large production halls, with an assembly tower for silos up to 28m. In Geroldinger's process technology department, it has more than 1,500 different bulk-solid-examples and therefore a wide range of experience and expertise.

Bulk solids

'We bring complex-bulk-solids from and to the process, says Geroldinger. Its equipment can be used to handle products including those that are:

- cohesive (up to fc values of 8KN/m³);
- hygroscopic (urea, phosphate, salt...);
- prone to segregation;
- extreme with median < 20µ (precipitated chalk, chalk, flue ash....);
- elastic, compressible (XPS flakes, packaging foil chips, alternative fuels);
- breakable (extruded animal feed and foodstuffs, potato flakes...);
- free-flowing; and
- abrasive.

Geroldinger's products

Geroldinger manufactures round and octagonal silos (Multigon) up to 2,000m³, the Oszillomat-System as a reliable solution for automated material-mass-flow for discharging and dosing screw-conveyors for cooling, dosing, or discharging, pneumatic conveying systems, chain through conveyor, differential weight feeder, BigBag-Stations, pressure containers and pipe fermenters.

Currently, Geroldinger is offering its pneumatic conveying systems to Russia and Brazil. Furthermore, it is also offering a pneumatic-conveying-system for a shipping-company in Germany.

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Indexator: adapting to the ever-changing

Indexator AB is always at the forefront of technical developments, and is among the first to come up with new ideas and concepts.

For this reason, it is important for Indexator to ensure that its employees have strong skills and high levels of expertise in the development and manufacturing of rotators. "We at Indexator are well aware of the often tough reality in which products have to work and function, but we're also responsive to changing needs", says vice president Gunnar Bålfors.

Developing technology

"The reality facing the industry today shows what's needed and brings about new ideas. We make them happen," says Bålfors.

Designers at Indexator have two jobs — one is to develop the next level of technology, and the second is to refine and expand

requirements of the bulk handling market

existing product ranges.

"Our development work is carried out working closely with machine manufacturers, suppliers and end users. That way, we create close and trusting contacts," adds head of design Joakim Harr.

Unique in the world

Indexator has a unique research and testing facility which is used to systematically verify product designs and production techniques, as well as to test new technical concepts. Indexator's research is carried out in such a way which ensures that the end result can be put into practice immediately. The company's material experts, designers and production technicians work side by side.

"By working so closely with each other, we keep control of the entire flow of production and can start production for a new concept very simply and quickly. It is then easy to make adjustments to the process if necessary," Harr explains.

Expertise is also important, helping Indexator to maintain and improve the quality of its products. Research and testing improve Expertise, which leads to products that last longer.

"Our products are carefully evaluated — we don't just test the new ones, but also those that have already been field-tested," says head of research Richard Larker.

Material development

Indexator's head of research, academic Richard Larker, won the Swedish casting industry's innovation award for advances in the development of a high-strength steel composite. This patented material makes it possible to develop products which weigh less, but that also have less environmental impact with both Indexator products and the products of future licensed partners, for example in the automotive and energy industries.

"With help from our research colleagues at Volvo, I have managed to get solution-hardened ductile iron to the next European standard, which will in turn increase the supply of these castings which can be heat-treated according to the patent. It is important to help each other and cooperate when working in the field of research and development," says Larker.

Partnership

The business is constantly growing and international machine manufacturers are turning to Indexator to develop new models of rotators or to provide a particular requirement and cost specification.

"The size of our tasks vary, but so do the types of collaboration. This type of order assignment requires fixed contractual agreements and is subject to strict confidentiality clauses," Bålfors concludes.

RIVER Consulting employee to step up leadership role in grain society

Bob Klare, Director of International Development at River Consulting, has been promoted to Chairman of the Chapter Resource Committee of Grain Elevator and Processing Society (GEAPS) from his previous position as Vice-Chairman. The Chapter Resource Committee provides GEAPS chapter-leader outreach as a knowledge resource for leadership and programme development. This position will allow Klare to play a larger role in the association, beginning this weekend at the GEAPS Exchange Conference in Minneapolis, Minnesota.

Klare has more than 20 years of experience in the grain industry and currently helps lead the international project activity and support of clients for new import facilities in developing countries. He has a broad range of experience including acting as maintenance superintendent for a major grain facility operator in the United States. Klare's expertise includes developing and managing a wide range of projects from studies to commissioning including contract development, engineering, equipment selection and supply, fabrication oversight, field services and start-up.

River Consulting is a leading mid-major A/E to global energy, food, process and industrial clients, delivering multidiscipline engineering and project management solutions for major capital projects and facility and process expansions. The firm's experience spans 30 years and 57 countries with offices in Columbus, Ohio; New Orleans, La.; Pittsburgh, Pa; and Tulsa, Ok. River Consulting is recognized nationally by Engineering News-Record as a Top 500 design firm.

Stewart Group expands commercial management team

Stewart Group Inspection & Analysis, the global inspection and precision analysis arm of ALS Minerals has announced the expansion of its global commercial management team. Two new commercial managers have been appointed to drive business growth in priority markets. Joep Straathof has been appointed as commercial manager in the Netherlands and will be based at the company's Rotterdam office. He joins Stewart Group Inspection & Analysis from industry distributor, Oxbow, and brings with him extensive knowledge of the solid fuels market.

Straathof commented: "The Company is going through a real surge right now following the recent acquisition by ALS Group. I'm looking forward to expanding the business and enhancing the customer experience."

Imen Trari, formerly business development manager for mining at Stewart Group has been appointed as commercial manager in the UK Inspection & Analysis division. She will work with the experienced commercial team to strengthen the global service and continue to develop client relationships.

Before joining Stewart Group, Imen managed global export sales of chemicals for the agricultural industry. Prior to this, she spent two years in the automotive industry, managing logistics and production plans across Europe and the USA.

Correction: Heyl & Patterson senior management

On p92 of the February 2012 issue of *Dry Cargo International*, we included photographs of John Edelman, CEO, of Heyl & Patterson Inc., and Harry Edelman IV, executive vice president of Heyl & Patterson.

Unfortunately, the caption information we gave was incorrect. We would like to apologize for this error, and to show the Edelmans, this time with the correct titles.

Harry Edelman IV, executive vice president, Heyl & Patterson Inc.

John Edelman, president and CEO, Heyl & Patterson Inc.

Founded in 1887 in Pittsburgh, PA, Heyl & Patterson Inc. provides high quality, custom engineered solutions for bulk material handling and thermal processing applications around the globe. Heyl & Patterson innovated the railcar dumper unloader and offers a wide range of bulk material handling equipment, including railcar and barge movers and barge unloaders. Its Renneburg thermal processing products and services include some of the largest high-efficiency dryers and coolers in the world, as well as calciners, powder and bulk material processors and pilot plant laboratory testing.

Hitachi boosts global production capacity for mining machines

Hitachi Construction Machinery Co., Ltd. (HCM) has announced plans to significantly boost its global production capacity for mining machines, such as large and ultra-large hydraulic excavators and dump trucks. It will not only expand two of its existing plants, but will also construct new facilities in Hitachinaka City, Japan. The manufacturer also intends to invest in its Indonesian and Canadian locations to further increase production and improve efficiency on a global basis.

Sales of mining machinery are expected to continue to grow due to the substantial demand for resources around the world. As of 2013, HCM predicts annual production of 170 units of large hydraulic excavators up to 120 tonnes; 240 units of ultra-large hydraulic excavators between 190 and 800 tonnes; and 260 units of dump trucks with a loading capacity of 190 to 300 tonnes.

Therefore, HCM has decided to increase the production capacity for its mining machines as well as the components required for after-sales servicing. It believes the quality of the machines will be enhanced and costs will be reduced by focusing on production plants close to its development base at Tsuchiura Works, located in Japan's Ibaraki Prefecture.

Hitachinaka-Rinko Works will be extended by 9,950m^2 to create space for assembling large and ultra-large excavators and dump trucks, plus a new training centre. In March 2012, HCM will acquire 78,312m^2 of land adjacent to both the harbour and Hitachinaka-Rinko Works, for the construction of a 29,297m^2 plant. The new facility will produce frames of large and ultra-large excavators and dump trucks, and accommodate employee facilities and an office.

Hitachinaka Works will also be extended by 29,900m^2 for the machining of the components required by mining machines. In addition, HCM has acquired 224,335m^2 adjacent to the Hitachinaka Works for the construction of a 37,155m^2 plant. Components previously manufactured at Hitachinaka Works will be transferred to the new plant, where they will be assembled to form modules (a functional group of components).

The new plant will act as a main distribution base, transferring the modules to Hitachinaka-Rinko Works and shipping them to the plants in Canada and Indonesia, for efficient machine assembly.

Work has already begun on the extension work at the two Japanese facilities and is due for completion by the end of 2012. The two new plants will be fully operational by October 2013. More than 500 new jobs will have been created in Japan by 2015.

HCM is also making investments to raise the production capacity of factories in Indonesia and Canada. Work on the Cibitung plant in Bekasi is now under way — the Hitachi Construction Machinery Indonesia facility will be extended by 11,118m^2. A new 20,280m^2 plant will also be built on a 100,000m^2 site in West Cikarang. They will be used to manufacture components of undercarriages, frames and front attachments of large and ultra-large excavators.

In Canada, the existing 110,000m^2 plant in Guelph, Ontario will be extended by 13,294m^2 for the manufacture of dump trucks with a loading capacity of 190 to 300 tonnes. The new Hitachi Construction Truck Manufacturing site will mainly serve the markets in North, Central and South America, when it is complete in April 2013.

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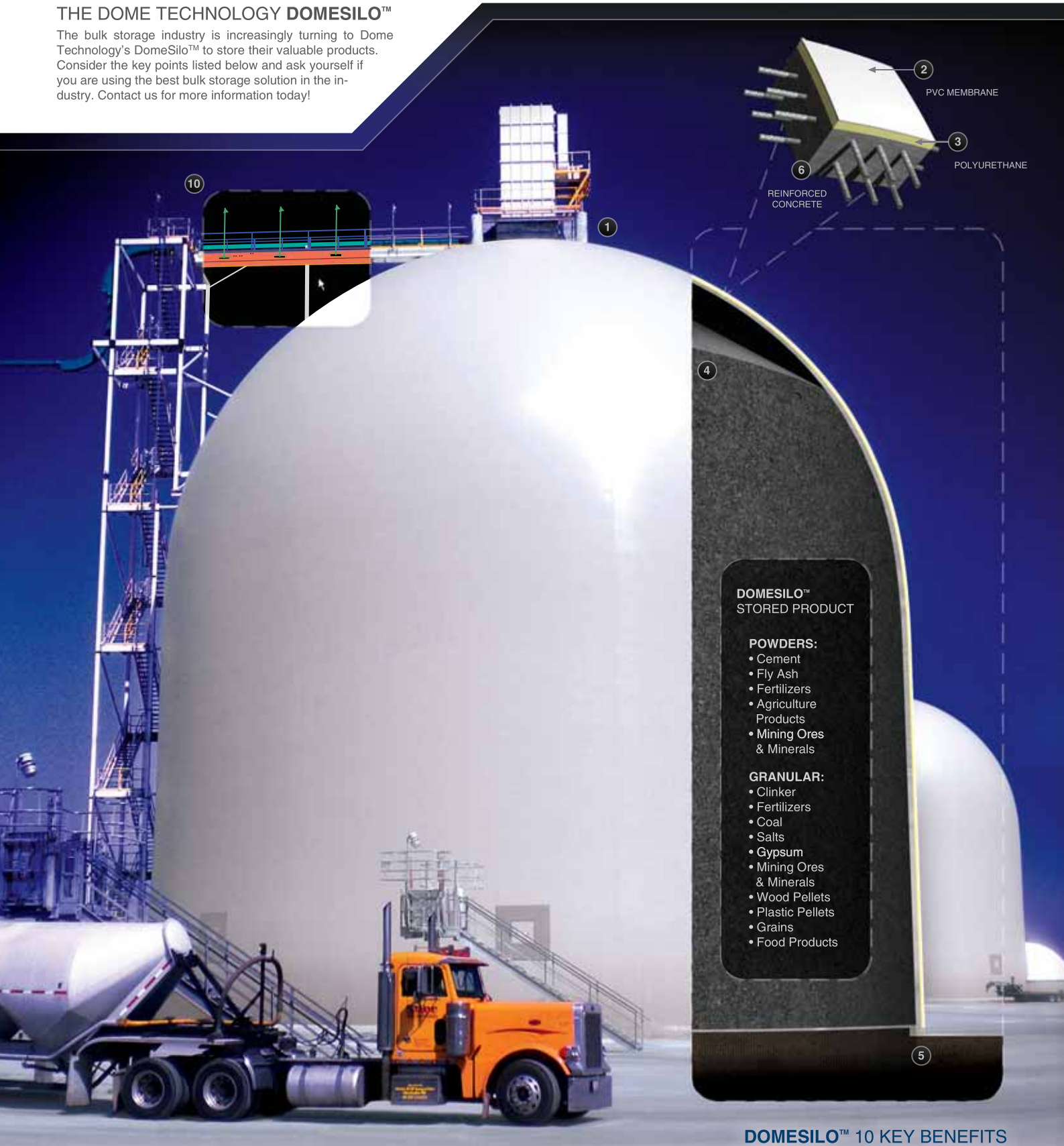

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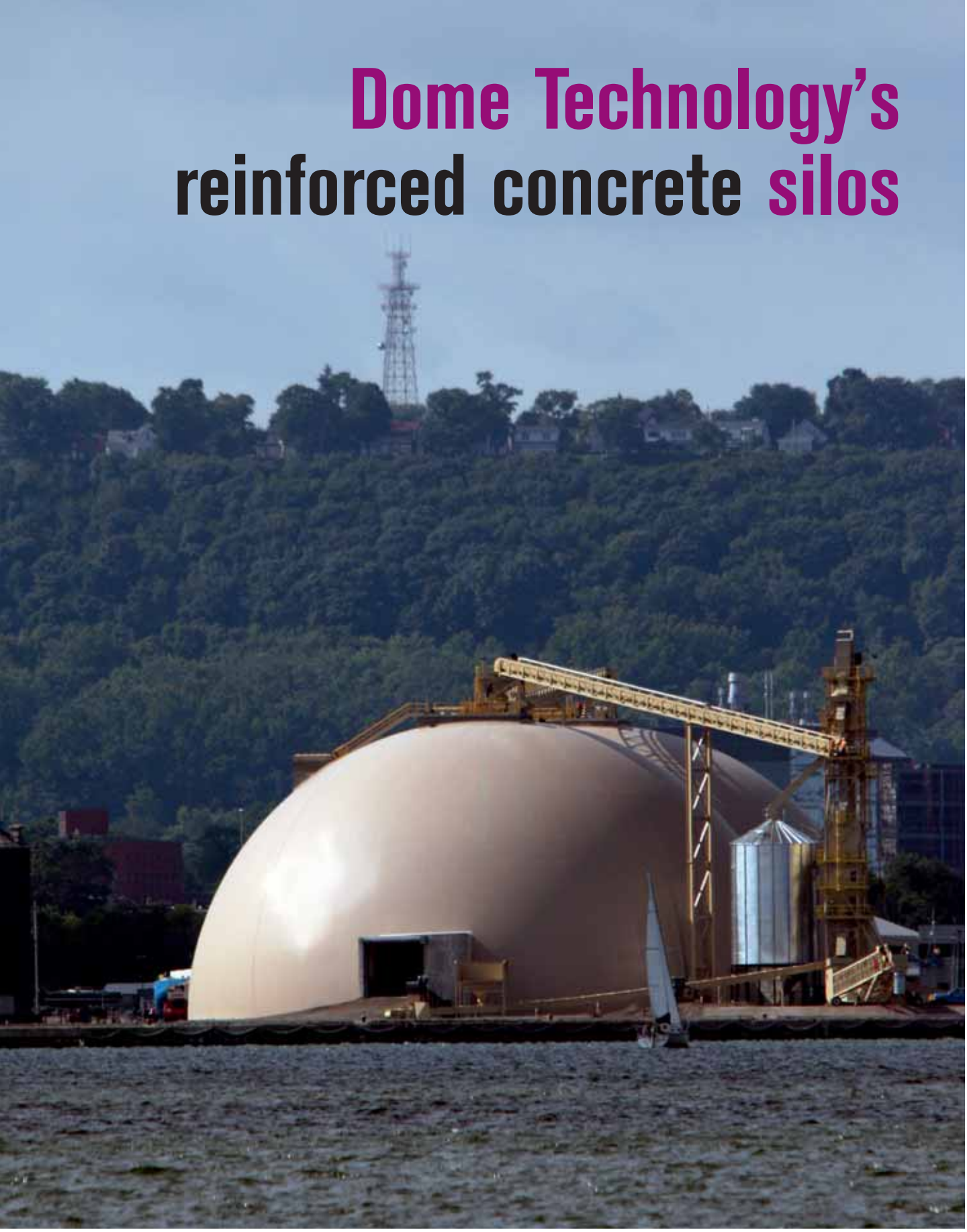
Dome Technology's reinforced concrete silos



The Parrish and Heimbecker case for DomeSilo™ storage

The advantages of choosing 'dome' style storage and handling facilities compared to common concrete and steel silos are numerous. Canadian grain handler Parrish and Heimbecker's (P&H), which moves 3mt (million metric tonnes) of grain to export and domestic markets, settled on these advantages after exhaustive comparison with the aforementioned.

Dome Technology's reinforced concrete DomeSilos™ are extremely strong and durable. In an industry where traditional concrete and steel silos have a history of multiple failures, Dome Technology's structures have withstood earthquakes, hurricanes, and the test of time with a zero failure history.

Dome offers 100% waterproof and low maintenance by using

continuous single-ply PVC waterproofing membrane, which ensures complete waterproof protection for the reinforced concrete shell and consequently the material stored within. A mould-resistant UV protective resin coats both sides of the membrane providing long-term protection from these two common sources of degradation. No other silo option offers this type of water-proof protection.

Adding to moisture protection is insulation sandwiched between the exterior waterproofing membrane and the reinforced concrete shell, a continuous layer of polyurethane foam insulates the entire shell structure from extreme temperature fluctuations, preventing structural fatigue and long-term damage. The continuous layer of insulation keeps the product dry by eliminating condensation problems.

Compared with the storage limitations of a traditional silo with a cylindrical wall and conical or flat roof, the entire interior of the DomeSilo™ can be used to contain the stored product, thereby increasing overall storage capacity for any given diameter and height. P&H operations worked with Dome engineering to create a unique conveyer system to maximize performance handling at its Hamilton, Ontario facility.

P&H realized considerable financial savings with the elimination of deep foundations required for other storage types. The superior strength of the DomeSilo™ provides a high tolerance for differential settlement. Additionally the reinforced concrete DomeSilo™ uniquely maintains structural integrity in extreme heat and fire conditions. Its designed strength provides superior explosion containment.

The DomeSilo™ building process is extremely efficient. Inflation of the DomeSilo™ membrane takes just a few hours, after which all construction processes continue inside the inflated dome, safe from outside weather conditions. This

protected environment allows construction in adverse weather and enhances safer, faster completion of the project. Adding to this is a positive environmental impact. The efficient double-curvature structure of a DomeSilo™ conserves construction materials by using less materials to enclose more storage volume than any other comparative structure. During construction, as well as during operation, the DomeSilo™ more efficiently contains potentially harmful environmental contaminants.

To mark the official opening of Parrish and Heimbecker's (P&H) new terminal on the Hamilton Port Authority's (HPA) Pier 10 the company held a reception and facility tour on 4 August last year. Twin storage domes capable of housing more than 60,000 tonnes of agricultural products are set to boost grain volumes in the Port of Hamilton. The new Parrish and Heimbecker (P&H) terminal on Pier 10 will be its primary centre for moving grains and other agricultural commodities. The facilities will primarily be used for export purposes, but will also handle shipments from the US and Western Canada destined for local processors.

In addition to handling the traditional coarse grains that move through the port, the 90 foot high by 190 foot diameter domes have the flexibility to handle protein meals, sugar, salt and granular fertilizer. An integral part of the terminal design is the specialized under floor conveyor system connecting the two domes, which, in conjunction with other on-site conveyor systems, will dramatically increase loading and discharge speed for trucks, rail cars and ships, making the 380,000ft^2 terminal one of the most efficient on the Great Lakes.

P&H, with over 100 years of agribusiness experience, has committed over $30 million to the fully secured terminal, which has direct access to marine, road and rail including full Seaway draught, truck scale staging and a 25-unit railcar capacity. The terminal also has considerable available space to accommodate future expansion.

