DC: DRY CARGO international

ISSUE NO.162 SEPTEMBER 2013

FEATURES

- Grains & Oilseeds
- Mobile Harbour Eqpt
- Dust Emissions Control
- Pulp & Paper
- Enclosed Storage & Handling Systems

The world's leading and only monthly magazine for the dry bulk industry

VERSTEGEN

GRAB
MORE
MORE
GRAB

Verstegen Grijpers B.V. • P.O. Box 1014 • 3430 BA Nieuwegein • The Netherlands
tel: +31-30-6062222 • fax: +31-30-6060657
email: info@verstegen.net • website: www.verstegen.net

DCi

The front cover represents a supply chain, from design to realization and highlights the importance for BLL to fully integrate each link. Bedeschi, Liebherr and Logmarin (BLL) cover the entire logistics process from mine to the plant, supporting clients at all stages. From the feasibility study stage (using Logmarin's Log.Des software to design the optimal supply solution) through on-shore cargo handling and storage facilities (designed using Bedeschi and Liebherr expertise) up to the different transshipment solutions (using the integrated BLL system). From software to hardware.

www.bulklogisticlandmark.com
info@bulklogisticlandmark.com

PUBLISHERS
Jason Chinnock
jason@dc-int.com
Andrew Hucker-Brown
andrew@dc-int.com

EDITORIAL
Louise Dodds-Ely Editor
louise@dc-int.com
Jay Venter Deputy Editor
editorial@dc-int.com
Samantha Smith Directories
directories@dc-int.com
Stephanie Hodgkins Office Manager
accounts@dc-int.com

SALES
Lourens van Emmenis Sales Director
sales@dc-int.com
Matthew Currin Senior Sales Executive
sales2@dc-int.com

CORRESPONDENTS
Brazil **Patrick Knight**
Canada **Ray Dykes**
India **Kunal Bose**
Asia **David Hayes**
Europe **Barry Cross**
Malaysia **Wira Sulaiman**
Philippines **Fred Pundol**
South Africa **Iain McIntosh**
Thailand **David Turner**
UK **Maria Cappuccio**
UK **Michael King**
UK **Richard Scott**
USA **Colby Haines**
USA **Walter Mitchell**

ADMINISTRATIVE OFFICE
Business Publishing International
Corporate House, 11 Sinembe Crescent
La Lucia Ridge, South Africa, 4051
Tel: +27 31 583 4360
Fax: +27 31 566 4502
Email: info@dc-int.com

HEAD OFFICE
Trade Publishing International Limited
Clover House, 24 Drury Road,
Colchester, Essex CO2 7UX, UK
Tel: +44 (0)1206 562560
Fax: +44 (0)1206 562566
Email: info@dc-int.com
Website: www.dc-int.com
ISSN 1466-3643

SEPTEMBER 2013 issue

featuring...

Dry bulk trade's healthy progress

Healthy growth in global seaborne dry bulk trade this year, continuing into 2014, is still foreseeable. In a wide range of countries around the world import demand for dry bulk commodities looks set to increase. Almost two-thirds of the overall expansion is expected to be comprised of additional iron ore and coal shipments.

Global economic activity during 2013 has not provided as much support as predicted earlier. A slackening trend in China is particularly noticeable. World GDP growth of an unchanged 3.1% this year, based on the IMF's latest estimates, does not represent good progress. But some moderately encouraging signs have emerged recently, including a possible turnaround in the weak European economy, pointing towards a slightly better trend ahead.

Iron ore

Seaborne iron ore trade seems likely to grow by about 52mt (million tonnes) or 5% in the current year, reaching an estimated 1,176mt, as shown in table 1. The outcome is heavily dependent upon the continuing vigorous performance of China's imports, which comprise about two-thirds of the global total. Among other importers, limited prospects for additional volumes are evident.

Europe's iron ore imports in 2013 could be lower than seen last year, resulting from the likely reduction in steel output. By contrast, Japan's requirements probably will be slightly higher than the 2012 total of 131mt because steel production is picking up. Chinese mills imported 745mt last year and may raise their volume by over 5% in the current twelve months, although some forecasters are now suggesting a stronger expansion.

Coal

About a quarter of seaborne coal trade consists of coking coal shipments for steel industry usage. This category may see around 6% growth in 2013, while the much larger steam coal sector, mainly supplying power stations, expands by about 4%. The incremental 51mt resulting raises the prospective overall global total to 1,158mt.

Rising imports into the Asian region are the main positive influence. India's rapidly rising purchases have become a prominent feature in the past few years. Coupled with the strong upwards trend in China, imports into these two countries were approaching 400mt in 2012, and another large extra quantity is envisaged during the present twelve months.

Grain

When measured on a calendar year basis, world seaborne grain trade (wheat, corn and other coarse grains, plus soyabeans) may achieve only a marginal 1% increase this year, reaching 327mt. But the second half picture and further ahead is looking more positive than the first six months.

In the 2013/14 crop year running from mid-2013 onwards, trade in wheat and coarse grains could benefit from sharply higher imports into China. Similarly, signs suggest that soyabeans trade in marketing year 2013/14 starting October could experience much greater buying by Chinese crushing mills. Improved global grain supplies from leading exporters are likely to ensure that international prices are more attractive for importers.

Minor bulks

About one third of global dry bulk commodity trade is comprised of numerous and widely varying minor bulk commodities. Within the industrial bulks sub-category — including steel products and forest products — related to industrial and construction activity, growth in movements could be about 4% this year. Indications of growth among agricultural trade are less obvious.

Bulk carrier fleet

Although expansion is decelerating, the world bulk carrier fleet is still set to grow rapidly in 2013, as illustrated by table 2. Growth of around 7% to 725m deadweight tonnes at the end of this year seems predictable, reflecting a very large reduction in newbuilding deliveries from shipbuilders following the record high volume seen last year. Relatively high scrapping of older vessels probably will contribute also, but annual demolition sales are likely to be well below the peak reached last year.

TABLE 1: KEY ASIAN SEABORNE COKING COAL IMPORTERS (MILLION TONNES)

	2008	2009	2010	2011	2012	2013
Japan	80.7	65.6	76.6	68.7	70.5	73.0
South Korea	19.7	16.0	23.4	25.9	25.7	25.0
Taiwan	10.4	9.4	10.2	10.7	10.5	10.5
China	6.8	34.5	47.3	44.7	53.6	68.0
India	29.0	29.0	35.0	33.0	35.5	38.0
Total of above	**146.6**	**154.5**	**192.5**	**183.0**	**195.8**	**214.5**

source: various & BSA 2013 estimates * *estimate*

TABLE 2: BULK CARRIER NEWBUILDING DELIVERIES (MILLION DEADWEIGHT TONNES)

	2008	2009	2010	2011	2012	2013
Handysize (10-39,999 dwt)	3.0	5.0	8.4	9.3	9.8	6.5
Handymax (40-59,999 dwt)	6.4	10.3	17.9	20.0	17.3	13.0
Panamax (60-99,999 dwt)	6.4	7.0	15.4	23.7	29.6	28.5
Capesize (100,000 dwt and over)	8.6	21.0	38.6	45.6	41.9	27.0
Total	**24.4**	**43.3**	**80.3**	**98.6**	**98.6**	**75.0**
% change from previous year	-1.2%	+77.5%	+85.6	+22.8%	+0.0%	-23.9%

source: Clarksons & BSA 2013 estimates * *estimate*

by Richard Scott, Bulk Shipping Analysis, Tel: +44 (0)12 7722 5784; Fax: +44 (0)12 7722 5784; e-mail: bulkshipan@aol.com

Experience the power of integrated freight logistics solutions

For comprehensive freight logistics, shipping and trading solutions for minerals, coal and ore. For a network of terminals strategically situated across southern Africa providing total cargo flow management from pit to port as well as storage, ship loading, discharging, stevedoring, clearing, forwarding and stock management. For a complete Corridor Management facility, expertly moving cargo by rail and road as well as a large modern fleet of dry bulk vessels operating worldwide. For specialist worldwide procurement, physical movement and distribution of industrial raw materials.
We have the expertise, and capabilities to make it happen.

GRINDROD LIMITED

www.grindrod.co.za

Freight Trading Shipping Financial

Integrated logistics solutions from a single provider

Rising dry bulk imports into China

China seems set to substantially increase its imports of dry bulk commodities during 2013, compared with last year. This view is widely held, but differences of opinion are evident about how large a rise is likely. Already there has been much expansion during the first half of the current year, however, and prospects for the remaining months look promising.

Doubts about the progress of China's economy, and effects on industries which import dry bulk commodities, have been an underlying reason for uncertainty. Earlier this year, anxiety retreated when signs emerged of a probable modest upturn in the 2013 GDP growth rate, following last year's further slowing to 7.8%. Then it became apparent that this anticipated improvement was not happening, and sentiment began to recede again.

Although GDP growth in China slowed to 7.7% in this year's first quarter and 7.5% in the second quarter, some recent indicators have been a little more encouraging. There are tentative signs pointing to no further deterioration and quite possibly some pick up ahead. A government 'mini stimulus' of measures designed to boost the economy may be assisting.

The IMF's latest (early July) forecast points to China's economy growing by 7.8% in 2013, an unchanged pace, implying an improvement in the second half. Previously a slightly higher annual rate had been estimated by the IMF and other forecasters. Evidence of strengthening manufacturing output has emerged recently, a positive sign for dry bulk import demand.

Expanding iron ore

Iron ore imports, the largest component of China's commodity purchases from foreign suppliers, rose strongly in the first seven months of this year. The total for this vast trade movement reached 457.2mt (million tonnes), averaging just over 65mt monthly, and 8% higher than seen in the same period a year earlier. Seaborne trade comprises the majority, with only a small proportion contributed by overland movements.

Growing steel output provided most of the impetus. Crude steel production at Chinese mills was 7% higher at 455.8mt in the January–July period, according to World Steel Association statistics. This figure may be revised upwards when more complete information is available. Expectations of a slackening trend have not proved accurate, despite signs indicating excess stocks building up.

Iron ore stocks appeared to be relatively low in the past six months, benefiting import demand. Also, foreign suppliers competed strongly for additional volumes with domestic mines, which nevertheless apparently were able to continue raising their ore output. Over the remaining months of this year and into 2014, strengthening construction and manufacturing activity could assist.

Increasing coal

Imports of coal into China increased rapidly in this year's first half. Reports indicate that the total, including low-grade lignite, rose by 13% to reach 158.6mt, averaging over 26mt monthly. Some land movements are included in these figures. About four-fifths of the total is steam coal mainly used in power stations, while the remainder comprises coking coal for steel mills.

Competition with domestic producers is a feature of the Chinese coal market as well. Domestic mines are the dominant suppliers, limiting imports to a small but strongly expanding part. In the January–June 2013 period, domestic coal output actually declined by 4% compared with last year's same months, to 1.79 billion, an unusual change disrupting an upwards trend. This weakening was attributed to lower prices, falling below production costs.

Coal imports are difficult to predict because of their role as the marginal supply source, and because of competition between this fuel and other energy sources such as varying hydro-electricity availability. Greater uncertainty follows the Chinese government's recent attempts to control and reduce low-grade coal imports. Nevertheless, an upwards trend seems quite likely to persist.

Improving grain and soya

China's demand for both imported soyabeans and grain is forecast to expand greatly in the period ahead. Soyabeans, the largest element, could be around one-sixth higher, while the much smaller volume of wheat plus corn and other coarse grains could increase by almost 80%.

According to recent US Dept of Agriculture calculations, soyabeans imports into China may be flat at 59mt in the 2012/13 marketing year ending this month. A strong rise is expected to follow, raising the total by 10mt or 17% to 69mt in 2013/14 starting October. Strengthening soyameal and oil usage, lower stocks, and no increase in the domestic soyabeans harvest could benefit imports.

Despite expected additional domestic Chinese grain production in the mid-2013 harvest, a very sharp imports expansion is predicted. International Grains Council estimates point to foreign purchases in the current 2013/14 crop year ending June rising by 7mt, to almost 17mt. Tight domestic markets, especially for some grades, is foreseen.

Upwards minor bulks

Other dry bulk commodities are also prominent. In 2012 China imported over 190mt of minor bulk cargoes, most of which was seaborne trade. Together, these imports — including bauxite/alumina, nickel and manganese ores, steel products and woodpulp — have exhibited a rapid upwards trend which could continue this year.

Some estimates suggest that China's imports of nickel ore, amounting to 65mt last year after remarkable growth, may be much higher in 2013, reflecting increased usage in stainless steel production. Conversely, foreign purchases of steel products seem likely to be flat or lower, continuing the downwards trend seen in the past few years.

Richard Scott

CHINA'S DRY BULK IMPORTS (MILLION TONNES)

Main bulk commodities	2009	2010	2011	2012	2013	% change*
Coal	126.6	166.2	183.2	235.2	260.0	+10.5
Iron ore	628.3	619.1	687.0	745.5	785.0	+5.3
Soybeans	42.5	54.8	52.6	58.4	62.0	+6.2
Steel products	22.2	17.2	16.8	14.8	13.5	–7.8
Bauxite/alumina	24.9	34.7	47.1	45.1	60.0	+33.0
Nickel ore	16.6	25.1	48.3	65.0	70.0	+7.7

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

Record crop prospects send feed prices tumbling

grains & oilseeds trades

Maria Cappuccio

In its latest assessment of the global economy, the International Monetary Fund (IMF) highlighted weak domestic demand, slower growth in several emerging market economies and a protracted recession in the euro area, responsible for subdued global economic growth forecast at slightly above 3% in 2013; possibly made worse should the anticipated wind-down of the US Federal Reserve stimulus programme, lead to sustained capital flow reversals. Signs that the US will begin to taper bond purchases in September, led global share prices to fall to a six-week low; oil led the decline in commodities, while currencies in India, Indonesia and elsewhere, dropped as investors withdrew $8.4Bn from emerging-market exchange-traded funds this year. The sell-off came last month, despite growing evidence, of an improving US labour market and rise in consumer prices; growth in China's economy stabilizing with better prospects for Japan; while recovery in the UK economy and strong growth in France and Germany pulled the eurozone out of an 18-month recession; but with the US poised to unravel the stimulus package, markets likely to remain nervous until bond yields settle.

MAJOR FEEDSTUFFS — PRODUCTION, USE, FEED & STOCKS 2012–2013/14 (MT)

	Prod 12/13	Prod 13/14	Use 12/13	Use 13/14	Feed 12/13	Feed 13/14	Stock 12/13	Stock 13/14
Wheat	655	705	680	707	137	142	174	173
Coarse grain	1129	1246	1143	1215	668	713	151	182
Total grain	1784	1951	1823	1922	805	855	325	355
Oilseed/meals crush	472	493	396*	410*	265	274	70	81

*Source: IGC/USDA-Prod-mainly harvested Jul-Dec/Local Marketing years *Crush/Oilseed/Meals-Ex. Fishmeal*

Global grain and oilseed output to rise by 8% in 2013/14

In commodity markets, favourable growing conditions especially in Europe and North America, boosted prospects for a sharp recovery in global grain and oilseed supplies, easing inflationary pressures and food security concerns. The UN's Food and Agricultural Organization (FAO), confirmed, that global food prices fell, for a third consecutive month in July, to reach their lowest level in more than a year. Sharp falls in grain prices, mostly reflected falling corn prices, and by contrast to last year's weather-damaged crops, harvest reports re-affirmed record-breaking prospects for grain and oilseed crops, with production forecast to rise by 8% to 2.4Bn/t in 2013, the highest output on record, expected to help replenish grain inventories and curb extreme price swings, in 2013/14.

Feed demand drives global use of coarse grains

Global wheat and coarse grain output is forecast to rise to 1,951mt (million tonnes) in 2013/14, driven by a huge 10% increase in coarse grains, notably corn, following a return to more typical yields in the US, and a better than expected increase in wheat output. Higher feed use of coarse grains is driving consumption, forecast to reach 1,922mt. With corn prices tumbling, by over 40% to their lowest level since 2010, is expected to reduce input costs and improve the outlook for livestock, feed, food and industrial processors. Global supply of cereals likely to outstrip demand for the first time in four years, with overall cereal stocks forecast to rise to 355mt in 2013/14. The global oilseed crop is also forecast to increase by 4% to a record 493mt-mainly due to rising soyabean output in the US, Brazil, Argentina and India. Feed use of oil-meals to rise to 274mt, mostly reflecting rising demand in China.

Sharp rebound in the CIS and EU crops boosts wheat output

Wheat output in the CIS producing countries is forecast to rebound sharply, Ukraine and Kazakhstan wheat crops have been revised up to 22mt and 17mt respectively, while Russia's wheat crop is revised down possibly below 50mt, due to dry weather early-on. In the EU, production is forecast at 141mt, with further upward revisions likely; Canada's wheat crop is also raised to almost 31mt. The outlook for wheat is positive in most other major wheat producing and consuming countries, with some exceptions — adverse weather conditions, hindered the US wheat crop 58mt, while in China wheat output is forecast lower at 118mt (official data121mt). Reports that the Chinese crop suffered up to 20mt of sprout damage, looks likely, given the flurry of wheat sales to China early in the season, and a hike in import requirements, expected to triple this year. The International Grains Council (IGC) peg the global wheat harvest at 686mt, while both USDA and Lanworth estimate a larger wheat crop at 705mt and 694mt respectively.

WORLD WHEAT PRODUCTION 2009–2013/14 (MT)

	2009/10	2010/11	2011/12	2012/13	2013/14
EU	140	136	138	133	141
E. Europe	5	4	4	4	4
CIS Baltic's	114	81	115	77	107
N & C America	91	87	83	92	91
S America	22	27	25	19	22
N East Asia	39	40	40	37	42
F East Asia	228	227	236	248	246
Africa	26	21	25	23	27
Oceanic	22	28	30	23	26
Total	687	652	697	655	705

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

Mixed prospects for Southern hemisphere crops

Argentine farmers were expected to increase the area planted to wheat to 4.2m/ha, due to high domestic prices, but both the Rosario Grains Exchange and local US bureau staff in Buenos Aires forecast the area to be lower at 3.8m/ha and 3.9m/ha respectively, with a wheat crop of 12mt; the lower estimate said to reflect mistrust over the government's tax re-distribution system, a two-year drought in the north-west, plus a scarcity of good-quality seed in the central part of the country. Reports from Brazil indicate frost damage, hit between 20-30% of production in Parana, which typically produces almost half Brazil's wheat output, also likely to increase import requirements. Elsewhere, problems in western areas of Australia are expected to lower the overall wheat crop. The Commonwealth Bank of Australia (CBA), lifted its forecast for the eastern Australian crop by 1.9mt to 13.4mt and its forecast for the overall harvest by 400,000/t to 25.3mt. Although they expect Western Australia stock tightness to persist, if the forecasts are realized it should allow, "… a sizeable rebuild in east coast grain inventories from December," according to CBA's Luke Matthews.

Feed use forecast to rise to 142mt

Better crops in several countries are expected to raise the global wheat output to a record 705mt, and as a result of ample supplies, wheat for feed use has been raised by 5mt to 142mt in 2013/14, mainly reflecting increased use in the CIS countries.

China's wheat imports to triple and likely to match those of Egypt

Global trade is expected to be boosted by strong import demand in the Middle East, China and increased opportunities in Brazil. Egypt, typically the world's largest buyer, purchased over 1mt of wheat through a succession of tenders through July/August, with wheat prices c.$251/t excluding shipping, at a cost of $285m, half bought from Romania, with Ukraine and Russia splitting the balance; and is forecast to import up to 9mt against the backdrop of growing domestic turmoil and civil unrest, which has heightened concern about the security of oil supplies from the Middle East and North Africa-violence in Egypt could also affect the Suez Canal, conduit for oil and a vital seaway for bulk carriers.

Chinese wheat futures have been near historic highs for most of this year, due to tight supplies and high demand; China has already booked more than 3mt of wheat shipments in the year

WORLD WHEAT SUPPLY & DEMAND 2008–2012/13 (MT)

	2009/10	2010/11	2011/12	2012/13	2013/14
Production	687	652	697	655	705
Consumption	654	655	697	680	707
Trade	136	134	154	147	152
Stocks	202	199	200	174	173
Key exporters *	76	75	70	49	47

Sources: IGC, USDA-Production-mainly harvested Jul-Dec/Local marketing years/

**Argentina, Australia, Canada, US, EU, Kazakhstan, Russia, Ukraine, US*

Strong partner in Grain Management. One of the big challenges of our age is to supply all the people worldwide with food. Every year, millions of tons of grain are collected, stored, and handled around the globe – and the upward trend is unbroken. Only the most up-to-date plant and equipment can guarantee rapidity and quality while minimizing raw material losses. In order to meet the increasingly stringent challenges, Bühler Grain Logistics provides with its capabilities the best possible solution – for conveying, cleaning, drying, storing, dedusting or loading and unloading the most important commodity on earth.

Bühler AG, Grain Logistics, CH-9240 Uzwil, Switzerland
T +41 71 955 11 11, F +41 71 955 3949
grain-logistics@buhlergroup.com, www.buhlergroup.com

Innovations for a better world.

BÜHLER

to June 2014. Beijing's CNGOIC Corp, confirmed purchases from Australia and forecast imports at 6.5mt this year. Australian based-Lachstock Consulting's managing director Mr Stevens, said China has already placed orders for up to 5.5mt out of a total of 8–10mt forecast for 2013/14; and expects wheat imports to be split between the US 3.9mt, Canada1.5mt, EU 500,000/t, Australia 3mt, with 100,000/t from other countries. China is said to be re-building depleted reserves, as a result of the US drought-lack of corn supplies replaced by domestic wheat in feed rations; once wheat reserves are restored imports are expected to be scaled-back. Confirmation that Japan had lifted the ban on imports of US Western White Wheat; sales of 840,000/t of Soft Red Winter wheat to China, plus sales of over 1mt of milling-quality wheat to Brazil, amid growing fears that Argentina will again have little to export, helped underpin US prices pressured by competitive Black Sea exports-HRW rose $18 to $318/t and SRW went up $11 to $276/t CBOT December wheat $6.491/2/bu (Aug 20).

Banks remain upbeat on prospects for wheat

Despite plummeting feed grain prices, two leading banks sounded upbeat on wheat futures, CBA, forecast wheat prices for the October-December quarter at $6.17/bu and a growing premium over corn, flagging "comparatively tight world wheat balances." ABN forecast wheat prices ending September at $6.20/bu, and highlighted the potential for the higher world wheat production this year to be absorbed by increasing consumption, expected to keep stocks under pressure. "Assuming normal weather conditions, wheat prices will decline slightly over the course of 2013, but will remain at historically high levels."

Record global coarse grain harvest boosts feed demand

By contrast to last year, which saw a dearth of supplies and demand rationing in several countries, the prospect of abundant supplies of corn, better crops for barley and sorghum, sent feed grain prices tumbling from record highs in June to record lows in August, the lowest since 2010. USDA's provisional forecast points to a potential global coarse grain harvest of 1,245mt (corn 957, barley 140mt, sorghum 61mt), the highest ever recorded. Global demand for coarse grains is forecast to expand by 72mt mostly driven by expanding feed demand to a record 1,215mt (feed 713mt, food/industry 502mt). Global fed use is expected to increase by 46mt, especially in North America and East Asia, with almost all regions posting gains. With a larger exportable surplus and much lower prices, trade is expected to rise by 6mt to a record 134mt, moderated by better domestic crops in several countries. Global stocks are expected to rise to 182mt, as are those in the major exporting countries.

Corn crop on track to reach 957mt

With an increase in the planted area and a return to more typical yields in the US, the global corn crop is reportedly on track to rise by almost 100mt to 957mt. Record crops in the US 342–350mt, and better crops elsewhere, EU 65mt, China 211mt and Ukraine 29mt; Brazil and Argentine crops, are yet to be planted, but output is forecast at 72mt and 27mt respectively, lower than last year; farmers planting decisions possibly affected by significant fall in corn prices. Market participants watch for new insight into the development of the corn crop this year, where excessive spring rains not only cut corn acreage by 3.4m/acres to 94m/acres, but also delayed plantings. According

COARSE GRAIN SUPPLY & DEMAND 2009–2013/14 (MT)

	2009/10	2010/11	2011/12	2012/13	2013/14
Production	1116	1099	1155	1129	1246
Consumption	1113	1130	1155	1143	1215
Trade	119	116	133	128	134
Stocks	197	166	166	151	182
Key Exporters*	83	47	42	38	70

*Source: IGC/USDA * Argentina, Brazil, Ukraine, US*

to the Pro Farmer tour of the Midwest, the US crop is well behind normal maturity and vulnerable to harsh hot weather as temperatures rise and ramp-up crop stress in dry areas of the Midwest especially in the west — the group forecast production at a record high of 342mt but some 8mt below the USDA estimate. Professor Darrell Good from the University of Illinois, expects both supply and demand estimates, to be revised as the harvest progresses, but confirms that an era of higher soyabean prices, in relation to corn prices, is still the expected outcome. The prospect of greatly increased corn supplies weighing on feed prices is expected encourage corn consumption to expand by 62mt to 930mt mainly driven by feed demand. Food/industrial use is expected to rise by 22mt to 373mt (food 248mt, fuel 125mt).

EPA retains renewable and advanced biofuel but cuts cellulosic level

Corn use for ethanol is expected to rise by 7mt to 125mt, up on last year and likely to increase output of Distillers Dried Grains and Solubles (DDGS) for feed use to 39mt in 2013/14; exports of DDGS similar to last year at 7–7.5mt — top destinations for almost half global trade in DDGS are China and Mexico due to rising feed demand. Following intense debate on the controversial issue of the use of corn for ethanol, sparked by crop shortfalls last year, the US Environmental Protection Agency (EPA) revised the Renewable Fuel Standard (RFS) requirements this year. The EPA retained the RFS requirement (corn from ethanol) at 13.8Bn gallons for this year, and the overall advanced biofuel requirement (includes bio-diesel) to 2.75 Bn gallons, but reduced the cellulosic requirement from the statutory level of 1Bn to 6m/gallons, bringing the total RFS requirement to 16.55Bn gallons in 2013. US refiners are expected to use 13.8Bn gallons of ethanol this year, a 4.5% increase from 2012 levels, which will increase to 14.4Bn gallons next year, unless the RFS is amended.

Overcoming the 'ethanol blend wall'

The decision welcomed by the corn growers and members of the Renewable Fuels Association, but not by the oil industry, who despite the availability of E15 and E85 blends, have pressed for the statutory RFS requirement for corn from ethanol, to be scaled-back, citing falling gasoline consumption in the US, constrains the level of ethanol to 10%, referred to as the 'ethanol blend-wall'. The pressing issue of how to increase the quantity of ethanol above the so-called 'ethanol blend wall' is addressed in a new study from the Center for Agricultural and Rural Development at Iowa State University entitled, "Price It and They Will Buy: How E85 Can Break the Blend Wall." The study suggests that pricing E85 low enough to generate fuel cost savings has the potential to quickly increase ethanol consumption, perhaps by three billion gallons over the next year

or two. According to the study's authors, Professors Babcock and Pouliot, "Rather than being a physical barrier to increased ethanol consumption, the E10 blend wall is an economic barrier that can be overcome by increasing the incentive for drivers to use E85 to fuel their vehicles,"

Lower input costs improves margins for feed processors

With the cost of corn, almost halved since June, significantly improved the outlook for more profitable meat production, especially for the pig and poultry sectors, that are the most dependent on concentrated feed. Corn for feed use is forecast to rise by 40mt to 557mt, with the US and China accounting for over 70% of the increase. Upbeat assessments from Pilgrim's Pride and the Tyson Group, who forecast a $500m drop in chicken feed costs from late September, citing the increase in 2013/14 grain supplies would lower input costs (livestock and feed processors have struggled against elevated feed prices for the last three years) as well as decrease costs for cattle and hog producers. "Solid demand and chicken's relative low pricing compared to the other proteins should make next year, a very, very, good year for chicken."

Rise in beef and pork output led by developing countries

Global meat production is anticipated to grow by a modest 1.4% in 2013, to a little over 308mt an increase of 4.3mt — small increase for beef 68mt and larger increases for both pork 114mt and poultry 107mt. Resurgence in beef output is led by the developing countries, with trade in beef rising by 4% to 8.6mt, prompted by domestic shortfalls in the US, Canada and other countries including China — imports to rise by over 20%, as health issues prompt consumers to switch away from poultry to other proteins. Pork output, like beef, is also led by developing countries, principally in Asia — strong demand and government backing, support rising output in China 53.8mt, almost half global output; an increase in the Republic of Korea, and modest growth in Vietnam, the Philippines, Japan, Thailand and Indonesia, curbed by competition from other types of meat. In Brazil, better prices stimulate production while Mexico's expansion is underpinned by improved genetics and productivity. Russia's 4% growth is due to reduced feed prices and government support for large-scale farms. Global pig-meat trade expected to fall to 7mt, due to declining Asian demand.

H7N9 continues to disrupt China's poultry ambitions

Unlike the beef and pig meat sectors, global poultry production is anticipated to increase in developed and developing countries due to competitive pricing relative to other meats. China's aim to replace the US, as the main poultry producing country, over the next few years, ran into serious difficulties, following an outbreak of H7N9 influenza strain in March, in eastern China. Consumers shifted to other sources of animal protein and fish, with recovery expected to be gradual over the next six to twelve months. Analysts estimate the cost to the Chinese poultry industry to be in the order of RMB 15Bn (€1.8bn). So far there have been 135 confirmed cases and 45 deaths, while reports indicate the virus may be spread through human faeces. An outbreak of the H7N3 strain in Mexico in April is also causing concern. Elsewhere, production growth is anticipated for the US, EU, Brazil and Russia, and rapid expansion (possibly 8%) forecast for India. While poultry trade growth has stalled since 2010, trade is forecast to increase by 1.5% to 13.3mt in

2013/14. Brazil, the US and the EU, account for almost three-quarters of global trade, but sales have been static, with most growth evident from second-tier exporters, including China, Thailand, Argentina, Turkey, Chile, the Ukraine and Belarus, expected to continue, with the exception of China.

Cheaper Ukraine corn supplies prove irresistible to Asian buyers

Cheaper availability of corn from the Ukraine, which has an export surplus of 18–20mt, has prompted many buyers in Malaysia, Japan, South Korea and Taiwan to shift away from US and South America origins, to the Ukraine. Malaysian animal feed millers bought a cargo of up to 45,000 tonnes of Ukrainian corn for shipment in October for around $239/t C&F; South Korean millers bought optional origin corn, likely to be sourced from Ukraine around $233/t C&F, for shipment in January. Ukraine's corn on a delivered basis is around $25/t cheaper than US corn for shipment in October and $10/t cheaper for shipment in January. Brazil's corn exports are also expected to be very competitive, but concerns with corn leaf blight fungal disease and delays in shipments, due to congestion at ports, further boosted Ukraine sales. China recently approved its first 60,000/t purchase of genetically modified (GM) corn from Argentina, and is expected to more than double its corn imports to 7mt in 2013/14. China has been seeking to diversify its suppliers and has recently added both Argentina and Ukraine to the approved list. CBOT Corn December contract after initially rallying to $4.85/bu (Aug 20) above its multi-year low of $4.45 ¾/bu (Aug 14), on worries about US unplanted acreage, lower yields and stronger-than-expected exports, fell to $4.70/bu (Aug 23). Global corn exports are expected to rise by 5mt to a record 105mt in 2013/14; while stocks are forecast to rise from 123mt to 150mt-tight US stocks expected to more-than-double, from an historic low of 18mt to 46mt by the end of 2013/14.

CF Industries forecast large corn acreage in 2014

Goldman Sachs, cut their price forecasts for corn to $4.25/bu on the basis of a record corn output. And, since July, speculators turned bearish on the outlook for corn, for the first time since 2010, as bets on corn's decline rose. But, despite lower returns to growers, the North American manufacturer and distributor of agricultural fertilizers, CF industries, "projects that 92m/acres of corn will be planted in 2014 — down from 2013 but still historically high" and above the 90m/acres USDA has forecast in their long-term projections.

Better barley output increases feed use up to 93mt

Larger harvests are expected in all the major barley producing areas EU 57mt, CIS countries 30mt and Middle East 13mt, mainly due to better yields, lifting global barley output to 140mt, 11mt more than last year. Feed use is forecast to rise to 93mt, almost 4mt up on last year, with global trade slightly up to 19mt; Middle East and North African countries responsible for the bulk of imports especially Saudi Arabia forecast to import 7.5mt this year. Like other feed grains, barley values have fallen dramatically-Quotes for French barley FOB (free on board) Rouen $239 (Aug 22); UK Feed Barley Merchant Nov £145–152/t ($226-$237)-(Aug 23).

China's sorghum imports to double to 400,000 tonnes

Increase in the planted area for sorghum, and better crops in the US 10mt, India 5.8mt, Nigeria 6.5mt, Argentina 5.4mt and Australia 2.1mt, to boost global output to 61mt. Rising feed demand, notably in Mexico and also in India, Argentina, Nigeria and China to drive consumption to over 60mt, with global trade expected to increase to 8mt largely driven by Mexico's imports of 3.5mt and other countries including China — where imports are set to double those of last year to 400,000 tonnes — the majority to be shipped (Aug–Nov) to southern China, due to a smaller domestic crop; sorghum is cheaper than corn and, and as well as feed, is also used to produce a liquor 'baiju'. Chinese purchases from Australia have been strong, with prices well-above those of the US and Argentina; US sorghum-September delivery FOB Nola $244 (Aug 23).

MAJOR OILSEED SUPPLY & DEMAND 2009–2013/14 (MT)

	2009/10	2010/11	2011/12	2012/13	2013/14
Production	447	460	445	472	493
Soybeans	260	264	239	268	282
Crush	359	378	396	396	410
Consumption*	240	252	263	264	273
Trade Seeds	107	108	111	114	125
Trade Meals*	72	77	80	78	82
Stocks	76	84	65	70	81
Key exporters — soya	44	52	36	47	54

**Source: USDA/*excludes fishmeal — totals may not add up due to rounding*

**Argentina, Brazil, US*

Global oilseeds promise record output but US soya crop vulnerable

While industry officials and farmers expected, the USDA to raise the US soyabean estimate to above 90mt, the prospects for hot dry temperatures and disappointing crop findings by the Pro Farmer tour of the Midwest, led to a potential downward revision to the US crop to 86mt. Reports from the tour confirmed lower-than-expected pod count rates in many states, and due to delays in spring-sowings-the crop is well behind its normal maturity pace, not helped by cool temperatures for most of the summer, raising concerns that the crop could be vulnerable to hotter temperatures or an 'early' or 'timely' frost. Preliminary estimates for Brazil and Argentina, still to be planted, peg the crops at 85mt and 54mt respectively, which suggests a record output for soyabeans as well as better crops for rapeseed 66mt (EU 20mt, Canada 15mt and China 14mt) and for sunflower seed 40mt (EU 8mt Ukraine 10mt Russia 9mt), palm kernel 15mt and copra 6mt, expected to offset smaller crops of cottonseed 44mt, and groundnut 39mt, and to lift global oilseed output, forecast at a record 493mt in 2013/14.

Global oilseed crush is also expected to rise by 14mt to 410mt, mainly driven by soyabeans and sunflower seeds, with crush expected to rise in China, Indonesia, Argentina, Brazil, Russia, Ukraine, and in other some other countries; while oilseed trade is expected to rise by 11mt to a record 125mt, mostly due to increased imports of soyabeans into China. Global consumption of protein meals to rise 9mt to 273mt, due to increased demand in Europe, US, Asia and Brazil. The increase in the global supply of oilseeds in 2013/14 is anticipated to ease international prices for oilseed and oilseed products, while replenishing stock levels in major exporting countries especially the US. Last year the US was forced, due to a drought-hit soyabean crop, to import up to 1mt of soyabeans, which left soya stocks at critically low levels, of 3.5mt.

Chinese soya imports surge in 2012/13 and forecast higher in 2013/14

Following a late surge in US soyabean sales, USDA raised the forecast for 2012/13 by 3mt, to 62mt. US soyabean sales were helped by logistical problems in Brazil, the main source of China's soyabean purchases. The uptick in Chinese imports coincided with a sharp fall in global soyabean prices, and on the expectations of a strong US soyabean harvest, with shipments forecast to hit 10.5mt during August/September. For 2013/14, USDA forecast China's imports of soyabean and domestic crush at 69mt and 68mt respectively; given excessive Chinese domestic crush capacity, other analysts suggest a more conservative range for imports of 63–67.5mt.

Food scares may curb China's feed output in 2013

Singapore-based Wilmar, the largest crusher in China, confirmed in its annual report that pre-tax profit at the oilseeds and grains division of the company, dropped 97% in 2012, amid overcapacity and "dumping of soyabean products by speculative players," with as much as 51% of China's 120mt annual soyabean crushing capacity idled because of too much expansion in the industry. Processing soyabeans into meal and oil was unprofitable for six of the past 12 months in China, according to data from Shanghai JC. Margins averaged a negative 169 yuan and swung between losses of 783 yuan and gains of 404 yuan. With declining utilization rates further cutting crush margins, and the set-back to demand for meat from food scares including the H7N9 avian flu outbreak and the discovery of thousands of dead pigs in the Yangtze River and Huangpu River, has left some industry experts forecasting a 3–5% decline in China's feed production in 2013 from the previous year. Soyabean futures jumped to their highest in two months, supporting corn and wheat prices too, as prospects for a US heat-wave, and disappointing crop tour findings, dented expectations for this year's crop. CBOT Soyabean futures for November, the best-traded lot, rose to $13.68/bu before closing at $13.28/bu (Aug 23), the highest level since June 7. US export bids, soyabeans US-No.2 FOB Gulf $522/t (Aug 22).

India set for record production of oilseeds, thanks to good monsoon season

This being a good monsoon year for India, the country's production of oilseeds is likely to be a record, *writes Kunal Bose*. According to Vijay Data, president of Solvent Extractors Association of India (SEAI), "it may be a little early to talk about the crop size, but going by the progress of the monsoon and sowing in major oilseeds growing states, a crop in 2012/13 outshining all past harvests is very much on cards." A caveat is, however, there. Rains need to continue at regular intervals for the next couple of weeks for an outstanding harvest. The meteorological office says weather will not disappoint oilseeds growers. Oilseeds in India are grown in two instalments — once in summer and monsoon period and then during the winter taking advantage of the retained moisture in the soil and scattered rains. The ongoing good monsoon, a major break from last season's drought in many parts of the country, has led to an at least 8% rise in the area under oilseeds. Moreover, early start of rains, in fact about a month ahead of the normal, has enabled farmers to "advance sowing by 10 to 15 days in most centres."

Data says "early sowing will result in our starting the harvest by September end instead of the routine mid-October." The Agriculture Ministry's estimate that farmers have planted 18.3m hectares under oilseeds crop this summer season is much ahead of the industry's assessment. Summer-monsoon and winter seasons combined, the country grows oilseeds in 26m to 27m hectares, making it the world's fourth largest producer after the US, China and Brazil. Differences in estimates of areas under major crops and their production send out wrong signals to the market doing no good to the farm sector.

India's heavy dependence on imports of edible oils to bridge the gap between demand and domestic supply, a major factor in the country's worryingly high current account deficit problem, has led the government to incentivize farmers by steadily raising minimum support prices (MSPs) of oilseeds along with other food crops. The government will do well to advance the announcement of MSPs by about a month for farmers to work out what crops will give them the best return. Agriculture scientist RS Paroda says favourable MSPs "could play an important role in bringing more land under oilseeds. As of now, MSPs are evidently in clear favour of rice and wheat compared to oilseeds. This is mainly on food security consideration. Oilseeds too warrant similar consideration." Nutritionists are campaigning for long that for a balanced diet and health reasons, the per capita use of vegetable oils by Indians need to be much higher than at present. Trade official Govindbhai G. Patel says India's per capita consumption of 15.8kg (13.10kg on food account and 2.7kg on non-food head) compares poorly with the world average of 25.91kg. A much higher *per capita* use in China (25kg) is understandable, but Pakistan (22kg) being ahead of India in oils use shows how much leeway the latter has to make up. Between 2001/02 and 2011/12, India's oils consumption rose 6.2mt (million tonnes) to 16.3mt. This is to further rise to at least 17.3mt in the current season.

That India needs some major breakthroughs in oilseeds productivity come to the fore due to its refiners and traders importing record quantities of cooking oils for two years in a row. According to SEAI executive director BV Mehta, India's cooking oils imports are to climb to 10.5mt to 10.7mt in the oil year to end October 2013 from 10.2mt a year earlier. In the nine months to July 2013, imports are up 11% to 8.03mt. In each of the remaining three months of 2012/13, imports will range from 800,000 tonnes to 900,000 tonnes, says Mehta. He told Bloomberg that falling value of the Indian currency would "put some pressure on imports of edible oils." But this being an essential commodity, there is no running away from imports, however big these may be. The country will have general elections in May 2014 and the last thing the ruling coalition led by Congress will do is to antagonize the public by letting cooking oils prices to rise sharply. And the only way to cap prices is by encouraging imports.

In India's import basket, palm oil, sourced from Malaysia and Indonesia, has a preponderant presence. Palm oil has a share of around 77% of the total Indian imports. Because of this import composition, shipments of palm oil to India in the current season could rise by 800,000 tonnes, say trade sources. At the same time, the US, Brazil and Argentina are selling growing volumes of soybean oil to India, which too is emerging as a significant importer of sunflower oil. Capitulation of Indian rupee vis a vis US dollar began in May and imports till then though running well ahead of a year earlier did not raise much concern as palm oil prices were not finding a bottom for four consecutive quarters. In fact it was in July that palm oil was traded on Bursa Malaysia Derivatives Exchange at its lowest in more than three years. At the third weekend of August, however, Malaysian futures edged forward on expectations that production during the month would fall tightening stocks. The market will be awaiting release of August production and stocks data by the Malaysian Palm Oil Board on 10th September with much expectation. This is because palm oil production rolls into high productivity cycle starting July when Malaysian output was up 18.2%.

Large shortfall in domestic supply besides, its lowest prices among all cooking oils will explain India's very large imports of palm oil, which is the principal oil in out of home consumption (OHC). OHC has more than 30% share in India's *per capita* oils consumption. Excluding the affluent and health conscious, Indians in general are highly price sensitive. This creates scope for blending of palm oil with other oils. India's growing population and rise in disposable income level will continue to expand the demand for cooking oils. Where will the demand be in 2020? Patel says, demand will rise to 20mt in 2015/16 and then to 24.2mt in 2020/21. It is nobody's case that domestic production will catch up with demand growth. In a scenario like this, India's import requirements will grow to 15.5mt in 2020/21. This no doubt is good news for Indonesia and Malaysia.

The Indian oilseeds sector suffers from low productivity. Productivity of soyabean is only 42% of world average, mustard seed 45%, groundnut 66% and sunflower seed 55%. Paroda says low productivity is mainly because of growing oilseeds in rain-fed condition. Biotic stresses, aggravated by climate changes, are also hurting productivity. Last year, Indian oilseeds productivity was down 5% to 1,135 kg a hectare due to insufficient rains and oilseeds production suffered an 8% setback to 30.01mt. Patel rues the fact that "only 24% land under oilseeds has access to irrigation water. As much of oilseeds production is rains dependent (the Indian monsoon lasts about four months), farmers perforce opt for early maturing varieties where the yield is less. While this is the case for summer-monsoon crops, limited irrigation facilities stand in the way of utilizing the entire available land for cultivation. The salvation for the Indian oilseeds sector lies in the government expanding command area of irrigation at rapid rates.

Brazil expects record-breaking crop of over 200mt in 2013/14

Encouraged by the continued strong demand for grains, notably soya, as well as by the 20% fall in the value of the Brazilian currency in recent months, which makes exporting more profitable, a grains crop of more than 200mt (million tonnes) is expected for 2013/14, *writes Patrick Knight*.

This will be 15mt more than the already record 185mt of this year. Although slightly less land will be planted to maize this year, an extra million hectares will be planted to soya, an increase of 4%.

The year 2013 will not see a repeat of last year's record exports of maize, however, a year when the collapse of the US crop allowed Brazil to export a record 22mt of the grain.

Much of this maize went to Asian countries such as Japan, Thailand and Taiwan, which normally get their needs from the US and rarely buy the grain from Brazil. This takes several days longer to reach them than maize from the US does.

With prospects of a large US maize crop this year, large stocks are building up in Brazil. This has encouraged many

SIEMENS

E20001-F300-P620-X-7600-A4

siemens.com/cranes

Making a crane control reliable and flexible

Preconfigured crane control modules to automate and control any crane

Siemens forged 90 years of worldwide experience in a ready-to-run crane control platform which contains configurable standard function modules. These modules are integrated within a SIMOTION D controller: the most performant motion controller available on the market.

With SIMOCRANE, we provide 'off the shelf' proven technology to secure reliable crane performance, simple engineering and fast commissioning. Besides all the proven crane control solutions in SIMOCRANE, you still have the flexibility to customize the solution to meet your requirements.

Answers for industry.

EXPORTS OF SOYA, MAIZE & SUGAR

million tonnes

	1993	2000	2010	2011	2012	2013 (est)
Soya beans	4.2	11.5	29.0	33.0	32.9	39.5
Soya meal	9.3	9.4	13.6	14.4	14.4	13.9
Soya oil	0.8	0.9	1.4	1.7	1.7	1.5
Total soya	**14.8**	**21.8**	**44.0**	**49.1**	**49.0**	**54.9**
Maize	0	6.7	10.8	9.5	19.8	14.5
Sugar	2.4	6.5	28.5	26.9	26.8	26.8
Total grains & sugar	**17.2**	**35.0**	**83.3**	**85.5**	**95.6**	**96.2**

Source: Ministry of Trade

farmers to switch from maize to soya for the 2013/14 plantings.

A 90mt soya crop is expected 2013/14, 8mt more than harvested this year, and Brazil could edge past the US to be the world's leading soya producer, as well as exporter next year. In the past few years, China has become by far Brazil's leading market for beans, taking more than 80% of the 60mt exported. China has now become an important market for soya oil as well.

Most of the extra soya will be planted in the centre west, notably in Mato Grosso state, as well as in the north east and north. Some of the extra soya will leave from ports on the Amazon river or in the north east. Several key roads in the area previously impassible for most of the year are being paved and new stretches of rail track opened to traffic. As a result, slightly less soya will have to travel 1,500km south along congested roads to the equally congested ports of Santos and Paranagua.

Continuing the trend of the past few years, the area planted to grains in the south and south east of Brazil will increase very slightly, as there is no unused land in the south. Any increase in the area planted to soya there, will be the result of a switch away from maize.

In the centre west, where little maize is planted in the summer, but the winter maize crop has more the doubled in the past few years to more than 45mt this year, the 7% increase in the area planted to soya this summer will be mainly because ranchers are selling low yielding pasture lands to arable farmers.

In the north east, where plantings will be up by more than 10%, most of the increase will involve previously fallow land which, bought by investors with deep pockets.

The fact that the states in the north east area are relatively close to ports such as Itaqui, where major investments will permit loading capacity to rise to at least 5mt in the near future, is encouraging investors. On the other hand, the lack of good roads, a shortage of manpower and the absence of services, are negative factors in this frontier area.

The area being planted in the northern region, on the fringes of the Amazon rain forest, is growing fastest of all, although from a very low base. There too, the paving of roads previously impassable during much of the year, will allow more soya to reach riverside ports. Work on making several rivers navigable has begun, notably by clearing rocks which interfere with navigation when water levels are low.

There is concern that the current high soya price has encouraged the sudden increase in the rate at which the Amazon forest is being cleared of its native trees. Although the rising price of timber may also be an explanation.

The gradual improvement to logistics is expected to accelerate in future. The Brazilian government has finally realized that farm commodities are much more attractive for Brazil than trying to compete with manufactured goods made in countries

EXPORTS OF SOYA, MAIZE & SUGAR

Production of grains 2003/04 to 2012/13

Year	area, '000 hectares	Kg/ha	production, million tonnes
2003/04	47.423	2.512	119.114
2004/05	49.068	2.339	114.695
2005/06	47.868	2.560	122.531
2006/07	46.213	2.851	131.751
2007/08	47.411	3.040	144.137
2008/09	47.674	2.835	135.134
2009/10	47.416	3.148	149.255
2010/11	49.873	3.264	162.803
2011/12	50.885	3.266	166.172
2012/13	53.229	3.476	185.050

Source: Ministry of Agriculture

PROJECT INCREASE IN LEADING CROPS

Product	2012/13 crop, million tonnes	% increase by 2022/03
Maize	76.0	13.2–48.9
Soya beans	82.0	36.9–84.2
Wheat	4.3	62.4–237.1
Sugar cane	738.4	4.6–36.4
Sugar	36.0	23.8–55.4

Source: Ministry of Agriculture and Embrapa.

such as China and others in Asia, where the cost of labour is a fraction of what it now is in Brazil.

The opening of new routes in the north will benefit the soya and increasingly of the maize being shipped to China in increasing quantities, as demand for the feed needed to produce meat, increases there.

Ships take three or four fewer days to reach China from ports in Brazil's north and north east, than from ports in the south east, where queues of up to 70 ships often build up in May and June.

The widening of the Panama canal, now almost complete, will allow larger ships to use this route, the shortest from Brazil to most Asian countries. More will leave from Amazon river ports such as Santarem, Belem and a new riverside port at Santana, being built in the state of Amapa, to the north of Marajo island, all two or three days less sailing time to China than Santos or Paranagua, or ports in Argentina, for that matter.

A total of 19mt of this year's massive 45mt winter maize crop has been grown in Mato Grosso state, where the grain was planted on 3.5 million hectares this year. Five times as much winter maize has been grown in Mato Grosso this year, compared with just three years ago.

Winter maize is put in the ground immediately after soya has been harvested, in March or April. Soya beans were planted on about 8.5 million hectares in Mato Grosso as a summer crop 2012/13, which shows the potential the state has for producing more winter maize, should a market for it exist.

Storage capacity in the centre west has not kept pace with the surge in the amount of both soya and maize grown there. There is only enough storage in the area for about two-thirds of the summer soya crop in the area, very little of it on farms

Soya beans have been shipped out more slowly than usual this year, as farmers and traders wait for prices to rise.

This meant there was little space for the new crop maize in warehouses, so millions of tonnes of maize have had to be left out in the open, running the risk of deterioration should the rains come early.

Clipper adds two more eco Supramax vessels

In early August, Clipper Bulk took delivery of the second of a series of four sister vessels from the Shin-Kasado Dockyard of Imabari Shipbuilding Ltd. in Japan. The vessel, *Clipper Triton*, joins the *Clipper I-Star* as the newest member of the fleet. Like the *Clipper I-Star*, *Clipper Triton* is a 61,000dwt Supramax bulk carrier representing the latest development in technology and eco fuel consumption.

Shortly after the naming and launching of the *Clipper Triton*, Clipper attended the naming and launching ceremony of the *Clipper Excalibur*, a 66,000dwt Supramax vessel built by Mitsui Engineering at Tamano Shipyard. At more than 66,000dwt, the *Clipper Excalibur* will be the largest modern Supramax on the water; yet it has a similar consumption of vessels many thousands of tonnes smaller.

Gary Vogel, Clipper Group CEO, commented, "It was a very busy but exciting day for Clipper, as both of these vessels represent the future of our company, in terms of efficiency, economy and ecology. We now look forward to bringing our partners and customers these fantastic ships."

The *Clipper Excalibur* will join the Clipper Bulk fleet in November after finalization of construction. She will be joined by a sister vessel, the *Clipper Excelsior,* in early 2014. In total, Clipper Bulk has ten newbuilding vessels currently scheduled for delivery from 38,000 to 76,000dwt.

Clipper is a major presence in the dry bulk market. It operates a large fleet of Handysize through Panamax vessels. It also has a number of subsidiary businesses, including Clipper Steel Services, the largest dedicated steel carrier, and Compass Rose Shipping. In addition to bulk, Clipper Group has investments in project (multipurpose), tankers and cruise vessels, as well as in ferry and ro-ro services and non-maritime business. Clipper manages and operates about 175 vessels in total, of which it owns approximately half. It has around 30 in in-house technical management. Clipper is commercially headquartered in Copenhagen, Denmark, with approximately 240 employees working in its offices in nine countries around the world.

The Clipper Excalibur*'s naming and launching ceremony.*

NGM Energy switches to Voyager

In mid-August, it was announced that NGM Energy, Greece, has selected Thomas Gunn's Voyager Chart Management Service to manage paper and digital chart updating on all 16 vessels in its fleet. It is also taking advantage of Thomas Gunn's outfit management service (OMS) for the automated supply of paper charts.

The Voyager Series from Thomas Gunn Navigation Service has earned a reputation for innovation, reliability and responsiveness to customers' needs, offering the mariner an easy to use, cost effective and high quality database of navigational data neatly displayed.

"NGM Energy is committed to improving efficiency on board," said Captain Sergey Martynenko of NGM Energy. "Our business prides itself on offering the industry a highly professional service, and we are confident that our decision to roll out Voyager across the fleet will enable us to maintain this commitment in the future."

Voyager is a fully automated onboard chart management system which provides the mariner with a personalized database of charts, publications and Notices to Mariners (NMs) organized in a convenient folio system. New Voyager 4 enables bridge personnel to manage all their navigational information through a single service that, for the first time, includes NAVAREA warnings as well as new route planning functionality that makes identification of the charts, publications and updates required for a voyage even easier and more efficient.

Voyager 4 was released into the market in May 2013 following worldwide sea trials and is available now to trial and buy from Global Navigation Solutions companies and distributors worldwide.

About NGM Energy

NGM Energy is part of the Moundreas family shipping business and is run by Hariklia, Natalia and George Moundreas.

About Thomas Gunn Navigation Services

Thomas Gunn Navigation Services is part of the Global Navigation Solutions Group of companies with a global network of offices supplying navigational information and other maritime services to shipping companies worldwide. In addition to providing navigation supplies to shipping companies, TGNS also has a range of technology solutions, including Voyager and TGT eData that enable customers to optimize chart purchasing, management and updating.

Rio Tinto pulls out of Sena line

Rio Tinto's Benga Mine.

Rio Tinto has suspended the export of coal on the Sena Railway in Mozambique. According to Rachid Gogo, governor of Tete province, the decision was taken due to the instability in the region, brought about by the resurgence of former rebel movement Renamo National Resistance. Recent attacks on trucks have occurred, while a freight train was deliberately derailed on the Sena Line, which connects the mining areas of Tete to the port of Beira. The port is also used by the Brazilian multinational, Vale to export coal.

Despite this, production at Rio Tinto's Benga mine, near the town of Tete, continues, although the company is contemplating the sale of all or part of its operations there.

Barry Cross

Reliable hatch covers for tough conditions

After over 40 years in the ships equipment trade, TTS Group has successfully engineered a series of hatch cover arrangements to meet all requirements for weatherdeck and tweendeck use. Several standard systems have been developed and patented, from simple pontoon to various hydraulically operated types.

Designed and marketed by TTS Marine GmbH in Bremen (former Kvaerner Ships Equipment) together with its joint venture partner TTS Hua Hai in Shanghai, TTS enjoys a 54% market share in China for its hatch cover product range. Following a cost improvement initiative, TTS now aims at increasing its market share in the rest of the world. The number of orders in this segment are increasing.

Folding and side rolling hatch covers

Among the wide range of hatch covers, the TTS side rolling hatch cover ensures that the requirements of owners and regulatory authorities in respect of the manoeuvring, cleating and tightening of the hatch cover panels are met in full. The company's product development continually reduces manufacturing time while ensuring a low weight of cover and maintaining strength requirements. TTS side rolling hatch covers are of a reliable, but cost-effective construction and are designed to fulfill the UR S21 rules from the International Association of Classification Societies (IACS).

TTS also is the inventor of the first-ever folding hatch cover operated by externally located hydraulic cylinders and crocodile arms. This innovative design, known as the multifold crocodile hatch cover, is still the ideal solution for today's multipurpose/container vessels and coasters which have long hatches and a short stowing space for the hatch cover panels. This external operated system still offers the most advantages regarding safety and opening/closing times.

TTS Marine GmbH in Bremen also offers anchor/mooring winches and mega yacht equipment as well as service and aftersales.

Global Operations

Bergen-headquartered TTS is a global enterprise that designs, develops and supplies equipment for the marine and offshore industries. TTS is one of the top three largest suppliers in its specialized market segments. With a worldwide workforce of around 1100, TTS has over 40 years of experience in the marine industry. The group has subsidiaries in Norway, Sweden, Finland, Germany, Poland, Italy, Czech Republic, Greece, USA, China, Korea, Vietnam and Singapore.

The group's activities primarily involve design, assembly and testing of equipment while, apart from manufacture of certain key components, production is undertaken by a global network of subcontractors. TTS also has a worldwide network of branch offices, service stations and agents and provides after sales service covering major shipping regions in the world.

London International Shipping Week launched

London's crucial central role in the global shipping industry was highlighted when members of the international maritime community and representatives of the UK Government gathered to officially launch the first ever London International Shipping Week (LISW).

Norman Baker MP, Parliamentary Under Secretary of State for Transport, spoke of the important role maritime business plays in both the UK and global economy as he addressed more than 100 guests gathered at the London offices of Norton Rose Fulbright, overlooking the Thames at sunset. "The maritime sector currently contributes up to £14 billion to the UK economy," he told guests, who represented all sectors of the UK's maritime community including regulators, banking, broking, insurance, legal and shipping associations. He also pointed out that employment in the UK shipping industry has continued to grow despite the recession and has increased by 100% since 2004.

Pledging that the UK's Coalition Government "is keen to foster a closer and more co-ordinated partnership with both shipping and the wider maritime industry," Baker revealed that it has established a maritime strategic partnership to bring together key Government departments and industry champions to focus on maximizing growth and opportunities while maintaining a stable fiscal and regulatory environment. "The contribution of the maritime industry to the life and economy of the UK is fully appreciated at the highest levels of government," he said.

The Minister also revealed that the UK's ratification of the Maritime Labour Convention is expected to be formalized by the International Labour Organization in early August.

Speaking afterwards the Minister said: "I was delighted to join industry colleagues at the launch for London International Shipping Week. This week will showcase the great opportunities the UK has to offer the maritime business world and strengthen even further London's prominent global position and reputation. It's an opportunity not to be missed."