The domes, which were constructed by Dome Technology of Idaho Falls, ID, incorporate a floor level high-speed conveyor system that, compared to any other Canadian export elevator in the Great Lakes, will improve loading and discharge times for all modes of transportation by as much as 20–25%, according to P&H. In addition, the flat storage allows P&H to handle proteins that do not work that well through a silo and, since the facility is designed to be less harsh on product handling, it has attracted new customers.

"This facility is probably the most efficient on the east coast," said Bruce Wood, president and CEO of the Hamilton Port Authority. "With direct dockage and the slip, four ships can be accommodated at once."

The domes are constructed by inflating fabric airforms and subsequently spraying the inside fabric with polyurethane foam to develop the initial rigidity, then applying rebar and continuous spray concrete to form the completed structure. Compared with large conventional free span structures the domes' construction costs are lower. Other benefits include high energy efficiency, rapid construction and better space utilization as bearing walls and columns are not required. During the past 30 years hundreds of similar domes have been built around the world.

Bruce Hodgson, director of market development at St. Lawrence Seaway Management Corporation said, "Parrish and Heimbecker has recognized the efficiencies of the marine mode with the opening of their state-of-the-art facility in the Port of Hamilton. By including our system in their supply chain they are well positioned to work closely with their suppliers and to increase their market share by providing their customers with a consistent and reliable service while adding value. We look forward to working with them in the future."

Bill Parrish Jr., president and CEO, P&H paid tribute to Rob Bryson, director of Eastern Canadian Grain Operations for bringing the facility in on time and budget in a two- to three-year time frame. Parrish told the audience, "We've been around a long time, we've seen a lot and learned a lot. I think our stability is a key point in our success. Our key management team has been together for over ten years and most of us closer to twenty. We're old but we're not rusty and this is a vibrant time for the agribusiness. Over the past five years P&H have purchased or constructed five flour mills and now have seven mills. The seven mills consume 1mt of wheat per year equalling 33 of the newly constructed dome's capacity."

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Stormajor™ acting as an intermediate feed point to a high level existing transfer conveyor.

Louise Dodds-Ely

Auxiliary and emergency feed points

Troughed belt conveyors form the backbone of most bulk materials handling systems in terminals and process plant connecting the core machinery or processes, *writes Barry Woodbine, AUMUND Group*. Over time economics change driving modifications to the logistics chain often demanding new intake facilities to introduce new material sources not compatible with the original stockyard, or import systems concept.

In the cement industry this situation is particularly relevant with the introduction of co-products such as granulated blast furnace slag and flue gas de-sulphurized gypsum replacing clinker and natural gypsum in the final cement mix. In addition the source of cement clinker is now practically commoditized and certainly traded extensively internationally. Using imported clinker allows cement manufacturers to balance own production with perhaps more economical sources to maximize the utilization of on-site grinding capacity.

Often such situations may be temporarily driven by particular production or market considerations and as such budgets are always critical and in this situation the benefits offered by the Samson™ surface feeder concept are very attractive. Surface feeders eliminate the deep pits and underground hoppers associated with conventional truck intake solutions often allowing the feeder to be mounted at the same level as the existing ground conveyor equipment. Material may be discharged at a controlled rate from the feeder to the existing conveyor to suit the plant demands either to replace or augment the normal conveyor flow.

Two such solutions are illustrated herein; a long established installation at cement plant in Germany where clinker is imported by truck and discharged to an existing inclined conveyor using an intermediate feed point. In this application the side tipping Samson™ solution allowed the new installation to be shoehorned into a very compact space between the conveyor gallery and an existing building. In this manner the established clinker conveying arrangement remained substantially unchanged and production losses during installation of the new equipment were minimized.

Clinker is extremely dusty material and generally requires a substantial dust plant to control pollution from conventional underground intake hoppers. With the wide apron belt design of the surface mounted Samson™ the material free fall is minimized and therefore both particulate separation and displaced air

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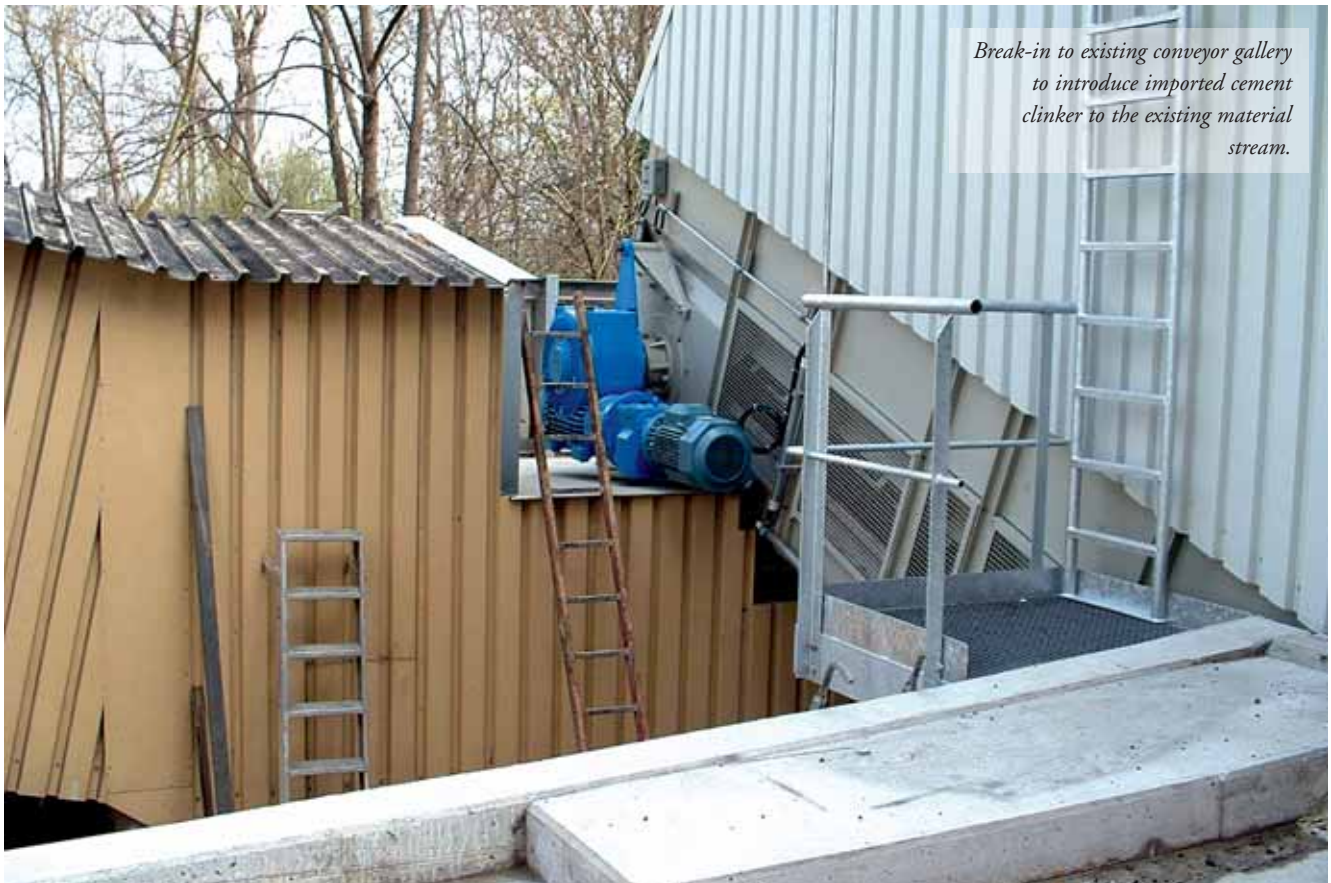
Imported clinker intake to cement plant by truck to a Side-Tip Samson™ surface feeder.

velocity are minimized also thereby mitigating dust generation at source. When the truck is tipping only the first few tonnes fall free, and then only a metre or so, thereafter the bulk of the truck contents flow into the Samson™ in a smooth stream with virtually no dust generation whatsoever.

Nevertheless dust control is often mandatory in such installations and in this case a local dust collector is mounted to the Samson™ enclosure providing control of dust emissions both at the tipping point and also at the transfer point between the Samson™ and the following conveyor. In this case the associated fan set is mounted at ground level and the cleaned air is ducted from the collector to the fan inlet.

A more recent application in South Africa at the AfriSam plant of the Holcim Group based in Switzerland. AfriSam is South Africa's second-largest cement producer and is a long-term customer of the Aumund Group going back to 1971 for the supply of chain elevators plus clinker transports. The most recent delivery to its Ulco plant involved a Samson™ 800 Series surface which provides an intermediate feed point to an existing overland belt conveyor. In this case the Samson™ is designed specifically for use with wheeled loaders operating from a clinker ground stockpile. Retrieving material from any ground stockpile it is likely the loader will pick up tramp material and particularly oversize lumps that have coagulated in storage. Large lumps are a problem for the transfer point and ongoing conveyor and for this reason the Samson™ is supplied with a reject grill at the



Break-in to existing conveyor gallery to introduce imported cement clinker to the existing material stream.

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Intermediate feed point to existing overland conveyor handling cement clinker.

entry and any oversize material may be manually cleared from the grill surface periodically.

For AfriSam the Samson™ provided a neat solution for the feeding of clinker with the minimum of civil works and practically no interruption of service excepting for a few hours lost during the modification of the belt conveyor to accommodate the new transfer loading point.

In this project a free standing dust collector is included positioned beside the transfer point and with de-dusting to the Samson™ enclosure and to the extended feed boot of the overland belt conveyor. The collected dust is discharged from the filter bags to a hopper and released back to the conveyed material stream on the belt conveyor. Handling clinker by wheeled loader is always likely to create excessive dust since the material free falls from the bucket to the feeder in an uncontrolled stream releasing dust particles that must be contained with the enclosure of the Samson™ to mitigate any fugitive dust pollution. Clearly uncontrolled fugitive dust emissions will be windblown creating significant nuisance and local pollution.

Intermediate feed points are often used for blending trace elements onto a conveyor stream such as for example adding clay to a limestone belt to achieve the right raw meal mix in a modern cement plant. In addition the introduction of a new material flow to an existing conveyor has the potential to overload the system and suitable flow controls must be put in

Wheeled loader feed to the Samson entry reject grill.

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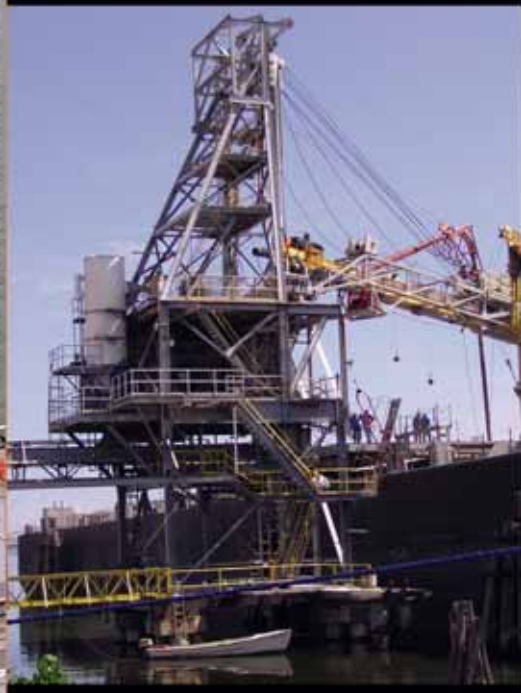

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Controlled imported clinker feed rate from the Samson to the existing overland conveyor.

place to control both the additions rate and the blend ratio. The Samson™ may deliver a variable output rate directly proportional volumetrically to the Samson™ belt speed using a levelling blade to control the material bed depth. The mass output rate from the Samson™ may be controlled by introducing a simple single idler belt weigher on the upstream and downstream sides of the new feed point to the associated belt conveyor. By computing the differential rate necessary to achieve the required blend ratio the Samson™ belt speed may be automatically controlled using an Inverter variable speed device with feedback loop to continuous monitor the relative rates. Where only the ongoing conveyor handling rate must be monitored a single downstream weigher is all that is required avoiding over feeding.

In both of the examples discussed thus far we have applied the intermediate feed point to a low level section of the ongoing conveyor. However, in some applications, such as illustrated on p75 at Hong Kong Power, coal must be introduced to a high level transfer belt at a point between two transfer towers. For this purpose the Stormajor™ by B&W provides an ideal answer. By incorporating a Samson™ feeder section and radial stacking boom onto a single mobile chassis the Stormajor™ offers the best of both worlds providing both an intermediate feed point to the existing conveyor installation and the opportunity to use the same equipment for other duties elsewhere in the plant. The Stormajor™ is a truly mobile universal handling tool suitable for stockpiling or even rail or barge loading if the need arises.

Intermediate feed points can perform other functions in any utility, process plant or terminal providing in an emergency a means of introducing material to the existing stockyard belts in the event the normal intake machinery, reclaimer or ship unloader for example, is temporarily unavailable. Typically in an electricity utility coal-fired power plant, if a bucketwheel reclaimer is down for repair or maintenance, this can be a major outage, often requiring as much as six months' downtime. During this time period, alternative solutions or coal recovery must be found. In several applications the Samson™ and Stormajor™ have fulfilled this duty handling limestone in cement plant, coal in power plant and iron ore in steel works.

In conclusion there are many circumstances where material must be introduced to an existing troughed belt conveyor network either through changing trading patterns or to accommodate an emergency in the stockyard and in all of these situation the flexibility of surface mounted and mobile plant is a major benefit offering fast track and minimum impact solutions.

Stormajor™ with integral Samson™ feeder suitable for either truck loading or receiving from ground stockpile by wheeled loader.

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Driving global commodity flow: Guttridge looks forward to new conveying challenges

Despite recent economic difficulties, a report from Standard Chartered[1] issued in 2010 suggests that the world is currently in the grip of a 'super-cycle', a prolonged period of historically high economic growth, in this case being driven by the industrialization of emerging economies. Estimates that the global economy will grow year on year by, on average, 3.5%, well beyond the next decade, point to opportunities for those in bulk materials with the global flow of commodities continuing to rise.

"We're certainly living in exciting and challenging times," says Paul Gott, sales and marketing director at Guttridge Ltd, a major UK-based manufacturer and supplier of bulk materials handling systems. "For Guttridge, 2012 marks 50 years in business, a half-century in which we've delivered conveyors for a vast array of materials and have amassed substantial expertise across many different industries and applications. We will be celebrating this year but our driving focus is applying our knowledge and experience to developing solutions that support our customers in meeting the demands of 21st century handling and processing."

Guttridge high capacity two-way diverter valves.

Guttridge industrial range: chain conveyor drive end section for a power station contract

Delivering solutions, whatever the application

At its large modern plant in the UK, Guttridge designs, manufactures and tests materials handling machinery for applications that span the dry materials sectors and beyond. Solutions specifically tailored to customer requirements are developed using the latest 3-D software and manufactured in a state-of-the-art machining, painting and assembly facility. The product range includes:

- bucket elevators;
- screw conveyors;
- chain conveyors;
- belt conveyors;
- load and discharge hoppers; and
- vertical blenders and live bins.

The company's range also includes the spouting and fittings, slide valves, diverters and other ancillary equipment needed to engineer a robust, integrated solution.

For any conveying application it is essential to select the best equipment for the job and here experience really does count. Guttridge makes equipment for feeds, cereals, and pet foods, chemicals and minerals, foods and pharmaceuticals. Such diversity informs the company's extensive knowledge base and practical know-how. All of these are put to the best possible use when tackling new challenges.

"Conveying requirements continue to evolve," reflects Gott, "both in terms of scale and the range of materials handled. For example, the food industry has well-established processes but continues to develop new products that may be delicate or difficult to handle, or both. On a larger scale we now see more from the biomass and wastewater treatment sectors, involving some tough-to-handle or more abrasive solids. Storage facilities at docks, and at a national level, are tending to increase in scale, a

Guttridge industrial range; elevator boot.

[1] *Standard Chartered* 'The Super Cycle Report' *November 2010.*

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Guttridge silo feed elevators and conveyors.

change that drives demand for larger-capacity equipment."

A recent project with Heygates, the UK's largest independent flour miller, illustrates this trend. Here the brief was to increase grain handling capacity by around 700%, with the aim of improving efficiency and minimizing queuing times for grain delivery. Grain can be abrasive, so build quality and materials of construction played an important role in equipment selection. The installed solution, which comprises intake screws, bucket elevators and chain conveyors, works reliably with little downtime. Grain leakage has been eliminated, as have the lorry queues.

Guttridge silo intake elevators.

Delivering reliably, to agreed timescales

Engineering a solution that performs reliably and efficiently is critical, but reliability in meeting agreed delivery deadlines is equally vital. Conveying equipment is often installed as part of a much larger project so the implications of any delay can be significant. Well-run companies deliver to time and customers are increasingly judging performance on this basis.

"Our workshop, and the skills of those who operate it, are crucial to our business and our ability to meet customer requirements," continues Gott. "To position us for future growth we've recently carried out a comprehensive review. We measure the ability of the workshop to deliver using the parameter 'On time, in full [OTIF]' – which speaks for itself! With OTIF figures running in excess of 97% customers can be confident of getting the solution they need, when they need it."

Looking ahead

As economies emerge and participate more fully in global economic activity, the demand for commodities rises, bringing with it requirements for associated conveying and storage solutions. The scale of growth in China, India, parts of the Middle East and South America will centre activity in these regions but for conveyor suppliers the goals remain the same.

"Whether you are conveying coffee or grain, cement or bauxite, what you need is reliable cost-effective solutions," concludes Gott. "Knowing how to handle an array of materials, and having a reliable partner with the ability to design and manufacture systems that really work is absolutely essential."

4B Australia moves to new premises

After only one year in operation, bucket elevator and conveyor component supplier 4B Australia has already outgrown the premises that it started up in, and has relocated to a new modern 450m³ office/warehouse complex located at Acacia Ridge in Brisbane. The new premise enables 4B Australia to now support the supply of all of the 4B products in Australia.

Managing director Paul Dennis explains how the move underlines the company's strategy of maintaining high stock levels to be able to respond quickly to local customer demand.

"Our product inventory in Australia now consists of the full range of sizes in the CC-S HDPE elevator buckets range, the pressed steel and the industrial Atlas AA Nylon elevator bucket ranges also. We stock both FRASOR and food grade elevator belts in a variety of tensile strengths, as well as many different style/size elevator bolts in both metric and imperial sizes.

Our electronics range has now also grown to include the highly successful range of level indicators, and we now stock almost all of the electronics that 4B offer globally to support the growing requirement for products that meet the high standards of IECex certification. Since re-locating we can now also offer our customers from stock, the 4B range of forged chain products for drag conveyors with a variety of flight options."

4B Australia is the latest subsidiary of the 4B Braime Group, leading supplier of bucket elevator and conveyor components and electronic monitoring equipment.

4B Braime has been a pioneer of the material handling industry, introducing the first seamless steel elevator bucket back in 1909 and since then leading the field in elevator bucket and bolt design and manufacture. 4B supplies the highest quality forged chain and elevator belting and 4B Braime's electronic division specializes in level controls, electric sensors and safety control systems that prevent costly downtime and reduce the risks of explosions in hazardous areas.

"As a worldwide manufacturer of materials handling components, 4B has always delivered, technology, innovation, quality and value", says Dennis. "And now with the new 4B Australia premises we can also offer a greater availability of inventory which supports our customers' requirements for the highest standards of service."

DSI Snakes continue to grow in Spain

In 2003, Dos Santos International — in co-operation with PHB Weserhütte — commissioned a DSI Snake Sandwich High Angle Conveyor for the Aceralia Steel Mill in Gijon, Asturias Spain. The conveyor system provides a high angle conveyor path to the existing pulverizing plant and then continues on to a new pulverizing plant. The DSI Snake replaced a problematic vertical pocket belt system that served the old pulverizing plant. The Snake elevates raw coal at a 75° angle to the discharge, at which point the material is completely discharged and scraped clean using standard belt scrapers. This installation has been in successful operation for seven years and counting.

The success at Aceralia did not go unnoticed. Since then, two new DSI Snakes have been ordered for operation in Spain for Repsol Refineries. The first has been ordered by Duro Felguera for the Muskiz refinery near Bilbao in northeastern Spain. The second was ordered by TAIM for operation in the Cartagena Refinery on the Mediterranean Sea in southern Spain.

The new DSI Snake at the Muskiz Refinery elevates coke and delivers the hot product to a truck loading bin. Designed to operate in an enclosed, potentially explosive environment, this Snake is subject to, and compliant with, the latest and strictest ATEX standards. The start up for the Snake at Muskiz was completed in September 2011.

A second DSI Snake at the Cartagena refinery is of 'C-shaped' profile. The refinery expansion consists of two complete storage facilities. The first one is for petroleum coke storage and the second is for sulphur storage. The DSI Snake is part of the sulphur storage facility. Its function is to transport the solid particles generated during the solidification process at the plant and temporarily store them in piles to be taken to the port facilities. Start up for the DSI 'C' Snake was completed in October 2011.