Government will host a Welcome Reception at Lancaster House at the start of London International Shipping Week which runs from 9–13 September. More than 80 international organizations have already pledged their support for this influential event and almost 50 meetings, seminars and social occasions are already scheduled.

Betuweroute extension agreed

At the end of July, the Government of the Federal Republic of Germany, that of North Rhine-Westphalia and Deutsche Bahn signed a financial agreement for the construction of a third rail line between Emmerich and Oberhausen. This is an important milestone in the extension of the Betuweroute in Germany. It will solve a bottleneck for freight trains on the route between Rotterdam and Duisburg.

The Port of Rotterdam Authority CEO Hans Smits is both very happy and relieved. "It was no mean feat. Three years ago, the third rail line was pretty low on the German list of priorities. Thanks to good, well-planned lobbying, with the Dutch government and port businesses, the tide gradually turned. A vital element here was the support from companies in North Rhine–Westphalia and, more particularly, the government of North Rhine–Westphalia. It changed from a 'project for the port of Rotterdam' to one about the export power of the hinterland. The construction of the third rail line will also mean building dozens of tunnels and bridges, which are very important in limiting the nuisance caused to local residents."

Things will not be easy for users and local residents, however, during the forthcoming construction phase. To guarantee sufficient capacity for freight traffic during this period, it is important that the Kaldenkirchen-Duelken stretch of the diversion is tackled quickly. The government of North Rhine-Westphalia is paying due attention to this. According to the current schedule, the third rail line should be completed in 2022.

Keeping shipping safe

Recent EU legislation – are you ready?

In October last year, a new European Directive came into effect that required fleet owners to supply proof of certification for all new marine equipment installed — to include whole system approval. Stephen Ratcliffe, marketing manager of marine systems specialist PSM, considers the implications for ship owners and equipment suppliers in respect of vessel water ingress detection and alarm systems.

Left undetected, water formation can quickly develop into a major hazard for bulk carriers. Created in the aftermath of the *Titanic* disaster almost 100 years ago, the Safety of Life at Sea (SOLAS) Treaty laid down the foundations of safety procedures for marine vessels which remain in force today. The subsequent growth of the cargo industry has seen additional amendments to the treaty in response to the ship losses and fatalities arising from undetected water ingress in cargo holds.

Today all bulk carriers are required to be fitted with water ingress detection and alarm (WIAS) systems. Harnessing the latest technology, systems like PSM's BulkSafe use self-checking active sensors to remotely monitor cargo holds, triggering an alarm if water is detected, thus enabling early avoiding action to be taken. The installation of such systems has helped to significantly reduce vessel losses and improve marine safety.

The earliest WIAS detection systems were by and large poorly conceived, based on an unrealistic assessment of in-service demands, leading to performance issues and even system failure. Whilst modern systems such as those developed by PSM are based on robust and proven technology which delivers greatly improved reliability, such incidents have been a key driver in the introduction of new EC regulations, aimed at ensuring minimum performance standards for marine equipment.

First introduced as a European Council Directive in December 1996, The Marine Equipment Directive (MED) 96/98/EC covers equipment carried and used on ships registered under the flags of European Union member states. The purposes of the MED are twofold. First, to harmonize approval requirements to keep costs down for end users and to ensure the free movement of equipment within EU and EFTA states. Second, to enhance safety at sea and prevent marine pollution by ensuring equipment not only meets the requirements of international conventions such as SOLAS and MARPOL set out with the IMO but additionally conforms to a common agreed European standard of safety and performance.

Affecting those who manufacture, purchase or supply listed equipment, the directive covers any article that could be used on board a vessel, in particular: life saving appliances, marine pollution prevention, fire protection, navigation and telecommunications equipment. Included in the list are water level detectors, with water ingress detection systems falling into this category.

A number of amendments to the international conventions and applicable testing standards have entered into force since the adoption of the original directive. Towards the end of last

year, a new European Directive 2011/75/EU came into effect that contains provisions governing certain categories of marine equipment, among them water level detectors.

According to the terms of the new Directive category 8 SOLAS Chapter 11–1 Construction — structure, subdivision and stability, machinery and electrical installations, water level detectors have been re-classified from Annex A2 to Annex A1/8.1. More specifically, from October 2012 when the Directive came into force, water level detectors — which includes water ingress detection systems — required MED approval for the overall system.

While existing systems are unaffected, fleet owners installing new water detection systems are now required to ensure they are fully tested and certified

or risk being in contravention of maritime law. The consequences of failure range from port exclusion to fines and imprisonment if non-compliance is found to be a contributory factor in the event of an accident.

While it is the responsibility of shipping companies to ensure their fleets are equipped with the best safety systems available, manufacturers are also being called upon to play their part by acting now to ensure the necessary testing and approval of their systems is in place.

As major supplier and industry innovator, PSM has already gained approval for its advanced BulkSafe system with Lloyds Register (one of the world leaders in assessing marine business processes and products to internationally recognized standards).

It is expected that the new burden of legislation will result in a further shake-up of the market, with smaller suppliers struggling to support the financial and technical pressures imposed by these new, more stringent standards, with some forced to exit the industry altogether — resulting in a new generation of legacy problems.

For PSM, the new legislation underlines the importance of offering a global customer base the longevity and security required to guarantee the support of installed products over many years of use. Equally, as major suppliers, PSM regards it as vital to demonstrate support and safeguard industry standards in the future through ongoing commitment to design, innovation and safety improvement.

Liquefaction of iron ore is a major risk: Left undetected, the presence of liquid may lead to disastrous consequences.

ClassNK: doing its bit to keep seafarers and their vessels safe

Major ship classification society ClassNK offers a broad range of services that encompass every aspect of ship classification — from the approval of vessel and machinery plans to the survey and registration of the ship and ship installations, approval of materials, equipment and outfitting gear, as well as the assessment and registration of ship safety management systems and security systems.

ClassNK is dedicated to ensuring the safety of life and property at sea, and the prevention of pollution of the marine environment. It therefore focuses on delivering the highest quality classification services, by the highest quality personnel, while maintaining its totally independent third party, non-profit status.

It also focuses on the development of relevant rules, procedures and guidance, and maintains and develops its commitment to scientific and technological research and development.

It maintains and develops its global operations in line with the needs of clients using its services. ClassNK has earned an outstanding reputation for its long-standing dedication to safeguarding life and property at sea and preventing marine pollution through the establishment of universally recognized standards for the design, construction and maintenance of ships and other marine structures.

The principal work of the society's expert technical staff is to undertake surveys to ensure that the rules which it has developed are applied to new buildings and existing ships to ensure their safety. The rules cover not only hull structures, but also propulsion systems, electrics, electronic systems, safety equipment, cargo handling gear, and various other areas. ClassNK's surveyors work in shipbuilding and repair yards and at ports across the world, wherever they may be called upon to examine the condition of a ship.

The head office is located in Tokyo and in Chiba, Japan, and there are branch offices at the major Japanese and overseas cities throughout the world. As of the end of July 2013, the society had over 8,380 vessels and over 216 million gross tonnes under class. This figure represents approximately 20% of the world merchant fleet currently under class.

ClassNK knows that, as there are different types of cargoes that can be loaded on board bulk carriers, there are cases when vessel operations must be changed according to the properties of the cargoes. For example, major marine casualties have been reported in recent years, with many of these caused by the liquefaction of cargo during transport, especially where nickel ore has been carried.

The society believes that, in order to prevent such cases, the special requirements (stability, hull strength etc.) for specially constructed cargo ships depending on the properties of each cargo are necessary to safely carry them in any condition regardless of its operations such as moisture control ('specially constructed cargo ship' is defined in IMSBC Code 7.3.2.2).

Also, as part of its many safety measures, ClassNK has been publishing the *Guidelines for the Safe Carriage of Nickel Ore (Second Edition)* since February 2012. The *Guidelines* can be downloaded free of charge via the ClassNK website. Implementation of the best practices included in the Guidelines cost nothing, and ClassNK can provide certification of such implementation.

By developing new standards to ensure safe nickel ore transport, the *Guidelines* and their implementation will greatly benefit the dry bulk industry and greatly improve the safety of all vessels and crews transporting such cargoes.

Client base

In recent years, the needs of ClassNK's clients in the maritime industry have become greatly diversified. As such, ClassNK has made responding to these needs an important part of its mission.

As a society, ClassNK strives to satisfy the needs of its clients across the world through activities such as the provision of high-quality survey services, the expansion of its survey network, and the support it gives its clients for new international conventions. Through these efforts, it has earned a high reputation among its clients, which saw it become the first classification society in history to have over 200 million gross tonnes on register.

In regards to recent applications to its classification society, ClassNK continues to be chosen by many shipowners from Japan as well as throughout the rest of Asia, the Middle East, Europe and the Americas.

ClassNK helps develop ship maintenance systems

ClassNK carried out a joint research project to help develop two ship maintenance management systems as part of an integrated service to include certification for shipowners and ship management companies. The system is applicable to bulk carriers as well as tankers and container vessels.

1. Condition Monitoring System (CMAX-LCA)
This system collects and analyses sensor data from the on-board sensors in machinery such as diesel engines and other engine room machinery. The system is equipped with an automatic condition diagnostic function, and providing users with highly accurate preventative maintenance.

2. Maintenance Management System (CMAX-PMS)
This system can carry out maintenance management plans and maintenance log management for machinery. When linked with the data gathered from the Condition Monitoring System, this system can also allow users to extend periods in between scheduled machinery overhaul inspections.

Through these systems, ClassNK believes that it can realize even greater rationality in vessel maintenance management right up until classification surveys and also help reduce ship lifecycle costs.

Korean Register (KR): taking a technological approach

Established in 1960, the Korean Register of Shipping has been promoting safe ships and clean oceans by continually developing technology and human resources pertaining to shipping, shipbuilding and other industrial services.

KR became a member of the International Association of Classification Societies (IACS) in 1988, and in 1990 was listed in the Institute Classification Clause (ICC) of London Underwriters. With more than 2,918 ships totalling 63.5 million GRT in its registry, KR is currently authorized by 66 national administrations to carry out statutory services on their behalves.

With a network of 63 exclusive offices stations at major

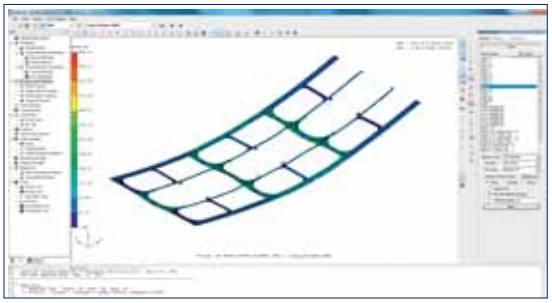
international ports around the globe, KR delivers top quality technical service anytime, anywhere around the world.

SeaTrust: safety at sea

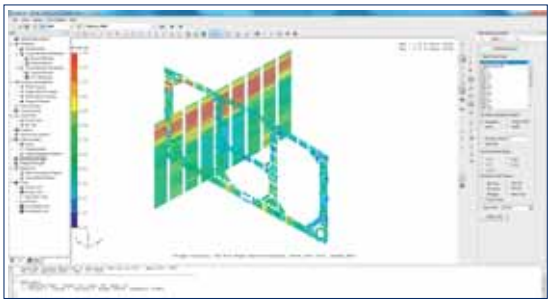
KR has developed a unique solution to assure maritime safety and maintain vessels called SeaTrust Technology. Since the early 1990s, it has continuously updated this software series to reflect state-of-art technologies, advances in IT and customer requirements.

SeaTrust consists of the following:

- **SeaTrust-CSR** (software for applying IACS Common Structural Rules);
- **SeaTrust-Holdan** (software package for structural strength analysis of vessels);
- **SeaTrust-SHALI** (software for calculating shaft alignment);
- **SeaTrust-SLM** (software for creating 3D product ship storing information relevant to all phases of a vessel's lifecycle);
- **SeaTrust-RuleScant** (software for ship structural design and strength assessment); and
- **SeaTrust-ISTAS** (software for integrated structural analysis).



The series covers rule scantling checks according to KR Rules and IACS CSR, structural safety assessment by direct methods, full spectral fatigue analysis, shaft alignment analysis and ship's life cycle management. It is applicable to all vessel types including tankers, bulk carriers, container ships, passenger ships naval vessels and offshore structures.



Client base

KR's clients are major international and domestic shipping companies as well as major shipyards. Bulk carriers account for almost half of its registered tonnage. Over 30% of its clients are non-Korean, and this percentage continues to grow. As KR is now expanding into non-traditional sectors, it fully expects new clients to come from renewable energies and wind generation.

Staying competitive by staying ahead of the game

KR has a specific strength in developing software and there are many KR programmes which enhance a vessel's reliability, such as propulsion shafting. These include: SeaTrust-SHALI; shaft alignment calculation programme; SeaTrust-Lateral, lateral vibration calculation programme for propulsion; and SeaTrust-AXIAL, Shaft Axial vibration calculation programme for propulsion. These high-quality programs adopt GUI (Graphical User Interface) and deliver a user friendly environment to help our customers reduce cost and resources.

Coupled with this, KR evaluates the reliability of DPS (Dynamic Positioning System) through its experiences of FMEA (Failer Mode Effect Analysis) sea trials and technology to provide the industry with high level technology services. It also offers technical support regarding the IEC standards necessary for international approval of SSPA (Solid State Power Amplifier) radar which is self-developed in Korea. KR anticipates that the SSPA radar market will expand due to its strength in size (miniaturized system), degree of precision and reduced maintenance cost compared with existing magnetron radars.

Developing green ship technology and engaging in environment related R&D activities is a core part of KR's ongoing strategy as well. The focus of our work is to reduce greenhouse gases and limit the impact that vessels, plant and machinery have on the natural environment.

KR has a team of experts working on a range of projects including analysis, economic feasibility and technical validity of a variety of green ship technologies. These include energy efficiency, GHG reduction, fuel alternatives, new hull form and renewables.

A comprehensive set of blue-prints have been developed to allow the application of these green ship technologies. These include leading the search for new vessel power sources including high energy efficient and eco-friendly fuel-cell technology.

In addition, KR operates a Green Ship Certification program to issue certificates to those shipping companies who need to meet the principal environmental requirements and conditions set by IMO. Further, it is in the process of establishing a Green Ship TCS (Testing, Certification and Standard) Center to assess, test, and certify green ship technologies applied to new buildings and existing ships. It expects these developments to lead to an accepted international standard.

KR also expects to see a sharp rise in the demand for development of offshore energy and, as a consequence, the demand for offshore plant will grow as well. It has continued to make investments in R&D and cultivate manpower to secure its competitiveness in the offshore plant market.

KR has conducted engineering services on offshore plants (Structure Integrity Analysis & Risk assessment) and is active registering and certifying services of offshore plants as well.

KR has also developed KR-CON, which is a database programme of IMO instruments, which has received excellent reviews from the shipping and shipbuilding industry as well as PSCOs of port authorities around the world. It successfully delivered to the European Maritime Safety Agency (EMSA), a RuleCheck programme which produces checklists for the port state control officers of Paris MOU region. A similar programme has been developed by KR and delivered to Mediterranean MOU authority for use by its port state control officers. Both systems are based on KR-CON technology and allow it to contribute to maritime safety and environmental protection by offering more advanced and standardized survey information to all PSCOs in both MOU regions.

Watching out for water: Martek Marine's detection systems

Martek Marine is a major supplier of marine systems, including: BNWAS; potable water testing kits; fixed gas detection; portable gas detectors; calibration/span gas; marine defibrillators; emissions monitoring; water ingress detection; hatch cover testing; and cargo tank monitoring. The company's water ingress systems are of particular interest to the dry bulk market, especially in the light of the recent spate of casualties due to water damage of cargoes such as nickel ore.

Martek Marine supplies a product called Bulksafe™, which is a water ingress detection system (WIDS) — a version for bulk carriers of all sizes and also a version for general cargo vessels with a single hold.

When the SOLAS regulations were being created, Martek Marine was a key stakeholder in the drafting of the performance standards with Lloyds Register particularly concerning the performance standard of testing before loading cargo of the WIDS system to ensure it works properly.

The company's detection systems works on float switch technology and as such are guaranteed to not cause false alarms. Some of Martek Marine's competitors use electrodes which are cheaper but are prone to giving false alarms due to the sweating of cargo and the subsequent moisture hitting the sensors.

Bulksafe™ — ship hold water ingress detection for bulker carriers

Bulksafe™ is a permanent ship's hold water ingress detection system (WIDS) for bulk carriers fully type approved in accordance with SOLAS XII Regulation 12, IACS UR S24, IMO performance standard for water level detectors & IACS UI SC180. The system comprises a central Bulksafe™ control and alarm panel interfacing with intrinsically safe MMS900 water level detectors installed in each compartment.

The unique design of MMS900 water level detectors allows them to be installed so that they are totally isolated from the cargo and protected from mechanical damage during cargo operations. They can be installed without the need for any structural alterations or piping work within the cargo holds.

Each MMS900 level switch is totally corrosion proof, protected against dust ingress and carries a lifetime warranty.

The Bulksafe™ control and alarm panel indicates the alarm status for each named compartment with discrete signals for 0.5m and 2m alarm levels. The system incorporates an optional function to provide a fully automatic '*in-situ*' functional test of all detectors, even whilst cargo is present in the holds. With integral safety barriers, the Bulksafe™ is the most compact system available on the market.

Bulksafe™ is type-approved, is very simple to install and is made in such a way that maintenance and testing are possible while carrying cargo. Martek Marine offers a lifetime sensor warranty.

Bulksafe™ — water level detection for general cargo vessels

Bulksafe™ is a fully type-approved water level detection system (WLDS) for single hold cargo vessels in accordance with the new SOLAS Chapter II-1 Part B Regulation 23-3.

The system comprises a central Bulksafe™ control and alarm panel interfacing with intrinsically safe MMS900 water level detectors.

The unique design of the MMS900 water level detectors allows them to be installed so that they are totally isolated from the cargo and protected from mechanical damage during cargo operations. They can be installed without the need for any structural alterations or piping work within the cargo holds.

Each MMS900 level switch is totally corrosion proof, protected against dust ingress and carries a lifetime warranty.

The system requires no recalibration.

While regulations stipulate that bulk carriers must have WIDS fitted, there is no doubt that some ships still have poor quality, old systems that are not up to scratch — and some have been turned off. When the regulations first came in for WIDS on bulk carriers the market was huge. However, now the regulations have passed, all existing vessels in theory should have WIDS fitted. Now the majority of Martek Marine's Bulksafe™ customers tend to be new builds with the majority coming from yards in China. Martek Marine does sometimes get enquiries for retrofits, so in general it replaces old systems with its own systems.

Recent orders won by Martek Marine include three units to an engineering group in Singapore, two units for a Chinese shipyard and a retrofit for a general cargo vessel for a Norwegian company.

Components/spares for Bulksafe™

❖ **MMS900 Level Switch:** the MMS900 is the intrinsically safe water level detector for use with the Bulksafe water ingress detection system. MMS900 switches are constructed from stable polymer, which is corrosion

resistant for all bulk cargoes and protected against dust ingress. The MMS900 switch is offered with a lifetime warranty against failure due to corrosion. Included with each MMS900 level switch as standard, is 30m of marine-approved cable for termination to deck/duct keel. The cable is fully bonded to the switch during manufacturing providing a totally immersion proof IP68 protected device even for 25m high ballast tanks. Sensors relying on sealing of cable terminations during installation, cannot guarantee this protection, and will be prone to failure in service giving you potentially disastrous false alarms.

- **Level Switch Filters**: these heavy duty filters are available in packs of 24 and fit into the MMS900 water level detectors for the Bulksafe™ water ingress detection system to stop cargo debris from clogging up the water level detector and preventing it from working. The filters are made from stable polymer making them corrosion resistant for all bulk cargoes. In addition, the back flushing allowed by the MMS900 water level detectors offers optimum service life.
- **MM89 Safety Barriers:** the MM89 is a safety barrier for use with the Bulksafe water ingress detection system. The safety barrier assures that, even if the system suffers a multiple failure, the energy transferred to the sensing cable will remain below explosive ignition levels, thus reducing the risk of fire or explosion if the sensors are housed in a hazardous area.

Other than WIDS, Martek Marine has two other products for the safe operation of bulk carriers — cargo hold hatch cover tightness testing and gas detection (portable and fixed).

Hatchtite – hatch cover testing

Hatchtite™ is a lightweight, portable and robust instrument for accurate and reliable cargo hatch cover testing for water tightness on bulk carriers. This ultrasonic device gives a number of advantages over traditional methods of hatch cover testing and is ideal for use by either ship's crew or surveyors.

- **prevent cargo damage:** by using Hatchtite™ to ensure your hatch covers are watertight, it is possible to prevent cargo damage and also avoid failing inspection by the Insurance and Charterers' surveyor;
- **early detection reduces cost:** by detecting any leaks or areas that lack the necessary compression at an early stage the cost of repairs can often be reduced. Also finding any potential problems early can help avoid damage to cargo that can prove costly both to the operator's finances and its company's reputation;
- **identify exact location of cargo hatch leaks:** unlike hose and chalk tests, Hatchtite™ makes it possible to identify the exact location of the leak — saving time. Another advantage over the hose test, which only demonstrates whether or not there is contact between the rubber packing and compression bar, Hatchtite™ indicates when the required compression to prevent water getting in to the hold space has been achieved, meaning it is possible to identify any leaks very early and thus reduce repair costs;
- **single crew member operation:** the simplified testing procedure of Hatchtite™ removes the need for a crew member to be inside the cargo hold during the test which means that the testing can be carried out by a single member of crew;
- **test your hatches even when carrying cargo:** Hatchtite™ uses a transmitter placed inside the cargo hold emitting ultrasound waves. With the hatch covers closed, a hand held telescopic microphone is used at the hatch cover interfaces. The unit can even be used with partially or fully filled cargo holds meaning testing can be carried out at any time without interrupting the ship's operations.

The system is Type Approved by ABS, fully compliant with IACS Unified Requirement U.R.Z17 and approved by insurers and P & I clubs.

Gas detection

There are stringent regulations in place in terms of gas detection requirements on board bulk carriers, particularly concerning the safe transportation of coal.

Vessels shipping coal should at all times carry on board instruments for measuring methane, oxygen and carbon monoxide gas concentrations, so that the atmosphere within the cargo space can be monitored. The instrument should be regularly serviced and calibrated so that it can provide the crewmembers with reliable data about the atmosphere within the cargo space. Care needs to be exercised in interpreting methane measurements carried out in the low oxygen concentrations often found in unventilated cargo holds.

There are four categories of coal:

- **coal slurry:** this is a mixture of solid coal containing water and is obtained as a by-product during mining. The coal particle size is usually less than 1mm. It is regarded as a cargo that may liquefy due to its high moisture content.
- **coal duff:** this is a mixture of coal and water with the largest coal particles around 7mm. Less liable to liquefaction than coal slurry, but does require its moisture content to be monitored.
- **coke:** solid residues obtained by distillation of petroleum products, or half burnt coal with less gas content but with a tendency to absorb moisture at up to 20% by weight;
- **small coal:** contains particles of coal less than 7mm in size; small coal is likely to develop a flow state due to its high moisture content.

According to IMO classification, coal is considered MHB (materials hazardous in bulk). Three characteristics of coal need to be considered:

- **methane emission:** most coals emit methane, which is highly explosive if a gas concentration of 516% is present in atmosphere. A naked flame or spark is sufficient to ignite it. Methane is lighter than air and so it flows towards the top empty part of the cargo compartment and may even travel to adjacent compartments, including a hatch top. Coals that emit methane should be monitored carefully and, if the methane level becomes unacceptable, surface ventilation should be carried out as recommended by the IMSBC Code.
- **spontaneous combustion:** some coals are liable to spontaneous combustion due to the presence of moisture that causes exothermic oxidation (a reaction that results in production of heat) of coal at ambient temperature. If this heat is not dissipated, the temperature rises and the coal may ignite.
- **corrosion:** some types of coal react with water to produce acids that can cause excessive corrosion of the ship's structure, known as 'cargo corrosion'. As a result of the chemical reaction during the process of forming acid and then corrosion, colourless and odourless gases such as hydrogen are produced.

ProvPort expands operations

ProvPort, which operates the Port of Providence — one of the busiest ports in America's northeast — has expanded capabilities including the addition and operation of two Liebherr 550 mobile harbour cranes.

The cranes that arrived in June began operation immediately after being certified.

"The new Liebherr 550s replace two 30+-year-old cranes. The lift capacity, the efficiency and the speed in which we can load exports and unload imports puts ProvPort in a leadership position," said Chris Waterson, general manager of Waterson Terminal Services, ProvPort's Management Company.

The two state-of-the-art mobile harbour cranes were purchased through a public-private partnership leveraging a $10.5 million federal TIGER II grant. The remainder of the $21 million project is funded through ProvPort.

The first ship serviced by the new cranes, the *North Prince* was unloaded twice as quickly as would have been normally completed. The ship, carrying 25,000 tonnes of aluminium oxide and aluminium oxide 'dregs' was unloaded in record time for ProvPort.

The material was delivered to Washington Mills in Grafton, MA. Also, portions of the material were railed to Niagara Canada. It's an abrasive used as grit for sandpaper and grinding wheels. The material was imported from China.

"The expansion of ProvPort's operation coupled with the facility being one of only two deep-water ports in New England, gives us a competitive advantage," said Bill Brody, General Counsel and Secretary of the Board of Directors.

ProvPort is a critical economic engine for New England. ProvPort generates an estimated $200 million total economic impact on the region.

The port is host to more than a dozen of America's most respected-companies.

Combined, the activities at ProvPort provide more than $60 million in direct business revenues and $16 million in revenue to local and state government.

"For the past decade ProvPort has been growing at a fever pace. The addition of the cranes and the other enhancements to the ProvPort campus position us a leader in bulk, wind, and container operations," said Waterson.

Essar Ports to build iron ore berths at Vizag

Essar Ports has emerged as the highest bidder for the mechanization and operation of three iron ore berths at the port of Visakhapatnam. Two of these will be in the outer harbour and one in the inner harbour and will be operated for a period of 30 years. Among them, the three berths can handle 23mt (million tonnes) per annum.

Once commissioned, Essar ports will have a combined 39mt per annum capacity on the Indian East coast, since it operates a similar berth at Paradip Port.

Two of the new berths — those in the outer harbour — are expected to commence operation in the next three to four months. These will be able to accommodate bulk carriers of 200,000dwt leaving the inner harbour berth to handle Panamax vessels of up to 80,000dwt.

In the last financial year, Visakhapatnam posted figures of 12.3mt of iron ore, despite there being a downturn in overall exports of this commodity out of India.

Barry Cross

European Bulk Services Rotterdam

European Bulk Services (E.B.S.)B.V.

Elbeweg 117 ▸ Europoort Rotterdam ▸ Port no. 5820 ▸ P.O. Box 1204 ▸ 3180 AE ▸ Rozenburg ▸ The Netherlands

T +31(0)181-258121 ▸ F +31(0)181-258154 ▸ E sales@ebsbulk.nl ▸ W www.ebsbulk.nl

Major biomass development wins approval

The UK's Port of Blyth has taken a large step towards securing a major development with the news that leading British renewable energy company RES has received planning permission for the construction of a £250 million+ biomass power station. The 100MW scheme will produce enough low carbon electricity to power over 170,000 homes and receive up to 0.5 million tonnes of sustainably sourced wood based fuel through the port's Battleship Wharf terminal.

RES Project Manager Chris Lawson stated, "We are delighted by the government's decision to grant permission for North Blyth Power Station, which we believe will play an important part in the strong and growing renewable energy industry in South East Northumberland."

Port Chief Executive, Martin Lawlor added, "This is excellent news and re-affirms our position as one of the most prominent renewable energy related ports in the UK. Given our excellent facilities, experience and location we believe others will follow to join the significant cluster of organizations within the sector already established around the estuary."

It is anticipated that work on the two-and-a-half year build will commence on site in early 2014 creating hundreds of jobs during the construction phase and having a long term positive impact on the port and wider regional economy.

EMO – 40 years fully equipped to meet your expectations

Please visit emo.nl to monitor our progress.

LOOK TO THE FUTURE AND PLAN AHEAD

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

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

EMO

energising your business

The seaports of Terneuzen and Vlissingen provide an ideal gateway between northern Europe and the rest of the world. They guarantee a rapid flow of goods thanks to their easy accessibility, deepwater location and excellent facilities. The two modern ports are strategically located between Rotterdam and Antwerp, at the mouth of the Western Scheldt. Together with a first-rate network of congestion-free roads, railways and waterways, this ensures fast and effective transport links with the hinterland. The key advantages of Terneuzen and Vlissingen are customer-friendliness, tailormade solutions and ample opportunities for logistics and industrial activity. And the Zeeland Seaports Authority is there to see that these important benefits are carefully maintained and safeguarded for all our customers.

driven by dedication

zeeland seaports

schelpenpad 2 o p.o. box 132 o 4530 AC terneuzen o the netherlands
port@zeelandseaports.com o www.zeelandseaports.com
p +31 (0)115 647400 o f +31 (0)115 647500

PORT OF KOKKOLA
The Main Dry Bulk Port in Finland

Ideal location with 13 m draft

The Port of Kokkola is ideally located, with rail and road connections to every part of Finland and to Russia. We are Finlands largest transit port delivering goods to and from Russia.

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

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





PORT OF KOKKOLA, FINLAND

www.portofkokkola.fi

New bulk terminal for Richards Bay?