The two DSI Snakes for Spain are part of a growing list of installations for Dos Santos International which includes a variety of applications throughout the world. DSI offers many unique systems from stationary units in all sizes, to a fully mobile high-angle shiploader designed to accommodate wharves with limited space. The versatility of the DSI Snake is demonstrated with each application, but the full potential of the system will only become realized as more units are installed for the wide range of industries that have yet to implement this well-established technology.

Flexco adds Bob Lord and Chris Poe to support growing product lines

Bob Lord and Chris Poe recently joined the Flexco team in product management roles. Lord will be focusing on the Flexco global transfer chute programme and operating out of the Bolingbrook, Ill. facility, while Chris Poe will be supporting the CoreTech™ roller line for Flexco.


Bob Lord.

In his role as product manager, Lord will be responsible for the overall marketing strategy and activities associated with the transfer chute program, including the most powerful controlled-flow technology on the market: Tasman Warajay Technology™.

"I'm looking forward to growing the transfer chute business into a global product offering for various bulk material types," Lord said. "I am already impressed by the real culture of teamwork and collaboration at Flexco and feel that this atmosphere will support our objectives."


Chris Poe.

Lord brings with him years of experience in product management, product development, and engineering.

"Bob's strong technical background and marketing skills will be instrumental in assisting in the growth targets set forth for the global chute program," said Chip Winiarski, director of heavy duty marketing at Flexco. "His hands-on approach and enthusiasm is a welcome addition to Flexco."

Poe will take on the responsibility of the CoreTech global marketing program in his role as product manager. He will facilitate the ongoing business planning for the programme, working closely with operations in Lemont and City Deep, South Africa, as well as subsidiaries and selling regions around the world, to ensure that Flexco has strategies in place to achieve its long-term objectives.

"Flexco is clearly committed to long-term growth and innovation, and I am looking forward to participating in this world-class professional culture while integrating into the CoreTech team," Poe said.

Poe brings over 15 years of experience in marketing to this position, including valuable experience introducing new products to market, establishing value propositions for new technologies, and supporting industrial sales networks.

"Chris will be a key addition to the team, bringing a strong industrial product management background to the program," Mike Stein, vice president of marketing at Flexco, said.

Flexco provides the world's belt conveyors with efficient, safe products, services, and solutions for mechanical splicing, belt cleaning, belt tracking, spillage, and slippage. The company is based in Downers Grove, Illinois and operates subsidiaries in Australia, Chile, China, England, Germany, India, Mexico, Singapore, and South Africa. Flexco markets its broad line of products through a worldwide network of distributors, under the Flexco®, Mineline®, CoreTech™, and Tasman Warajay Technology™ brand names.

Cracking up: the effects of ozone on rubber conveyor belts

Conveyor belts are a very significant purchase for any company that uses them. As a consequence, users of conveyor belts usually go to great lengths to make sure that full and proper consideration is given to a wide range of technical factors such as pulley diameters, tensile strength and other characteristics such as resistance to abrasion.

Of course, these are all well recognized as being everyday considerations when selecting the most suitable and cost-effective belts. What is less well recognized (and publicized) is the extremely harmful long-term effects of ozone on rubber conveyor belts.

From protector to aggressor

At high altitude, ozone acts as a protective shield by absorbing harmful ultraviolet rays. At low altitude, ozone becomes a pollutant. Research has shown that exposure to ozone can have several consequences such as a surface cracking and a decrease in the tensile strength of the rubber. It is becoming increasingly common to see belts being replaced prematurely because of surface cracking even though the covers are not completely worn.

Ozone also occurs in cities and industrialized areas, when it is formed by the photolysis of nitrogen dioxide from automobile exhaust and industrial discharges. The actual level of ozone exposure at ground level can vary depending on geographical and climatic conditions such as higher altitudes and coastal areas, which is of particular relevance to seaport based organizations.

Belts that do not operate under shelter are especially prone to surface cracking, which can have very serious consequences in terms of the performance of the belt and its working life. There are also significant environmental and health and safety consequences because fine particles penetrate the cracks, which are then discharged (shaken out) on the return (underside) run of the belt. It is becoming increasingly common to see belts being replaced prematurely because of surface cracking even though the covers are not completely worn.

Hidden effects

At first glance, fine cracks in the surface rubber may not seem to be a major problem but over a period of time the rubber becomes increasingly brittle. Transversal cracks deepen under the repeated stress of passing over the pulleys and drums and, if the conveyor has a relatively short transition distance, longitudinal cracks can also begin to appear. Again, surface cracking may not initially seem to be a cause of concern but there are often hidden long-term effects.

One of those hidden effects is that moisture seeps into the cracks and penetrates the actual carcass of the belt. In multi-ply belts, the fibres of the weft strands of the plies expand as they absorb the moisture, which in turn causes sections of the carcass to contract (shorten) as the weft strands pull on the warp strands of the ply. This can often result in tracking problems that are difficult to pinpoint and which no amount of steering idler adjustment can compensate for.

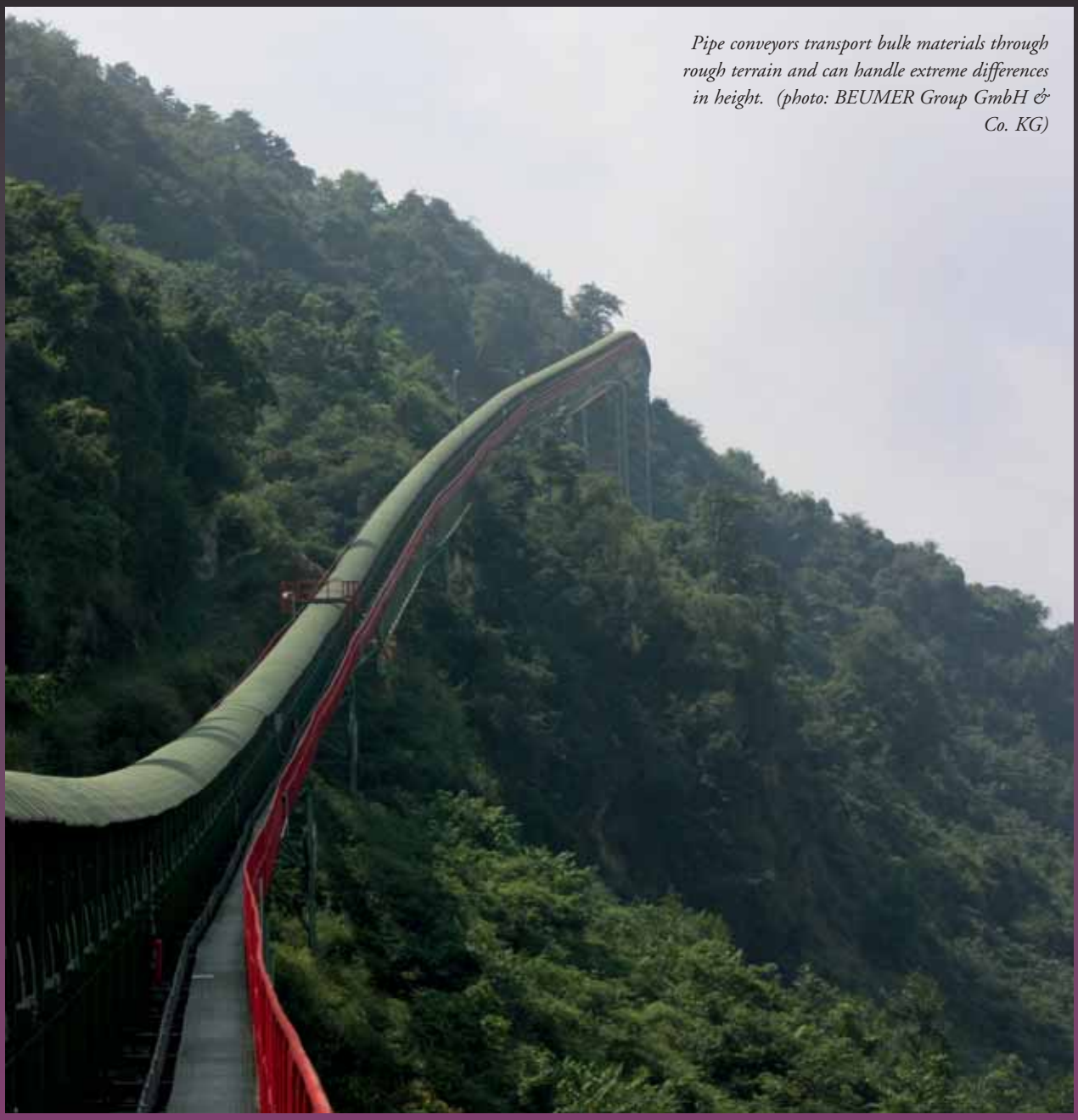
EN/ISO 1431 testing

Although largely ignored by much of the industry on cost grounds, the growing importance of ozone resistance has led Netherlands-based Dunlop Conveyor Belting to take advantage of new technology to measure the effects of ozone. Mandatory testing to EN/ISO 1431 international standards using an ozone testing cabinet was introduced for all Dunlop belting products as well as applying comparison tests to samples of belts made by its competitors.

Samples are placed under tension (20% elongation) inside the cabinet and exposed to highly concentrated levels of ozone for up to 96 hours. Dunlop says that, as a general rule and based on its experience, failure to exceed more than eight hours under test without cracking will almost certainly mean that (under normal working conditions) the belt will start to deteriorate.

Dunlop's director of production and product development, Dr. Michiel Eijpe, believes that EN/ISO 1431 ozone resistance testing has proved to be a wise investment. "Tests have already shown that all Dunlop (belt) covers achieve extremely high standards of resistance although some performed better than others. As a result, we have revised the compound recipes on a small number of belts to ensure that every Dunlop belt reaches the highest possible level of resistance to ozone. In effect, we have found another very important quality advantage that helps to further extend the operational life of our belts."

Beumer supplies curved pipe conveyor to Sweden



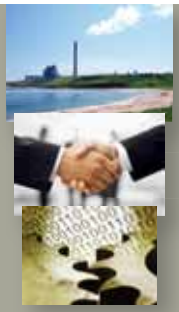
Pipe conveyors transport bulk materials through rough terrain and can handle extreme differences in height. (photo: BEUMER Group GmbH & Co. KG)

The Swedish high-tech minerals group LKAB, based in Northern Sweden, has commissioned BEUMER to provide a curved pipe conveyor for the transport of olivine in summer and quartzite in winter, each at 800tph (tonnes per hour). This material is used for the production of high-quality iron ore pellets. The system will be installed at the company-owned transshipment port in Narvik (Norway). It will automate the storage of material and the filling of railway wagons, which is currently done manually. These wagons transport the material to the main plants in Kiruna and Malmberget.

The complete system comprises the feeding area with vibrating feeders, the pipe conveyor with a centre distance of 341.2 metres, the steel structure and a reversible troughed belt conveyor feeding the customer's silos. The pipe diameter of the pipe conveyor is 300 millimetres, and its conveying speed is 3.1 metres per second.

The decisive factor for the contract award to BEUMER was an almost identical system that has been operating very successfully at another mining company for more than ten years. This reference, as well as the good work of the project team during the quotation phase, convinced LKAB. The complete system will be supplied, installed and commissioned by BEUMER.

The BEUMER Group is an international manufacturer of intralogistics for conveying, loading, palletizing, packaging, sortation and distribution technology. Together with Crisplant a/s and Enexco Teknologies India Limited, the BEUMER Group employs about 3,000 people and achieves an annual turnover of about €450 million. With its subsidiaries and sales agencies, the BEUMER Group is present in many industries the world over.



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Tenova TAKRAF's ash removal system for Bulgaria's new power plant

In Bulgaria's energy supply, lignite from the Maritza basin plays a major role. Three large power plants Maritza East 1, 2 and 3 provide about 40% of Bulgaria's total energy production. Since 2006, under the new ownership of AES Maritza East 1 has been replaced, consisting now of two 300MW units. Energy production from lignite generates considerable quantities of fly ash and gypsum that is either disposed off or reused. AES decided to dump the entire residue in a former opencast site in 9km distance of the power plant.

In the old power plant the ash was stored on an ash pond and later transported by rail to the dumping area. For the new power plant the disposal handling has been re-evaluated completely. As Bulgaria is a member of the EU, current EU regulations and standards must be considered in addition to the applicable Bulgarian legislation. The transport route is passing a village and half of the hauling distance is exposed to public areas. So, railway and truck transport was not considered as a transport option right from the beginning of the planning phase. Due to the complicated routing along the former railway line a tube conveyor system was chosen.

Based on the budget, the power plant operator decided on a 4.5km-long tube conveyor with truck loading station at the end of the conveyor and truck transport over the remaining 4.3km distance. This alternative requires the lower initial investment. An option for a later extension facilitated by a second 4.3km-long tube conveyor was taken into account. The system is flexible as the fleet of trucks is already available for the final transport distance. However, the transport by 24t trucks requires sophisticated logistics and is very sensitive to bad weather conditions.

According to the specifications the material to be transported consists of 48% fly ash, 45% gypsum and 7% bottom ash. Moisture content and density of the material can vary. Besides the mixture of the three substances a separate transport of each material is required as an option too.

The waste transport system starts at the outlets of the bottom ash silo, where the wet, slag containing bottom ash is fed onto a chain conveyor. This conveyor transfers the material onto the belt conveyor BC-1B, a normal troughed belt width of 1,400mm and 35° trough angle. Conveyor BC-1B traverses the entire silo unit underneath. The moistened fly ash is fed from three silo outlets and gypsum from two silo outlets on top of the bottom ash that is already located on the belt. The amount of material on the belt is recorded continuously by a belt scale placed at the end of the conveyor BC-1B. On the downstream conveyor BC-1C at first tramp iron is removed by a self-cleaning magnetic separator and a metal detector. Since the density of the material being conveyed can vary and the tube conveyor must be driven at full power with a filling degree up to 80%, volumetric and mass flow rate control on the upstream conveyor is required.

The ash-gypsum mixture is further transported by tube conveyor TC-3A. The 4,535m-long tube conveyor connects the power station with the truck loading point, and has got numerous vertical curves and eight horizontal curves. The minimum curve radius is 350m. The tube (inside) diameter is 400mm. The associated belt width is 1,500mm, and the conveyor speed of 4.8m/s results in a cross-section utilization of 72%. The first 800 metres of the conveyor route runs on bridges crossing two railway lines. The tail station of the tube conveyors is located inside a transfer tower. For environmental protection, the closing area of the conveyor belt is located in a closed conveyor bridge. The tube is shaped in this area by means of adjustable three idler stations. The trough angle of the side rollers can be adjusted by the whole pattern of the support frame in the range of 0° to 90°.

The first two bridges are enclosed completely. All other elevated sections are designed as integrated conveyor bridges where the return strand runs inside the bridge structure. Facilitating better access for maintenance and repair the belt is supported by removable modules on the ground. For noise reduction, structure-borne sound-insulated idlers are used in the conveyor system complying with the permitted noise levels in village areas. Close to the properties in villages the conveyor is equipped with sound insolating plastic sheeting in order to keep the sound level caused by the tube conveyor below 50dB (A).

At the truck loading station TL-2 the tube conveyor discharges onto a movable shuttle conveyor, which feeds the truck loading conveyors TC-5A and B. There, in a frequency of 60 seconds 24t trucks need to be loaded. The loading points are equipped with telescopic chutes featuring ring nozzles at their outlet in order to prevent dust generation during the loading process. An operator who has a direct view to one loading point controls the loading process.

Since the beginning of 2011 the residue transport system has been in operation. All expectations in regards to environmental protection, operational safety and reliability have been met. Despite a wide variety of chemical and physical properties of the material mixture transported the system shows stable operation in a temperature ranging between +35 and –20°C.

Tenova designs and supplies advanced technologies, products and services for the metal and mining industries. Tenova operates close to its customers through a network of 33 companies based on the five continents.

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Superior Industries launches new iPhone App for conveyor users

In late February this year, Superior Industries, a major American manufacturer of conveying equipment and conveyor components, announced completed development of the company's first ever iPhone app. Known as 'ConveyCalc', the free app is available for download in the App Store. Notable features include:

Operating cost calculator
Input variables like operator salary, fuel costs, conveyor horsepower and annual repair expenses to compare costs of operating a conveyor versus a loader.

Stockpile volume calculator
Input two variables, conveyor length and radial arc travel angle, for this calculator to determine stockpile volume in cubic tonnes, short tonnes and metric tonnes.

Belt capacity calculator
This calculator helps bulk material handlers maintain accurate levels of material on belts. Inputting a few common variables will return a conveyor's maximum capacity.

Horsepower calculator
Knowing a conveyor's length, width, lift and belt capacity will calculate minimum horsepower requirements for the given application.

Conveyor lift calculator
Input two variables, the angle of the conveyor and its length, for this calculator to reveal a conveyor's centre-to-centre lift in feet.

ConveyCalc is available for free download in the App Store and is compatible with iPhones running iOS 5 software.

About Superior Industries
Headquartered in Morris, Minnesota, Superior Industries designs and fabricates a full line of conveying equipment, telescoping conveyors, supply-erect systems, feed systems, conveyor idlers, pulleys, as well as other conveyor components.

Besides its Morris headquarters, the company operates from manufacturing facilities in Prescott Valley, Arizona, and Norcross, Georgia.

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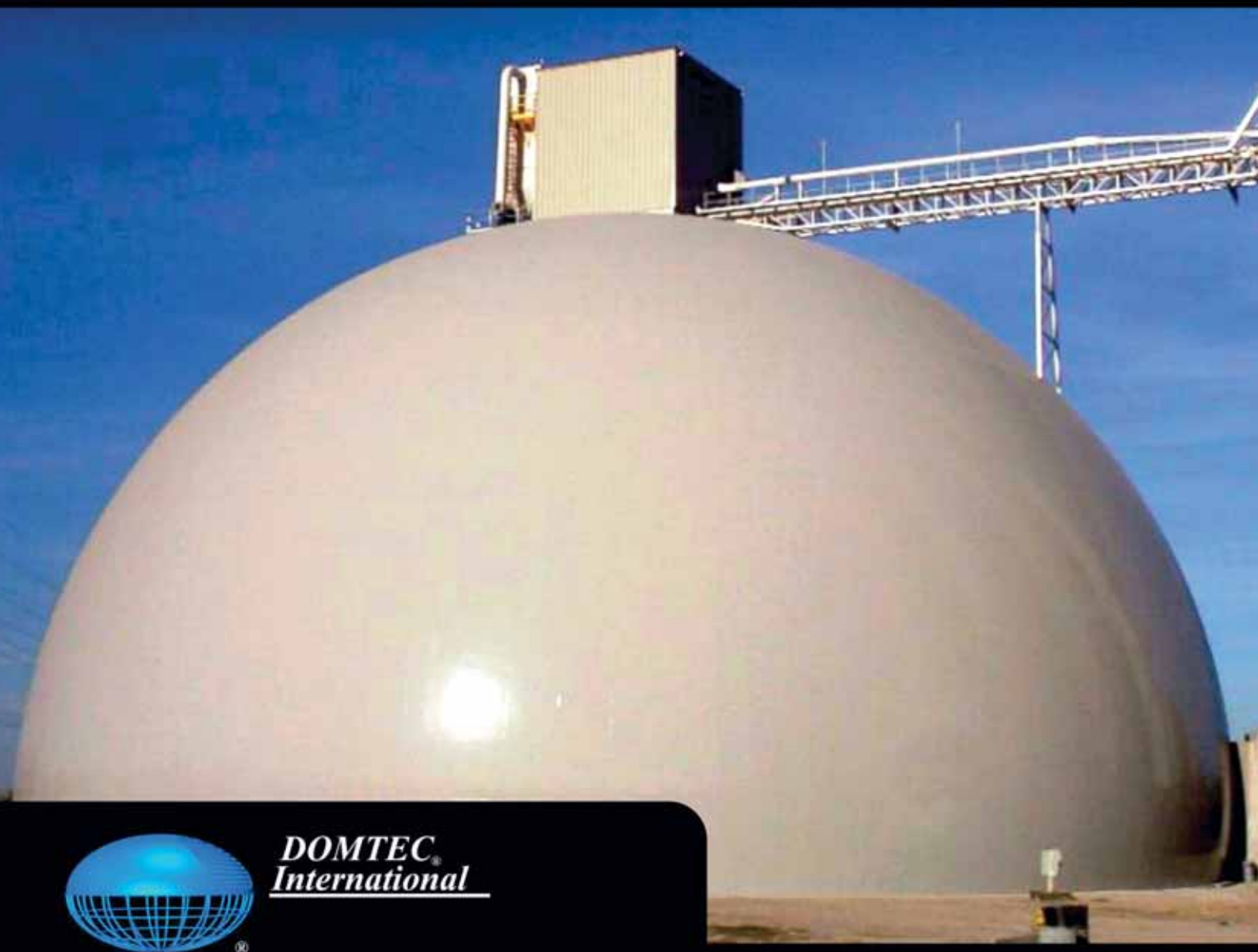

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De Regt Conveyorsystems: focusing on service, quality and flexibility

Six linked mobile conveyors.

De Regt Conveyorsystems is a family business, which was established in 1988. It has 22 employees, and is headquartered in Biervliet, The Netherlands.

The company specializes in the development, manufacture, assembly and maintenance of conveyor systems. Keywords that sum up De Regt Conveyorsystems are service, quality and flexibility.

De Regt Conveyorsystems has great expertise in the manufacture of mobile and fixed belt conveyors, roller conveyors (gravity and driven), chain conveyors, bucket elevators, screw conveyors, bunker and supporting structures.

The majority of the company's conveyors are used to handle bulk products, including fertilizers, rice, maize, feed-pellets, grains, sand and gravel, coals, waste and recycling products etc.

De Regt's engineering department uses HiCad (a three-dimensional package) for the design and development of its conveyor systems. It is a solid and growing company, something which is illustrated in the growing list of customers, which include major companies such as Cargill, Verbrugge Terminals, Solvic Lillo, Group Galloo, Ovet BV, Schelde Logistics NV, Inashco, Van Heyghen Recycling, Argex Kruibeke, Euroports Belgium, Oosterlee S.E.A.M. ,Ghent Transport & Storage, Zoutman, Osse Overslag Centrale and Wagenborg Bulk Terminal bv.

De Regt Conveyorsystems sells its products not only in the Netherlands, but also to customers in Belgium, France and sometimes Germany and Italy. Almost all of its customers are involved in the dry bulk handling market. Others include waste and recycling companies and concrete manufacturers.

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One of the major issues for De Regt Conveyorsystems is dust control, and ensuring that all Atex regulations and zones are observed (to eliminate the risk of dust explosions). Every conveyor made by De Regt Conveyorsystems is developed in such a way that all such regulations are adhered to, and the company strives daily to improve its systems as much as possible.

Every day, De Regt's sales team reaches out to potential new customers to expand its business network. Recent successfully completed projects are:

Part of a recycling sorting line that holds a various of conveyor belts and a sorting cabin.

Six linked mobile conveyors

De Regt Conveyorsystems made six mobile linked conveyors with hydraulic height adjustment (see picture at the top of p97).

These mobile linked conveyors are for the transportation of grains, fertilizers and feeds with a capacity of 500tph (tonnes per hour). All six conveyors have a length of 20,000mm and a width of 1,000mm.

Stainless steel conveyors

For the transportation of salt with a feed capacity of 900tph, de Regt Conveyorsystems made a total of three conveyors (see picture at the bottom of p97). One conveyor has a length of 7,000mm, one conveyor has a length of 85,000mm and the third conveyor has a total length of 155,000mm. All conveyors have a width of 1,200mm and made out of stainless steel.

Recycling sorting line

A sorting line that holds a various of conveyor belts and a sorting cabin (above). One 17° inclination conveyor belt with a length of 12,000mm and a width of 1,400mm. The conveyor runs at a speed of 1m/s. Two conveyors with a inclination of 17° a total length of 22,500mm and a width of 1,000mm.

Mobile bunker with a swivel and sliding conveyor belt

Mobile bunker with a swivel and sliding conveyor for the transportation of coal, ore and feeds with a capacity of 900tph (left). One mobile bunker, measuring 9,500mm × 3,500mm and with a content of 20m³.

Attached to the mobile bunker is a swivel and sliding conveyor mounted with a hydro motor.

Mobile bunker with a swivel and sliding conveyor for the transportation of coal, ore and feeds with a capacity of 900tph.

De Regt Conveyorsystems' most recent ongoing project is the construction of a mobile telescopic conveyor belt. This conveyor will have a capacity feed of 600tph and will carry fertilizers. The telescopic conveyor has a maximum length of 30,000mm, minimum of 19,000mm, width of 1,200mm and holds a chute of stainless steel.

Turkish symposium addresses safety and productivity

A renowned expert in bulk material handling technology has completed its 'Conveyor Safety and Productivity Symposium' in Antalya, Turkey, introducing strategies and innovations for improving safety practices while enhancing profitability. More than 40 management and supervisory personnel attended the event, representing a wide range of industries, including aggregates/cement, mining, coal/power, steel production and dry bulk handlers.

Hosted by Martin Engineering Turkey, the Conveyor Safety and Productivity Symposium introduced strategies and innovations for improving safety, while enhancing profitability.

Hosted by Martin Engineering Turkey, the symposium featured content selected specifically to address current issues facing local industries. The keynote address was entitled, 'Safety and Total Ownership Cost Management,' delivered by Dr. Halefsan Sumen, respected journalist and professor at Istanbul Technical University, one of the world's oldest technical universities dedicated to engineering sciences.

Following Dr. Sumen was former CEMA president (Conveyor Equipment Manufacturers Association) Todd Swinderman, holder of 140 product licences in a dozen different countries, who spoke on 'Safety by Design'. Throughout the presentation, he emphasized that design is the single most effective method of safety improvement, outperforming even guards and controls.

Swinderman described Martin Engineering's EVO® Modern Conveyor Architecture, a new approach that encourages engineers to question the design of every component in a conveyor system, looking for ways to redesign for safer operation, better fugitive material control and serviceability. "It's an incremental approach that applies from head to tail on a conveyor," he said. "It's a quest for safe, clean, profitable systems, examining every aspect of design and looking for ways to upgrade without significantly driving up cost."

Also featured as a speaker was trainer and field expert Michael Tenzer of Martin Engineering, who drew on 23 years of experience to create his presentation, 'Innovations', which highlighted recent technical developments that have led to proven solutions for common industry problems. Several of the presenters touched on standardizing maintenance procedures to further reduce the risk of injury from working on and around conveyors. In addition, attendees were treated to scale model displays and demonstration equipment, helping presenters illustrate representative applications and clarify details from their talks.

Discussions in between the presentations emphasized that safety and profit are not mutually exclusive. In fact, said Martin Engineering VP Jim Turner, just the opposite is true. "The most productive and profitable companies are the ones with the best safety records," he observed. About the symposium Turner added, "These events have been extremely well-received, helping management and operations personnel eliminate potential risks and improve productivity."

The evenings provided ample opportunity for entertainment, including shows by comedian Yavuz Seckin and the famous German illusionist, Harry Keaton. Martin Engineering also organized sightseeing excursions to explore Antalya's natural and historical beauty, including the Aspendos Theatre, which dates back to the Roman Empire, and the spectacular Kursunlu waterfall.

Summing up the experience, Martin Engineering Turkey's Branch Manager Ilker Tan commented, "The importance of both safety and efficiency is constantly growing. Our goal with this symposium was to help elevate the safety and productivity standards of bulk material handling in Turkey. That's our expertise as a company, and events like this one are going on all across the globe," he added.

Attendees were treated to scale model displays and demonstration equipment, with content selected specifically to address current issues facing local industries.

Martin Engineering supplies conveyor products around the world in a wide variety of bulk material applications, including cement/clinker, mining, rock/aggregate, coal, biomass, feed pellets, grain and other materials. Founded in 1944, Martin Engineering is a major force in making bulk materials handling cleaner, safer and more productive. The company is headquartered in Neponset, IL, with global reach from operations in Brazil, China, France, Germany, Indonesia, Mexico, South Africa, Turkey, India and the UK.

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"Air-supported conveyors eliminate the carrying-side idlers used on conventional designs," explained Martin Engineering's European sales and marketing manager, Werner Baxmann. "By removing a source of friction and the need for periodic maintenance, air-supported designs can offer significant advantages, including energy, environmental and safety benefits," he said. "With fewer friction points, there is also less wear on the belt's bottom surface."

Martin Air-Supported Conveyors are best suited for light to medium-duty applications where lump size is limited to 8 inches (200mm) or less, the cargo is loaded in the centre of the belt and loading zone impact and air entrainment levels are minimized. They can be used in new construction or retrofit conveyor upgrades, with system engineering and installation available from Martin Engineering.

The concept of the air-supported design is fairly simple, with the load zone and carrying sections contained in a plenum, which is pressurized by a centrifugal fan. The carrying surface of the plenum is typically shaped to roughly the same profile as a conventional belt conveyor, with a ~35° trough. Holes in the top of the plenum create an air film between the plenum and belt, which supports the moving load.

The size and distance between the holes are critical factors in designing an air-supported conveyor, with the holes centered under the belt to match the air pressure with the weight distribution of belt and cargo. By starting with the weight of the belt and the load, system designers can estimate the pressure needed to deliver about 1mm of lift, which requires minimal air volume in most applications.

The thin film of air can properly support loads and deliver high speed operation, while generating virtually no mechanical friction. The system needs no compressor, and is able to power up to 600 feet (183 metres) of conveyor, supported by a single low-power fan. Extremely low friction inherent to the design can reduce overall drive power requirements vs. conventional conveyors by as much as 30% on a horizontal run.

The return run does not require air support, and many systems incorporate conventional idlers on the return side. By using standard take-up drives, chutes and support structures, the air-supported design allows conversions of, or connections to, existing standard belt conveyors.

The design is well suited to conveyors with a steep incline, where conventional designs can disturb the load sufficiently that it dislodges lumps and causes them to roll back down the belt. Limiting load disturbance minimizes this tendency and helps eliminate some of the dust that can be caused by material interaction during transport. With its stable path, an air-supported conveyor can operate at a steeper incline than roller conveyors, which can reduce the overall length and installed cost in some applications.

Tracking accuracy is another advantage of the air-supported system. On conventional conveyors, belt tracking is typically accomplished by 'knocking' the idlers. Over time the repositioning of the idlers can be problematic, sometimes to the point of causing belt damage as the original path is altered. The use of air supported conveyors eliminates the need for idler adjustment to correct belt tracking issues. The benefits include extended belt life, reduced maintenance cost and improved safety by reducing employee exposure to moving components.

Best suited for light to moderate load weights, air-supported conveyors can now be found in many solids handling facilities that require excellent control of dust and spillage. That number is likely to increase, as plant owners and operators seek ways to step up fugitive material control to protect workers, reduce maintenance costs and facilitate good community relations.

While not appropriate for all applications, air-supported conveyors can offer significant improvements over conventional roller conveyors in certain applications. According to Baxmann, the key is to provide stable belt loading conditions to reduce impact and centre the load. "When installed in combination with engineered flow loading chutes, bulk material handlers can reap the benefits of clean, energy-efficient conveying, with lower maintenance requirements than roller conveyors," he concluded.

Martin Air-Supported Conveyors can be used with engineered transfer chutes and accumulation-resistant support structures as part of the company's New Architecture for Modern Conveying. The new architecture "re-thinks" many of a conveyor system's design details, in particular as they relate to fugitive material control.

Founded in 1944, Martin Engineering a major force in making bulk materials handling cleaner, safer and more productive. The firm is headquartered in Neponset, IL, with global reach from operations in Brazil, China, France, Germany, Indonesia, Mexico, South Africa, Turkey, India and the UK.

Rulmeca celebrates 50 years

In 2012 Rulmeca, a major manufacturer of rollers for belt conveyors, is celebrating 50 years of activity.

Since it was founded in 1962 in Almè, Bergamo in Italy, the company has undergone changes and has developed alongside the market. Its product offering has also developed, so that it has remained a relevant Italian entity, as well as the headquarters of the 22 Rulmeca companies worldwide, specializing in the production and sales of rollers, motorized pulleys and components for belt conveyors in bulk handling applications.

Behind the high quality of Rulmeca products there is a brand full of history, innovation, international evolution and research.

Rulmeca is a company that has produced rollers since 1962 thanks to the will and to the entrepreneurial spirit of the founder Antonio Ghisalberti.

During its early years, the company's focus was on the development and manufacture of rollers for medium- and heavy-duty belt conveyors for quarries and mining applications.

The experience and expertise acquired over many years has allowed the company to grow constantly and to widen its product range.

At the beginning of the 1970s, thanks to its co-operation with Interroll, Rulmeca was able to increase its product range, adding all the components for the industry's conveyors, for assembly lines and unit handling. Later, it added motorized pulleys and all the equipment for flow storage.

In the 1980s Rulmeca started to explore the international market with the first acquisition of competing foreign companies. Recently Rulmeca has kept its focus on the international market. Today, the Rulmeca Group comprises 22 manufacturing and/or sales companies with 1,100 employees and a turnover of € 150 million , now managed by the Rulmeca Holding S.p.A.

Acquiring the most important quality certifications, both for the company and for its production processes, shows how much care Rulmeca puts into all aspects of its activities. Rulmeca has a large customer portfolio, covering a wide range of applications. this is partly due to its collaborative attitude, not only as a supplier but also as a partner. It constantly updates its production processes, and focuses particularly on the development of environmentally friendly products (recent examples include the eco-friendly thermoplastic roller TOP and the new Interroll 'energy-saving' EC310 RollerDrives).

Last but not least Rulmeca has always been very sensitive to the local area and community, offering donations and sponsorship especially in the field of art restorations and for the support to sports activities dedicated to children and the disabled.

Soft braking conveyor solution: 15 kilometres downhill!

Long-distance downhill conveyors

Conveyors are the most efficient equipment in industrial mines and metallurgical plants. But conveyors, like other heavy equipment, pose several hazards to employees. It is difficult to ensure the safety of the equipment, in particular with the long-distance downhill conveyor, where the operation is mostly unmanned due to its distance, terrain and profile.

Generally, long-distance conveyors move material uphill or uphill followed by downhill and along the surface of the earth. The challenge in designing the conveyors when different section combinations are loaded/empty causes natural instability.

With increase in tonnages and high negative lift conveyors with several hundred metres of drop, it is imperative to develop an intelligent soft braking system to address the starting and stopping requirements under various load conditions.

Damanjodi Mine in Orissa State, India

The Damanjodi Mine is situated in the Koraput district of State Orissa at the east coast of India. The conveyor was designed and installed in the early 1980s with a single distance of 14.7km and a deepest single downfall of 530 metres. This conveyor plays a vital role as life line to the alumina plant ore supply which was also built and commissioned in the early 1980s.

The challenge

Supplied by Cable Belt UK and in operation for more than 25 years, the Damanjodi Downhill Conveyor is Asia's longest downhill conveyor.

Initially, the conveyor belt was supplied with 2 x 1,050kW sync motors with dynamic resistor bank to generate braking in regenerative mode and with a battery backup — grid resistor bank for breaking during power failure.

Only a hydro pneumatic parking brake was provided, which was used only during stop and maintenance condition.

This article describes the critical design criteria on one of the largest regenerative conveyors overcoming disadvantages in mechanical braking systems and control technologies of the past.

Long distance special belt conveyor demands gradual application and release of brakes. The gradual application of brakes reduces the forces in the main belt member as well as longitudinal vibration along the conveyor. As the conveyor is a high inertia machine, the situation is more demanding when high inertial mass is resting on elastic tension belt members. Therefore, hydraulic operated soft braking disc brakes are more suitable and effective used for long distance, downhill, high speed and regenerative conveyors.

CONVEYOR SPECIFICATIONS

Material conveyed	Bauxite
Design tonnage	1,800tph
Conveyor length	14.7 m
Environmental conditions	Dust/dirt
Maintenance conditions	Low
Hours in service per day	16+
Max. speed	4.7m/s

Svendborg Brakes at a glance

Svendborg Brakes is a renowned provider of intelligent braking solutions to the global wind power industry as well as the international mining, off-shore, crane and oil industries. For more than two decades, the company has produced reliable and safe braking solutions for a wide range of applications.

The brake product range comprises both active and failsafe brake calipers in several options as well as a wide range of hydraulic power packs and intelligent brake control units. Complete braking solutions can be individually customized, hereby giving a choice of one-stop braking solution from one single source guaranteed to suit customers' specific requirements.

More than 250 experts are worldwide employed at manufacturing facilities in Denmark, Germany and China, as well as operating from offices in Australia, Chile, Denmark, China, Spain, the Czech Republic, Germany, South Korea, India and the United States.

These disc brakes are capable of creating braking torque to full value gradually depending on need, which is adjustable through programming with multiple deceleration braking ramps. It also provides an option of rollback control for the uni-direction conveyor and, most importantly for uphill/downhill regenerative conveyors, the opening of braking can also be controlled in a gradual programmable way. The latter is done by continuously monitoring the conveyor's speed by means of encoder and controlling the braking ramp action.

The New Braking Solution

During the operational period, it has often been necessary to stop the conveyor while it is running, which can be difficult. This challenge was overcome in 2008 after a review of site conditions and existing equipment. As a result of that review, the old sync motor control was replaced, and a new Svendborg Brakes disc brake solution was installed, with its intelligent programmable soft braking module for service and emergency braking needs.

It was a great challenge to carry out the contract to satisfy all the requirements, considering the condition of the existing equipment, and to provide a solution that could fulfil the full torque requirement of 2,500kW at 21rpm, with a braking torque requirement of 1,700KNm during service, emergency and power failure situations. During the refurbishment project the following major changes were considered:

- removal of existing synchronized motor and replacement with VFD grade induction motor and regenerative drive panel;
- introduction of failsafe disc brake solution with soft braking system;
- introduction of PLC-based control and SCADA.

This project was engineered, supplied and implemented in February 2009 and has been operating successfully ever since.

SOBO (Soft Braking Option)

A specified braking time is achieved, almost independently of the applied load. The braking torque during soft braking will not reach the maximum level for instance during a sudden braking situation.

The overshoot and oscillations at the end of the braking sequence are minimized or eliminated.

To ensure a very fast response in case of emergency braking, one of the directional valves is drained directly to the tank, bypassing any throttle and accumulator that may slow down the system.

Soft Braking System Advantages

Belt stretch is drastically reduced during emergency, worst case and normal stopping. This was concluded by observing the take up counter weight lifting by less than 2m as against general lift of 8–10m.

Each stop of the conveyor is in full control of operation to achieve the same stop time of belt leading to uninterrupted sequence operation of material feed.

The belt is ensured of uniform loading or no empty patch along the conveyor due to free run of conveyor for more than 20 minutes, compared to earlier non-controlled braking and during power failure.

The new brake control avoided manual unloading of material in the uphill position before starting, which was created due to uncontrolled run out of conveyor without controlled braking.

Full control and easy maintenance of the conveyor is possible with the SOBO braking solution.

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4B Braime Touchswitch belt misalignment sensor

The Touchswitch is an electro-mechanical limit-switch with no moving parts that detects the misalignment of both pulleys and belts in conveyors and bucket elevators. The sensor detects the lateral force of the belt or pulley and activates a voltage free relay contact. This relay contact can be used to send an alarm or shutdown the machine. The sensors are usually installed in pairs on opposite sides of the belt/pulley.

The face of the sensor is made from hardened and annealed stainless steel, not soft brass or aluminium, increasing wear resistance when the belt contacts it. The Touchswitch is not affected by dust or material built up; it will work even when completely covered by material.

The Touchswitch sensor is easy to adjust and can be used with pressures between 2kg and 5kg. It has got a test button which allows to create an error to test the efficiency of the security system.

The Touchswitch is ATEX certified for zones 20, 21 and 22 Ex II 1D T125°C without internal cabling. It also has CSA and IECEx approvals.

The sensor can be connected directly to a PLC or for increased security to an independent monitoring system such as the B400 ELITE, WATCHDOG ELITE or T500 Hotbus, all ATEX approved zone 21 and 22.

Making the best choices in the design of bulk conveyor equipment

Some individuals try to limit the selection criteria to power consumption and initial cost only, but there are a number of other important criteria that must be considered when designing and selecting the proper conveying equipment as:

- mode of operation;
- capacity requirement;
- conveying distance;
- material characteristics;
- flexibility;
- environmental consideration; and
- process requirements.

The table (right) indicates conveyor choices on the basis of some common functions.

CONVEYOR CHOICES

Function	Conveyor type
Conveying material horizontally	Belt, screw, pneumatic
Conveying material up or down an incline	Belt, screw, pneumatic
Elevating material, vertically	Bucket elevator, pneumatic
Distributing materials to or collecting materials from bins, bunkers, etc.	Belt, screw

Experience may even vary from plant to plant. Often, a plant will use only specific types of conveyors, that particular selection based on past successes or failures, or a desire to standardize equipment. This practice is acceptable and even recommended, as long as the individual making the selection remembers that each type of conveyor has its proper application.

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the conventional troughed belt conveyor, especially because belt conveyors are the most useful due to the wide range of possibilities with dry and sticky material handling.