Richards Bay Coal Terminal (RBCT) and Transnet have failed to reach an agreement that would permit more access for black-owned coal mining companies wishing to use the export facility. Transnet is now contemplating the construction of a separate coal export terminal at the port.

Nevertheless, there are serious doubts as to whether this would be feasible, given that RBCT is currently operating at just 75% of engineered capacity, because Transnet lacks the capability of delivering enough coal. The highly public pronouncement is thereby being seen as a way of pressuring RBCT into making more concessions to smaller black coal exporters.

To date, Transnet CEO, Brian Molefe, has been unable to provide any details on the exact size or cost of the new terminal, which he claims is still at the planning stage, with engineering studies due to be completed by the middle of 2014.

At present, RBCT can handle 91mt (million tonnes) of coal annually, but last year handled just 68.3mt last year. The Transnet rail line into the terminal can carry up to 71mt, with a $3.24 billion investment programme aiming to raise this to 97.5mt.

The impasse is blamed on existing major users of RBCT, who have already surrendered capacity at the terminal to smaller mining companies, but are declining to go any further. Nevertheless, alternative outlets are being sought, hence the new Richards' Bay initiative. *BC*

Walvis Bay to handle Botswana coal

The Namibian Port of Walvis Bay is being made ready to assume a new role as a main export facility for outbound consignments of coal from neighbouring Botswana. It has been agreed in principal to build a dedicated railway line linking the two countries, while Namibia Ports Authority (Namport) is to upgrade the port.

According to Namport CEO, Bisey Uirab, coal deposits in Botswana are huge, prompting the government of that country to consider various options on how to best export it, with Walvis Bay extremely well placed.

Botswana's Morupule coal deposit is one of the largest in the world and could generate annual output in excess of 100 million tonnes. Botswana already operates a dry port at Walvis Bay. *BC*

Odebrecht buys into Suape sugar terminal

Odebrecht's logistics arm is rumoured to be buying a stake in the sugar terminal of the Port of Suape, situated in Brazil's north-eastern state of Pernambuco. The concession for the terminal, whose construction is due to start in September, is held by Agrovia, which has the British company ED&F Man and various investment funds as current shareholders.

The original concession contract was signed in April 2012 and commits Agrovia to investing at least $50 million in the realization of the terminal, which will have storage for 160,000 tonnes of sugar in dedicated facilities. Around $20 million of the total investment is set aside for infrastructure works and $30 million for equipment. The facilities, which will be located to the rear of Quay 5, will be accessed via a 325 metre long berth and total operating area will amount to 72,000m^2.

According to the Pernambuco state government, demand in 2015 should reach 540,00 tonnes, with the new terminal absorbing much of the 2014/15 sugar harvest. *BC*

Tefer finally opens

In July, the Public Fertilizer Terminal (Tefer) at the Brazilian Port of Paranaguá finally commenced operations. Despite having been built in 2008 and inaugurated a year later, it has never actually carried out any product handling because of certain 'irregularities'. However, the port authority, APPA, has now met all the requirements imposed on its by the IRS and has received its first cargo.

According to APPA, imported fertilizer at the port during the first six months accounted for almost half of Brazilian imports of this product. Indeed, in the first two quarters, ports in Paraná state handled nearly 5mt (million tonnes) of imported fertilizer, up 22% on the corresponding 2012 period. In the whole of Brazil, just over 10mt of fertilizer were imported in the period between January and June.

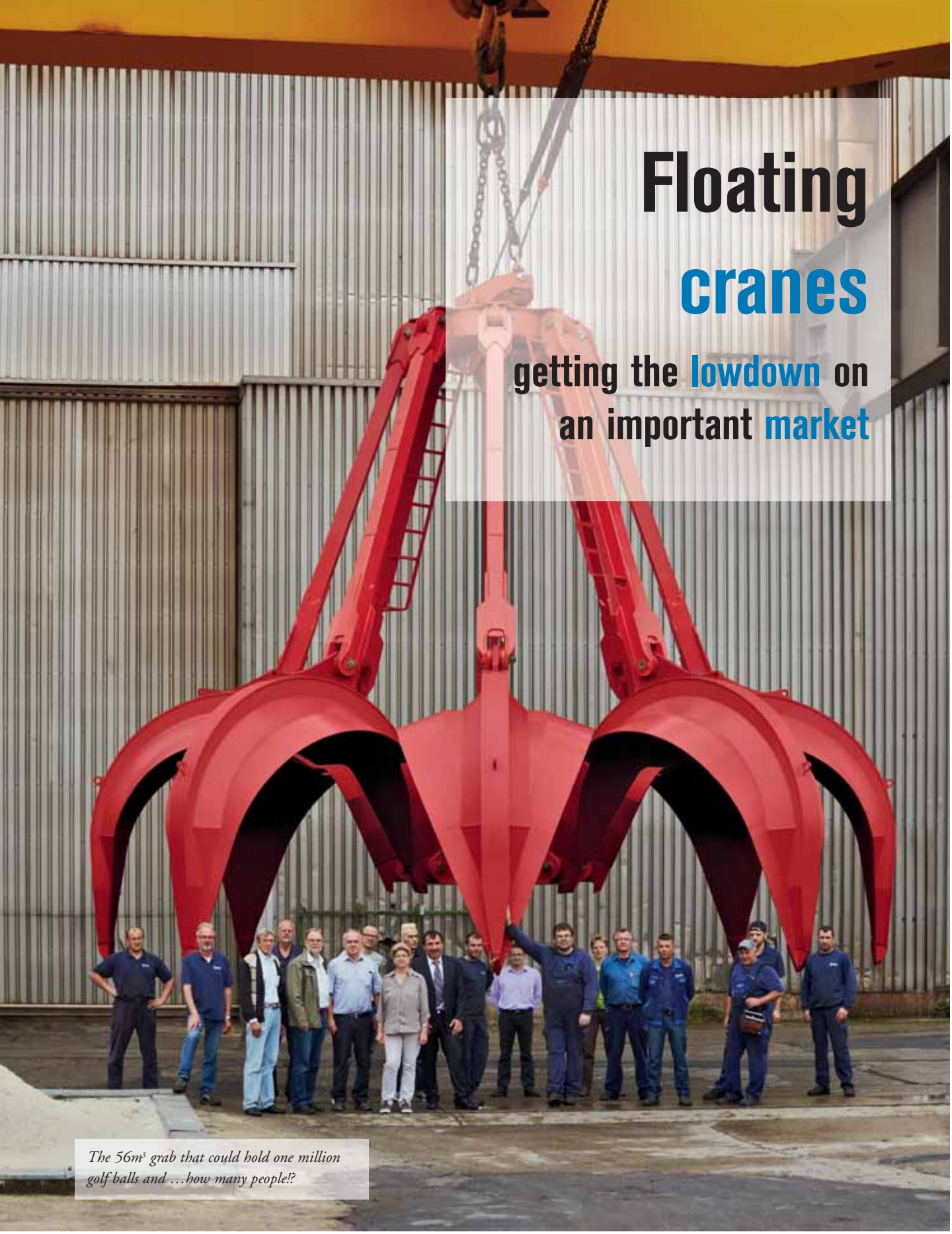
It has taken intensive work involving the environmental agency and federal revenue to make Tefer suitable for operation. The port is now planning a new holding area to organize the flow of trucks carrying consignments both inside and outside the port.

TST now operates the terminal, handling imported fertilizer on behalf of Fertipar. According to the company, the main difference between it and other terminals is in the speed in operation, since consignments can be loaded directly on to a conveyor, rather than having to be loaded onto trucks.

Tefer, which was inaugurated in March 2009, cost $5 million to build, with investment provided wholly by APPA. The silos can hold up to 32,000 tonnes of fertilizer and can be loaded by conveyor at 1,000 tonnes per hour. *BC*

Floating cranes

getting the lowdown on an important market



The 56m³ grab that could hold one million golf balls and …how many people!?

Grabbing attention: a customized approach for efficient supply chain solutions

After its work on the world's largest floating hub (*Ore Fabrica,* which was commissioned in 2012 for the transshipment of iron ore for Vale), Logmarin Advisors then contributed to the implementation and commissioning of something very special, in 2013. This time, the project involved the world's largest 'octopus' (orange peel) grab, which was manufactured in Germany by Peiner SMAG to handle woodchips in Indonesia.

The mega grab has a capacity of 56m³, roughly corresponding to one million golf balls!

The grab, mounted on a Liebherr crane with a lifting capacity







TRANSPORT EVENTS

www.transportevents.com

2ND BLACK SEA PORTS & SHIPPING 2013
Wednesday 11 and Thursday 12 September 2013
Supported by the Port Operators Association of Turkey (Turklim)
The Marmara Taksim Hotel, Istanbul, Turkey

8th Southern Asia Ports, Logistics and Shipping 2013 India
Wednesday 23 and Thursday 24 October 2013
Supported by Jawaharlal Nehru Port Trust
The Leela Kempinski Hotel Mumbai, India

11th Intermodal AFRICA SOUTH 2013
Thursday 21 and Friday 22 November 2013
Hosted by Transnet National Ports Authority
The Boardwalk Convention Centre, Port Elizabeth, South Africa

8TH INDIAN OCEAN PORTS & LOGISTICS 2014
Thursday 23 and Friday 24 January 2014
Hosted by Mauritius Ports Authority
Le Meridien Hotel, Mauritius

6th INTERMODAL ASIA 2014
Thursday 27 and Friday 28 February 2014
Supported by Port of Melbourne Corporation
Intercontinental Melbourne The Rialto, Australia

12th Intermodal AFRICA NORTH 2014
Thursday 27 and Friday 28 March 2014
Hosted by Nigerian Ports Authority
Lagos Oriental Hotel, Nigeria

2nd MED PORTS 2014
Wednesday 23 and Thursday 24 April 2014
Kenzi Farah Hotel, Marrakech, Morocco

10th TRANS Middle East DOHA 2014
Wednesday 21 and Thursday 22 May 2014
InterContinental Doha The City, Qatar

12th ASEAN PORTS & SHIPPING 2014
Wednesday 11 and Thursday 12 June 2014
Hosted by Indonesia Port Corporation I,II,III and IV
JW Marriott, Jakarta, Indonesia

3RD BLACK SEA PORTS & SHIPPING 2014
Wednesday 3 and Thursday 4 September 2014
The Marmara Taksim Hotel, Istanbul, Turkey

12th Intermodal AFRICA SOUTH 2014
Thursday 23 and Friday 24 October 2014
International Convention Centre Durban, South Africa

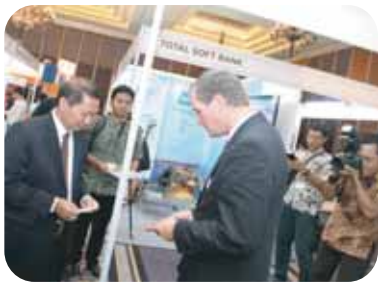
9th Southern Asia Ports, Logistics and Shipping 2014 India
Thursday 27 and Friday 28 November 2014
Supported by Chennai Port Trust
ITC Grand Chola Chennai, India

9TH INDIAN OCEAN PORTS & LOGISTICS 2015
Thursday 29 and Friday 30 January 2015
Hosted by Port Maputo
Maputo, Mozambique

13th Intermodal AFRICA NORTH 2015
Thursday 19 and Friday 20 March 2015
Lagos, Nigeria

13th ASEAN PORTS & SHIPPING 2015
Wednesday 10 and Thursday 11 June 2015
Hosted by Indonesia Port Corporation I,II,III and IV
JW Marriott, Jakarta, Indonesia

www.transportevents.com




Princesse Abby *in operation.*

of 45 tonnes, has been installed on board the floating crane *Green Global* which is carrying out transshipment operations handling eucalyptus and acacia woodchips in Indonesia.

Despite fierce competition in the transshipment market niche, four new floating terminals have been designed and commissioned during 2013, bringing the 'Logmarin fleet' to 19 units. In addition to these, two more units are currently being constructed: a *Ratu Giok*-type floating crane and a larger floating terminal with storage, weighting, sampling and blending facilities with a daily average throughput exceeding 55,000 tonnes, which will be delivered in July next year.

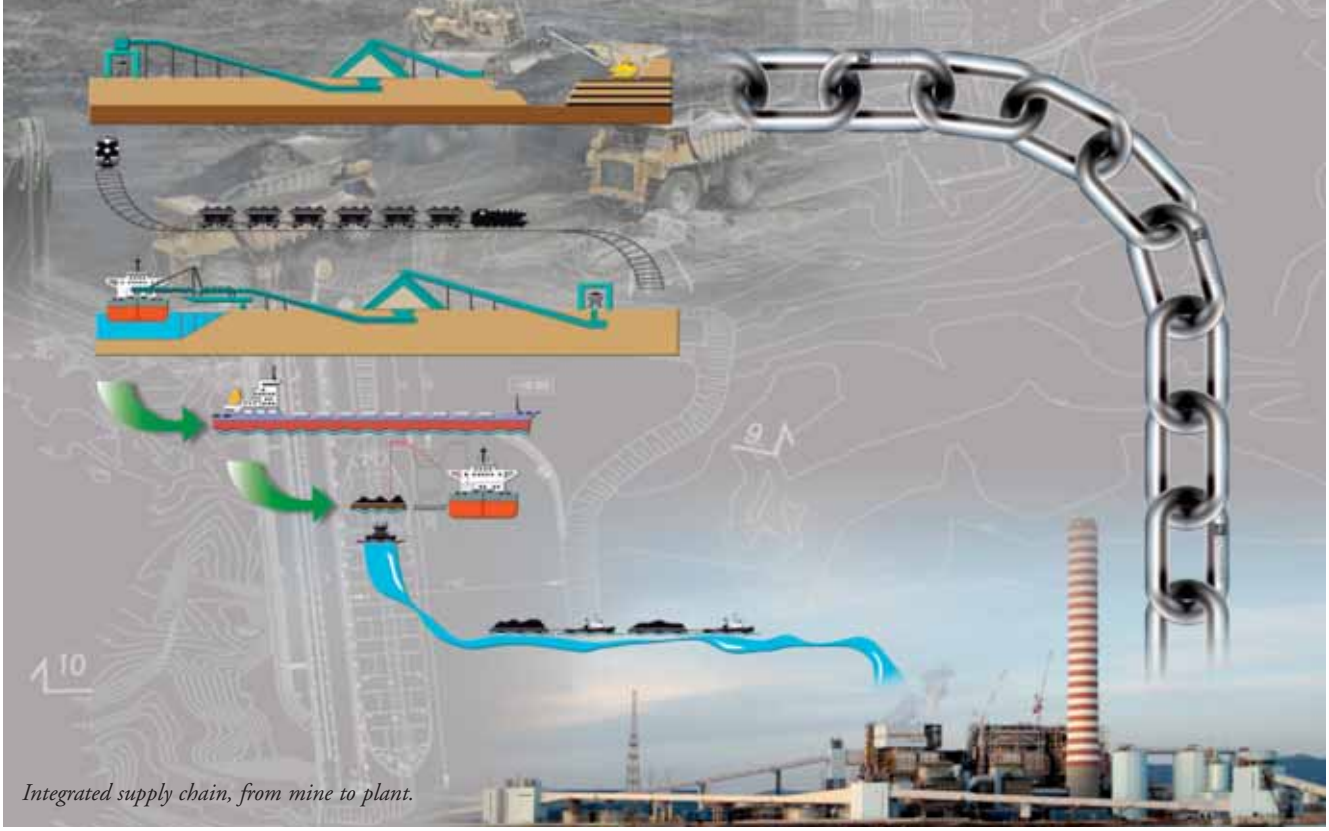
This demonstrates that a solid knowledge of the markets, of the material to be handled — combined with technical and operational expertise — provide added value at the design stage, thereby leading ultimately to enhanced efficiency and competitiveness for clients.

Client satisfaction and retention is also demonstrated by repeat orders. The feedback received from ongoing projects is carefully incorporated into future designs. After the positive results of the floating crane *Ratu Giok* (Queen of Giade) Logmarin is now about to deliver the fifth sister to Indonesian owner KSA. Such results are not achieved by chance.

There is no 'one-system-fits-all' solution in transshipment operations

The wide range of commodities that Logmarin deals with includes the stickiest iron ore and bauxite, dusty coal, scented woodchips, grains and rolling iron ore pellets.

Ore Fabrica's *twin sister,* Ore Sossego.



Integrated supply chain, from mine to plant.

The experience gained in more than 20 years of technical and operational activity has taught that the concept of 'one-solution-fits-all' decidedly does *not* work in supply chain design.

Every project has specific features, and it requires appropriate care/design to be properly carried out.

That's why Logmarin's strategic approach to every supply chain project is successful: first of all, the company gains a deep understanding of clients' requirements, and through continuous interaction and sharing experience with them it is able to offer tailored support.

The flexibility and customized solution is well represented in floating terminal market. Transshipment operations can be carried out by vessels with different features; some examples of Logmarin 'type solutions' follow:

- **floating cranes** *Princesse Abby* and *Nicholas* type, equipped with one or two grab cranes respectively. These are

essentially cranes mounted on pontoons being used for the direct transfer of coal from barges onto ocean going vessels by berthing them between barges and ocean going vessels;

- **floating terminal** *Princesse Chloe* type, equipped with two cranes working in conjunction with the covered conveyor system and optional buffer storage on deck (9–12,000 tonnes of dry bulk cargo). In these types of floating transfer stations, the rotation of the cranes is reduced by way of installing hoppers to receive coal, which is then transported to the oceangoing vessels by a series of conveyors and a shiploader. The deck space can also be utilized as a buffer storage where cargo can be stored in order to have continuous cargo loading operations even when barges are not available;
- **Panamax floating terminal** *Mara* type, equipped with four heavy duty side-mounted cranes and able to perform blending operations and segregate different cargo qualities thanks to the 65,000-tonne buffer storage. These types of system are used where the scale of operation is much bigger and a bigger storage is necessary. There are two shiploaders (Bedeschi) installed on this system so that the warping of the system alongside the ocean going vessels in greatly reduced;
- **floating hub** *Ore Fabrica* type, equipped with five heavy duty cranes and a travelling shiploader, and with 285,000 tonnes buffer storage available on deck. This system is used to transfer iron ore from the Valemaxes into shuttle vessels.

Shipyard: implementing another BLL solution.

Most of the floating terminals incorporate BLL (Bedeschi Liebherr and Logmarin) integrated solutions as shown on the front cover of this issue. Together Logmarin, Liebherr and Bedeschi have designed and implemented many innovative transshipment systems. They therefore decided to pool their efforts and form an alliance called Bulk Logistics Landmark (BLL). BLL is a strategic business alliance, profiting from the synergies of the three constituents. While continuing to do what each partner does, more efficiently, the pooling of skills and expertise of Bedeschi, Liebherr and Logmarin provides dependable, integrated, cost-effective software and hardware, and eco-friendly solutions in the dry bulk supply chain. BLL encompasses significant resources in terms of expertise, technology, network and expertise from its partners and associates, gained through years of experience.

In order to remain competitive in today's market, it is not only essential to focus on one's own line of business, but it is vital to rely on creativity and innovation, just as much as knowledge and experience, to ensure sound results suiting client's specific needs/requirements.

To support clients in the decision making process during the development of a new supply chain or the improvement of an existing one, Logmarin has customized commercial software into a dynamic Supply Chain Simulation Software (LOG.DES) to analyse the key resources (links) of the end-to-end supply chain.

Logmarin simulates the entire supply chain thanks to Log.Des; the software aims at evaluating water transportation systems, identifying optimal loading rates, analysing river/sea navigation and defining cargo handling features and main supply chain bottlenecks.

This simulation process helps in better understanding the inherent risks associated with the mine to industry process and makes it possible to recognize/identify the optimal tailor-made supply chain solution.

To offer its customers a larger variety of products and services Logmarin can provide, together with Liebherr and Bedeschi, progressive advice (software) and reliable products (hardware). In Indonesia alone, four BLL systems are in operation, viz. *Princesse Chloe, Vittoria, Mara* & *Zeus*. The fifth one is under implementation and will be delivered in July of next year. In addition to coal projects, BLL has implemented various floating solutions for iron ore too, viz. *Ore Sossego* and *Ore Fabrica* for discharging and *Shatixa* and *Chowpatlal* for loading .

By pooling the individual skills, strengths and expertise of its member companies, BLL is able to define not only effective floating terminal solutions but also reliable shore terminal facilities.

An example of an upgrade to a shore terminal is the Toros project in Turkey, for which BLL designed two new travelling cranes, hoppers and a conveyor system.

The terminal is capable of unloading coal, petcoke and fertilizers from post-Panamax vessels at a daily average rate exceeding 25,000 tonnes.

BLL provides a wide range of highly technical solutions: from a single product up to turnkey projects (including commissioning, crew training, after-sales support, etc).

More than ever, commodity supply chain design requires a complex and integrated multidisciplinary attitude: technical, financial, geological, operational, maritime, civil, logistics, environmental and fiscal backgrounds have to be led/coordinated by a 'logistics mind' in order to achieve efficiency, optimization and sustainability (see the front cover showing some of BLL's successful projects).

BLL says, "We believe by working with the above strategy many more achievements can be grabbed together."

New transshipment operations in Sierra Leone, thanks to LD Ports & Logistics

The FCTU Mirimar *arrived in Freetown on 25 May on-board* Transporter, *a heavy-lift vessel which carried her from her previous area of operations in Goa, India.*

LDPL (LD Ports & Logistics) was appointed by LMC (London Mining), a London-based mining company to perform iron ore transshipment operations off Freetown, Sierra Leone.

The company has mobilized its latest Floating Crane Transshipper Unit (FCTU) *Miramar*, designed and built by LDPL in 2011. LDPL is able to guarantee a net loading rate of 20,500 tonnes per day to its client LMC.

The FCTU arrived in Freetown on 25 May on-board *Transporter*, a heavy-lift vessel which carried her from her previous area of operations in Goa, India. According to LMC Managing Director, this FCTU, the latest addition to London Mining's fleet will provide a further improvement to the company's export logistics capacity, relying so far only on London Mining's *Pride of Marampa*, LMC's existing Floating Offshore Transshipment Platform.

The additional loading capability provided by the FCTU will be of particular benefit during the wet season, and will be instrumental in continuing to achieve targets.

Miramar was commissioned on 1 June 2013, a few days after her arrival on site. She was able to load her first large gearless ocean going vessel with a consistent rate of 20,400 metric tonnes per day. LMC Managing Director concluded: "This is another significant development for London Mining and our Marampa operations. The arrival of this FCTU will allow London Mining to achieve safely our annual export target of over five million dry metric tonnes of iron ore concentrate," he said.

LDPL Floating Crane Transshipment Units ('FCTU')

At the brink of the 1990s, Louis Dreyfus Armateurs realized that the economic development of certain countries in South East Asia and South America would largely depend on port infrastructures.

In order to avoid costly fixed investments, which would only be possible under strong economic growth conditions, LDA developed an innovative solution to allow massive exports of dry bulk commodities from these areas. Thus, in 1989 LDA acquired and operated for Adaro its first Floating Crane Transshipment Units. For more than 20 years LDA has been operating floating cranes, acquiring an essential know-how in transshipment. LD Ports & Logistics floating cranes are the result of this extensive experience gained over these years.

LDPL's FCTU are the result of a unique combination of all ingredients proven to be necessary to excel in the art of transshipment, blending simplicity and robustness. These features are essential to success in logistics operations conducted at sea and avoid maintenance operations, always extremely disadvantageous. By controlling the entire project processing, from building to operations, LDPL has managed to perfect a unique design of performing and reliable floating crane, while maintaining low costs.

DAMEN CRANE BARGE 6324

NEW DESIGN – TRANSSHIPMENT BARGE – AVAILABLE FROM STOCK

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

Why?

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

OMS Bromo, *a 13,000dwt Deck Cargo Ship designed by LDPL, will operate between Tanah Merah Coal Terminal and a coal-fired power station located on eastern Java.*

Self-propelled barges

A similar spirit of innovation was used by LDPL to develop self-propelled barges, which represent the future of barging. Such vessels allow significant cost savings through larger scale and increased fuel efficiency, as well as improvements in logistics operations, whilst retaining shallow draft characteristics.

LDPL has developed a unique and innovative self-propelled barge design, which, depending on its clients' operations, can be fully customized to the needs and entirely built and operated by LDPL.

LDPL's recently built self-propelled barges will carry 13,000t of coal between Kalimantan's Tanah Merah Coal Terminal and Paiton Energy. They cover the 450NM journey at an average speed in excess of 9 knots, and generate significant fuel efficiencies by burning heavy-fuel oil instead of diesel oil. They will provide LDPL's clients with better reliability for their supply chains, by removing the uncertainty of seaworthiness inherent to tugs and barges in challenging sea conditions.

Transshippers

Drawing from a wealth of experience in transshipment, using floating cranes, LDPL has developed a new design of Transshipper (Floating Transshipment Unit) to cater to the needs of exporters of large volumes of dry bulk cargo. This new generation of transshipper has been created to achieve unrivalled loading performance, whilst offering the simplicity and reliability of bulk loading system such as floating cranes.

Largest Damen Stan pontoon for McKeil-Malaspina

The largest pontoon ever stock-built by Damen was sold to the Canadian McKeil-Malaspina partnership and will be towed to Newfoundland on the East coast of Canada this summer. Upon arrival in Canada, the pontoon will be used to support offshore construction operations.

The Damen Stan pontoon 12032 measures 120m × 32.2m (400ft × 100ft) and has a deadweight capacity of approximately 20,000 tonnes (50,000 lbs) and a hold of 8.10 metres (27ft). The barge is equipped with a sophisticated ballast system, generating set, mooring winches and, with a deck load of 20t/m², this barge can be used for complex RoRo operations and/or for transport of large offshore constructions.

Earlier this year Damen shipped 16 newly built pontoons from her shipyards in China to Damen Shiprepair Rotterdam. Most of the stock-built pontoons are sold, leaving only two Stan Pontoons and a Damen Transshipment Barge (including Liebherr crane) for direct sale. Early 2014 a new shipment of Damen pontoons is scheduled to arrive in the Port of Rotterdam to ensure short delivery times.

Damen Shipyards Group

Damen Shipyards Group (est. 1927) operates more than 55 shipyards, repair yards and related companies worldwide. Damen employs 8,000 people in 35 countries, has delivered over 5,000 vessels since 1969 and delivers some 150 vessels annually to worldwide customers. Based on its unique, standardized ship-design concept and short delivery times, Damen is able to guarantee consistent quality.

Damen's focus on standardization, modular construction and keeping vessels in stock leads to short delivery times, low 'total cost of ownership', high resale value, proven technology and reliable performance. Damen offers a wide range of products, including: tugs, workboats, patrol vessels, high-speed craft, cargo vessels, dredgers, offshore support vessels, oil-spill response vessels, frigates and super yachts. For nearly all vessel types Damen offers a broad range of Services, such as lifecycle maintenance services, customer finance, training and transfer of (shipbuilding) knowledge.

In addition to ship design and shipbuilding, Damen Shiprepair & Conversion offers a network of 16 ship repair and conversion yards worldwide, most of which are conveniently located along the North Sea coast from Brest (France) to Gothenburg (Sweden). Damen Shiprepair & Conversion operates 40 dry docks of all types and sizes and offers onsite/onboard repair services. Conversion projects range from updating smaller or older vessels to today's requirements to the complete conversion or rebuilding of large jack-up rigs.

ETE Group

Portuguese company offering shipping, port operations & inland navigation

Serving ports from Portugal to Africa and South America

History

The ETE Group has been in operation since 1936, when it started as a stevedoring company in the Port of Lisbon, specializing in offshore and midstream operations. It was originally headed by Captain Luiz de Figueiredo, grandfather of the current shareholders.

Since then, the group has evolved and its reach now extends beyond Portugal. Its scope of activities includes shipping, ship repair, superintendence and crewing and logistics services. It has become an important partner on projects and is able to find tailor-made solutions for port equipment, boat, barges and ship construction. The same innovative spirit and ongoing search for new solutions to improve business conditions and service for its clients continues today. The ETE Group is currently a model company in the maritime and port sectors and related activities in Portugal, the major Portuguese-Speaking African countries and, more recently, in South American ports.

Values and philosophy

Expansion and internationalization

Geographic expansion of the ETE companies has been driven in line with a number of major guidelines:

- creating a single service allowing clear identification of the group's *modus operandi*;
- preserving its values and the specificities of the locations where the group operates;
- recovering instead of replacing; and
- always promoting local assets.

Operating in all Portuguese ports and in other countries means that the ETE Group is present where its clients need it, providing a global and integrated service with the effectiveness and the advantage of being able to provide, without depending from third parties, the right connection between shipping, port operations and forwarders.

Investing in the future

In times of great change it is important to look towards the future with the expertise, experience and the assurance of the work performed professionally by fully dedicated and trained people.

Quality and excellence are the key words for the success of ETE Group. As a complete, solid, experienced group it is ready to win the challenges in all the business areas and countries where it is present.

Quality and social responsibility

Social responsibility as a major issue is part of the group's business strategy. The ETE Group always works within the relevant good practices in all the countries and business areas where it operates, and searches for the solution that has the minimal environmental impact. It does all it can to prevent pollution, not only to safeguard the environment but also to ensure best practice in terms of health and safety in working conditions.

This adherence to the proper quality certification schemes gives the group's companies the market recognition.

Financial strength

The economic and financial strength of the group is crucial to preserve its identity. In the current economic climate, it is absolutely essential to invest in technology, human resources and, above all, in a group strategy, selectively directing investment towards operations and quality of service, financing cohesive growth in order to add value and win in the long run.

Today, ETE is a proud group of more than 40 companies with a turnover in excess of €200 million organized in five different areas, port operations and concessions, inland waterways, shipping, logistics and engineering.

PORT OPERATIONS AND CONCESSIONS

Port operations have been key to building the ETE Group's prestigious reputation. This activity has experienced a constant growth, sustained by a strategic business vision that has helped consolidate the position the group holds today as a major Portuguese port operator. Companies from the ETE Group currently operate in all the major ports in the country, managing and participating in eight port concessions as well a terminal in the port of Maputo in Mozambique.

Co-ordination among the companies of the group in managing port terminal concessions allows a more profitable usage of structures and, most important, offers customers a broader service with significantly more competitive prices.

Operating 365 days a year under all types of adverse conditions, without compromising safety and the environment, maintaining high levels of productivity, meeting deadlines and guaranteeing less docking time for ships; these are only some of the reasons for the success experienced in this business sector.

Among others, the group manages TCGL, the terminal for bulk and breakbulk cargoes at the Port of Leixões, moving over 3mt (million tonnes) per year.

In the Port of Lisbon, the company manages and operates three different terminals — bulk, multipurpose and containers.

The coal and multipurpose terminals of Sines, in Portugal, are also managed and operated by the ETE Group, with a yearly cargo volume reaching 6mt. This terminal, with a parking area of 36ha, is equipped with gantry cranes, stacker reclaimers, conveyor belts and a rail packing station. The terminal can provide both unloading and loading of vessels, in two different piers.

Mozambique

The group's presence in this East African country goes back to 1996, when it operated a local coastal shipping service. Today, the ETE Group operates TCM, a cargo terminal in the Port of Maputo and with a strong emphasis on logistic services from Europe, Asia or between the Mozambican and regional ports.

Colombia

In Colombia, at Sta. Marta Bay, ETE runs a port operation loading coal at anchor from barges into Panamax and Capesize vessels by means of a floating crane. Based in Barranquilla, its local company ETE Colombia runs a river operation with tugs and barges and is part of the development of Rio Magdalena given support services to the local industries and construction sites.

Further developments have been achieved namely on forwarding and logistic services by means of a strategic alliance with an important local partner and ETE Group is becoming a major presence in the Caribbean area.

Uruguay

ETE is part of a local company TRANSFLUVIAL, in partnership with the Uruguayan Schandy, operating a fleet of barges and pushers with a major focus on the transportation of wood logs and developing port operations and support services.

Inland waterways

As part of port operations, inland navigation has been used as a complement to loading or unloading of vessels particularly on bulk cargoes. The group has more than seven decades of experience on this type of operation, which offers added value to different clients and needs.

The fleet is also used to support various port and river activities, such as the provision of services to infrastructure construction and maintenance or the supply of vessel repairs, special needs or heavy equipment delivery.

The expertise and equipment available means ETE can provide different solutions to clients in other ports and countries, thus contributing to the expansion and internationalization of the business.

Inland and river navigation expertise has been recognized as an important asset of the group, which has been participating in different projects in various parts of the world as a consultant and as an operator.

Shipping and maritime transportation

One of ETE Group's main priorities has been to reinforce the concept in order to broaden the scope of its action in all areas of maritime transportation, operating its own fleet as well as chartered vessels.

The group's ship-owners are currently the most important players in terms of cargo shipments between the mainland and the Portuguese islands of Madeira and Azores, different African ports and with services to the north of Europe and the Mediterranean Sea. They are thus in a privileged position to guarantee a wide range of integrated services and intermodal connections.

The group's shipping operators guarantee a range of services dedicated to the cement industry executed by its own fleet of self-unloading vessels specialized in transporting cement in bulk.

The handling of solid bulk cargo is also an important skill of the group's ship-owners, who have developed round-the-world operations.

The company has been operating tankers between the Azores ports under contract for the operation and distribution of bunkers and refined products.

Shipping agents

Providing customers with the capability to move cargo from all ports on the Portuguese mainland and its island regions to any destination in the world using its own shipping agent network is the group's main mission.

Representing liner companies with calls at domestic ports and ship agency services for the respective ships, allows the ETE network to mediate and organize multimodal transportation providing flexible and versatile logistical solutions.

Apart from representing and acting as agents for the group-owned shipping companies, ETE represents and acts as agents for other Portuguese and international ship-owners with acknowledged reputation in both domestic and international markets.

The agency network and its connections to other countries within the ETE network, like Mozambique, Cape Verde, Guiné-Bissau, Uruguay or Colombia as well as many other destinations are an added value to clients and other stakeholders.

Logistics and forwarding services

Introducing a new forwarding agent concept with fast, reliable and efficient service suited to each customer, allows a continuous flow of goods over water, land and air, with a worldwide coverage through different representatives and partnerships.

ETE Group is equipped with its own infrastructures at the main logistical destinations particularly in Portugal and Mozambique. They are instrumental in stuffing, unstuffing, warehousing, handling, packing and distributing cargo, as well as providing other services related to shipment and reception of goods for both corporate and individual customers.

Another of the group's strong assets and specializations is air cargo. All of the forwarding agents are registered IATA members.

The group can supply logistical control and parking of containers in its own depots, complementing this activity with strict maintenance of structural and safety conditions for containers, repairing and replacing them whenever necessary, providing customers with outstanding conditioning for their products.

Engineering

Shipbuilding and repair

In line with its diversification and innovation strategy, ETE Group's shipbuilding and repair sector operates two shipyards in the Port of Lisbon area.

These infrastructures provide specialized technicians and equipment for repairing, maintaining and modifying among others container ships, bulk carriers, tug boats, oceanographic ships and navy vessels.

The constant effort to use new shipbuilding systems, advanced materials and technology allows the group companies to offer to a specialized market objective and innovative solutions for the construction of pilot and recreational launches.

Maintenance and repair of port and river equipment constitute an important part of the group's shipyard activities and have won the confidence of operators.

Project development

A strong and in-depth knowledge of the maritime industry based on its experience on port operations, shipping, repair and maintenance, gives strength and capacity to the setting of project development and consultancy teams as well as the participation on several industry areas, where the group's expertise and experience can be of use, namely on building and design, inland navigation and ports, midstream and transshipment of cargo operations.

Fleet and crew management

The ETE universe includes companies specialized in fleet, crew and technical management, rendering services to domestic and foreign ship-owners and participating in all sort of technical and maritime actions.

Twenty-four hours a day, 365 days a year, the ETE Group guarantees a qualified service in supporting ships, managing crews, supplying fuel, provisions and spare parts while in dry-docking operations, tank cleaning, loading and unloading, supporting traffic and all other services related to maritime and port operations.

Conclusion

Providing the supply-chain through its network of related companies, working on ports, shipping and logistics, the Portuguese ETE Group offers its clients a complete and integrated set of added-value services, in different parts of the world.

Always meeting the needs of its clients, ETE delivers the best solutions required, granting the quality, innovation and dedication that made possible its long-term presence in the market. DCi

Interval impactors move difficult bulk materials

PKL 150 on chute: By preventing build-up and blockages, the impactors from Martin Vibration Systems contribute to greater process efficiency, helping to reduce maintenance and downtime.

The new PKL® Series Interval Impactors from Martin® Vibration Systems are designed to deliver the force needed to dislodge sticky materials from process vessels, chutes, pipes and storage bins. The very high acceleration generates individual blows similar to a hammer, while reducing noise, energy costs and the potential for bin damage or personal injury. Based on individual application requirements, the company can supply interval impactors providing from 120–1,700 pounds of force to move material that resists the effects of rotary vibration.

"The PKL Series is very effective at moving sticky materials from a wide range of storage vessels," commented Mike Lindbeck from MVS. "It also works well clearing dusty residues and breaking up accumulation, helping bulk material handlers avoid bridging and 'ratholing' that can strangle flow rates," he said.

With variable impact frequency from 10 to 60 per minute, the PKL 2100 can be tuned to suit specific material characteristics and operating environments, minimizing noise, energy costs and equipment damage without the need for an external timer. The low operating frequency combined with the "air-against-spring" design translates to very low energy usage, yet the new impactors deliver 30% more force than preceding designs.

The PKL Series Impactors can operate from supplied air pressure of 45-115 PSI, with a 5-micron filter, pressure regulator and lubricator. They are designed for a maximum operating temperature of 250°F (121°C), with high-temperature models capable of handling up to 320°F (160°C).

Options include stainless steel construction, ATEX certification and portable Vac-MountTM units. Available in six different body sizes, the PKL Series is well suited for use on transfer pipes, cyclones, chutes, silos and hoppers. By effectively preventing build-up and blockages, the units contribute to greater process efficiency, while helping to reduce maintenance and downtime. All PKL Series Impactors are covered by a full three-year warranty when operated within recommended limits.

Martin Vibration Systems Solutions is an innovator and supplier of feeders, weigh systems and material handling products for a wide range of industries, including chemicals, food, pharmaceuticals and foundries. The firm supplies electric, hydraulic and pneumatic vibrators, vibratory feeders, hoppers, compaction tables and other components. MVS has built its reputation on developing the quietest and most energy-efficient designs available. They are engineered and built to deliver precise energy transmission, long service life and low maintenance.

The PKL Series Interval Impactors help dislodge sticky materials from storage vessels, clearing dusty residues and breaking up accumulation that can strangle flow rates.

Liebherr wins significant ship crane order

Liebherr was recently awarded a remarkable contract covering the delivery of six heavy lift ship cranes for the traditional German shipping company Rickmers.

Four of the heavy lift cranes are type CBB 4700 with a lifting capacity of 450 tonnes and the remaining two are type CBB 3450 with a lifting capacity of 120 tonnes. The positive trend in the heavy lift crane segment continues and Liebherr has confirmed its leading position with this contract, having won all the tendered contracts in recent times.

The six heavy lift cranes are being built by Liebherr-MCCtec Rostock GmbH and will be delivered to the customer in 2014. They will be installed on two ships in the well-known Hudong-Zhonghua Shipyard in Shanghai, China and in the future will handle heavy and general cargo all over the world.

In comparison with previous units of the same ship type, the crane capacities have been increased from 400 to 450 tonnes, thus improving the ships' utilization.

The heavy lift cranes of the proven CBB series excel in their fast and precise Litronic® control system, which is also used in offshore and mobile harbour cranes. Moreover, the CBB cranes have a comparatively low total weight and a low centre of gravity. This advantageous design enhances the ships' stability.

Thanks to the worldwide service network and the high degree of vertical integration Liebherr serves its customers as a competent partner through the entire life cycle of the crane.

Partnership with long tradition

Business relations between Liebherr and Rickmers date back to the seventies. In 1985 a special board crane emerged from the co-operation between the two owner-managed family businesses. For the first time the crane was positioned at the side of a container vessel rather than on the vessel's centreline. Due to this new positioning and the low width of the cranes, valuable additional loading space on board the vessels was gained.

Today, Liebherr handles a large number of its heavy lift sea transportations with the aid of 'Rickmers-Linie', a regular world-wide service for project cargo. The co-operation between the two companies will perhaps be further consolidated in the future with the modernization of Rickmers' fleet through the planned construction of several new vessels.

Focus on heavy lift crane segment

This contract emphasizes Liebherr's increased focus on the maritime heavy lift crane segment, as announced by the company during the SMM in Hamburg, the biggest trade fair of the shipbuilding industry. The range of heavy lift ship cranes will be extended by one type per year. In future, cranes with lifting capacities of up to 1,000 tonnes will be included in the ship crane portfolio.

Liebherr

The Liebherr Group comprises more than 130 companies across all continents with approximately 37,800 employees. In 2012 Liebherr achieved a consolidated turnover of €9.1 billion. The Liebherr Group's holding company is Liebherr-International AG in Bulle/Switzerland, which is entirely owned by members of the Liebherr family.

Rickmers Group

Rickmers Group is an international shipping company in the business segments Maritime Assets, Maritime Services and Rickmers-Linie. Rickmers manages a fleet of almost 100 vessels with 3,000 employees at sea and 480 employees ashore .The business segment Rickmers-Linie operates a fleet of 18 multi-purpose heavy lift vessels, which offers a regular world-wide service for heavy lift and project cargo.

Filling systems in any combination

Material Handling Company

Loading systems
Level measuring instruments
Palletizers
Warehouse systems
Filling systems
Conveyor systems
Shiploader

SMB Group
best solution

SMB International GmbH
Friedrich-List-Str. 3-7 · D-25451 Quickborn
Phone +49 (0)4106/123 88-0
info@smb-group.de · www.smb-group.de

New Tenova Pyromet technology: cleaner off gases in closed smelting operations

In an important development for the ferroalloy industry, a new, patented technology developed by Tenova Pyromet (part of Tenova Mining & Minerals) for the high-temperature cleaning of furnace off gas generated in a closed ferroalloy smelting process, will enable smelter operators to use the cleaned gas more easily in a number of co-generation plant options.

The new method and process to cool and clean the mainly carbon monoxide rich furnace off gas has been developed through a combination and modification of current technologies, successfully addressing the shortcomings of the traditional industry method of wet scrubbing systems. These include reducing the solid content in the cleaned process off gas to below 5mg/Nm^3, reducing moisture in the cleaned process gas by reducing or eliminating the use of water, eliminating condensation of tars on colder surfaces for certain process off gases by operating above the tar dew point of the process gas, and eliminating the wet scrubber liquor water treatment system, which can be problematic when a process off gas with tars present is to be treated.

The principle of the new development is to clean the process gas as hot as possible using filtration separation technology. Solids are separated and collected from the process gas by passing it through high temperature filtration elements, which are periodically cleaned using an inert gas. The resultant solid gas content of the cleaned gas is below 5mg/Nm^3, as opposed to the 10 to 50mg/Nm^3 of wet scrubbing systems, and is suitable for direct use in any power generation or heating system. If high volatile reductants are used, the hot gas with tar in vapour form passes through the filtering section for cleaning before entering a suitable tar removal system, prior to being used in a power generation system or heating system. The collected tars from the tar removal systems can be used as a fuel or safely disposed of.

The process is therefore applied beneficially as an alternative to conventional wet gas cleaning system in a number of applications. These include applications where there is medium off gas volumes at high gas temperatures, off gas containing unwanted components, such as tars, and where specific clean gas properties are required, such as low moisture content, low solid content and a gas temperature above the dew point for further processing/cleaning.

"This new technology is an important development for ferroalloy producers, as the industry is facing increasing challenges in terms of harder to access and lower grade carbon reductants, compounded by escalating power costs, as well as increasing legislative and social pressure to minimize impact on the environment," says Chris Oertel, managing director of Tenova Pyromet.

"The increasing cost and diminishing supply of metallurgical grade coke as the main source of carbon for reduction reactions in closed ferroalloy smelting have led producers to use alternative sources of carbon, such as coal with a high volatile matter. When a high percentage of this lower grade coal is used, tar vapours can be present in the furnace off gas, which, in wet gas cleaning, will condense when the gas is in contact with colder surfaces or water, creating operating, maintenance and water treatment problems."

"In addition, the rise in electricity prices has made it necessary to consider utilizing all the gases as a source of fuel for producing electrical energy in a co-generation installation."

Tenova Pyromet is a major company in the design and supply of AC and DC furnaces for the production of ferroalloys, platinum group metals, base metals, slag cleaning and alloy refining. Tenova Pyromet also designs and supplies plant equipment that is associated with furnaces such as material handling and pre-treatment, alloy conversion and refining, granulation of metal, matte and slag, furnace off-gas fume collection and treatment and treatment of hazardous dusts and waste.

Tenova Pyromet provides feasibility studies, construction and commissioning supervision and training and also, provides several technologies to reduce operating costs and increase production efficiencies.

Tenova Mining & Minerals is a total integrated solutions provider to the global mining, bulk materials handling and minerals beneficiation and processing sectors, offering innovative technological solutions and full process and commodity knowledge across the mining industry value chain.

Tenova is a worldwide supplier of advanced technologies, products, and engineering services for the iron & steel and mining industries.

Bobcat receives AED membership award

Associated Equipment Distributors (AED), an international trade association representing more than 500 leading manufacturers and distributors of construction equipment and other related products, recently recognized the long-standing membership of Bobcat Company.

The Bobcat Company is a major provider of compact equipment for global construction, rental, landscaping, agriculture, grounds maintenance, government, utility, industrial and mining markets. The company strives to empower its customers to do their jobs more efficiently and effectively. It is North Dakota's largest manufacturer, with one of the most extensive compact equipment distribution networks in the world.

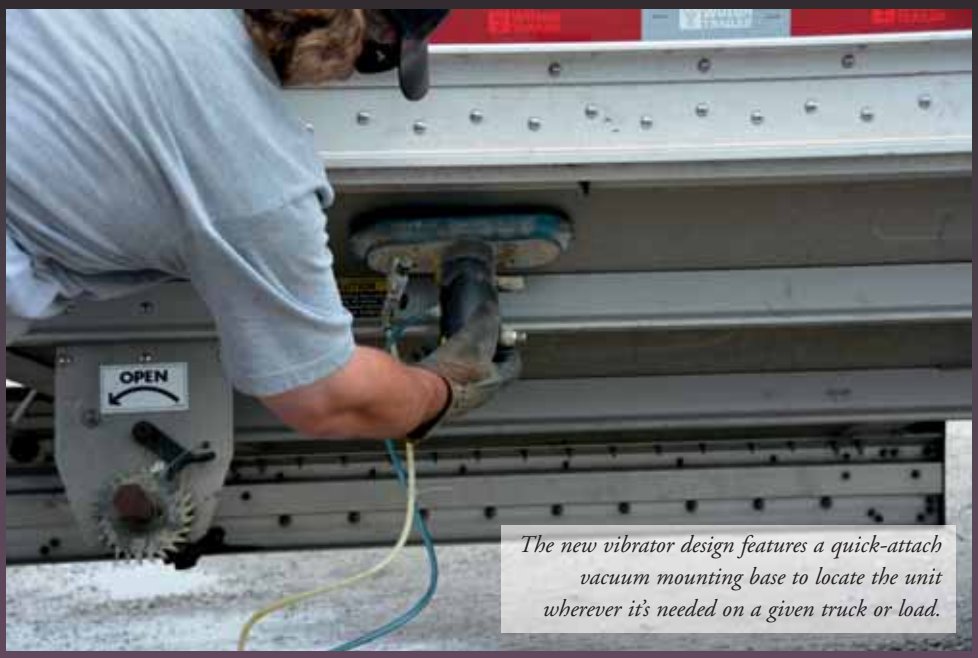
As a longtime member of AED, Bobcat contributes to and benefits from a variety of quality services, including public policy advocacy, industry education and public relations efforts that advance the role of equipment distributors across industry lines.

In an informal ceremony, AED President Bob Henderson presented Rich Goldsbury, Bobcat president – North America and Oceania, with an award marking Bobcat Company's 50th year of continuous service to the construction equipment industry.

Mike Swanston, president of Swanston Equipment (a Bobcat dealer), and AED Board of Directors Representative Don Shilling, president of General Equipment & Supplies, both based in Fargo, were also in attendance for the presentation of the award.

Vacuum-mounted vibrator speeds unloading

An innovative air-powered vibrator is helping bulk carriers empty their hopper trailer loads faster and more safely by agitating settled materials and energizing flow, while discouraging common but potentially dangerous manual tactics. The new design features a quick-attach vacuum mounting base to locate the unit precisely where it's needed on a given truck or load, rather than being restricted to a permanently-mounted bracket.



The new vibrator design features a quick-attach vacuum mounting base to locate the unit wherever it's needed on a given truck or load.

Unlike traditional truck vibrators, the MT-FAST™ Hopper Trailer Vibrator needs no mounting bracket, so it can be positioned at corners, valleys or other problem areas where material flow tends to stall. Because it's affixed directly to the hopper wall, energy is transferred more efficiently than with a bracket-mounted vibrator. By expediting material flow, the units reduce unloading times and the risk of personal injury or truck damage that can result from using a pry bar or hammering on hopper walls.

"Different materials may hang up in a variety of locations in a bottom hopper," observed Mike Lindbeck of Martin Vibration Systems (MVS). "Even the same type of material can demonstrate flow variations in different loads or fluctuating weather. So using the vacuum mount to allow drivers to choose their own mounting location is critical."

The new design was engineered to be the first truck vibrator powered by a rig's air supply that has both the force and location versatility to succeed in this difficult application. Driven by the onboard compressor, the unit requires less than 15 CFM (424.8 LPM) for effective operation. The concept is so unique that MVS has applied for a patent on the product.

The new MVS vibrator is a non-impacting linear design to help prevent trailer damage, yet it delivers a powerful 200 pounds of force to move materials effectively. The low-frequency, high-amplitude energy is well suited to large particle sizes and low bulk density materials, such as grain, meal and other agricultural products. The quiet, reliable design features adjustable amplitude, while the frequency is factory set for optimum results. All models are explosion-proof and washdown-safe.

"This design is engineered to help bulk carriers overcome flow problems, even when hauling materials with high moisture content or a high entanglement factor," Lindbeck added. "It helps break up settled loads that bridge over the trap and reduces build-up that leads to ratholing."

The new MT-FAST™ Hopper Trailer Vibrator helps drivers empty loads more quickly and completely, without resorting to manual labour.

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

2nd Coaltrans Emerging Asian Coal Markets

5 - 6 November 2013 | Conrad Bangkok, Thailand

Join us in Bangkok to:

- Establish **country by country the demand for power in Cambodia, Laos, Malaysia, Myanmar, Philippines, Thailand and Vietnam** and what proportion of their respective power supplies is expected to come from coal in the next five years
- Benefit from updates on **regulatory policy, financial opportunities, the latest geological surveys and logistical challenges impacting coal markets** throughout the region
- Hear from the experts that have **first-hand experience of developing both coal mines and coal fired power plants across South East Asia**

Silver Sponsor

permata RESOURCES

Bronze Sponsors

argus argusmedia.com

Standard Coal

ARTHA SUPERIOR ENERGI

LD Ports & Logistics

Watson, Farley & Williams

Supporters

ASIA Miner

Petromindo.Com

e-coal.com COAL INFORMATION

COAL

TAMBANG NEWS.com

COAL SPOT.COM

DRY CARGO INTERNATIONAL

platts

BULK MATERIALS International

globalCOAL

WORLD COAL

Coaltrans Conferences

Hear from

Ye Myint Swe
Director General, Department of Geological Survey and Mineral Exploration, **Ministry of Mines, Myanmar**

Ramon Allan Oca
Undersecretary, **Department of Energy, Philippines**

Elisa L. Dayao
Senior Vice President for Corporate and Administrative Services, **Global Business Power Corporation**

Duong Quang Thanh
Vice President, **Vietnam Electricity (EVN)**

Dinh Quang Trung
General Manager, Import-Export Division, **Vinacomin**

Xaypaseuth Phomsoupha
Director General, Department of Energy Business **Ministry of Energy and Mines, Laos**

Register by 20 September 2013 and save US$200

coaltrans@euromoneyplc.com | +852 2912 8038 | www.coaltrans.com/emergingasia

Bedeschi SpA wins a raft of bulk contracts

Bedeschi SpA has been manufacturing, designing and marketing raw materials handling equipment since 1908 and has thus gained extensive expertise in the cement, bricks, mining, minerals, power, wood, pulp and paper, ecology and waste recycling industries. It fabricates, machines, assembles and test all of its machines in its manufacturing facility which covers in excess of 500,000ft^2.

Bedeschi's line of products encompasses apron feeders, crushers, extruders, stackers (linear and circular), reclaimers (linear, circular and blending), shiploaders and ship unloaders; all equipped to handle a wide range of raw materials from extremely

hard, dry materials to wet and sticky ones.

Bedeschi has a service organization of field technicians for the erection/assembly phase of the machines, along with providing start up, commissioning and training.

Throughout its history, the company's first priority has always been to improve the quality of its products and the service to its clients. This has allowed it, even in the face of fierce competition, to supply equipment to well-known companies around the globe.

In February 2012, Bedeschi signed a contract with Indocement (Heidelberg Group) to supply a cement additives crushing storage stacking/reclaiming and transport system. The system will improve capacity at the existing plant located in Citeureup Indonesia. As part of the collaboration between Bedeschi and its subsidiary, CTP Team has supplied all the filters for all groups mentioned below. The project includes the supply of:

- one crusher facility;
- one TRASS storage with pit reclaimer;
- one circular limestone storage system;
- several belts conveyors and filters to serve the machines above mentioned. Noteworthy, are the crushing group in which the primary roller size has been installed above the secondary one, together with an apron feeder and the circular limestone storage that will replace an existing one supplied by a competitor. The complete supply is made in Italy as well as in Asia as requested by the client.

Bedeschi signed a contract for a transshipper cargo handling system with PT. KARTIKA SAMUDRA ADIJAYA. The supply is one conveyor belt handling system, including all its components as detailed below:

- two 70m^3-capacity receiving hoppers;
- two feeder belts;
- one fixed conveyor belt system;
- one set of transfer points between conveyors;
- one slewing/luffing and telescopic type shiploader;
- one banana trimming device, for S/L discharging head;
- one weighing device and metal detector; and
- one wiring/MCC/control system

Holcim Group asked Bedeschi to solve some major handling issues and bottlenecks at the Shurovo Russia plant. Bedeschi supplied and successfully commissioned, to the complete satisfaction of the client, a new crawler crushing unit as well as specially designed apron feeders to withstand and handle extremely sticky materials.

In early 2013, Ciments du Bizerte awarded Bedeschi a contract for the supply, on a turnkey basis, of the new terminal inside the cement plant of Bizerte. The terminal will import coal by unloading 30.000dwt vessel and export cement or clinker from the plant. Bedeschi will supply all the machinery and equipment. Start-up is scheduled within 18 months from contract signature.

Medcem Turkey awarded Bedeschi a contract for the supply of the designing engineering manufacture inspection of local manufacturing, testing and start up of the following plants: coal/petcoke stacking and reclaiming system, iron ore clay stacking and reclaiming system, limestone/circular stacking and reclaiming system. This new greenfield will be the biggest operating in Europe with a capacity of 10,000 tonnes a day.

CMT contract Bedeschi to supply of a completely new 6,000tph shiploading system for coal to be installed in USA.

Sinoma Group awarded Bedeschi the contract to supply a limestone stacking and reclaiming system and shale stacking and reclaiming system. This new project is the second line and it is identical to the first line already supplied by Bedeschi few years ago. It is a further confirmation of continuity of relationship and reference values. The supply consist in two trippers, six stacking bridges and four pit reclaimers. Stacking capacity 1,860tph (tonnes per hour) and reclaiming 720tph.

Bedeschi owes its success and reliability to the expertise it has gained during its 100 years in the market.

Keeping all bases covered

One of Rubb Buildings' two structures at the Port of Workington in the UK, used to store animalfeed.

enclosed storage systems for bulk, breakbulk and project cargoes

Custom-built structures from the UK's Rubb Buildings

Rubb Buildings Ltd is a major force in the design and manufacture of custom-made bespoke relocatable and permanent engineered fabric building structures.

Highlights include the company's ground-breaking military hangars, sunshades, shelters, warehouses and workshops, specialist sport halls and storage buildings for a variety of sectors including aviation, ports, construction, bulk storage and environmental (waste and recycling). Many of Rubb's structures are used in the bulk handling market, and have been proven to be an effective means of storing bulk and breakbulk cargo.

All of Rubb's products are designed and manufactured at its UK plant in Gateshead, Tyne and Wear. The company was founded in 1977 and has a proud history of delivering innovative and quality structures to a wide range of clients. Benefits of the company's products include:

- fabric structures offer greater flexibility for expansion and creativity in design;
- clear span buildings offer the maximum usable floor space;
- efficient and quick construction;
- a more affordable alternative to traditional buildings;
- Rubb's structures can be resold, relocated and reused; and
- translucent roofs provide natural light.

Rubb structures are readily configured to accommodate conveyors and other loading methods. Retaining sidewalls can also be integrated to resist lateral loadings.

Rubb bulk storage buildings can be readily converted or relocated to store products allowing a much more flexible storage alternative than bulk storage silos. These facilities also accommodate differential site settlement, allowing simplified foundations.

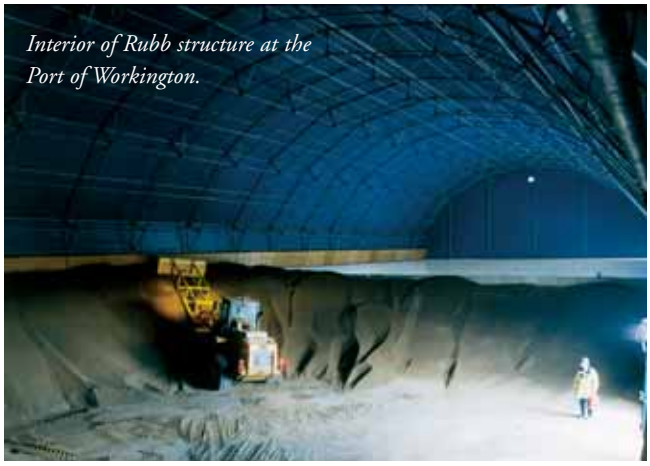
Meeting high quality bulk storage requirements is easier thanks to Rubb's custom bulk storage solutions. Rubb bulk storage buildings feature translucent roofs, providing ample light and a bright airy atmosphere. A choice of PVC fabric also offers

a solution when the building needs to be secured against UV light filtration.