The troughed belt conveyor is not a complicated piece of equipment that is difficult to use: advances in belting, bearings, idlers, and pulleys have made the belt conveyor an economic, reliable method of conveying materials.

The belt conveyor can be used for conveying goods of different nature and in large quantities.

This feature of makes it suitable for use in different industries like cement, the chemical industry, the power industry and more.

The cement industry relies heavily on belt conveyors handling crushed rock from the quarry to the raw milling facilities. In terms of capacity and distance, the only system capable of matching the belt conveyor is a fleet of trucks!

Bedeschi has implemented various systems. All the critical equipment is manufactured by Bedeschi in its production facilities under strict quality control.

A few material handling systems implemented by Bedeschi recently are as discussed below.

Scorpio Logistics — 'Mara' Project

Sometimes there is a requirement for large buffer storage, especially when the barging distance is large or cargo sourcing is varied. This was exactly the situation faced by Scorpio Logistics, when it decided to implement a system with large floating

storage and a high loading rate. For this purpose, it was decided to convert the Panamax-size vessel *Mara* into a transshipper to be used for coal loading operations in Kalimantan, Indonesia.

The floating terminal *Mara* has storage of about 70,000 tonnes and is equipped with four cranes, two with extension arms and two without. The Bedeschi-supplied cargo handling system comprises two large hoppers each serving two cranes. The specially designed hoppers are capable of receiving coal from two cranes simultaneously. Basically, they are two hoppers each of 50m^3 combined into one. The hoppers are equipped with variable-speed belt extractors leading to longitudinal conveyors systems moving in the opposite directions. The two conveyors converge onto a hopper to transfer the coal onto a transverse conveyor, which transports the coal across the beam of the transshipper onto the port side. On the port side, two large shiploaders are installed with swivelling and luffing capabilities. They have also been fitted with retractable delivery booms, to enable delivery of coal into all the parts of the OGVs' (ocean-going vessels) holds. The system has the capability of loading coal at a daily rate exceeding 60,000 tonnes per day. The advantage of having a large floating storage is that the loading operations can take place even when there are no barges alongside. Several belt conveyors have been installed with widths from 1,600mm up to 2,000mm and capacities ranging from 1,500tph up to 4,000tph coal.

The system is operating in Kalimantan and is loading at rates exceeding 75,000 tonnes per day. It also has the capability of blending two grades of coal and delivers a homogeneous grade. The annual capacity of the system is in excess of 15 million tonnes, which has helped the user Glencore to significantly increase its competitiveness.

Aitbaha (Morocco) new Italcementi plant

In the summer of 2008, Ciments du Maroc (Italcementi Group) awarded Bedeschi the contract for the complete handling and storage section of the new greenfield plant in the Ait Baha Agadir region, south of Morocco.

The project includes the design, manufacturing, supply and erection of:

- four receiving stations for the different raw materials;
- four longitudinal storages unit for limestone, clay additives and petcoke;
- approximately 4km of several belt conveyors with a capacity from 500tph (tonnes per hour) up to 1,500tph; and
- several bag filters to dedust transfer points and receiving station

The commissioning of the plant is in progress and will be completed shortly. To date, the moment belt conveyors, stackers and reclaimers are completely assembled.

The main conveyor from quarry to the plant has a length of approximately 1,600m and a capacity of up to 1,000ph. The design was elaborated considering different ground levels and site restrictions as well as strict design criteria given by the client and by the Socotec, the local Company approving all the detailed design. The conveyor is transferring limestone from the quarry up to the storage inside the plant.

Conveyor solutions from Standard Industrie

Standard Industrie International designs and manufactures equipment that facilitates the storage, the flow and the conveying of powder and bulk products. Continuous innovation is the philosophy of the company, which offers equipment that is always at the leading edge of technology and highly competitive. Founded in 1978 by Hervé Simoens, the company is now present all around the world thanks to a large network of subsidiaries and agents.

The company offers its customers a large range of products divided in 4 specialities:

- Airchoc air cannons;
- vacuum units;
- Liftube conveyor belt optimization system; and
- Gironet silo and hopper cleaning system.

Standard Industrie's mission is to:

- bring innovative and tailor made solutions to customers in order to generate added value;
- optimize the manufacturing process;
- ensure a clean and secure work environment; and
- reduce the costs related to maintenance and production.

The company takes pride in:

- the quality of its designs and manufacturing;
- its analyses and recommendations to its customers to resolve all problems;
- installation and maintenance of the equipment (maintenance contracts, inspection contracts...);
- its on site products demonstrations; and
- the training it provides on how to use the equipment.

Standard Industrie International's success is founded on a simple concept: optimizing the production tools whilst reducing the cost of operation and maintenance.

In effect, industries and bulk handling activities are often penalized by issues linked to traditional conveyors such as significant dust emission, loss of product, time of maintenance, and more importantly: the safety of the operators.

With more than ten years of experience in conveyor belts, and always willing to provide solutions to its customers, the company Standard Industrie International has extended its Liftube range.

The Liftube is...

A system that optimizes the sealing property and the safety of all conveyor belts (flat or chevron belts, rubber or PVC, hot or cold vulcanized, endless) between the loading point and the unloading point. Instead of being in contact with fixed rollers, the belt unwinds on a horizontal tipping central roller and slides on the lateral curtains, which are tipping as well. A removable cover adapts on the whole system to ensure the reduction of dust emissions on the conveyor.

Advantages

- quality: the product is totally protected. No material contamination is possible;
- complete safety (in accordance with international standards): protection of nip point;
- drastic reduction in maintenance, made even simpler;
- loading capacity: optimization of conveying rates;
- standard, adaptable, evolutive components; and
- no spillage around transfer points

Optional

- high temperature version (up to 280°C)
- food contact version

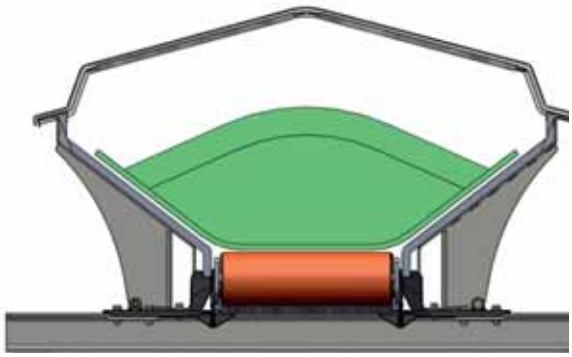
The conveyor belt and the rollers are easily accessible thanks to innovative tipping supports.

The patented system is available under standard units, evolutive and very easy to install on new or existing installations.

The company, always in constant innovation, launches two new solutions for conveyor belts:

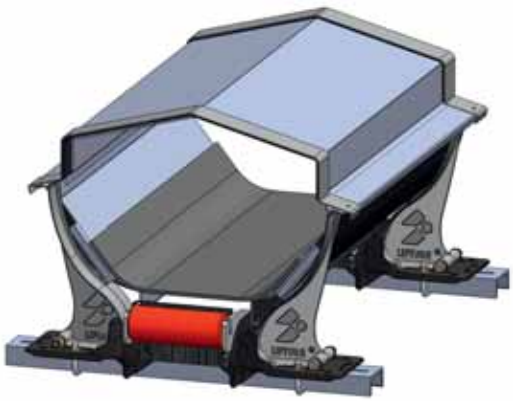
Liftube Wide width

The Liftube Wide width makes it possible to transport large quantities of product. With a width between 1,000mm to 1,600mm, the Liftube Wide Width optimizes the sealing and the safety on every type of conveyor belts, reducing dust emissions and respecting the current norms.



Liftube High Temperature

The Liftube High Temperature has been especially developed for the transport of products of more than 120°C. With a resistance to a maximum temperature of 300°C, the Liftube High Temperature is the first ever enclosed conveyor concept system made for the transport of high-temperature products whilst keeping the advantages of the Standard Liftube.



The Liftube enables the transport of powder products, with very fine particle size (cement, sugar, etc.), as well as bigger particle sized products (limestone, SINTER, etc.) and very abrasive (aluminium oxide, manganese, etc.) or even ATEX products (sugar, cereals, etc.).

Standard Industrie International also offers accessories that help to reinforce the safety on conveyors (pinch point protections, scrapers).

Some figures: in 2011, 250 metres of Liftube were installed on 15 conveyors on a metal recycling site.

More than 7,500 metres of Liftube have already been installed all around the world.

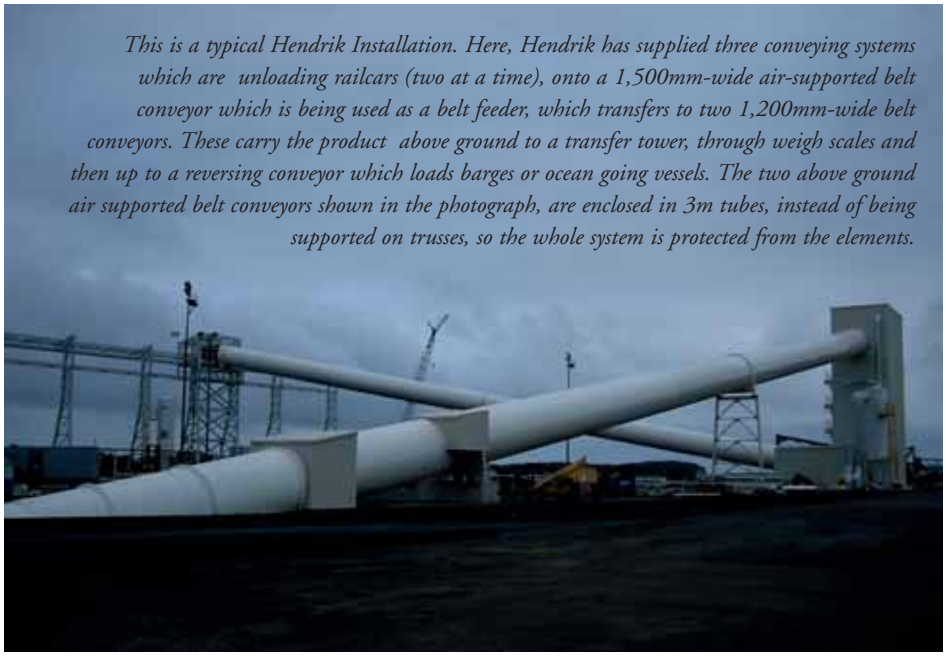
With ever stricter regulations and industrial environments that need to be even more safe, it clearly proves that it is in the interest of every industry to be equipped with the latest innovations.

The European and African belt conveyor market gets an injection of fresh air

The FPE Global has been appointed licensed manufacturer and supplier for The Hendrik Group range of air supported belt conveyors.

Chris Bailey is the Managing Director of FPE Global. He said: "In terms of both innovation and the potential for saving energy and money, the Hendrik belt conveyors are a perfect match for the systems that we supply to our customers."

The Hendrik Group is recognized as one of the innovators of air supported belt conveying with two systems available; the HoverGlide and HoverTube. Both systems have innumerable options, are virtually maintenance free, environmentally friendly and can provide cost savings that make them a genuine alternative to conventional idler belt conveyors.



This is a typical Hendrik Installation. Here, Hendrik has supplied three conveying systems which are unloading railcars (two at a time), onto a 1,500mm-wide air-supported belt conveyor which is being used as a belt feeder, which transfers to two 1,200mm-wide belt conveyors. These carry the product above ground to a transfer tower, through weigh scales and then up to a reversing conveyor which loads barges or ocean going vessels. The two above ground air supported belt conveyors shown in the photograph, are enclosed in 3m tubes, instead of being supported on trusses, so the whole system is protected from the elements.

Instead of conventional idler rollers which support the belt and load, Hendrik Group conveyors use a cushion of air. The range covers belt widths from 650mm to 1,800mm and flow rates from 50 to 6,000 tonnes per hour.

From the loading area to the point of discharge Hendrik conveyors are totally enclosed which greatly reduces the need for dust collection. Maintenance is reduced by up to 35%, belt life can be increased by up to 60% and there is an energy saving of around 10%. Except for a slight rushing of air, Hendrik Group conveyors are virtually silent.

Henk Hartsuiker is the CEO of The Hendrik Group. "We have been looking to expand into Europe and beyond for some while. With FPE Global, we have a partner with over thirty years of system supply experience in those areas and industries that will enable us to expand and grow."

Mühlen Sohn supplies woven airslide fabrics for use in bulk handling conveyors

Mühlen Sohn is a major manufacturer of heavy industrial woven airslide fabric with more than 130 years experience, *writes Karin Albrecht, sales manager at Mühlen Sohn GmbH & Co KG.*

FLUITEX® airslide fabrics are supplied to all well-known manufacturers of the following equipments — whenever a dry bulk material must be fluidized or conveyed:

- airslides
- ship aeration panels
- domes
- terminals
- silos
- railway wagons
- trucks.

FLUITEX® fabrics find their application in various industries, e.g.:

- cement industry
- aluminium, lime and gypsum industry
- power plants (coal fired)
- pharmaceutical industry
- chemical industry
- food industry.

FLUITEX® fabrics are available in different types, preferred use is listed:

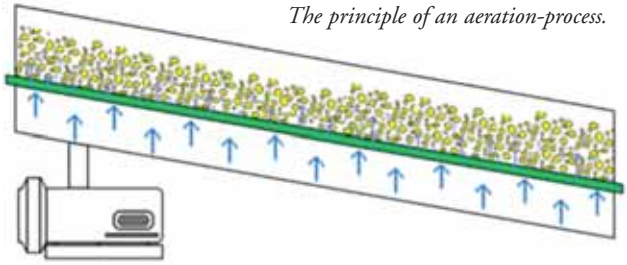
FLUITEX® E: raw meal, cement, lime, gypsum, PVC, fertilizer
FLUITEX® EX: coal dust
FLUITEX® AD: fly ash
FLUITEX® AN: aluminum powder, phosphates, sodium sulphates, acid crystals, washing powder.

A large number of airslide fabrics, made of different raw materials, in different grades of air permeability and thicknesses, are available depending on the application and the customer's specific wishes.

FLUITEX® fabric rolls in full width, tailor-made sections or cones are always available from stock which ensures speedy delivery times.

Mühlen Sohn covers the market with the following distribution channels:

- close relationship to all leading original equipment manufacturers
- a widespread net of local sales representatives and resellers
- direct contact to the end customers.



The principle of an aeration-process.

The conveying system is based on the principle that bulk goods are conveyed or discharged on a uniform film of air through the inclination of the aeration floor.

At first a blower fills the box with air. In the beginning the FLUITEX® fabric prevents the air from escaping upwards. Only

after reaching a constant pressure on the whole surface the compressed air will penetrate through the fabric and enter the cement. The cement/air mixture becomes fluid and move to the discharging point.

The time between filling the trough/chute and the fluidization depends on the fabric's density, the volume to be filled and the power of the blower.

Design of FLUITEX® woven fabrics

Mostly polyester fabrics are used. Polyester yarns are produced in different blends and qualities. Therefore it is important to use only high quality and thoroughly selected multifilament polyester yarns. These yarns are pre-shrunk and highly strengthened.

If you examine under the microscope the structure of Multifilament yarn and compare it with the structure of a spun yarn you can easily spot the following advantages:

The FLUITEX® multifilament polyester yarns consist of many monofilament endless fibres.

Compared with the often used spun yarns you can easily recognize the difference in structure. Spun yarns are made of many short single yarns and therefore with outstanding fibre endings.

Multifilament yarn.

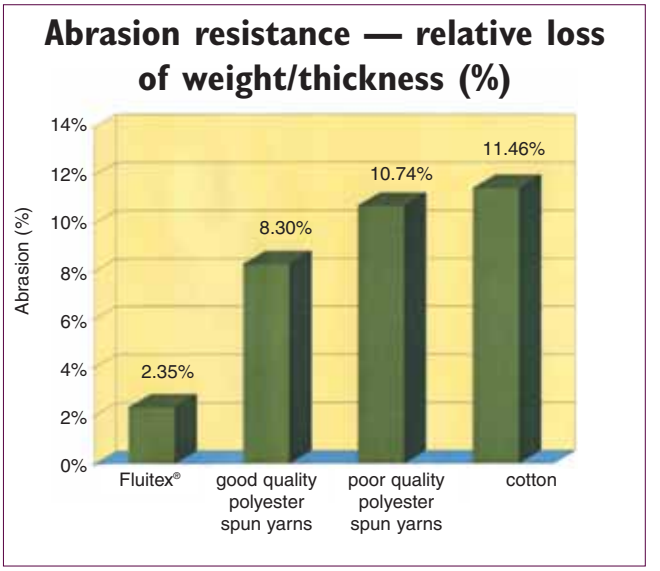
Spun yarn.

Advantages of FLUITEX® woven fabrics

Up to 5 times longer life expectancy

The main problems of caking and clogging are solved by the smooth surface, the moisture rejecting 100% synthetic yarns and the taut weaving structure. This self-cleaning effect counteracts possible processing breakdowns.

There is a further well-known problem: there is residual heavy metal share in cement, especially zinc, vanadium and lead shorten the life-time of machine equipment that comes into contact with these materials. Mühlen Sohn recognized this problem early and, due to the use of high-quality raw materials — the above-mentioned multifilament yarns — the life-time of FLUITEX® airslide fabrics has been increased. This point has been confirmed by an independent test program run at the Technical College in Ulm, Germany. There, tests have taken place on abrasion, expressed in loss of weight/thickness, of various fabrics in 5mm thickness.

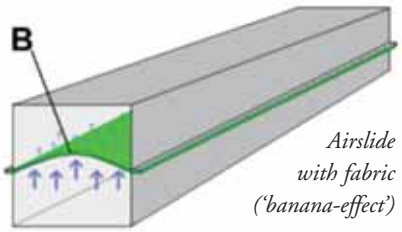


FLUITEX® fabrics made of mulitfilament yarns with an abrasion of 2.35% are up to five times less abrasive than a fabric made of spun yarns with an abrasion of 10.74%.

First class form stability

The FLUITEX® multifilament yarns have an extremely high tensile strength and low stretch characteristic. Therefore FLUITEX® fabrics will stay dimensionally stable while keeping their technical functions.

Fabrics made of spun yarns, needlefelts or/and in a smaller thickness than 4–5mm tend to stretch or wear out due to their constructions. The result of the stretching is reflected in the so called 'banana-effect'. This means, that the compressed air blows up the fabric (line B) and therefore the cement is conveyed mainly at the edges of the airslide. As a consequence, the abrasion of the fabric is concentrated at the outer edges.



Airslide with fabric ('banana-effect')

Complete discharge

The entire FLUITEX® installation and knowledge of their air permeability characteristics is essential for economical layout and processing. Since the fluidization system is an important factor to achieve the discharging rates required, the highly sophisticated FLUITEX® fabrics are recommended.

What would happen if the airpermeability is unstable? The worst case would be an interruption in the material flow because the air will not be able to penetrate constantly through the fabric and enter the cement.

In the following cases, the air always chooses the route of least resistance:

- different air permeabilities
- choked pores
- partly covered sections of the fabric.

The result are remaining parts of bulk materials, especially in the corners of the aeration panels up to a complete cut off of the conveying route.

Mühlen Sohn background

Mühlen Sohn was founded in 1880 and is still family-owned and run. By specializing just in heavy woven industrial fabrics and focusing on the cement and concrete industry, Mühlen Sohn is today the major supplier of airslide fabrics to this industry. This success and 85% export share is thanks to a continuous improvement in machines and a steadily expansion of company's production facilities in Blaustein, South-Germany as well as to its worldwide partner network of original equipment manufacturers and resellers.

Discharging equipment for the shipping industry.

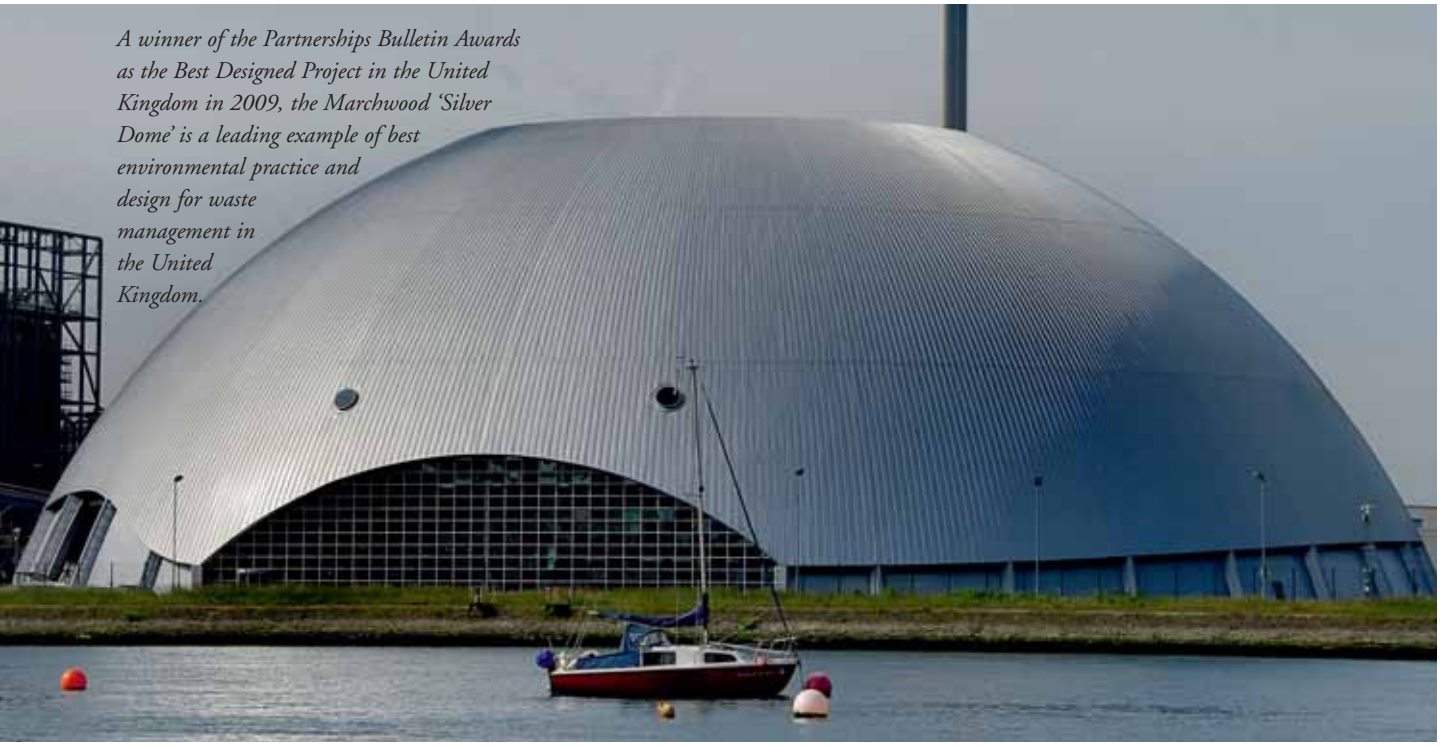
Mühlen Sohn specializes in a wide range of fluidizing fabrics made of high quality materials, which are successfully in use all over the world.

Our modular process
covers your stockpile in a snap.

Geometrica®

coal.geometrica.com

A jewel off Southampton Water



A winner of the Partnerships Bulletin Awards as the Best Designed Project in the United Kingdom in 2009, the Marchwood 'Silver Dome' is a leading example of best environmental practice and design for waste management in the United Kingdom.

Geometrica has designed, manufactured and installed domes and space frame structures since 1992. The company has developed unique technology to build stunning long-span structures. With facilities in Houston, Texas and Monterrey, Mexico, Geometrica supports its clients with a global network of representatives, and has delivered domes and space frames in over 25 countries.

Considering its customers' needs, Geometrica offers: architectural solutions; industrial buildings; and bulk material storage.

Bulk material storage

Power plants, mines, cement plants, ports and many other industries need to stock large quantities of dry bulk materials. These were traditionally left uncovered, or stored in vertical silos. But open stockpiles produce dust and contaminated runoff, and silos are small and expensive. Due to increasing environmental concerns, many organizations desiring covered storage have looked for and found a cost-effective way to solve their problem: Geometrica's geodesic domes.

Material stockpiles may be classified in four general categories by their shape: ring, conical, longitudinal and free form. Ring piles are formed by automated circular stacking/reclaiming equipment having a slewing stacker at the centre and a bridge reclaimer spanning the radius of the pile. A fixed drop from above forms conical piles. Linear stacker/reclaimers or trippers form longitudinal piles. And dumping material from trucks or stacking with moveable conveyors and spreading with front-end loaders forms irregular piles. Any of these types of piles may rest directly on the ground, or may be constrained at its perimeter by a wall. Geometrica's geodesic domes easily adapt to each of these types of piles and cover even the largest ones.

Geometrica's geodesic domes are made with its efficient structural system of strong and corrosion resistant galvanized steel or aluminium. The light, prefabricated domes are containerized and shipped from the company's plant to anywhere in the world. Construction may proceed before, during or after material handling equipment is installed, and, frequently, the domes are built over existing live material stockpiles with minimal or no downtime.

Geometrica dome for Southampton contract

The great silver dome reflected in the nearby water looks surreal. For a long time, however, it seemed that it would remain only an imaginative architect's rendering for a waste-to-energy facility. But there it is.

The dome, designed by renowned French architect Jeanrobert Mazaud, now conceals and beautifies an incinerator facility, with twin chimneys stretching upward through the elegantly curved roof. Since it was completed in 2007, 'The Silver Dome' has been a stunning shore side icon in the United Kingdom community of Southampton, Hampshire, which is also home to ocean liners the *Queen Elizabeth 2* and the *Queen Mary*.

From the architect's imagination

Early last decade, faced with at-capacity landfills and 30-year-old incinerators that no longer met emissions requirements, local planners sought an innovative, forward-thinking solution for non-recyclable waste. They insisted that the new facility be beautiful as well as functional, and issued Mazaud the challenge. He met it head-on with a distinctive design — a beautiful dome of sweeping curves — and an equal challenge for the builders. Aside from its whimsical silhouette, this bold dome also would clear-span 110 metres. Here's where the project came close to foundering. Nobody could find an economical way to construct

Main image: the Marchwood Energy Recovery Facility demonstrates Hampshire's pioneering approach to waste infrastructure and its far-sighted waste-management strategy.

Inset, above: Geometrica's structural system permitted simultaneous construction of the waste-to-energy plant and the elegant dome enclosing it.

it. "It required very unusual technical solutions, especially for an industrial programme," said Mazaud, CEO of S'PACE.S.A.

A large dome from Geometrica

Contractor CINM of France solicited bids for the dome. But the prices for traditional construction were prohibitive. The owners, Hampshire Waste (now Veolia Environmental Services), described its problem to a potential subcontractor, Jerry Forrest. While in Israel for another project, Forrest asked his business contacts who could build such a dome. The answer came quickly: Geometrica, a Texas company, had built a similar-sized dome in Israel a few years earlier.

The original design, if built with conventional hot-rolled steel, called for more than 1,000 tonnes of superstructure. The Geometrica dome, using galvanized structural tubing joined with high-strength aluminium hubs, would weigh less than 300 tonnes. It also offered all the distinctive architectural features Mazaud required: a 'sweep skirt' at the bottom of the dome, delta columns between a translucent wall under the sweep, stack penetrations, and skylights and ventilation near the apex.

Geometrica's proposal was the first that offered to achieve every one of the architect's desired features — while minding the budget. So Geometrica was awarded the contract. Geometrica's personnel worked closely with the structural engineer to ensure that the dome's framework complied with exacting British engineering and construction standards. Once its off-site manufacturing was complete, Geometrica shipped the prefabricated dome to the Southampton construction site. Assembly took place concurrently with the incinerator building it covered, giving welcome flexibility to a construction schedule that already had been extended to accommodate the search for an economical solution.

Sustainability in spades

The Marchwood Energy Recovery Facility opened in 2007, looking for all the world like an ethereal spacecraft. It is, instead, a complete power plant that supplies electricity to more than 22,000 homes, according to Recycle for Hampshire. "The Marchwood dome does look exceptional when compared to other industrial equipments around," said Mazaud, noting "how much social value good and careful design can bring to a very basic function, such as waste treatment."

Domestic waste is delivered to a bunker inside the dome. Overhead equipment lifts the waste — now a fuel — onto a grate for optimum burning. The resulting steam is used for energy, and the ash is further processed to extract metal for recycling. The remaining ash, now reduced to just a small fraction of the incoming materials, is sent for further recycling or disposal. The gases from the boiler are extensively processed before they are released to the atmosphere — scrubbed with lime and activated carbon to remove dioxins. Finally, a bag filter captures dust particulates. The final wastes are used to neutralize other wastes, and the clean gases are released into the atmosphere through the tall stacks.

The facility offers the community many benefits:

- waste management;
- recovered energy;
- reduced dependence on landfills;
- reduced methane from landfills; and
- reduced use of fossil fuels.

Warmth and beauty

"This design keeps the surroundings free of pollutants, both physical and esthetic" said Raul del Toro, director of engineering at Geometrica. "Contrary to what happens in landfills, no waste can permeate into the ground. And the Marchwood dome is an excellent example of how an industrial building can blend nicely into a community. In addition to offering the steel necessary for strength and durability, the Geometrica system made it possible to achieve the architect's vision."

Free of interior columns, the dome shelters large bins, cranes and hauling equipment that require vast expanses of space. The inside of a free-span structure is, obviously, ideally suited for such a plant. But it is the outside that the community sees and appreciates. And as the architect would have it, no mere lump of coal would do for Southampton's hearth. Today's reality is that, as the newly generated power warms nearby homes, a new jewel graces Southampton Water. DCi

Dry bulk handling in the United Kingdom

Stormajor™ at the port of Fredericia in Denmark loading small coasters direct from road trucks for distribution in the Baltic.

B&W Mechanical Handling's mobile harbour equipment

UK company B&W Mechanical Handling Ltd is part of the international Aumund Group, and is known as the pioneer of the mobile shiploader concept, Stormajor™ radial boom stacker and the Samson™ surface feeder; products that are fundamental to the application of mobile bulk handling solutions in ports and terminals. *Barry Woodbine of the Aumund Group reports.*

Mobile solutions in the harbour and associated handling areas offer flexibility combined with fast track availability enabling the user to take full advantage of short term market positions or plan for a long-term future with security knowing that professional mobile equipment will deliver the performance and environmental standards demanded in the modern bulk export and import terminal or port.

Mobile shiploading and stacking systems along with dust controlled grab import facilities have come a long way in recent years driven by client demands for more sophisticated designs with high performance and environmental dust pollution standards in particular compatible with most fixed plant. Not only have the requirements expanded, the duty demanded from this new generation of mobile harbour equipment has also expanded with client aspirations to maximize plant utilization in a multi-bulk harbour.

Such an application is illustrated (see photo, above) at the Port of Fredericia in Denmark, a long-established client of B&W Mechanical Handling Ltd for around 20 years, with the delivery of a new Stormajor™ mobile stacker and barge loader. The standard Stormajor™ comprises a Samson™-style receiving unit able to accept most dry bulk cargoes direct from tipping trucks with an integral radial and luffing outloading boom for stacking and ship/barge loading. The first delivery to Fredericia was based on simply this requirement; that is to receive cereals from tipping trucks and discharge to covered flat storage augmenting the existing permanent storage facilities at the port. Similar machines were delivered at Odense and also Svendborg during the same period driven by the demand to store ever increasing volumes of cereals driven by EU price support regimes.

However, this new project at Fredericia was driven by a whole new set of operating parameters including import by grab to existing storage facilities plus export direct by truck to small coasters plying the Baltic. The same machine would be required to handle a combination of materials including fish meal, fertilizers, wood pellets and salt all of which have their particular handling problems. Import would be based on a mobile hydraulic excavator grab discharging to a simple grab hopper standing over the Stormajor™ entry section and in this mode the Stormajor boom would be positioned to discharge to an existing belt conveyor installation taking the cargo to on-port storage. For exporting bulk cargo the Stormajor™ stands alone and may be used anywhere within the port area and simply tow travelled to a suitable berth.

In addition the Stormajor™ may be used for road truck and rail wagon loading although in this application this is not anticipated… at present… but requirements change and this is the benefit of such solutions in that the equipment is multi-purpose and able to perform many functions without compromise.

Where rail wagon loading is a key operation the Stormajor

Same Stormajor™ transferring bulk cargo from a small coaster to a fixed port handling system using a mobile hydraulic grab crane.

provides a flexible solution operating on an existing rail siding. In this case Melafyr rock (similar to basalt) is mined at a local quarry in Poland and transferred to a nearby rail siding by a fleet of articulated trucks working on a merry-go-round basis and discharged direct to the Stormajor™ at a design loading rate of 600tph (tonnes per hour). In this case the Stormajor™ remains stationary and the wagon rake is moved beneath the loading boom. However, where this is not an option due to availability of locomotives or shunters then the equipment may be supplied fully self-mobile including powered travel allowing the Stormajor™ to be travelled parallel to the rails and in that manner the rake may be loaded stationary. Typically a rake of wagons would be delivered in the morning, loaded throughout the working day and then collected by the main line locomotive in the evening, in this manner the loco is not tied up moving the rake and no shunter is needed. In all cases the loading boom is fitted with a rotating trimming distributer to provide accurate placement of the bulk material within the rail wagon body. For the Polish project mentioned, delivery time was critical and B&W was able to have the new rail loading facility up and running within less than four months from order placement; practically impossible with any fixed solutions, particularly when permitting delays are factored in.

In the Port of Jorf Lasfar (Morocco) mobile equipment was chosen for the import of petcoke from geared bulk carriers through mobile grab hoppers to road trucks which ferry the fuel inland to a storage area adjacent to the port. A Stormajor™ stacks the fuel allowing fast vessel discharge working on a truck turnaround time of around three minutes or equivalent to 600tph. The storage area is adjacent to a rail terminal and rail

Port of Jorf Lasfar in Morocco with grab cranes and hoppers in the background and the fuel storage area in the foreground.

Stormajor™ at Jorf Lasfar stockpiling fuel at the off port storage area prior to distribution to Holcim cement plants.

wagons are loaded through a short fixed conveyor system and overhead rail loading bin, a wheeled loader recovers the fuel from the stockpile to hoppers positioned along the length of the stockpile to minimize the loader travel range. Fuel is distributed to the three cement plants of the Holcim Group within Morocco, combining deep sea shipment with rail distribution offers the lowest carbon foot print and combined with mobile equipment at the port offers the greatest flexibility with minimum lead-time.

After seeing the performance and operational benefits offered by the Stormajor™ in Morocco, a second order followed from an operator working close to the original site in Jorf Lasfar but in this case it was decided to include powered travel allowing the unit to be easily moved around the stockyard without using any additional mobile plant. This new unit is equipped with integral hinged truck ramps with hydraulic lift cylinders and with on-board diesel gen-set the equipment operates independent of fixed port infrastructure or power supplies.

On the other side of the world, but remaining with the concept of mobile and flexible shiploading solutions for the mining and minerals industry, there is an interesting project in Peru exporting gold and copper ores for the Goldfields Company. The equipment operates from an existing port jetty

Self-propelled Stormajor™ at Jorf Lasfar, the second order.

Stormajor™ loading rail wagons direct from articulated trucks working on a merry-go-round basis from the local quarry.

and receives material direct from tipping trucks coming from the Cerro Corona Mine situated in the highest part of the Andes in northern Peru. The project involves the production of gold and copper by conventional open pit mining methods, and the copper-gold flotation concentrate is trucked to the Port of Salaverry for shipment to smelters in Japan, Korea and Europe.

In this case the Samson™ feeder is mounted to a slew ring on the shiploader chassis allowing the Samson™ to be aligned through a 180° working range. This arrangement allows the shiploader, as a complete and autonomous unit, to operate on a confined berth width whilst accommodating truck access requirements. To speed machine movements along the vessel between holds and within the hold for trimming purposes, this shiploader is equipped with full powered manoeuvring facilities including both in-line and parallel travel simplifying machine movements across and along the jetty.

B&W (Aumund Group) pioneered the development of the integrated mobile shiploader allowing direct transfer from truck to ship without intermediate handling. Using this concept it is possible to export minerals from virtually any suitable berth or jetty eliminating the need for dedicated port facilities or infrastructure. In addition the equipment may be easily moved off the berth between loading operations and stored in the port area thus freeing the berth for other operations. This is a truly flexible solution without sacrificing either performance or environmental protection.

The key to this concept is the Samson™ feeder which receives virtually any bulk material direct from tipping trucks without the need for underground hoppers or large truck ramps enabling the equipment to remain portable. After the first delivery to Peru the operators liked the benefits offered by the Samson™ surface feeder so much that another operator, Perubar, was persuaded to order an independent unit to feed an existing shiploading installation. Perubar SA is a Peru-based company primarily engaged in the provision of storage services and loading of mineral concentrates.

This application for Perubar SA is a prime example of how the benefits of the Samson™ surface feeder may be applied to an existing installation to provide a flexible intake facility able to handle a wide range of bulk cargoes linked to an existing handling system.

With direct loading truck to ship, the loading rate from mobile equipment is limited only by the truck frequency. Therefore, to improve the overall performance, B&W offers the option of twin Samson™ feeder units mounted opposed to the main chassis and discharging to a common loading boom. A

Mobile shiploader with integral Samson™ feeder loading copper concentrate in Peru.

Mobile Samson™ replaces original intake system for handling copper concentrate to an existing shiploader in Peru.

typical example is represented by a pair of very large units supplied to SAQR Port in the United Arab Emirates handling high purity industrial limestone supplied for the steel industry mainly in the Far East. With the twin Samson™ units two trucks discharge simultaneously providing a significant increase in loading rate to over 1,000tph average through the ship.

The continuing development and application of mobile solutions for the import and export of dry bulk cargoes is opening material distribution opportunities hitherto uneconomic with traditional fixed plant. In a volatile market still reeling from the effects of the 2008 financial crash, and the on-going uncertainty, the overall economy, flexibility and fast track availability of mobile equipment is very attractive, minimizing investment risk.

Mobile shiploader with twin Samson™ feeders operating at SAQR port in the UAE loading high purity limestone.

About the AUMUND Group

The AUMUND Group is long established and well respected in the bulk handling industry delivering world class materials handling and storage solutions from the quarry through to the finished product silos and at every stage between.

In the port of Vysotsky (Russia) a B&W Lancaster Series mobile stacker stockpiles coal ready for loading to deep sea vessels.

The manufacturing companies, AUMUND Fördertechnik GmbH, SCHADE Lagertechnik GmbH and B&W Mechanical Handling Ltd. are consolidated under the umbrella of the AUMUND Group along with AUMUND Logistik GmbH. B&W pioneered the Mobile Shiploader concept, Stormajor™ radial boom stacker and the Samson™ surface feeder; products that are fundamental to the application of mobile bulk handling solutions in ports and terminals.

In conjunction with the headquarters of the manufacturing companies, the global business is supported in eight locations in Asia, Europe, North and South America by own subsidiaries plus worldwide by an extensive network of agents covering four continents with equipment operating in over 100 countries.

RDS logs the weight at Royal Shakespeare Company

RDS's Liftlog 100s being used by RSC's counter-balance fork trucks.

The Royal Shakespeare Company (RSC) has chosen RDS South West to supply Liftlog 100 on-board weighing systems for the counterbalance fork trucks that it uses in the workshop and pre-assembly building.

Central to the RSC's six-week, five-play residency at New York's Park Avenue Armory is the transportation of a full-scale replica auditorium of the Royal Shakespeare Theatre with even the seat colours matched to those at the RST (Royal Shakespeare Theatre, in Stratford-upon-Avon in the UK).

Designed, engineered and built by the RSC's in-house team, the future proofed auditorium complying to both European and US building legislation is a four tier, 19 metre high construction made up of individual seating units with built in fork channels that allow them to be easily weighed by the forklift installed Liftlog 100.

Previously the team used a more complex jib and load cell arrangement that was time consuming to install and remove from the forklift as it was required to move between weighing and lifting tasks. The non-intrusive fit of the Liftlog 100 has no impact on rated lift capacity and the trucks are now free to operate as normal. Commenting on the effectiveness of the system, Gary Wright, Logistics Manager, said "the ease of use and reasonable price tag of Lift 100 has significantly speeded up the manufacturing process".

The auditorium complete with everything required to put on the production including stage, props, costumes, overhead rigging and winch gear is being shipped to New York in 44 high cube shipping containers.

Upon arrival at the Park Avenue Armory, a crane will lift the containers in specific order placing them in their designated positions in the military drill hall to fulfil a secondary role as back stage flooring with timber cladding constructed on top.

Gary explains "we need to know the weight of each container for supplying to the shippers and crane company in New York so the Liftlog 100 systems will come into their own during the loading process."

Justifiably proud of this huge and prestigious project, Gary advised that its very much a British affair from in-house design and engineering to material and product sourced from the UK wherever possible including the Liftlog 100 systems, designed and manufactured at RDS headquarters near Stroud, Gloucestershire.

Advantages of the Liftlog 100

- Allows correct and even loading of storage and vehicles.
- Increases loading safety in yard and/or warehouse.
- Enables check-weighing of incoming and outgoing goods.
- Increases vehicle efficiency and promotes best operator use minimizing machine downtime for servicing or repair.
- Maintains accuracy; requires no periodic re-calibration or servicing.
- Maintains lifting capacity and driver visibility.