Rubb's buildings have been used to store everything from biomass to perlite, and often serve as salt sheds for municipalities in cold climates.

In the case of sealed bulk storage, the walls consist of a steel support structure complete with pre-stressed concrete infill panels which allow for quick and easy construction. This method provides a fully sealed facility to prevent water ingress and also allows for internal retaining walls to be built for different bulk storage needs.

Apart from the advantage of lower costs and speed of erection, Rubb bulk storage buildings are flexible enough to be built on ground susceptible to differential settlement and have much lower maintenance costs than traditional bulk storage facilities.



Interior of Rubb structure at the Port of Workington.

PORT OF WORKINGTON: SPECIFICATIONS

Span:	25m
Overall length:	61m
Clear area:	1,525m^2
Eaves height:	3m
Overall height:	10.2m

Case study — Port of Workington, Workington, UK

The Port of Workington offers high quality storage facilities in the form of two relocatable Rubb constructed ports buildings.

The port's structures measure 25m (82ft) span x 32m (105ft) in length and 25m (82ft) span x 61m (200ft) in length. These port facilities provide storage space for animal feed and protection from the elements and light. The design features a split storage capability.

As this part of the west coast of England is susceptible to severe winds and rain, the storage systems were constructed on top of 4m (13ft) retaining walls.

The walls consist of a steel support structure complete with pre-stressed concrete infill panels which allow for quick and easy construction. This method provides a fully sealed facility to prevent water ingress and also allows for internal retaining walls to be built for different storage needs.

The client required a dark covered structure as animal feed needs to be protected from light, however the translucent PVC material provides a brighter working environment without the need for windows.

For more details on Rubb's activities, please see p56–57 and p154 of this issue.

Rubb has supplied two relocatable ports buildings to the UK's Port of Workington.

DOMTEC: building high-quality domes and helping to improve local economies

Founded in 1995, after over 10 years in the monolithic concrete dome industry, DOMTEC (pronounced dometec, or dometech) International was awarded a project as the general contractor for a USD$5 million, 40,000 metric tonne fly ash dome. Included in the contract was an automated reclaim system, sub-grade tunnel, stair tower and bridge and head house.

Now a major provider of bulk storage solutions in the mining, power, agriculture and cement industries, DOMTEC has built domes on five continents storing coal, wood pellets, FGD gypsum, fly ash, metals, ores, rare earth elements, potash, fertilizers, grains, peanuts, salt and sugar.

From ownership and sales to construction, DOMTEC's team is highly experienced. With hundreds of years of combined experience and a goal for continuous improvement, its experience translates into the extremely high safety, quality-control and quality-assurance standards. This organization and attention to detail have produced 100% successful projects without a single failure.

DOMTEC feels strongly about improving the industry. It actively participates in American Shotcrete Association (ASA) and American Concrete Institute (ACI) committees, contributing to policy that will strengthen the future of the industry.

DOMTEC's values

- **honesty and integrity:** DOMTEC is known worldwide as a trusted company of trustworthy people who stand by what they say, and whose word is their bond.
- **excellence:** DOMTEC builds excellence into everything it does. It believes that if a job is worth doing, it is worth doing right.
- **continuous improvement:** DOMTEC strives to become a great company by proactively seeking to become 'Level V' leaders and encourage all people in the company to improve their skills, abilities and become experts in their chosen fields.

Building with DOMTEC

DOMTEC mitigates its clients' risk. It offers 100% on-time delivery. In terms of engineering, the company engineers its domes with a higher safety factor than any other dome builder. This means more foam, rebar and concrete; therefore, stronger, tighter, and longer-lasting.

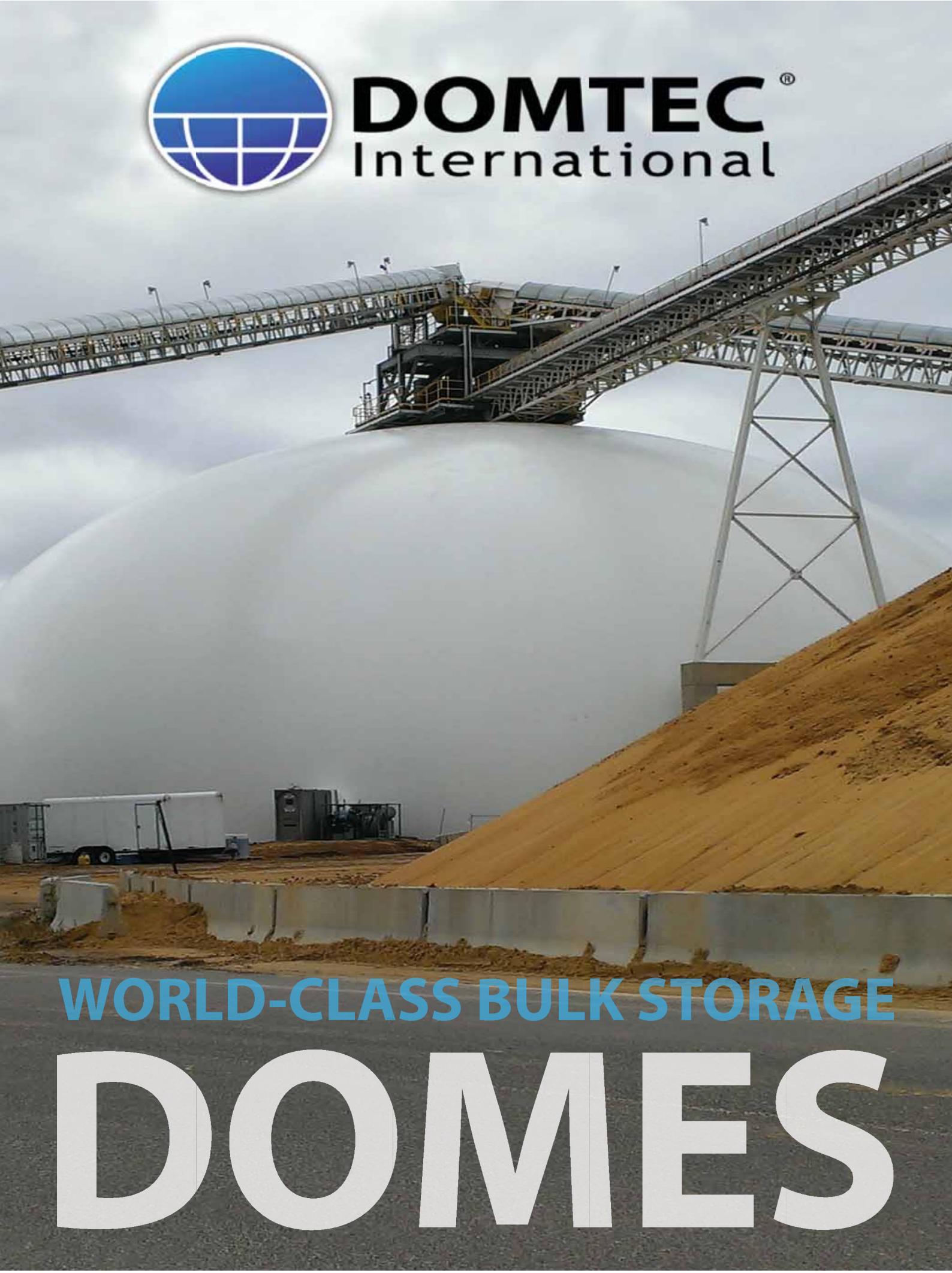
DOMTEC employs the most experienced technicians (averaging over 20 years' experience each). It also has an extremely stringent quality control programme. DOMTEC is able to offer a triple warranty from builder, manufacturer and supplier.

Zero failures

DOMTEC has been in business about 20 years building domes worldwide. Each dome has been a successful project with zero failures. Its safety and quality control/assurance programmes are extremely stringent. The company's capabilities include acting as a prime contractor to build the dome shell or providing turnkey solutions, assembling a world-class team to engineer, procure and construct tunnels, foundations, floors, domes, apex curbs, reclaim and conveying equipment.

DOMTEC is committed to improving local economies in the communities where it builds. It hires local labour and purchases local materials to assist its specialty qualified technicians in building the domes, thus keeping much of the contract monies in the local economy.

DOMTEC®
International



WORLD-CLASS BULK STORAGE
DOMES

+1.208.522.5520 t. www.DOMTEC.com/DCi domtec@domtec.com

Rubb meets a tall order with biomass storage solution

Rubb worked with AJS Contracts Ltd to provide its tallest structure to date and first biomass fuel processing and storage facility to energy giant E.ON UK.

The 31.5m span x 137.5m long building at Ironbridge Power Station, Shropshire, UK, has an apex height of 21m.

The roof provides rigidity without deflection, providing stability and support for a 200-tonne roof-mounted conveyor system used for the dispersal of biomass fuel products.

The structure features a roof pitch of 35° which was designed around the angle of repose of the biomass materials. The UK-based Rubb team was readily available to provide advice, support, recommendations, site visits and ongoing solutions regarding the challenges that arose during the project.

These included structure height, weight loadings, access and custom door designs. The company also met with AJS/E.ON requirements that all elements of the structure were to be designed and manufactured in the UK.

The steel framework of the building is protected from corrosion by hot dip galvanizing. Galvanizing is the process of metallurgically bonding a tough coating of zinc in to the steel surface.v The frame is clad with polyester woven base cloth covered on both sides by PVC and coated by a PVDF finish.

Project manager Andy Knox said: "This is our first biomass storage structure to date. It demonstrates our diversity and versatility when it comes to the flexibility of design and manufacture to meet changing requirements and the added challenge of attaching a 200-tonne conveyor system to the roof elements, all within strict time constraints."

Martin Wylie, Renewable Energy Divisional Manager added, "The real breath of fresh air for AJS was to work with a UK turnkey contractor, a company who can design, manufacture and install the complete package, providing auditable quality procedures and more importantly an excellent understanding of UK Health, Safety and Environmental regulations.

"Rubb Buildings have developed a product that can be rolled out globally across the renewable industry sector and AJS Contracts would be more than happy to recommend their services to any prospective client."

Advantages offered by the Eurosilo® system

ESI Eurosilo offers a range of advanced storage solutions for bulk solids. The company has decades of experience in engineering and the turnkey delivery of mammoth silos. These fully enclosed storage facilities, ranging from 1,000m³ to 100,000m³, offer maximum control in material handling, while saving operational costs and valuable space for expansion. With over 120 units built around the world, ESI Eurosilo serves a variety of customers in today's major industries, from power industry to basic chemicals and agriculture.

As a leading company in the field, ESI Eurosilo's aim is to deliver technology that will help its customers meet economical, physical and environmental demands in the best possible way.

The first 100,000m³ coal silo is now in operation

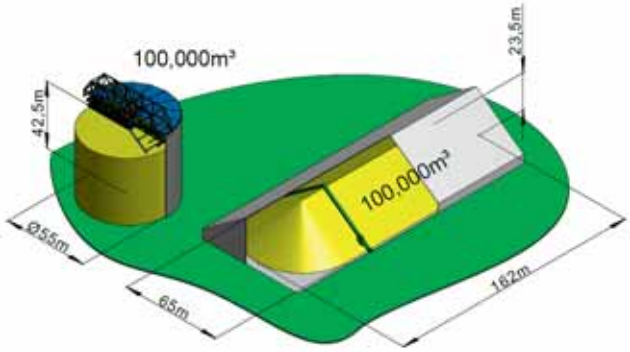
The test run of the Trianel coal-fired power plant, based in Lünen, Germany, started last year. It has been receiving coal for several months now. Barges are unloaded by two grab cranes, and transported by fully enclosed belt conveyors to the ESI Eurosilo silos with a design capacity of 1,800tph (tonnes per hour).

Key features of the Eurosilo® system

- no pollution or loss of calorific value;
- minimal footprint for large-scale storage;
- safest storage method on the market;
- maximum logistic control and flexibility;
- minimal operating and maintenance costs; and
- high availability due to minimal downtime.

Storage with a minimal footprint

As with many other resources, space is often a restraint for expansion. The open-air storage of coal also adds costly environmental drawbacks to that, as well as loss of energetic value. Enclosed storage in highly automated silos solves all these problems at the smallest possible footprint. The Eurosilo® system offers storage capacities of up to 100,000m³. The coal is fed from the top of the silo into a telescopic chute through which it reaches the auger frame on the coal surface. Two main parallel screw conveyors distribute the material over the entire area of the silo, layer by layer, while the auger frame rotates. Reclaiming is done by withdrawing coal from the bottom and by inducing central gravity flow. The screw conveyors than rotate in reverse to feed coal into the formed core-flow.



A silo's footprint is significantly less than that of a flat storage facility.

EUROSILO COMPARED TO ALTERNATIVES

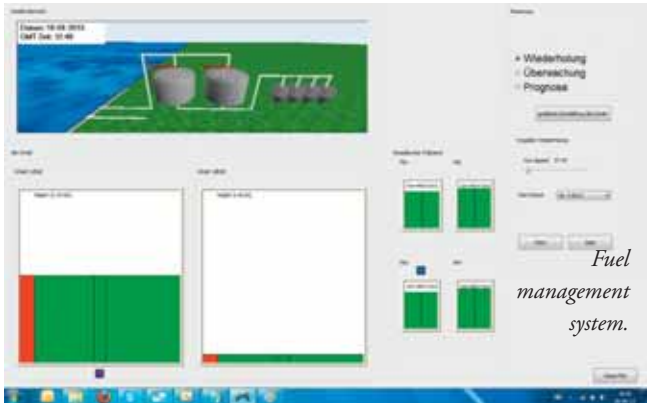
The three main methods of enclosed storage besides the Eurosilo system are the dome (circular) and A-frame (longitudinal) storage systems

Criterion	Eurosilo	Dome (circular) storage	A-frame (longitudinal) storage
Footprint	The most compact system	2 x larger footprint	3 x larger footprint
Filling	Homogenized by the equalizing auger system	Segregated due to the central loading spot	Segregated due to the central loading spot
Operation	Fully automated	Partly automated	Partly automated
Oxygen access	Only from the top surface	Severe, from all sides	Severe from all sides
Nitrogen purging	Possible through piping system in the bottom	Not possible	Not possible
Structure	Simple slip-formed concrete silo	Complex concrete wall	Wide span shed
Coal oxidation monitoring	Continuous monitoring by CO scanning	Only by infrared	Only by infrared
Fuel management	Fully automated	Partly automated	Partly automated
Dust emission	NO	NO	NO
Percolation pollution	NO	NO	NO

FUEL MANAGEMENT TO MAXIMIZE REVENUE

The FMS (fuel management system) supports power plant operators with supply planning and coal silo visualization IT solution for coal silos which store several grades of coal. It is fully integrated with the silo Operator Control and Monitoring System technology. The FMS functionality includes:

- supply planning and scheduling;
- quality data capture;
- silo visualization (qualitative/quantitative);
- silo automation equipment programming; and
- balances/forecasts/reports.

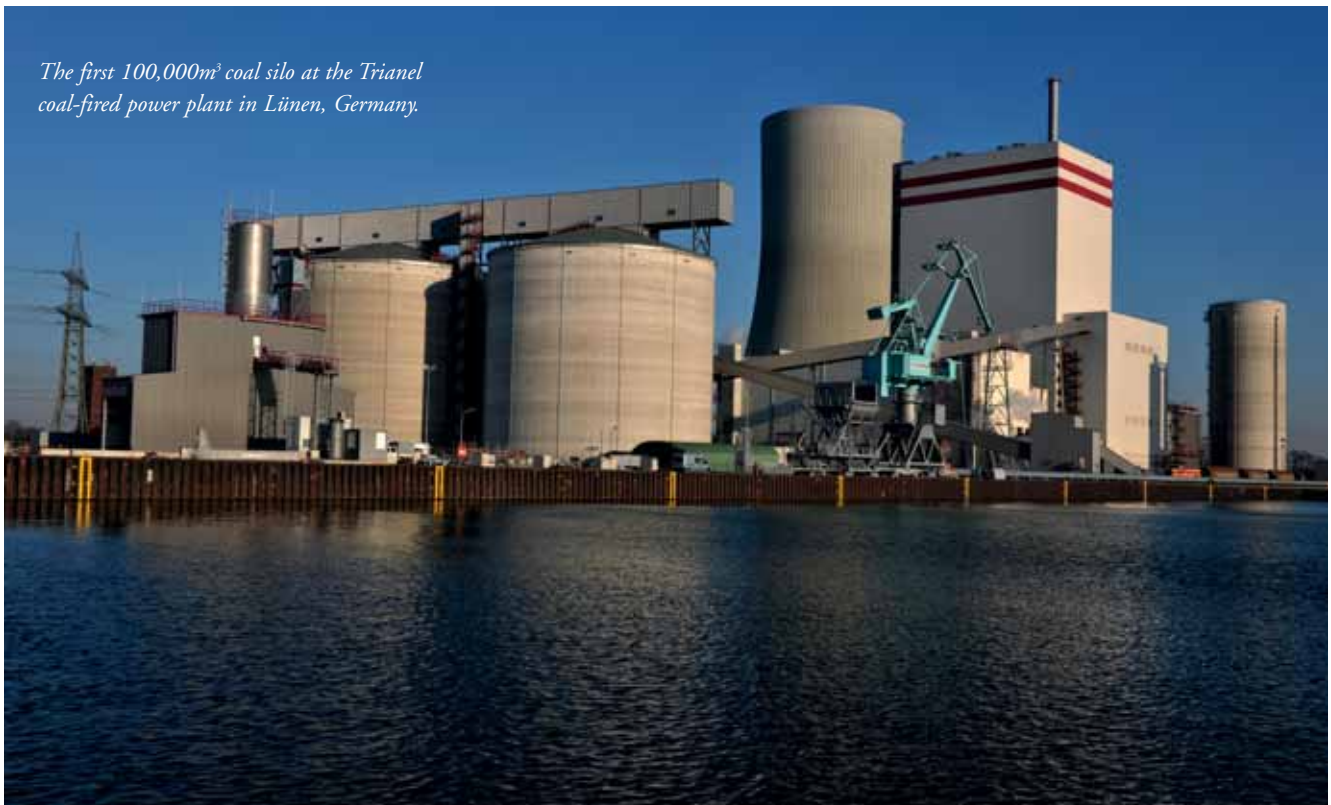


Fuel management system.

To prepare the right blends at the right time, the FMS can be of great help. By visualizing the different grades of coal in multiple silos, it enables the operators to plan the coal blending in an optimal way. By reclaiming the respective coal grades from each silo in a controlled and adjustable rate, the optimal coal blend can be prepared.

EUROSILO AIR MONITORING SYSTEM

The air monitoring system ensures the necessary measuring of carbon monoxide, methane and oxygen for stored coal as stipulated in codes and rules, e.g. International Maritime Solid Bulk Cargoes Code [IMSBC Code] as well as other Fire Protection Agencies.



The first 100,000m³ coal silo at the Trianel coal-fired power plant in Lünen, Germany.

RBL REI

www.rblrei-france.com

BULK UNDER **CONTROL**

Overland Conveyor

Hopper

Stacker

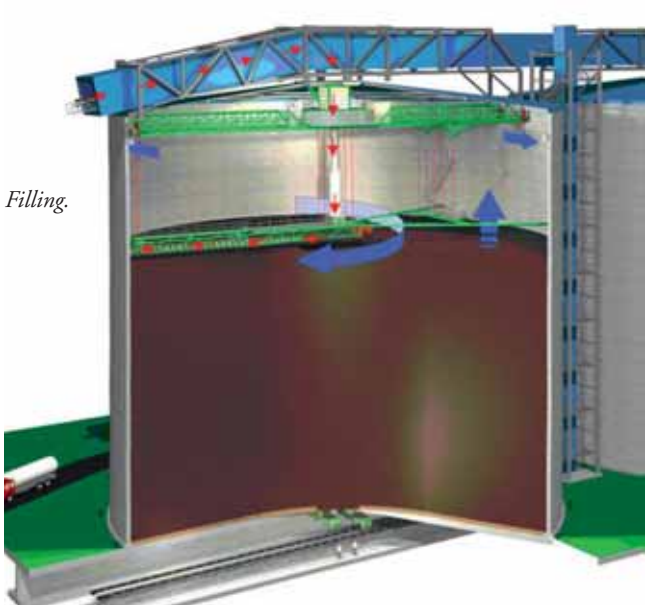
Loader / Unloader

Process

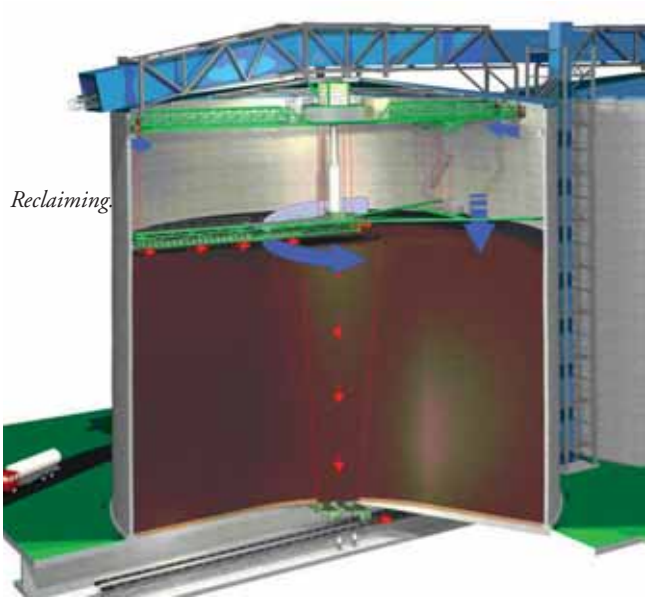
CONTACT US /
Z.A Les Landes
BP 50159 49481 S' Sylvain d'Anjou
Tél : + 33 (0)2 41 21 19 40
Fax : + 33 (0)2 41 21 19 59

HEAD OFFICE /
11, Boulevard Brune
75682 PARIS Cedex 14
Tél : + 33 (0)1 53 90 22 40
Fax : + 33 (0)1 53 90 22 24

contact@rblrei-france.com



Filling.



Reclaiming.

Fire advanced warning: CO vs. temperature

Measuring carbon monoxide is strongly preferred as detection method for oxidation (self-heating) in coal storage systems due to its advanced warning period over temperature.

Eurosilo CO-monitoring system

Carbon monoxide monitoring ensures an accurate system to pinpoint the changes in the measured carbon monoxide concentrations on the coal surface. Due to the slewing of the Eurosilo mechanism, the coal surface is scanned and a hot spot is detected in an early stage.

Preventing air inflow

By installing a slide valve, practically closing the reclaim opening of the silo, the air penetration is minimized.

Eurosilo N2-purging system

The N2-purging system embodies one of the safety systems, making it possible to purge the whole or just a section of the silo, thus enabling longer trouble-free storage periods for coal.

Eurosilo foam/gel system

By using the skid mounted foam/gel system (filled with e.g. FireSorb®) it is now possible to only locally bring in foam or gel, focusing on the hot-spot location in the coal, enabling a dedicated and safe coal handling and storage.

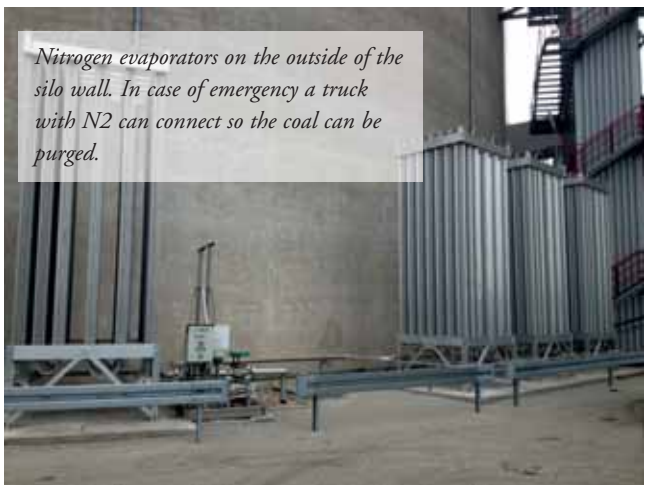
Gas monitoring sensors installed within the Eurosilo system to monitor the coal.

Lifecycle assessment

To ensure long-term competitiveness, it is vital to achieve cost-effective compliance with environmental regulations and self-imposed policies.

Environmental Management Accounting (EMA) integrates environmental, operational and maintenance issues into the financial analysis. An integrated lifecycle assessment, as recognized by the European Community, offers a complete evaluation. Following this approach, the investment in Eurosilo® systems comes with a payback period of just 10 to 15 years.

So it is worth checking and comparing not only the investment cost but also the operating and maintenance cost involved.



Nitrogen evaporators on the outside of the silo wall. In case of emergency a truck with N2 can connect so the coal can be purged.

Eurosilo uncoalers in the silo basement with the slide valve underneath to prevent oxygen flowing into the coal storage.

One source for KOCH® conveying solutions

KOCH® – the leading name in pipe conveying – is part of FLSmidth. FLSmidth's KOCH Pipe Conveyor® is the world's most advanced. It ensures low investment costs and high availability. It also lowers noise, decreases emissions and greatly reduces environmental impact. With more than 350 installed systems in 44 countries, FLSmidth is the clear market leader. In fact, no other company in the cement and minerals industries can command the engineering resources and management expertise as FLSmidth does to supply one source for complete conveying solutions.

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

KOCH
A trademark of FLSmidth

FLSmidth

Geometrica's Hyparwave™: free-style surfaces of inverse curvature

Industrial warehouse.

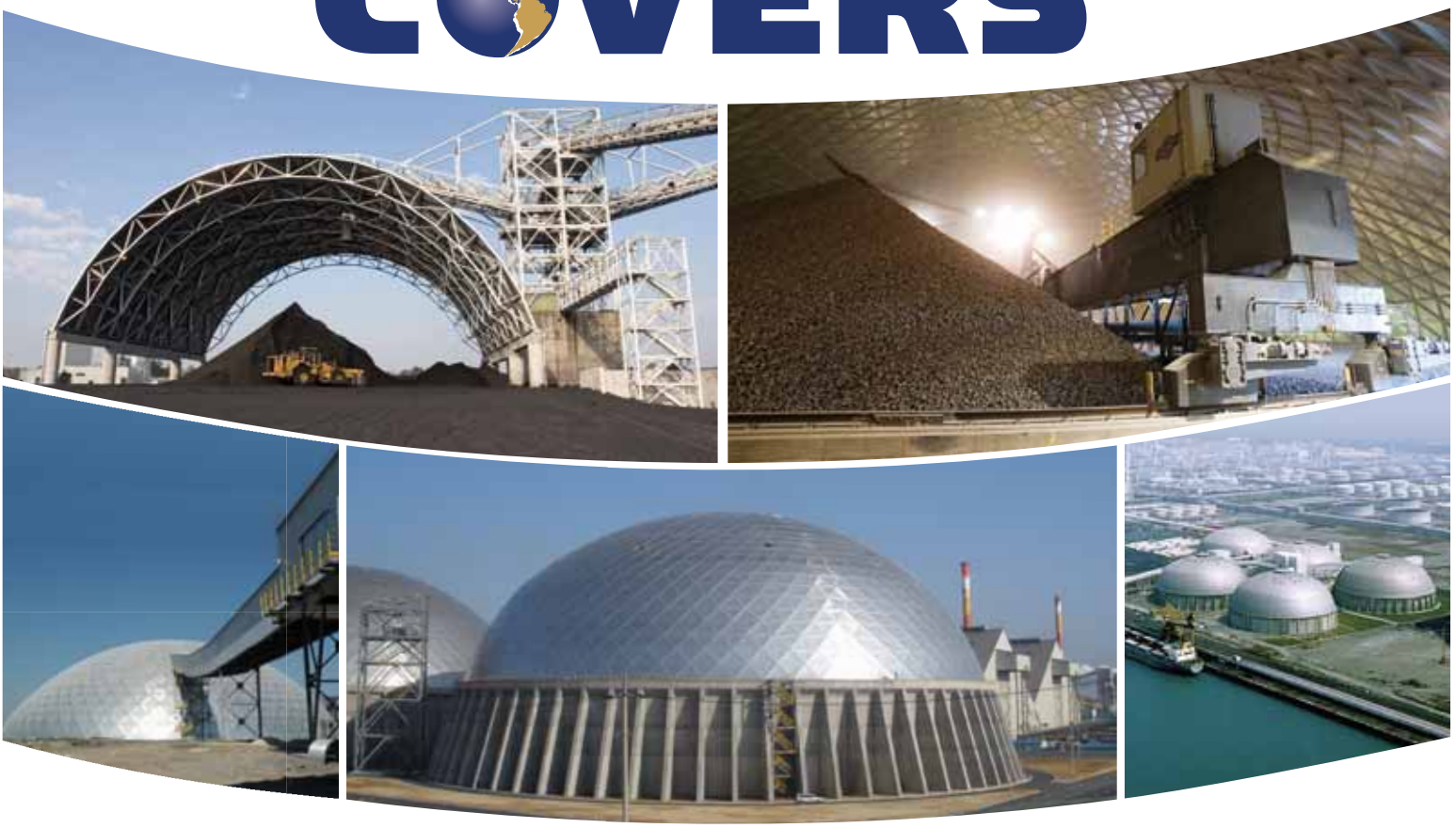
Surfaces that curve in opposite directions carry all sorts of awkward monikers: 'warped', 'anti-clastic', 'minimal', 'inverse curvature', 'hyperbolic parabola'. First popularized by Felix Candela and Frei Otto with concrete shells and cable grids, respectively, these forms later became very popular for fabric and tent structures. Geometrica calls its own such structures Hyparwave™, which it believes more accurately reflects their beauty.

Geometrica Hyparwaves are framed with tubular members. The resulting structure is strong in both tension and compression, and it can be shaped into surfaces of revolution, as well as combinations of dome-type curvature and inverse curvature in a single gridshell.

Hyparwave's rigid structure supports a variety of cladding systems, including glass, metal-deck and built-up roofing — even airy netting.

INTRODUCING THE GLOBAL LEADER IN COVER SOLUTIONS.

CST COVERS



TEMCOR CONSERVATEK®

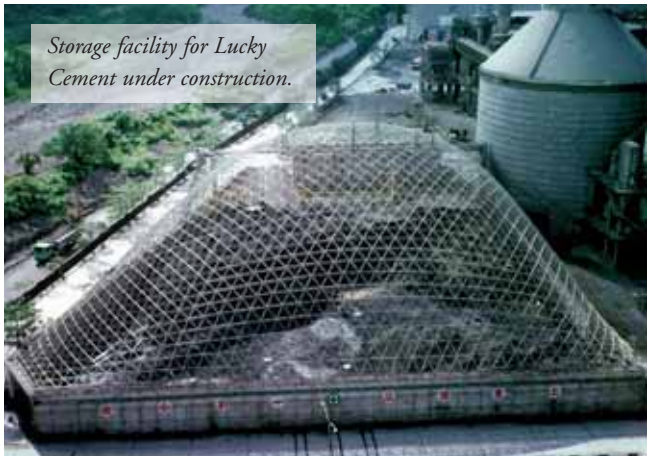
SINCE 1964 • OVER 16,000 INSTALLED • OVER 90 COUNTRIES

Dry Bulk Storage Solutions

- All-aluminum clear-span structures
- High strength-to-weight ratio
- Maintenance free – never rusts, rots, chips or solar degrades
- Economical installation – light weight translates to faster erection times and reduced erection costs
- Project support around the world

www.cstcovers.com

CST Covers | 498 N Loop 336 E | Conroe, TX 77301 USA | p: 936-539-1747 | f: 936-539-5355



Storage facility for Lucky Cement under construction.

Lucky Cement storage completed.

Elegance implies both beauty and simplicity. To achieve elegance when building free-form structures, you need the right construction system. Geometrica's system of compact, universal aluminium connectors develops the full yield strength of the joined steel tubes, offering both efficiency and aesthetics. It has been used for the most beautiful as well as the most functional buildings worldwide.

During construction of the Museo Soumaya in Mexico City.

Used as a secondary structure, Geometrica's Hyparwave brings exacting, complex curvature not only to bulk storage facilities (see industrial warehouse, above), but also to landmark buildings, such as the Museo Soumaya in Mexico City. Geometrica built the freestyle Hyparwave to support the façade of the multistory museum. Designed by renowned architect Fernando Romero, the Soumaya is the city's newest and most visible world-class icon. A thorough explanation of the process by which this remarkable building was realized is presented in Gehry Technology's Soumaya — Façade Design Through Fabrication.

Museo Soumaya completed.

About Geometrica

Geometrica is an international firm based in Houston, Texas that specializes in domes and space frames for architectural, industrial, and bulk storage uses. Geometrica also provides extremely striking and cost effective solutions for sports facilities, exhibition centers, passenger terminals, malls, assembly areas, production facilities, and many other buildings that require distinctive structures to cover great spans with no intermediate supports. DCi

LOAD, UNLOAD AND
STOCKPILE
SHIP, BARGE
AND RAIL

HIGHEST CAPACITIES ON THE PLANET

INSTANT PORTABLE TRUCK UNLOADING

SIGNIFICANTLY REDUCE VESSEL LOAD TIME

GO ANYWHERE. DO ANYTHING.

- Highly mobile conveyor designs.
- Functional machines for multiple applications.
- Robust designs withstand demanding work.
- Custom engineered to accommodate job site.

SUPERIOR®

superiorindustries
@superiorind

www.superior-ind.com

The mobility at the tail or hopper end of this Superior Industries shiploading conveyor allows for rapid travel from hatch to hatch.

Movers & shakers

mobile harbour equipment

Louise Dodds-Ely

Mobile telescoping shiploaders & truck unloaders cut operating costs per tonne

"When mobile telescoping shiploaders are used — especially in combination with portable truck unloading systems — port facilities can realize significant cost-per-ton savings via improved cycle times, minimized loader use, reduced labour requirements, and ensured product quality control by removing any extra handling of material," says Jarrod Felton, vice-president of sales, marketing and engineering for Superior Industries, a Morris, Minn.-based manufacturer of conveyor systems and components for the bulk and marine material handling industries. Among its offerings, the 40-year-old company designs customized loading and unloading conveyor systems that include highly-mobile automated telescoping shiploaders and radial stacking conveyors combined with a number of transfer point mobility options, truck unloaders, and more.

According to Felton, marine material handling facilities should view mobile telescoping shiploaders and portable truck unloaders as 'systems' that can be custom-configured, via a wide range of available options, to meet the requirements of a specific application. "As an alternative to the use of labour-intensive cranes and clamshell buckets, cable stackers and other more costly stationary shiploading systems, custom-configured mobile loading/unloading systems deliver the advantages of a lower capital investment, shorter load times, quick on-site assembly, ease of relocation, and the ability to function efficiently within a small footprint," he says.

The latest Superior Industries' release is the new Stingray™ Mobile Shiploader, a portable unit which greatly reduces downtime. Its telescopic capability enables an additional 30% of extension, allowing the shiploader to reach multiple hatches from the same feed point, and delivering a radial extension and retraction over the hatch for evenly-fed and fully-trimmed hatches. The Stingray Mobile Shiploader is ideal for Panamax vessels, but can be altered to accommodate smaller and larger dry bulk vessels and barges.

Felton explains that there are three key travel modes that should be considered when using mobile telescoping shiploaders:

1) an inline travel mode;
2) a dock travel or transverse travel mode with a 360-degree rotation; and
3) a radial travel or tow mode.

For example, Superior Industries can combine its mobile telescoping shiploader with a 'mobile pivot base' that allows free-ranging transfer point mobility. Essentially, the mobile pivot base features a fixed-width head axle with a swivelling wheel carriage that allows rotation into each mode. Axle jacks relieve the weight, a hydraulic pin is released, and the unit swivels into the next position.

When working in conjunction with mobile shiploaders, portable truck unloaders can further reduce operating costs. The Superior RazerTail® Truck Unloader reduces or eliminates the need for costly loaders by quickly transferring material onto a conveyor, or onto another truck. "This portable truck unloader is a flexible, easy-to-move, low-profile unit that will transfer material to or from a 20-tonne truck in less than one minute. It can feed directly into the mobile shiploader, which has a feed height of up to 14 feet. This is important because the ability to directly hit that key transfer point is a strategy that minimizes material degradation, while reducing capital equipment costs, and allowing efficient use of space on the dock," says Felton.

Australian port needs flexibility for multiple materials

A Superior mobile shiploader/portable truck unloader system is currently in operation at Port Kembla in Eastern New South Wales, Australia. The system is easily configured and flexibly

Have Engine - Will Travel

Diesel-Hydraulic Grapple
Model DHSG

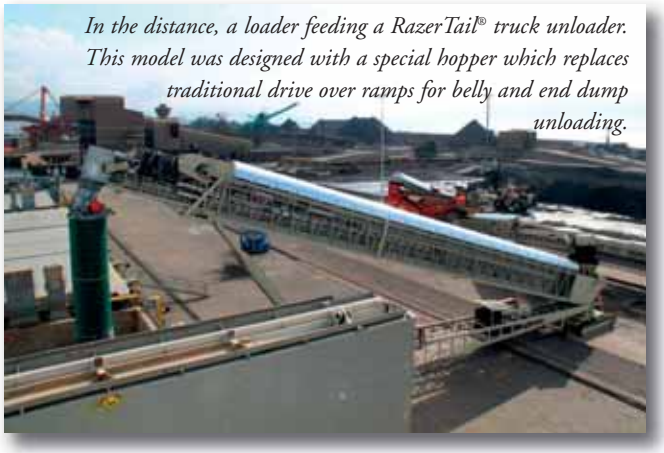
Our new Hydraulic Grapple with its self-contained diesel engine gives you the freedom to use on any crane. It connects easily and is operated by radio remote control to offer you the ultimate in flexibility.

- Engine models up to 150HP
- Air or water cooled engines to match your environment
- Removable bottom hatch for easy engine access and maintenance
- High-strength, wear-resistant alloy steel tines
- 50 Gallon Fuel Tank will run over a continuous 12 Hour Shift
- Environmental food grade hydraulic fluid option

Available Now for Rent or Purchase.

Anvil Attachments
Hawco • Pro-Line • Owen • Yaun • Williams • Drott

Log on to INFO.anvilattachments.com/diesel for videos and more information or contact us today at 225-654-8222.



In the distance, a loader feeding a RazerTail® truck unloader. This model was designed with a special hopper which replaces traditional drive over ramps for belly and end dump unloading.

reconfigured to load a variety of materials from light metallurgical coke material to coal, and on to heavy iron ore. Its telescopic capabilities allow the ability to feed 5,000dwt to 55,000dwt vessels. The mobile pivot base on the shiploader allows easy, quick transverse travel down the berth to the second and fourth hatches, for example, followed by the fifth and first hatches, for balanced loading on the vessel. The portable truck unloader is used to efficiently transfer material to a screening plant which removes fines from the coke material before it is fed to the shiploader. When handling coal or iron ore material, the portable truck unloader is relocated to feed directly into the shiploader, and the screening plant is removed. Because the system handles a variety of light, yet abrasive materials, as well as very heavy materials, it is customized to include special wear plates, liners, underpans, belt scrapers, and other very heavy-duty components. The new mobile system replaced an outmoded stationary system, allowing the marine logistics company to win a long-term loading contract.

Mexican ports reduce labour & load times

Agencia Aduanal Vejar is a cargo handling logistics solutions company in air, rail and maritime transport. Currently it operates out of two Mexican ports — one at Guaymus, Sonora; and the other in Lazaro Cardenas, Michoacan, Mexico. The company ships iron ore, copper concentrate, petroleum coke (petcoke), and other bulk materials via barge and ocean freighters. It operates three 170ft Superior mobile telescoping shiploaders and four Superior portable truck unloaders.

Prior to operating the new equipment; it would take the company up to four days to load 10,000 tonnes of material onto a vessel. The previous method involved the use of a flat bed trailer with two ten-tonne buckets onboard. Loaders would fill the buckets before transport to the vessel site where a crane and a six-man crew would hook up the bucket and lift it over the hold. Another six-man crew inside the hold would partially unhook the bucket to unload the cargo. With two buckets, that meant the method required a total of 12 people on the ground and 12 people in the vessel — a slow, labour-intensive process.

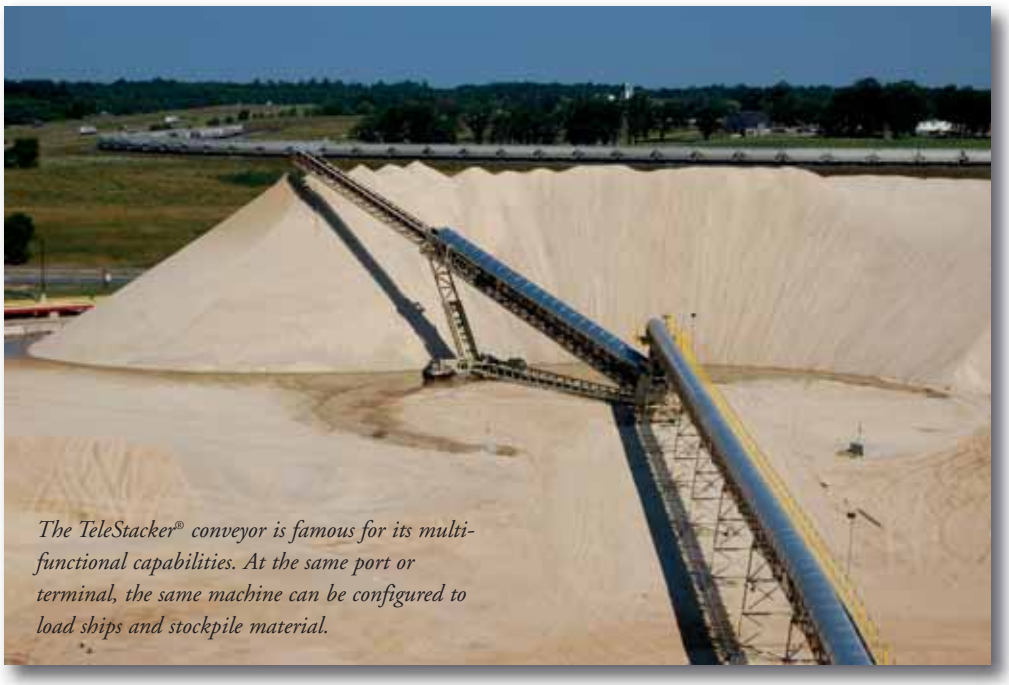
With portable equipment, the new method involves dump trucks travelling from the mines to the Guaymus port and unloading material onto two truck unloaders which feed two mobile shiploaders. Each works simultaneously to load two ship holds at a time. The mobile shiploaders swing left to right, up and down, safely loading and trimming the cargo. The result is a 75% reduction in loading time, while requiring only one-third of the labour force needed previously.

Engineering strength

Superior Industries first introduced telescopic conveyor capabilities into its products in 1997, and has since manufactured nearly a thousand mobile telescopic conveyors to serve a wide array of bulk material handling markets. In marine material handling, Superior's experience includes the world's highest-capacity mobile telescopic radial travel conveyor — a 72-inch (1,800mm)-wide by 190ft (58m)-long unit that transfers 5,000 tonnes per hour at the Port of Tampa in Florida.

In this image from a Mexico-based port, end dump trucks feed material to a Superior RazerTail® truck unloader which feeds a shiploading TéleStacker® conveyor.

"It's important that portable shiploaders have the flexibility to serve a variety of vessel sizes, moving from port to port, while also handling a variety of materials — all in one customized and versatile system. Our engineering strength and commitment to research and development has always been dedicated to creating the most mobile equipment on the market today," says Felton.



The TéleStacker® conveyor is famous for its multi-functional capabilities. At the same port or terminal, the same machine can be configured to load ships and stockpile material.





www.orts-grabs.de

ORTS GmbH

Orts GmbH Maschinenfabrik • Schwartauer Str. 99
23611 Sereetz • Germany

Tel: +49 451 398 850 • Fax: +49 451 392 374
Email: sigvard.orts-jun@orts-gmbh.de

Keeping bulk moving with Neuero mobile pneumatic conveyors

Pneumatic conveyors from Neuero are helping to keep bulk product moving in Indonesia and Georgia.

Neuero's GSD series has been on the market for decades, and is of particular use in projects where reliable machines and continuous hard work are required.

Unloading palm kernels at an Indonesian facility.

Indonesia — unloading of palm kernels

Palm plantations are increasing their production, and there is a need to solve the logistical bottleneck that has resulted. Logistics are expensive, due to a number of factors. Transporting bulk goods by water is a good alternative, especially in under-developed areas where roads are either non-existent or unreliable. However, using barges and bagging systems can make the loading and unloading of palm kernels slow.

Neuero has delivered its first machines to Indonesia, and they have been successfully tested. They are diesel-engine-powered, and are therefore energy-independent. The GSD250/270 D TA9,5 DA7,5 mobile machine is also used for the unloading of big ships.

The name of the machines are composed by GSD (gebläse saug-druck — blower suction-pressure) 250 — pipe diameter, 270 D Motor size, TA9,5 (telescoping boom with 9.5m), DA7.5 (pressure boom with 7.5m).

It is expected that there will be other new uses of the GSD series in other applications.

Port of Poti — Georgia

This year, Neuero delivered two GSD 280-270 EL TA16.5 DA 7.5s for the Port of Poti with horizontal boom length of 16.5m and electric motor drive. The machine are used to unload and load barges.

This equipment can be used for permanent operation but also is very common where the initial flow volume of product is low, the operation is not constant or the location will change in short future. In this case the GSD is a solution and a compromise in delivery time and cost.

Conclusion

Neuero mobile conveyors are extremely flexible in terms of conveying layout or even location of the conveying or ship position. They can be used for ship-unloading and in some cases shiploading. Neuero is able to offer the optimum solution, as long as it has the following information: product to be handled, capacity expected, annual capacity, operation description, site description, ship size, drive type — electric or diesel.

Neuero equipment at the Port of Poti.

dk

vac-u-vator®

Barge, Ship & Warehouse Unloading
at Rates from 100 - 300 MTPH

www.christianson.com

Flexible solutions for material handling

MADE IN THE USA
AMERICAN PRODUCT

Christianson Systems offers flexible solutions for a wide range of material handling applications. Manufactured in the United States with state-of-the-art technology backed by over 50 years of experience assure that each machine is built with superior quality, construction and design. Equipment recommendations are based on the customer's product, vessel size, capacity requirements, and power sources.

Christianson
Pneumatic Conveying Equipment

20421 - 15th Street SE, PO Box 138
Blomkest, Minnesota 56216 U.S.A.
Telephone: +1-320-995-6141
Email: sales@christianson.com

Cat® mobile solutions ideally suited for dry bulk port applications

Cat 966K wheel loader handling fertilizer at Malaga port.

Caterpillar builds products that are ideally suited to dry bulk handling in port applications, whether in seaport or inland operation. The equipment is used to load and unload ships and barges, transfer, load and store materials, build and manage stock piles, clean and maintain ships and quays.

Port professionals are challenged to meet strict loading and unloading schedules. Unplanned product problems or unexpected downtime can bring production to a halt, increasing costs. Cat equipment and solutions are designed to help maximize uptime and deliver the highest possible return on equipment investment.

Cat port equipment

- **articulated trucks:** offer haulage capacities with simple, easy operation and automotive style comfort;
- **compact track loaders:** compact, manoeuvrable, and ideal for working in tight spaces. In poor ground conditions, they offer excellent traction and flotation;
- **hydraulic excavators:** Cat hydraulic excavators are an option to distribute material quickly between the extremities and the loading areas. They offer quick cycle times and long reach;
- **mini-excavators:** the Compact Radius design, available on selected models, enable work in tight areas that might not be otherwise accessible;
- **skid steer loaders:** Cat skid steer loaders are ideal to work around smaller vessels. They are compact, manoeuvrable, and ideal for working in tight spaces;
- **telehandlers:** for tackling tough jobs in high places;
- **track-type loaders and track-type tractors:** Cat track-type tractors and Cat track-type loaders push or pull materials, particularly when low ground pressure is a priority. Track-type tractors excel at the top of the stockpile. The suspended undercarriage improves traction and flotation in soft materials and increases stability, especially on steep slopes;
- **wheel dozers:** for mobility, versatility, speed and compaction. Built and designed for demanding work, from coal stockpiling and wood chip handling to cleaning up;
- **wheel loaders:** when working the hold, high-efficiency Cat wheel loaders are used to distribute material quickly between the extremities and the loading areas, filling void space to reduce the cost per tonne. Cat wheel loaders are available in standard or high-lift arrangements. They can be equipped with a quick-coupler for fast tool changes. The variety of work tools available include Performance Series Buckets which are specifically designed to enhance machine performance while in load, carry and stockpile applications; light material buckets to move large volumes of loosely packed materials such as fertilizer and wood chips; logging grapples that grasp, rotate, lift or drag logs, timber and other long materials; and
- **wheel material handlers:** at the quayside, Cat wheel material handlers deliver high lift capacity, excellent controllability and an operator station that boosts comfort and productivity.

Fleet management solutions

Cat Product Link is a secure and user-friendly application that allows remote monitoring of Cat equipment. It is deeply integrated into machine systems. Events and diagnostic codes, as well as hours, fuel, idle time and other detailed information are transmitted to a secure web-based application, VisionLink™. VisionLink includes powerful tools to convey information to users, dealers, including mapping, working and idle time, fuel level and more.

Durability and sustainability

Caterpillar works continuously to reduce the consumption of energy and raw materials. The company does this by improving the durability of its machines and increasing their remanufacturability. In addition, it follows life-cycle management strategies that boost machine uptime and productivity while optimizing operating costs.

The extensive Caterpillar Certified Rebuild programme incorporates the very latest Cat technology and critical engineering updates into the machine at a lower cost of buying new. After thorough evaluation, including tests, customers get a like-new machine with warranty.

Caterpillar offers remanufactured parts as one of the product support options available to support normal overhauls and repairs as well as Certified Rebuilds. Cat Reman parts are remanufactured in a factory environment to Caterpillar specifications, ensuring same-as-new quality which is backed by same-as-new warranty. The process also incorporates the latest engineering design changes ensuring the components meet the latest performance specifications. Cat Reman parts are available off the shelf and are priced at a fraction of the price of new parts.

Work tools

Each model comes with an extensive selection of work tools to extend productivity and productivity.

A VisionLink screen showing maintenance information.

About Caterpillar

For more than 85 years, Caterpillar Inc. has been making sustainable progress possible and driving positive change on every continent.

With 2012 sales and revenues of $65.875 billion, Caterpillar is the world's leading manufacturer of construction and mining equipment, diesel and natural gas engines, industrial gas turbines and diesel-electric locomotives. The company also is a leading services provider through Caterpillar Financial Services, Caterpillar Remanufacturing Services and Progress Rail Services.

Cat D9T track-type tractor working in a coal stockpile at OBA (Overslag Bedrijf Amsterdam/Transhipment Business Amsterdam).

WORK TOOLS: EACH MODEL COMES WITH AN EXTENSIVE SELECTION OF WORK TOOLS

Application	Performance Series Bucket	Light Material Buckets	Tilt Buckets	Clamshell Buckets	Orange Peel Grapple	Logging grapple	Blades	Brooms	Logging Forks	Quick Coupler
Shiploading & unloading	✔	✔	✔	✔	✔		✔	✔	✔	✔
Load, transfer, storage	✔	✔				✔				✔
Stockpiling	✔	✔					✔			
Quay cleanup & maintenance	✔	✔	✔	✔				✔		✔

Cat® Industrial Solutions

READY WHEN YOU ARE

ALL DAY. EVERY DAY.

Your goal is to move more material in less time with less cost: When working the port, use our revolutionary Cat® K Series wheel loaders to efficiently handle the dry bulk material between loading areas:

- Work safely with our industrial package that includes cab screen guards, pressurized cab filtration, and a rear view camera.
- Enhance versatility with our large selection of work tools - the Cat quick coupler for instance allows for fast tool changes without leaving the cab.
- Stay up and running with unmatched parts availability and consistent support from your local Cat dealer
- Financing and leasing plans, offered through Cat Financial, help you acquire the assets you need to be successful.

Cat wheel loaders will help you optimize productivity, versatility and safety. To learn more call your local Cat dealer to get a copy of the Cat Dry Bulk Handling Brochure.

CAT®

Telestack's mobile harbour equipment: the flexible solution

Mobile harbour equipment offers the operator the mobility and flexibility that is unrivalled by any fixed or semi-fixed equipment. The overwhelming trend in ports and harbours globally is to increase flexibility, productivity and efficiency, while minimizing costs, labour, fuel and emissions. The mobility factor ensures port operators and stevedores can use the equipment as required in one area of the port and move to another very easily, or move the units to storage areas for multi-purpose ports and harbours. This cannot be offered by fixed infrastructure and limits the possibilities of the application. The loading and unloading vessels with wheeled and rail mounted harbour cranes is the traditional and industry standard method for handling bulk materials in ports and inland terminals.

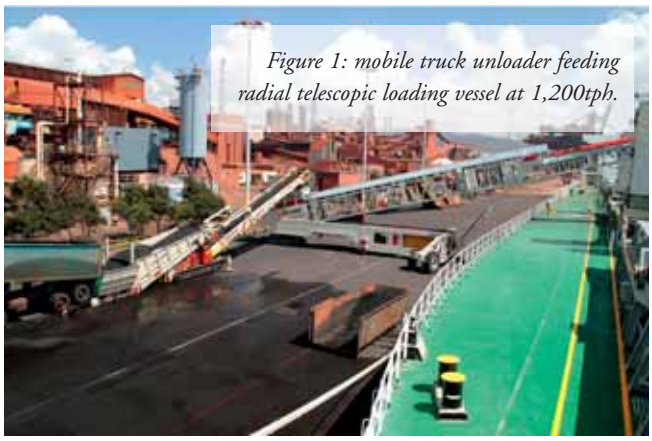


Figure 1: mobile truck unloader feeding radial telescopic loading vessel at 1,200tph.

Figure 2 –Mobile hopper feeding radial telescopic shiploader loading Handymax vessel at 1,500tph

However, Telestack's range of mobile harbour equipment offers a proven alternative to traditional mobile harbour cranes/ stacker reclaimer systems in sea ports and inland river terminals. Telestack advantages include lower capital expenditure, lower operating costs, less reliance on human skills/training, better environmental performance, safer sites as less potential for human error, fewer planning requirements, significantly lower civil/infrastructure costs and excellent resale opportunities/values.

Compared with traditional mobile harbour cranes (MHCs) loading a vessel, Telestack solutions can offer:

- significantly less expensive systems to handle the same tonnage per hour (100–2,500tph [tonnes per hour]);
- continuous loading (MHC returns to dockside empty);
- lower operating and maintenance costs;
- elimination of double handling of material on quayside
- no requirement for a skilled driver
- better environmental performance in terms of dust, noise, emissions;
- significantly lower weights/better weight distribution to reduce the cost of dock constructions/civils;
- easier for operators to learn/understand the system, operate the system, troubleshoot the system;
- ease of movement around the dock/from dock to dock;
- the same solution can be used to load vessels, unload vessels, build stockpiles in the port stockyard; and
- if market conditions change, the Telestack equipment can be easily shipped GLOBALLY to a variety of industries making resale values excellent.

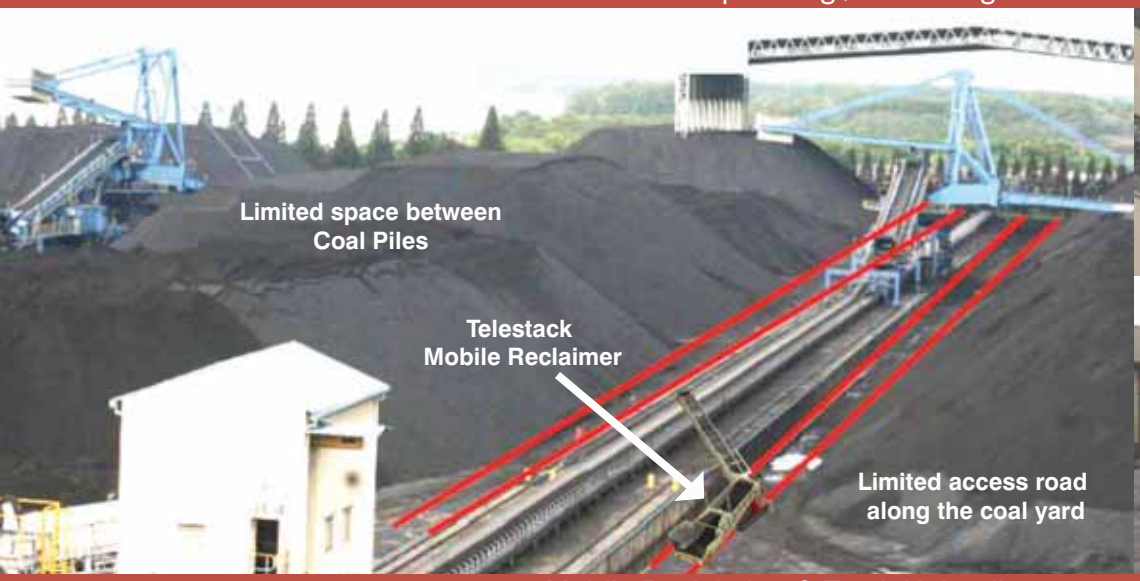
Figure 3 – mobile truck unloader fed from trucks and wheel loader loading a vessel.

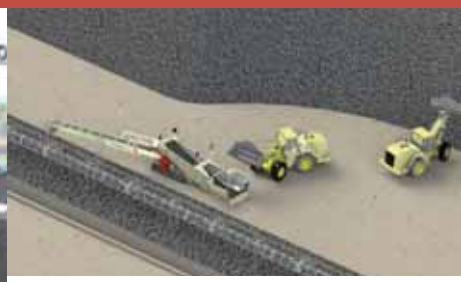
Figure 4 — mobile truck unloader loading a barge.