Features

- LCD indicates 'calculated' weight with a bar graph of load status.
- Accuracy +/- 2% of truck capacity.
- Initial audible alarm at 90% of permitted load with continuous audible alarm and flashing display at and in excess of 100%.
- Overload logging capability.
- Quick and easy installation and unique bracket enables installation of the instrument in any position.
- Proven technology in a robust waterproof enclosure sealed to IP67.

Wear protection provides flexibility to handle widest range of dry bulk materials, efficiently and over extended periods

Installing an optimized lining system reduces the risk of spillages, their consequent environmental impact and clean up costs.

Kingfisher Industrial is a UK-based, international wear protection specialist, offering metallic, ceramic and polymer wear protection systems that extend the life — and efficiency — of capital equipment used in dry bulk cargo handling. These systems combat the negative effects of abrasion and wear that result from handling minerals and other bulk solids during conveyance, storage and discharge.

Kingfisher's service offering can vary from product supply to a full turnkey solution consisting of the design, engineering, fabrication, installation of the protection system and erection and commissioning of handling and storage equipment. Having undertaken activities in many parts of the world, Kingfisher plays a strategic role in meeting the objectives of ship owners and port and terminal operators, who require plant and equipment that delivers the flexibility and wear-life to handle the widest range of bulk solid materials in high volumes, continuously over extended operating periods.

Wear protection also makes economic sense as it helps the industry avoid the consequential costs such as operational downtime, on site plant repair, cleaning of spillages and clearing of blockages that results from equipment not been properly designed or protected against the continual handling of significant amounts of dry bulk materials. Kingfisher has calculated that, on average, users of its wear protection systems benefit by a factor of five times their initial outlay, with many installations providing wear life of up to 20-years following appropriate equipment upgrade. In many instances, the benefits of protecting plant are threefold. In addition to protecting against wear, the low friction nature of the lining material reduces energy usage and allows a greater volume of material to be loaded or discharged, resulting in reduced demurrage costs for port side facilities and limiting the duration self-unloading vessels spend discharging cargo.

Kingfisher has a wealth of experience of providing wear protection on self unloading vessels: in the construction of new builds, dry dock refurbishment and even 'on the run'. In all these areas, the choice of liners to aid discharge and protect structures is an important decision, because not only does it help maintain the asset value of the vessel handling equipment, it also ensures demurrage costs are kept to a minimum, by enabling continuous discharge at the desired rate of conveyance. In addition, installing an optimized lining system reduces the risk of spillages, their consequent environmental impact and clean up costs.

The flexibility of Kingfisher's wear protection systems means that they can be employed at any time in the life of a dry bulk handling system. However, if a system is designed with wear protection from its conception, then overall equipment costs can usually be reduced, as the system chosen to protect the equipment can often remove the requirement to manufacture components using heavier grades of material. In addition, because high conveying speeds and abrasive materials cause wear of varying intensity at different points in dry bulk handling systems, it is often the case that protection need only be applied to areas of the plant that are most vulnerable to wear, further reducing upfront costs and improving ROI (return on investment) for the system user.

More about Kingfisher Industrial

Kingfisher Industrial provides wear solutions for process plants used to convey, process or store bulk solid materials, in either dry or hydraulic states. With its range of ceramic, metallic and polymer protection systems, Kingfisher can overcome wear problems; engineering suitable protection systems that can add many years' of life to a plant, and in some cases outlast the design life of a process completely.

These solutions cater for the operating criteria, budget and life cycle of either new equipment — particularly when initially installed — or existing equipment, which can be retrofitted with a protection system to add to its current asset value.

Having undertaken activities in many parts of the world, Kingfisher plays a strategic role in meeting the objectives of ship owners and port and terminal operators.

The Port of Tilbury London Ltd – flexible and diverse cargoes experience

Company overview

The Port of Tilbury is London's nearest deepwater port with over 23 million people living within a three-hour radius. This provides the port with an advantage over other UK ports, offering short transit time for customers import and exporting for the London market. Situated on the Thames, the Port of Tilbury provides feeder inland waterways services including barging up the Thames into central London. Additional to this the port has three rail terminals providing rail connected service links for onward distribution; providing true multimodal connections for customers across the UK.

Tilbury's new equipment provides a new level of flexibility to support the growing bulk handling operations.

The port offers:

- 34 operational berths;
- over 16 independent working terminals;
- over 7.5km of quay; and
- over 500,000m² of warehousing space (with an additional 65 acre development site).

New equipment

2011 saw the purchase of two new mobile Sennebogen 870M cranes, to support the growth of the port's bulk business. With a capacity up to nine tonnes and a number of material handling attachments for the cranes, these cranes provide the Port of Tilbury with the flexibility and capability to be deployed on the handling of a diverse range of products.

Productivity and capacity of these cranes is much greater than the traditional quayside cranes previously utilized at the port. These cranes have helped to complement the Port of Tilbury's existing diverse fleet of equipment for handling bulk commodities.

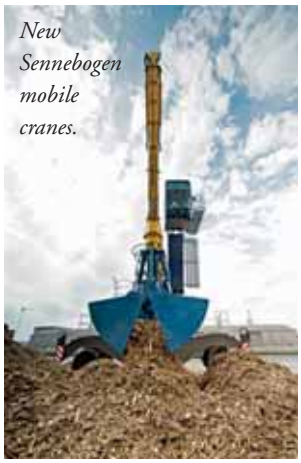
Developments/diversification

With two harbour mobile cranes, the port has the flexibility to handle barges, coaster vessels or deep sea bulk carriers up to Panamax size. This, along with the port's experience in the handling of a diverse range of dry bulk cargoes such as grain, aggregates, alumina, clinker, cement, salt, animal feed, biomass, scrap metal, paper and forest products, makes the Port of Tilbury one of the major players on the Thames and in the South East of England for dry bulk handling.

As part of the Forth Ports group, the Port of Tilbury can link the East Coast of the UK, through coastal shipping services among its ports in Scotland (Grangemouth, Burntisland, Dundee, Leith, Methil & Rosyth) and Tilbury.

Tilbury's Grain Terminal handles over 700,000 tonnes per annum.

The year 2011 saw the port secure planning permission for the development of a 65 acres site, for port expansion. This will help support new and existing customers develop their supply chain and distribution networks in the South East. DCi



New Sennebogen mobile cranes.

Ability to handle up to Panamax-size bulk carriers within dock.

Profit plunges at world's biggest aluminium company

Early this month (March), the world's biggest aluminium producer Rusal reported a 91.7% drop in net profit for 2011 as it wrestles with a management dispute among its Russian shareholders.

The Moscow-based firm attributed the drop in profit to $237 million (€189 million) to a write-down of its holding in the Norilsk Nickel miner and a steep drop in aluminium prices last year. The company posted a net loss of $974 million for the fourth quarter of 2011 compared with a net profit of US$1.45 billion the previous year.

"In spite of the deterioration of the global economy during the second half of 2011, on-going cost pressures across the whole commodities sector and a particularly challenging fourth quarter in 2011, UC RUSAL delivered a solid financial performance during the year," said chief executive Oleg Deripaska.

"While the current global economic volatility, in conjunction with excessive stock levels, will continue to put pressure on aluminium prices in the near term, global aluminium demand remains well above 2009 recession levels and we anticipate that the rising influence of developing countries will ensure demand remains robust throughout 2012."

The disappointing results were largely expected and the company's shares were up nearly 4% in late Hong Kong trading after dropping nearly 14% the previous week.

The firm was rocked by the sudden resignation of its board chairman Viktor Vekselberg and his subsequent threat to sue Rusal for alleging that he failed to perform his assigned duties on the board.

Vekselberg warned in his resignation statement that Rusal was facing a "deep crisis" and subsequently criticized the company's decision to appoint Hong Kong Mercantile Exchange head Barry Cheung as his replacement.

He had earlier been pushing Deripaska to sell the Norilsk holding to help cover a Rusal debt that was estimated at $11 billion at the end of last year.

Bauxite backtrack based on 'errors'

The Australian government dumped its conditional approval for Rio Tinto's proposed $1.5 billion bauxite mine and port development based on a one-page submission led by the Wilderness Society that contained errors of fact about its shipping plans through the Great Barrier Reef, the mining giant has alleged.

Rio has also warned that the decision sets a bad precedent for the nation's resources sector just a week after revelations that environmental activists had developed a secret plan to disrupt and delay projects by using legal challenges and exploiting the Lock The Gate movement against coal-seam gas projects.

The opposition seized on the situation to declare it showed "who is really dictating environmental policy in Australia".

Federal Environment Minister Tony Burke recently revoked an earlier decision to approve the project proposed for south of the Embley River near Weipa on Cape York, and declared he would force the miner to consider the impact of its massive project on the Great Barrier Reef — sparking Rio to warn of a significant impact on 3,000 jobs in Gladstone at a time when the manufacturing sector was already under pressure.

Environment groups had urged Burke to revoke the decision, saying there would be a significant increase in shipping through the reef that could see up to 700 ships yearly — or 14 a week — transporting bauxite from the mine, with two alumina refineries in Gladstone a key destination for the ships.

But Rio Tinto Alcan's boss of bauxite and alumina, Pat Fiore, said there would be "very little" change to shipping traffic through the reef from Weipa to Gladstone.

"The vast majority of any extra shipping from the South of Embley project will be travelling north to export markets in Asia — not through the Great Barrier Reef," he said.

The decision sent shockwaves through the mining industry, with the Minerals Council of Australia saying it was "deeply concerned that a multi-billion project can be put at risk with an unsubstantiated one-page complaint from a green group."

"There are clear parallels with the anti-development document revealed last week in which it was made clear that green groups would use vexatious action to halt developments," spokesman Ben Mitchell said.

Others in the industry said they feared Labor was concerned about preference deals with the Greens in the Queensland election.

Burke has defended the move, insisting it was based on the "World Heritage values of the reef and the potential cumulative impacts of shipping movements. Any claim to the contrary is wrong," he said.

It is standard practice to make such decisions on departmental advice — which means the decision would not be based only on the original complaint.

A one-page submission published on the environment department's website calling for the decision to be revoked warns about the impacts on newly discovered crab and shrimp species — identified as part of the environment impact statement (EIS) — as well as for the critically endangered bare-rumped sheathtail bat.

Wilderness Society spokesman Glenn Walker has released a separate two-page submission that contained more formatting but had some further information.

"Well, two pages, but that's all we needed because the hole in their EIS was so big," he said.

Burke said his decision was based on "significant new information" in Rio Tinto Weipa's draft EIS, including information on shipping in the Great Barrier Marine Park that was not provided in the initial referral.

He said the decision meant the new information about shipping could be fully taken into account to ensure the reef was protected.

The Wilderness Society accused the company of arguing there would be no increase in its shipping through the reef but not providing evidence to support this.

Demag Cranes supplies its first MHC to Bermuda

A Gottwald HMK 170 E will be taking up commercial operation in the spring of 2012 at the Port of Hamilton, the capital of Bermuda, where it will be handling containers and general cargo. The crane will play a key role in future in providing goods to the approximately 70,000 inhabitants of this British overseas territory.

For Stevedoring Services Ltd., the company that will be operating the crane, this new acquisition is an important step towards efficient cargo handling: "Thanks to this HMK 170 E, for the first time in our history, we have a crane that is at the cutting edge of handling technology", enthuses Peter Aldrich, CEO of Stevedoring Services Ltd. When the company placed its order with Demag Cranes, one of the decisive factors was the excellent value-for-money, continues Peter Aldrich.

With this order, Demag Cranes has, once again, penetrated a completely new market. For the first time, the company will have a Mobile Harbour Crane on this island in the North Atlantic which, at the same time, boosts its leading presence in the Caribbean and surrounding region.

Additional information

Crane assembly in Rotterdam and remote diagnostics system to take account of local conditions in Hamilton

Due to the particular geographical situation on the Bermudas, the innovative service approach also played a key part in opting for a Gottwald crane. The new crane is equipped with a teleservice function, Crane Remote Access System, which enables the customer himself and the service engineers at Demag Cranes to access production and diagnostics data around the clock without interrupting crane operation. Even at the headquarters of Demag Cranes in Dusseldorf, it is possible to monitor and analyse the operating state of the crane. In addition, it is possible via the Remote Desktop Tool to access the crane for testing purposes, to carry out certain maintenance work and remedy faults when it is not in normal crane operation.

As a result of the restricted space and limited assembly facilities in Hamilton, the crane is to be fully assembled in the North Sea port of Rotterdam, from where it will be shipped to Hamilton via 2 a heavy-load vessel. After a brief final installation and commissioning on site, the crane will be immediately ready for operation.

According to Demag Cranes' senior sales manager, Andreas Moeller, this order was the result of many

years of constructive negotiations with the customer. "For some time, we have been in contact with Stevedoring Services Ltd. and are now very pleased that this prospect has now become a firm customer."

A decisive reason for the order was the fact that Demag Cranes was able to provide the customer with exactly the product that he was looking for in terms of the technical and operational requirements in Hamilton, Andreas Moeller continues.

Gottwald HMK 170 E Mobile Harbour Crane

It was the restricted space that finally resulted in the choice of the HMK 170 E. This highly compact crane guarantees optimum mobility within the given local conditions.

HMK 170 E mobile harbour cranes are favoured for use in terminals that are heavily frequented by smaller freight vessels specially suited to container and general cargo transport. This universal crane has a lifting capacity of up to 63 tonnes and a working radius of up to 38 metres.

About Demag Cranes

The Demag Cranes Group is one of the world's foremost suppliers of industrial cranes and crane components, harbour cranes and terminal automation technology. Services, in particular maintenance and refurbishment, are another key element of the group's business activities. The group is divided into the business segments Industrial Cranes, Port Technology and Services and has strong and well-established Demag and Gottwald brands. Demag Cranes sees its core competence in the development and construction of technically sophisticated cranes and hoists as well as automated transport and logistics systems in ports and terminals, the provision of services for these products and the manufacture of high-quality components.

As a global supplier, Demag Cranes manufactures in 16 countries on five continents and operates a worldwide sales and service network that is present in over 60 countries through its subsidiaries such as Demag Cranes & Components GmbH and Gottwald Port Technology GmbH, agencies and a joint venture In financial year 2010/2011, the Group, with its 6,115 employees, generated revenue of €1,062.3 million. Since August 2011, the Terex Group in the United States has held a majority share in the company.

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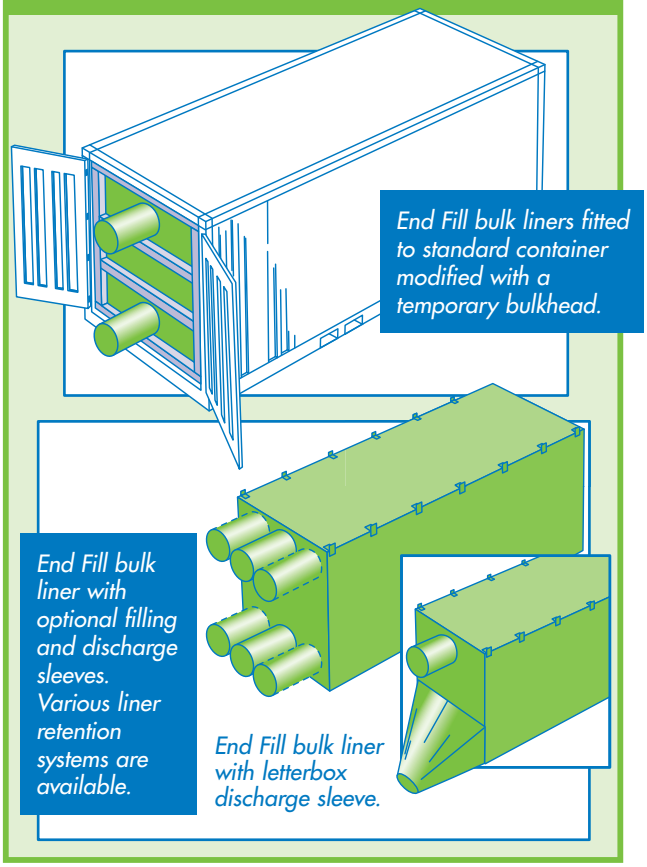
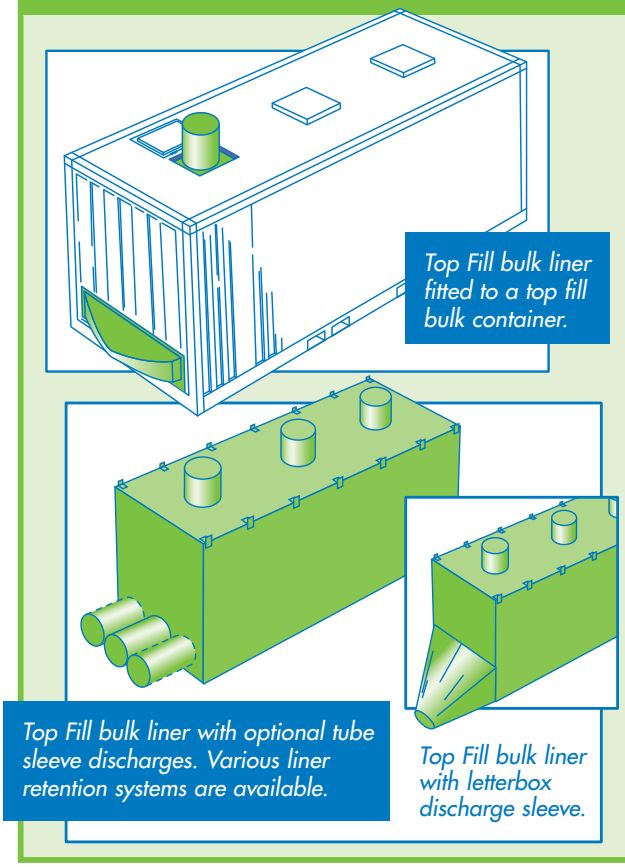


End Fill bulk liners fitted to standard container modified with a temporary bulkhead.

End Fill bulk liner with optional filling and discharge sleeves. Various liner retention systems are available.

End Fill bulk liner with letterbox discharge sleeve.

TOP FILL BULK LINERS

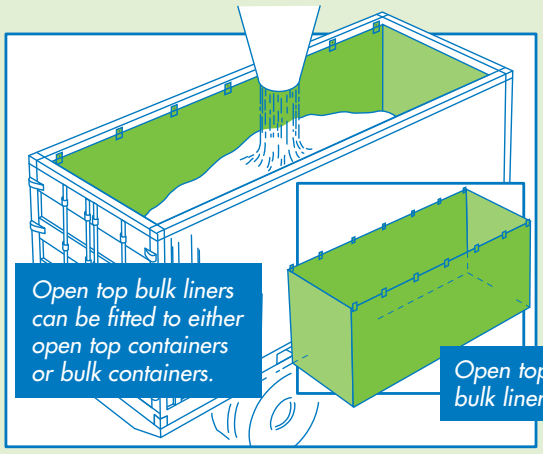


Top Fill bulk liner fitted to a top fill bulk container.

Top Fill bulk liner with optional tube sleeve discharges. Various liner retention systems are available.

Top Fill bulk liner with letterbox discharge sleeve.

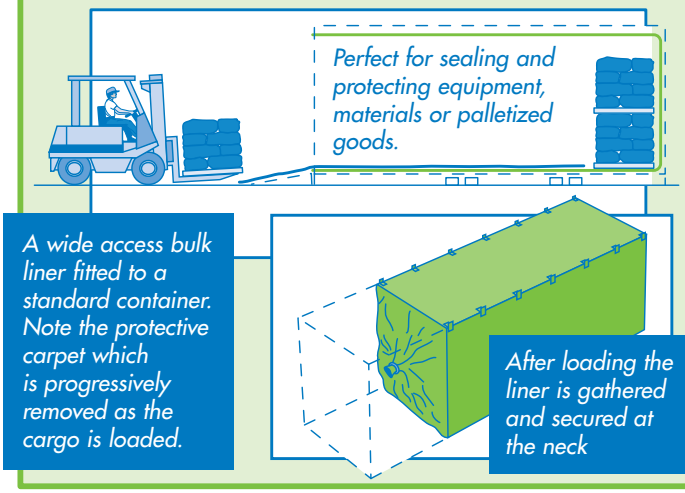
OPEN TOP BULK LINERS



Open top bulk liners can be fitted to either open top containers or bulk containers.

Open top bulk liners

WIDE ACCESS BULK LINERS



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A wide access bulk liner fitted to a standard container. Note the protective carpet which is progressively removed as the cargo is loaded.

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Testing times ahead for the steel industry

Alcoa Steel Factory, Porto Marghera.

As Alcoa of the US is seen as bellwether for the world aluminium industry and Anglo-Australian BHP Billiton for minerals, ArcelorMittal working gives an idea of how other leading steelmakers, irrespective of their locations are faring, *writes Kunal Bose in New Delhi.* But ArcelorMittal, unlike Alcoa and BHP, is in a class of its own, on the basis of the sheer lead in production and turnover that it has over the world's second-largest steelmaker Hebei Iron & Steel of China, which resulted from merger of three steel companies in Hebei province in 2008. In fact, Hebei Iron stands out as the most striking example of China's success so far in steel capacity consolidation. ArcelorMittal had revenues of $94 billion and an output of 91.9mt (million tonnes) in 2011. But its 6% share of world steel production could hardly be of comfort when a wrenching combination of low steel prices, drop in product shipments and several one-off charges saw the company making a loss of $1bn in the final quarter of 2011. For the whole year, ArcelorMittal's net profit took a knock of 22% to $2.3bn. The company's performance is unarguably a testimony to the state of world steel industry.

In a guidance for the market and stakeholders, ArcelorMittal says that 2012 first half EBITDA (earnings before interest, taxes and depreciation) is likely to be less than the comparable period of 2011 even while steel shipments should remain unchanged. Europe is where the company makes nearly 40% of its steel and chairman Lakshmi Mittal says, "looking ahead to 2012, Europe remains a live concern." The continued uncertainty in that market notwithstanding, Mittal is seeing some "improvement in sentiment compared with the fourth quarter." Apart from uncertainties in Europe, one single factor that will continue to have a major bearing on world steel prices is China. One could only crystal gaze as to how much thrust China will continue to give to steel production and how much of that it will sell abroad.

The curiosity about Chinese game plan is understandable for its dominant presence in the world steel industry. According to the World Steel Association, global production of crude steel in 2011 rose 6.8% to 1.527 billion tonnes. This is largely on account of China which once again springing a surprise lifted output by 8.9% to 695.5mt, giving itself a share of 45.5% of world production. As for Asia, which in recent years has witnessed remarkable progress in steel capacity building, the 2011 production was 988.2mt, an increase of 7.9% on the previous year. This gave Asia a share of 64.7% of world steel production. While Asia's predominance is mainly on account of China, India with an output of 72.2mt and South Korea with 68.5mt, are busy commissioning new capacity. Director general of WSA Edwin Basson says on higher expected consumption in developing nations, the global steel demand in 2012 is to rise 5.4% to 1.5bn tonnes. Steel demand growth forecast for China at 6% to 682mt will be the lowest over the last three years. Basson, however, says, "this does not mean that China is becoming less important as a steel consumer. It only means that China is growing larger at a slower pace."

But how much steel does the world expect China to make this year? We understand that the boom in real estate development and construction sustained Chinese daily steel

output at over 1.9mt for much of last year. This, however, fell to nearly 1.7mt in the fourth quarter of 2011 and, as we go forward, we may see further production contraction in China in case margins for the industry there do not improve. Stung by low demand and cost escalation, Chinese steelmakers fared poorly in the second half of 2011. According to that country's industry ministry, the "test for steel will be even more severe this year" with supply to stay ahead of demand in a high cost environment. In fact, Chinese steelmakers, having piled up debts of over $400bn, will not be finding it easy to liquidate these in the current environment. It is feared steel is likely to share space with property developers and local governments as principal concerns for Chinese banks. Defying all negative pronouncements, China watchers participating in 'Global Steel' conference in New Delhi thought that the country's steel production would once again rise this year, albeit at a much slower rate than last time.

Steel guru Peter Marcus, who anticipates sharp falls in iron ore and coking coal prices as steel will still have to ride out difficult times says, "Chinese steel production may rise 3% in 2012." What, according to him, will be clouding steel outlook is the "heading down of fixed asset investment outside China and the contagion effect of the Eurozone crisis." At some point this year, Marcus sees iron ore at $100 a tonne and coking coal at $180 a tonne. John Johnson, CEO of consulting agency CRU China, says despite occasional blips, the country's 2012 steel production will rise to 730mt. At the same time, China will be making further progress in weeding out ageing mills and capacity consolidation.

"China has already decommissioned about 40mt capacity. Another 50mt undesirable capacity remains to be scrapped. The country wants ten groups to own 70% capacity so that the steel industry reaps the benefits of consolidation. So far less than 50% capacity has come under the umbrella of ten groups," says Johnson. China wants scrapping of all blast furnaces (BF) of up to 400m^3 and foundry BFs of up to 200m^3. Similarly all converters and electric arc furnaces with capacity of up to 30 tonnes are to be discarded. Will not shrinking steel margins create an opportunity to restructure the sector and eliminate all remaining outdated capacity at a fast pace?

Steel remains a virtual forbidden space for outsiders in China. Foreign groups seeking footprints there have so far not been able to own majority stakes in large Chinese steelmaking companies. Mittal, the original capacity consolidation evangelist, does not have anything more than two modest joint ventures to show in China where he makes about 7% of his total steel. Yes, there is room for foreign investment if that would help China in acquiring top-end rolling technologies. According to Johnson, China remains steadfast in pursuing the goal of owning iron ore assets abroad so that these eventually become the source of at least half the country's ore imports. "Any policy move by China will necessarily have important fallout for world steel industry. We in India should stay watchful," says CS Verma, chairman of Steel Authority of India Limited.

India scene

The Indian steel industry is at an inflection point. It has been given a roadmap by the government to lift crude steel capacity to 150mt in 2017 and then to between 180mt to 200mt by 2020 from the present 80mt. Verma says to make this happen, "we steelmakers will have to embrace breakthrough ideas to be able to run our mills at new efficiency levels allowing us to make steel with higher strength to weight ratio. Capacity growth will be sustainable provided the industry makes use of leap forward technologies occurring periodically from raw materials uses to finishing of steel to utilization of mill waste." Not only the proposed new steel ventures, but any industry that requires big space will be hitting a roadblock in acquiring land in India. Verma says that when land supply is becoming increasingly tight with many attendant challenges like proper resettlement and rehabilitation, integrated steel plants of the future will perforce have to be a lot more compact in their layout than is the case so far.

In fact in order to be able to make more metal from a given space, mills in India and several places abroad are pulling down small blast furnaces and installing very large ones using the same space. BFs of the size of 5,000m^3 capable of producing as much as 3.8mt of hot metal a year are in operation in some countries, though not so far in India. So there is scope for replacing three BFs by one supersized one leading to considerable saving of land. Furthermore, employment of "endless casting-rolling technologies in flat products" will make a significant cut in the length of the facility under the conventional slab caster hot strip mill running over a kilometre. Mainly due to difficulties faced in land acquisition and finding access to iron ore mines, ArcelorMittal, which is nursing ambitions to build two steel mills of 12mt capacity each in India's eastern states of Orissa and Jharkhand and a 6mt mill in Karnataka in the south, has hardly made any progress. There is also a question mark over the fate of Posco's proposal to set up a 12mt mill in Orissa.

A compelling reason for SAIL to pursue a joint venture with Posco to build a 3mt steel mill based on Finex technology at Bokaro is the limited land requirement. Verma says Finex technology, as it dispenses with coke ovens and sintering units and allows direct use of ore fines and non-coking coal in 'melter gasifier' after being routed through a hot DRI compactor and coal briquetter, will claim only 250 acres per 1mt capacity. Land saving is also effected by a mini flat mill in the downstream facilitating direct and continuous casting and rolling of steel. In case Posco venture in Orissa gets going it will be based on Finex technology along

with a mini flat mill. There are other non BF technologies which allow making of hot metal using ore fines and non-coking coal. Such processes make sintering and coking plants redundant. The list is led by Siemens Vai developed Corex, Kobe Steel invented ITMk3 and Rio Tinto's HIsmelt. All such technologies allow restricted CO_2 and waste water emissions and economy of land use.

No doubt if technology is rightly harnessed, it will prove to be the game changer in land use for new mills, reduce CO_2 emissions from the current level of two tonnes per tonne of finished steel as is the case with the best mills to first to 1.4 tonnes and then ideally to one tonne. It will also allow steel to hold its ground against emerging competition from aluminium, magnesium and carbon composites. To fend off competition from substitutes, mills will have to focus on making better and better grades of ultra high strength steels through management of alloys and ideal thermo-mechanical rolling. Verma says the Holy Grail for the industry remains the integration of iron and steel making.

This could happen only when the industry starts using hydrogen for iron ore reduction leaving little carbon in hot metal. Hydrogen use will unquestionably usher in a new dawn in steel making. Hydrogen-based steelmaking has the potential to cut CO_2 emissions to one tonne per tonne of finished metal. But the Holy Grail remains in the distant horizon since work on hydrogen related R&D is still at early stages.

Brazilian steel usage set to be strong to satisfy infrastructure requirements

The record steel imports of 2010 were not repeated last year, when more was exported as well following price cuts, *writes Patrick Knight*.

Numerous infrastructure projects and housing programmes should ensure more steel is used in Brazil again this year.

With elections to take place later this year, the Brazilian government is anxious for the economy to grow by close to 5% in 2012, almost double the 2.7% of last year.

If measures taken to facilitate this are successful, at least 1.5mt (million tonnes) more steel will be used in Brazil this year than the 21.4mt sold by local mills and the 3.8mt which was imported in 2011.

Up to 50% more steel is normally used than the rate at which the economy grows.

Restrictions on consumer credit have been eased and taxes lowered, while the government is giving priority to dozens of projects aimed at updating Brazil's creaking infrastructure.

The government is also ensuring that sufficient finance is available for at least one million low cost houses to be built this year, and for sanitation works to be stepped up.

About 7% more steel was made in Brazil last year than the 33mt of 2010.

But much more important than that was that only 3.8mt of steel was imported in 2011, 56% less than the record 5.9mt which entered the country in 2010, and which caused great concern. A total of 10.1mt of steel was exported last year, which was 12% more than in 2010 as well.

To allow Brazilian-made steel to compete with cheap imports, mills had to cut prices by about 8%, which ate into profits and is limiting the industry's ability to invest.

Whether steel companies should go ahead with plans to increase production by 20% in the next few years, at a time when most mills are using only 70% of their existing capacity, rather than the 90% needed to allow them to operate at a profit, is a matter of heated debate.

The nationalistic government led by the combative Dilma Rousseff, Brazil's first woman president, wants more mills to be built so as to allow more steel to be used in Brazil. Each Brazilian now consumes only about 130kg of steel each year, while each Chinese uses 400kg plus. The ambitious plans for building extra housing, upgrading ports, building several thousand kilometres of new rail track, as well as new roads, bridges and airports, as well as to prepare for the World Cup matches in 2014 and the Olympic games to be held in Rio de Janeiro two years later, will give the economy and the construction industry a major boost.

The discovery of billions of barrels of oil under deep water off the coast in the south of the country will mean dozens of new drilling rigs and complex production platforms will be needed in the next few years. Four new refineries are to be built to process the extra crude, while dozens of ships and supply boats of all kinds, along with half a dozen new shipyards to build the vessels, rigs and platforms will be needed.

Hundreds of kilometres of pipes made of special steel alloys

STEEL STATISTICS

	Imports of steel '000 tonnes			Exports of steel '000 tonnes		
Month	**2011**	**2010**	**2009**	**2011**	**2010**	**2009**
January	344	384	252	1,081	676	439
February	257	361	159	870	653	474
March	265	573	164	871	698	534
April	261	500	136	857	787	653
May	285	494	217	948	655	593
June	317	420	172	1.014	782	698
July	399	533	194	900	567	780
August	367	532	203	1,042	585	1,028
September	345	552	186	778	564	1,084
October	253	633	197	744	942	1,039
November	334	454	234	811	987	666
December	356	432	218	931	1,092	645
Year	**3,783**	**5,898**	**2,584**	**10,117**	**8.988**	**8,633**

Source: Ministry of Trade and Brazil Steel Institute.

ThyssenKrupp's €5.2 billion steel mill at Sepetiba Bay, Brazil

will be needed to bring the oil and gas ashore and carry it around the country, where hundreds of new storage tanks will be needed.

The government wants 65% of the components which will be needed for all this to be made in Brazil, which is a tough target and proving very difficult and expensive to achieve.

Delays in delivery mean that the plan to push up production to five million barrels of crude a day by 2020, compared with the present two million barrels, is unlikely to materialize.

The government wants the Vale mining company, already a partner in the Atlantico Sul steel mill along with ThyssenKrupp, which started up in late 2010 and which has exported about 3mt of slabs in the past 12 months, to form other partnerships and even to start making steel on its own. Vale's new president Murilo Ferreira, is much more enthusiastic about Vale becoming a steel producer than his predecessor, Roger Agnelli. Agnelli was pushed out last year, largely for resisting pressure from the government to move faster into making steel.

Vale is expected to build a mill able to make about 500,000 tonnes of steel rails each year, to meet the needs of the new railways now being laid.

Feeling the pain after having to cut prices, officials at Brazil's Steel Institute, to which Brazil's five leading steel companies all belong, is opposed to Vale joining them.

They point out that 500mt more steel is now made around the world than there are markets for. They worry that adding extra production in Brazil could only make matters worse if, as seems likely, the Chinese economy slows down and more steel is exported from there at low prices.

Not only did the Brazilian steel mills cut prices last year, a fistful of anti-dumping measures were taken against imports from China and elsewhere in Asia, as well as from Portugal and Poland.

The first step in what is expected to be an ongoing programme of consolidation in Brazil's steel industry occurred at the end of last year, when control of the 8mt-capacity Usiminas mill passed to the Italo–Argentine Techint company.

As well as having mills in Argentina, and controlling Brazil's leading pipe maker, Confab, Techint owns mills in Mexico.

The takeover was made possible after the Votorantim aluminium, cement and pulp company and the Camargo Correa construction company decided to sell their shares in Usiminas to Techint.

The National Steel Company, CSN, Brazil's third-largest company and also a leading maker of sheet steel, also bid for Usiminas. But such a sale would have attracted the attention of the Monopolies Commission, as well as being opposed by Nippon Steel, the other leading shareholder in Usiminas.

Anxious for Latin American steel companies to act together to gain strength, Techint had already announced plans to build a 500,000 tonnes capacity slab mill alongside the new Acu port, being built in the north of Rio de Janeiro to export ore.

Brazil's motor and consumer durables industries are the leading users of sheet steel, which forms the majority of what is imported.

Imports are competitive both because there is a world surplus of sheet steel, and also because the rods and bars used mainly by the construction industry, the so called 'long' products are more bulky, so more costly to transport.

Brazil's leading 'long' products producer is the Gerdau company, which over the past 15 years has been quietly buying up numerous small and medium sized mills in the United States and elsewhere in Latin America. These mills now contribute 25% of Gerdau's profits.

Because the emphasis will be on construction this year, both of housing and large infrastructure projects, where concrete reinforced with steel is an important component, Gerdau expects to sell up to 10% more steel in Brazil in 2012 than last year.

Although a record 3.7 million motor vehicles of all types were sold in Brazil last year, 4% more than in 2010, less than 1% more were actually made in Brazil.

More than 800,000 vehicles were imported in 2011, 300,000 more than were exported. To curb this trade, which resulted in the motor industry spending much more on imported vehicles and components than exports earned, a 30% tax is to be imposed on imports in future. In addition, 65% of the components fitted to the cars made in Brazil will have to be made locally from now on.

Half a dozen motor manufacturers which do not already assemble vehicles in Brazil are either already building factories, or in the case of the Chinese JAC and Cherry companies, as well as BMW, Land Rover and perhaps Mercedes Benz, plan to as well. They, too, will have to use 65% of imported components or pay hefty import duties, so the companies making sheet steel hope to sell much more to the motor companies, their main market, this year.

What has happened with the motor industry, which used to export several times as many vehicles as were imported, is typical of many industries in Brazil.

De-industrialization, as this process is called, has caused the government and industry to worry that Brazil is producing less manufactured goods, and importing a steadily increasing proportion of its needs each year. Largely because so much was imported, local manufacturing companies produced only 0.3% more last year than in 2010.

The steel industry says that as well as importing more steel, goods containing up to 5mt of steel which were previously made in Brazil, are now imported.

Because fewer manufactured goods are exported, less steel is exported in such goods as well.

Manufactured goods were responsible for less than 16% of Brazil's GDP last year, compared with 19% of it in 2004, while only 39% of what is exported are now manufactured goods, compared with 55% of exports in 2004.

Reversing this trend will not be easy, but the present government plans to try! This, if it goes well, will be very good news for the steel industry.

Steel products strong focus for Pasha Stevedoring & Terminals

Pasha Stevedoring & Terminals L.P., headquartered in the Port of Los Angeles, has roots reaching back to 1972, when the company began its automobile stevedoring operations. Today, PST, a wholly-owned subsidiary of The Pasha Group, has a strong focus on general breakbulk transportation, with specialties in steel, automobiles, containers and grain products. PST offers a new level of international maritime service through the operation of the only omni breakbulk and container terminal in the Port of Los Angeles. The penetration of foreign steel into US markets has played a major part in Pasha's foray into the steel-handling business, leading to PST and the Port of Los Angeles achieving the number one record for steel imports on the US West Coast. The company has perfected the art of stevedoring mixed steel products arriving from all parts of the globe, achieving optimum proficiency in discharging overweight coils and steel slabs by using swift gantry cranes.

PST also enlists its traveling supercargoes to aid in the loading of slab steel in several international ports to ensure safe stowage, which creates maximum productivity at the port of discharge, enables the recipient to receive a reduction in rate and damage, and guarantees on-time delivery.

Dry bulk expertise helps set record year

But steel isn't the only ocean cargo that PST excels in handling. In partnership with the Port of Grays Harbor in Aberdeen WA, PST has brought its expertise to AG Processing, the largest soybean meal cooperative in the world. Grays Harbor is AGP's West Coast export hub for dry bulk products destined for Pacific Rim Markets, and PST has been the stevedore of choice since 2009. PST's supervisors oversee the loading of the bulk agricultural products, and in 2010 alone, over 1mt (million metric tonnes) were put on board. On the heels of this record year, and with plans to triple exports of American-grown agricultural products over the next five years, AGP's multi-million dollar expansion project at the port continues on schedule and on budget. PST will continue to provide the expertise to help them meet their export goal.

And driven by the global demand for cotton, Cosmo Specialty Fibers, Inc. is shipping baled pulp out of Grays Harbor.

Dissolvable pulp is a less-expensive replacement for cotton fibers in rayon manufactured in China, as well as for other products. PST anticipates annual exports of over 100,000 tonnes.

PST anticipates growing the Grays Harbor business at a rapid pace, potentially moving forward with steel products, lumber, and containers.

Adding value to automotive exports/imports

Also in Grays Harbor, new rail expansion is taking place. The recently completed first phase rail project increases the number of railcar spots from 32 to 100. Grays Harbor is served by the only active rail system to the coast in Oregon and Washington. A unique feature is the dual access to both Union Pacific and Burlington Northern Santa Fe class one railroads. This attracts new auto accounts that rely on land-bridge capability for import and export vehicles. PST's long heritage of automotive stevedoring plays an equally important role at this deep water port. In concert with Pasha Automotive Services, whose well-trained processing personnel are in place at Grays, the vehicle stevedoring offered by PST provides a seamless operation for new vehicle manufacturers

Variety of services

In addition to its Los Angeles operations, PST also provides stevedore and terminal services in the Port of San Diego, and manages vessel loading and discharging for Pasha Hawaii, a roll-on/roll-off liner service between San Diego and the Hawaiian Islands. Pasha Hawaii's *Jean Anne* has ten decks of enclosed cargo space for vehicles, yachts, and a variety of over high and wide cargo, from construction equipment to Black Hawk helicopters. Additionally, as a stevedoring group, PST is available to provide vessel services at other facilities in addition to the terminals they already operate. Such arrangements enable PST to provide additional resources for the global maritime transportation industry, and expand their expertise to non-traditional commodities, such as bulk scrap. PST also offers ancillary services such as reefer and chassis maintenance and repair, sensitive cargo warehousing, and logistics management. Jeff Burgin, PST senior vice president, notes, "Moving forward, we continue to explore different avenues to further enhance our operations, increase the level of productivity and add value to our customers. Today's client is also looking for fresh ideas for handling their project cargo. PST has assisted in the design of a variety of lifting applications to reduce damage and reduce costs."

Burgin adds, "We are seeing the benefits of our training, cross-training, and investment in people, particularly in the steady labour force. Our goal has always been to identify areas of common ground with our business partners, take what we believe to be good, and create a new paradigm to shift the business to even greater levels. The customer's need is for one-stop shipping and transportation solutions, and we're there to see that it happens." DCi

PST

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Maximum productivity at port of discharge
Reduction in rate and damage
Guaranteed on-time delivery

PST offers ancillary services such as reefer and chassis maintenance and repair, sensitive cargo warehousing, and logistics management.

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2010.194