Mobile Port Systems

Telestack®
Mobile Bulk Material Handling

Mobile Shiploading / Unloading





Mobile Reclaiming & Truck Unloading

- Less Capital Expenditure than Mobile Harbour Crane Systems / fixed infrastructure
- Keep existing system running during planned maintenance / break downs
- Multi-use Equipment - Used for Shiploading, Stacking and Reclaiming Processes

SEE US AT:
bauma Africa 2013 18TH - 21ST SEPTEMBER
Coaltrans berlino 20TH - 22ND OCTOBER

THE POWER TO MOVE MATERIALS™

ISO 9001:2008 Registered firm | info@telestack.com | www.telestack.com

DEALERS WANTED GLOBALLY

www.guvengrab.com

güven
grab & machine

GÜVEN KEPÇE MAKİNA
İÇ ve DIŞ TİCARET LİMİTED ŞİRKETİ
Factory & Head Office
Nazım Hikmet Caddesi 536 Sokak No.:9
41420 Akseköyü - Çayırova - Kocaeli / TURKEY
Phn:+90 262 743 88 58 pbx
Fax:+90 262 743 11 41
info@guvengrab.com
www.guvengrab.com

Compared with traditional stacker reclaimer systems in the port stockyard Telestack's range of mobile stockyard solutions can offer

- flexibility of the same piece of equipment to build stockpiles, reclaim from stockpiles, load rail wagons;
- support to existing stacker reclaimer system during breakdowns/planned maintenance whereby the Telestack solution can keep the stockyard processing;
- Telestack solutions can access hard-to-reach parts of stockpiles and so it is possible to reclaim from these hard to reach areas; and
- Telestack solutions can stockpile in hard-to-reach parts of the stockyard and so you can increase stockpile capacities

Figure 5 — mobile truck unloader fed from grab unloading a vessel.

Telestack solutions are in use in numerous ports and river terminals around the world handling a wide variety of dry bulk materials from coal, iron ore, aggregates, grains, fertilizer, wood chip and many more materials.

More and more customers are turning to Telestack to solve their material handling problems and the company has a proven record of performance of supporting customers around the world before, during and after the sale.

Within its UK facility, Telestack designs, manufactures and fully assembles to test all functions, before it ships the equipment to its customer. Telestack's ISO 9001:2008 status demonstrates that it has processes in place to help ensure it delivers on time and within budget what the customer has ordered.

Figure 6 – mobile radial telescopic & tracked mobile hopper feeder reclaiming from stockpiles.

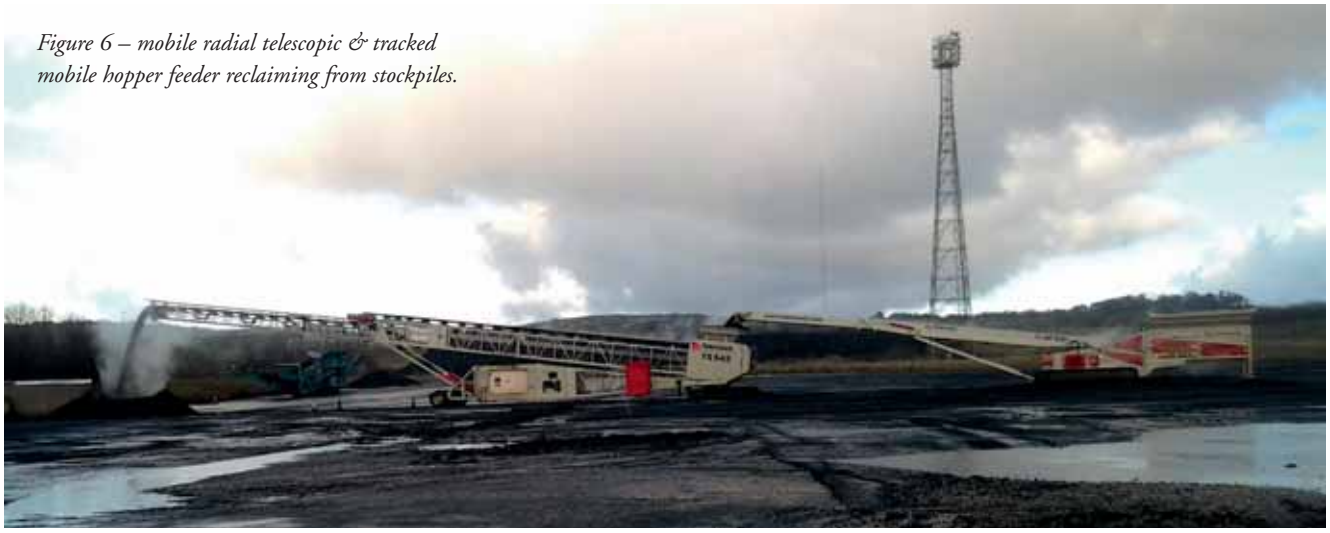


Figure 7 — mobile truck unloading, linking, stockpiling, reclaiming and shiploading system installed in Africa.

The technological choice

Hitachi is renowned for the reliability and versatility of its wheel loader range. The new ZW-5 models benefit from several technologically advanced features that deliver unrivalled levels of availability and efficiency. Take the quick power switch: it boosts the machine when travelling uphill with a full load or when greater digging force is required. This has a huge impact on productivity to prove that Hitachi is the technological choice.

HITACHI

Reliable solutions

Hitachi Construction Machinery (Europe) NV www.hcme.com
Siciliëweg 5 – haven 5112 1045 AT Amsterdam The Netherlands T: +31-(0)20 44 76 700 F: +31-(0)20 33 44 045

Hitachi launches the new ZW220-5 wheel loader

Hitachi Construction Machinery (Europe) NV (HCME) has introduced a new wheel loader, the ZW220-5. Hitachi designed the new wheel loader to satisfy the requirements of its European customers for machines with an exceptional level of comfort, as well as excellent productivity, advanced technology, and a range of features for enhanced sustainability, safety and easy maintenance.

Comfort was one of the most important considerations for the design of the new ZW220-5. The cab is more spacious than the previous model, because the heated air-suspension seat can slide further back, providing more leg room. The tilting telescopic pop-up steering column has also been repositioned to create additional space.

The air conditioning system regulates the temperature inside the cab, and an optional filter is available for industrial waste job sites. Sound insulation reduces noise levels from the local environment and improves the operator's overall experience.

The ZW220-5 wheel loader complies with EU regulations on emission standards, but does not compromise on productivity. It has a 7.8-litre six-cylinder water-cooled turbo engine that enables a powerful digging performance, impressive travel speeds and excellent fuel consumption. The new ZW-5 wheel loader is easier to manoeuvre than the previous model, which also results in higher levels of productivity. A new clutch cut-off system allows for smooth operation when it is loading.

Two simple work modes provide an appropriate level of performance for a particular task. In Standard mode, the engine speed is controlled, which allows for smooth and efficient acceleration during loading, regular operations and travelling on level terrain. Fuel consumption is reduced by up to 10%, enhancing its environmentally friendly performance. The P mode is useful when greater traction force is required for heavy-duty excavation and travelling quickly uphill.

When changing work modes, the ZW220-5 has a quick power switch, an example of its advanced technology, which boosts the power when required. The wheel loader also features a new hydraulic circuit, which facilitates the combined operation of the bucket and lift arm for loading, and prioritizes the use of the bucket for unloading.

The optional auto-engine shutdown function avoids fuel wastage while the wheel loader is long idling. In addition to lowering fuel costs for the customer, this enhances the sustainability of the ZW220-5. It also has a muffler filter to capture air pollutants, which are automatically burnt thanks to an oxidation catalyst and exhaust temperature control.

To enhance safety on the job site, the ZW220-5 offers greater

ZW220-5 SPECIFICATIONS

Engine rated power	145kW
Operating weight	17,700–18,030kg
Bucket capacity	2.4–3.5m³
Breakout force	185kN

BULK CARGO HANDLING EQUIPMENT

New Product Update!

Our Enviro-Max 50 Dust Controlled Hopper, now comes with the option of an integrated dust collection unit.
Talk to us today about how this could benefit your discharge operations.

Dust Controlled Hoppers

- Dust Extraction System
- Dust Control Grizzly Chutes
- Retractable Loading Spouts
- Ship to Hopper Spillage Recover
- Hopper Cleaning Access

Bulk Grabs

- Wire or Chain Operation
- Diesel Hydraulic Operation
- High Productivity
- High Digging Capacity
- Excellent Bucket Sealing Integrity

PAGE MACRAE Engineering

EMAIL: enquiries@page-macrae.com
WEB: www.page-macrae.com

Stevenel
Pro-Loading

Enhance Your Port operations with fully/semi-automated attachements!

Stevenel for
- pulp units
- sawn timber, plywood, chipboard
- paper reels, big bags
- steel bars
- dry bulk, etc....

Head Office:
Stevenel Oy, Juhlatalonkatu 6 C 45
FIN-33100 Tampere, Finland
Tel. +358 40 5037 616
Fax +358 3 2225 339
stevenel@stevenel.com

www.stevenel.com

First ZW220-5 wheel loader delivered to Norway

The first Hitachi ZW220-5 wheel loader in Europe has been delivered to Norwegian company Farbu & Gausen, which specializes in road and railway construction projects, and electricity contracts on a national basis. The new ZW-5 machine has already been dispatched to a limestone quarry that its owner rents from Hall Farm, close to its base at Kjerknesvågen, located along the Trondheimsfjord on the Inderøy peninsula.

Farbu & Gausen has had a licence from the local government to extract 400,000m^3 of materials from the site since 2003. The limestone is blasted periodically and then the company's Hitachi ZX225USRLC-3 is used to break up larger rocks before the materials are further reduced by a mobile crusher.

Three different grades of materials are produced on the site: 0/20mm for the top layer on road construction projects; 20/50mm for drainage work in house construction; and 50/120mm for the base layer on new roads. However, the size of the materials can also be prepared to order.

The new Hitachi ZW220-5 wheel loader is the only machine based at this site, with support from the company's fleet of Hitachi Zaxis excavators as and when required. It is used to load trucks for the delivery of the finished materials, 90% of which are produced for the company's private road and general construction contracts.

"The reliability of the ZW220-5 will help us to maintain our reasonable running costs," says managing director Even Gausen. "It is not only user-friendly and comfortable to operate, but it also has a better loading capacity than the previous machine. With increased efficiency, it is more economical and already making a positive impact on our business."

The machine's operator, Anders Fossum, has worked for the company since 2003 and says, "I've only got positive feedback on the new Hitachi wheel loader. It is powerful, fills the bucket well and is very stable when moving with a full load. Overall, I find the cab to be extremely comfortable and this also helps to make it easy to drive."

visibility from the operator's seat thanks to a pillar-less windshield and large sun visor. The counterweight is also now visible from both sides of the machine. The shift-up delay to third gear makes the wheel loader safer to operate in confined spaces, because it can perform excavating and unloading tasks more safely in first and second gear.

A variety of easy maintenance features has been incorporated into the design of the ZW220-5 to ensure maximum availability. For example, the redesigned engine and radiator cover can be opened fully, providing quick and convenient access for daily inspection. The greasing points, oil levels and fuel filters can all be accessed at ground level. For operation in dust-filled environments, the ZW220-5 wheel loader can be equipped with an optional wide-pitch fin radiator to prevent clogging. Another useful feature for routine maintenance is the automatic reversible cooling fan, which allows for easy cleaning of the radiator with its one-minute automatic reverse rotation every 30 operating minutes.

Tadayoshi Aoki, HCME Engineer for wheel loaders, is looking forward to the reaction of the European market to the launch of the ZW220-5. "We believe that the new wheel loader not only meets our customers' expectations of high quality and reliability, but also provides a safe working environment, a comfortable cab with easy-to-use controls, and overall, a machine that responds quickly and precisely."

PLM
CRANES

More than 60 years of experience in developing and offering customer solutions to the crane industry.
T: +31 (0)167 – 52 85 10
E: info@plmcranes.com
W: www.plmcranes.com

Technical Data

Type	PLM 6400
Year build	2013
Application	Pedestal mounted, floating hoist crane
Capacity	400 ton @ 20m
Boom length	60m – 70m
Total weight	583 ton
Main hoist (2x)	SWL 200 ton
Aux. hoist 1	SWL 20 ton (controlled free fall)
Aux. Hoist 2	SWL 20 ton
Tugger winch (2x)	SWL 3 ton
System	Diesel - Hydraulic
Yoke block (2x)	50° swivel angle (per yoke block)
Drivers cabin	Tiltable

Possibility to mount two (2) 20ft powerpack containers for piling on the crane construction

RDS launches LOADMASTER α100 on-board weighing system

RDS Technology has launched its new LOADMASTER α100 on-board weighing system, described by the UK-based manufacturer as being the new industry benchmark in terms of accuracy and ease of use in difficult conditions and terrains.

This on-board weighing system is ideal for use on mobile equipment such as front-end loaders.

The RDS LOADMASTER α100 is an all-new CAN-based system combining cutting-edge sensor technology and signal processing techniques providing precise and consistent weight information.

With the ever increasing focus on productivity, LOADMASTER α100 has been designed to operate within the fastest loading environments and toughest of conditions compensating for uneven, sloped ground and restricted loading areas reducing cycle times and maximizing tonnes per hour performance.

Loading correctly first time eradicates return trips to the stockpile reducing vehicle movement, fuel usage and machine and tyre wear.

The new RDS LOADMASTER α100 uses a 7" colour, resistive touch screen display and additional physical keys providing a modern and ergonomic operator interface.

Suitable for use with up to ten different attachments e.g. buckets or forks, the system can be retrofitted onto wheeled, telescopic and tractor type loaders.

The system continually measures hydraulic pressure using up to four sensors. The pressure signals are captured and filtered through a weighing 'arc' provided by inclination sensors measuring the angle of the main boom. All signals are processed in the RDS Smart Box and the resultant weight calculation is sent to the terminal mounted in the cabin.

SQL database capability with up to eight reference fields providing virtually unlimited inputs of products, customers, trucks, hauliers, locations, destinations, mix blends and notes. There is a blend facility with an infinite number of mixes and products.

GPRS or Wi-Fi connectivity provides one or two-way communication with the back office to send and receive job information.

Video input for switching head unit into reversing camera mode removes the need for additional screen, releasing valuable cab space.

Buttimer's mobile loaders match flexibility with durability

Buttimer has been designing and fabricating high-quality mobile harbour equipment in Ireland for many years. Its core product range includes ship unloading units, custom-designed to handle grain, coal, ores, aggregates, biomass and other dry bulk products. The units can discharge to trucks rail and conveyors, depending on port requirements, and can be fitted with a range of dust control and aspirations features. Many of the units supplied by Buttimer are self-drive vehicles on sturdy rubber tyres; however they have also been mounted on rails, static structures and driven by their feeding crane. Buttimer's mobile harbour equipment has been developed with knowledge of requirements in a busy port environment, with flexibility and durability in at the heart of their design.

Buttimer's most recent equipment order, from Associated British Ports (ABP) in the summer of 2013, has been for two mobile ship unloading hoppers for the Port of Hull, England. The two state-of-the-art ship unloaders will primarily handle wood chip and wood pellets as part of the port's new biomass handling capabilities. Buttimer won this project by specifically meeting the client's handling needs, and was selected above products from a number of very well-known port equipment brands. Existing units are operating effectively, some many years after commissioning, at ports including Cork and Dublin in Ireland and Gdynia, in Poland.

Buttimer is preferred by its customers for a number of reasons, but all arise from a practical understanding of the demands placed on mobile harbour equipment in practice at busy bulk terminals. A number of key innovations allow Buttimer equipment superior durability and flexibility than competitor products, a few of these are:

- **sound structural design:** including a detailed estimation of forces and loads to be borne on the ship unloading hopper's frame and wheel structure. It is not uncommon to hear of damaged unloading hoppers even where equipment has not been overloaded, this is often due to poorly designed equipment which hasn't been designed to withstand the loads on stress points and structural twisting during the loading process. As no port wall is level and mobile unloading hoppers can be up to 14m wide, 14m long and 18m high, there can be deviations of up to 1m over the diagonal length of the unit. In conventional units, the structure is made in a way to take up these differences but as the structure twists it puts very large torsional loads on the structure with obvious consequences. Buttimer's engineers have designed a hydraulic suspension system to take up the differences in levels and hence keep a constant loading on each corner. Buttimer's equipment is designed to be robust enough to accommodate the full rigour of bulk product handling, the occasional accidental bump from a grab, and manoeuvring to and from the quay wall — the full impact of a busy port!

- **manoeuvrability:** a limited commodity at the majority of bulk ports is space. Buttimer has developed patented steering and wheel technology, designed to give equipment a very tight turning radius, making units highly manoeuvrable and efficient even in tight quay areas. An impressive tight turning radius, coupled with an ability to tolerate variations in the level or surface of the quay wall, give Buttimer's equipment an ease and speed of repositioning and manoeuvrability that belie their robust frame and structure.
- **customizable environmental controls:** each bulk product, port and environment will require different levels of dust suppression, aspiration and environmental control functionality from its mobile port equipment. Buttimer can design and fabricate a wide range of dust suppression features on all units, to the client's and product's requirements. Buttimer offers solutions such as a 3m-high grab-enclosure thimble with a mechanical dust suppression system; a built-in dust suppression flex-flap system, and inserted cassette filters that return the dust into the product. These options combined with out-loading dust suppression chutes allow for a greater control of emissions and mitigation of explosion and fire hazards; whether feeding into a conveying system, direct to trucks, train wagons or barges.

Buttimer has also manufactured a range of other port equipment, ranging from entire material handling systems, to bespoke pieces of equipment. Last year Buttimer developed an innovative mobile conveyor shiploader, in partnership with Telestack Ltd. The unit used an innovative six-wheeled chassis to quickly change from parallel, radial and straight drive modes, allowing rapid movement between hatches, and optimized efficient loading of iron ore at 2,000tph. The unit was developed for ArcelorMittal and is in operation in Buchanan, Liberia.

Buttimer is an expert in the mechanical handling of dry bulk products. The design and manufacture of port equipment for handling bulk goods is one area of its business which also includes turnkey bulk port design, and material handling solutions, design and consultancy for industries such as mining, power generation, food, malting and brewing and animal feeds.

IBT develops concepts for mobile stacker conveyors

IBT has developed a few concepts relating to mobile stackers that are directly, or indirectly, linked to a feeding hopper.

Mobile stacker with feeding hopper

In the concept of the mobile stacker with connected feeding hopper, the stacker (5) is permanently linked with the hopper (1). The feeding hopper is provided with a set of double tyres and has a flexible connection with the mobile stacker.

The feeding hopper can be loaded from the rear. The width and height of the inlet can be customized according to the requirements of the customer. The available capacity ranges from 500tph (tonnes per hour) up to 2,000tph.

The stacker has a boom (5) with an adjustable inclining angle up to 25°. On request the boom can be provided with a dust reducing hopper or a loading spout. In order to prevent run-back of product, the belt can be provided with 32mm-high chevrons.

Depending on the needs of the customer, the belt widths can range from 800mm to 1,400mm, which offers a wide range of capacities.

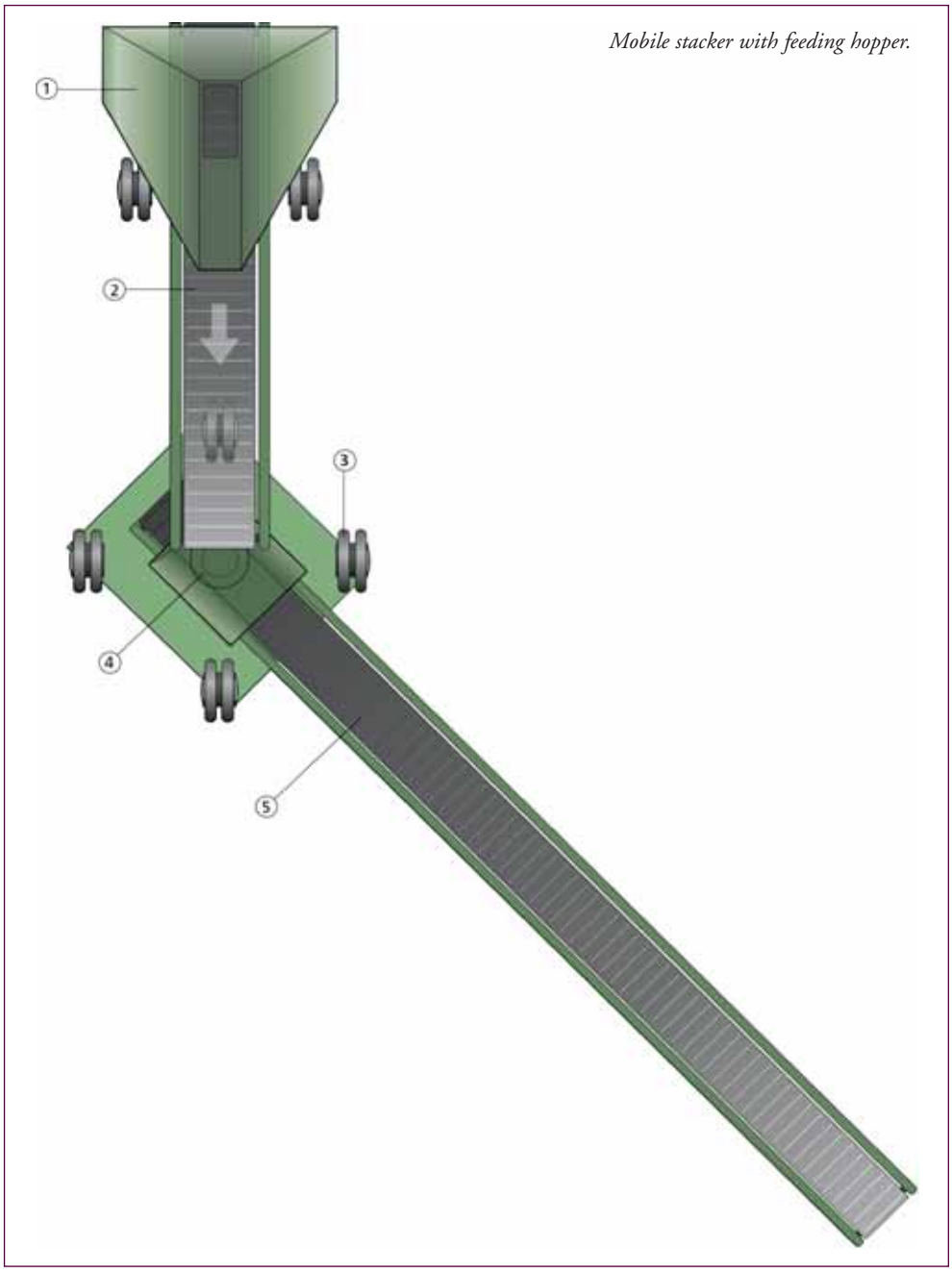
All the wheels (3) of the stacker are swivel-mounted, so the machine can move directly forward, in any direction or at rightangles to the mobile stacker. All the wheels can rotate over 360°, allowing movement in any direction. All of the stacker's wheels are electrically powered via frequency converters, enabling variable speeds.

This concept is unique in that the stacker can slew around its central point (4) while the feeding hopper remains motionless. The advantage is that the feed hopper follows the movements of the stacker while travelling.

The total empty weight of the feeding hopper (1) in the toughest implementation is approximately 18.5 tonnes. The weight of the stacker including the counterweight — but without product — is approximately 30 tonnes.

The feeding hopper (1) and the stacker (5) are provided with plug connections so that the individual parts can be transported separately.

The unit can be used for loading ships, and for the storage of bulk materials in an open or closed storage. For rough or unpaved terrain, the stacker can be mounted on tracks without compromising flexibility.



Mobile stacker with feeding hopper.

Mobile stacker with linked conveyors

This mobile unit (see graphic on p91) consists of a mobile stacker (7) connected to two mobile (4) conveyors. The fixed loading point (2), that is integrated in the first mobile conveyor, can be loaded from another mobile conveyor or directly from a feed hopper.

The last link in the three parts of this mobile unit is a the height-adjustable mobile stacker (7). The stacker is connected by two mobile conveyor belts in line. The first in line connected is provided with a sliding loading point (2). The loading point will stay in a fixed position and will only rotate while travelling with the stacker.

All conveyors are equipped with tyres (1, 3 and 6) so that total unit as a whole can travel. All the wheels are steered in such a way that the direction of the moves of the connected conveyors can be determined by the operator.

By providing flexible connections (5) between the individual components and a sliding connection (2) below the loading point, the stacker is able to travel over dozens of metres

WE CONVEY QUALITY

Mobile Loading Solutions
Flexible • Economical • Reliable

Mobile professional equipment for ship loading, unloading and stacking in bulk ports and terminals providing high performance with fast track availability.

Flexible with the ability to operate on any flat quay surface and easily relocated should trade conditions demand.

Economical requiring no fixed port infrastructure or dedicated civil works, a minimum risk investment with fast return on capital employed.

Reliable with over 200 machines in service handling materials from light feed stuffs to heavy mineral ores at handling rates from 300 t.p.h. up to 2,000 t.p.h.

SAMSON
AUMUND GROUP

SAMSON Materials Handling Ltd. • Cambridgeshire Business Park • 1 Bartholomew`s Walk • Ely • Cambridgeshire CB7 4EA • U.K.
Phone: +44-1353-665001 • Fax: +44-1353-666734 • e-mail: sales@samson-mh.com • www.samson-mh.com

metso
Expect results

Rely on our equipment. Rely on our track record.

Metso railcar dumpers and positioners

For more than a century, Metso railcar dumpers have set the standard for fast, dependable train turnaround. Our custom-designed rotary railcar dumpers – available in single, tandem and triple – service trains of any length or style and handle any bulk material. These systems are engineered to last, and when used with Metso railcar positioners, your operations can be even more effective: Move individual cuts of one to 10 cars or unit trains with more than 200 railcars, and do it all with just one operator.

metso.com – email: minerals.info@metso.com

without having to interrupt the unloading.

By choosing a central loading point, the stacker is able, depending on the specifications of the individual components, to travel from 35 to 60 metres without changing the position of the loading point.

The fixed loading point (2) makes it possible to provide the electrical power connection at this point.

The design of this concept is based upon a capacity of 500tph up to 2,000tph, with a belt width of 800mm up to 1,400mm. The individual length of the conveyors are 12 up to 20 metres for the connected belt to the stacker, and 20 up to 32 metres for the belt conveyor with the sliding loading point.

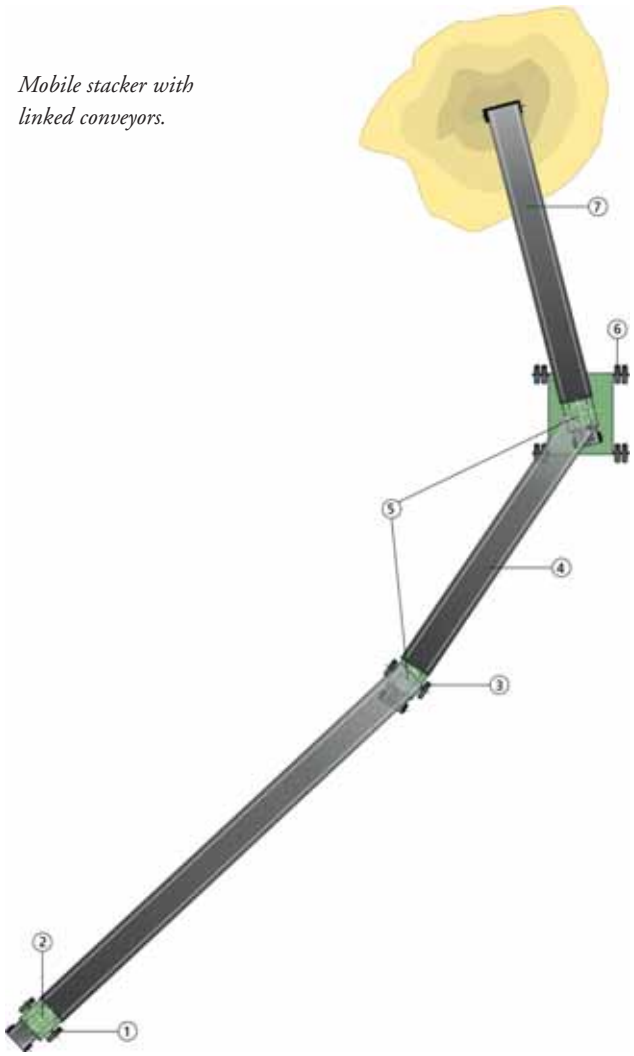
The conveyor system is ideal for the loading of sheds, an open-air storage facility, or for shiploading — or even for the loading of trains. A feed hopper could be used to feed the above-mentioned systems.

Advanced mobile stacker with input bunker

The option of a mobile stacker with feeding hopper can, by the integration of two mobile belt conveyors be completed up to a four-piece unit.

The options listed here are all basic concepts and will vary depending on the product specifications and capacities in a 'custom made' implementation.

The control cabinet is found in all situations on the stacker. The position of the electrical connection is on the fixed point of the sliding support of the belt conveyor.



Mobile stacker with linked conveyors.

Experience the progress.

Liebherr-Werk Nenzing GmbH
Dr. Hans Liebherr Str. 1
6710 Nenzing/Austria
Tel.: +43 50809 41-725
mobile.harbour.crane@liebherr.com
facebook.com/LiebherrMaritime
www.liebherr.com

LIEBHERR
The Group

Qube orders another Liebherr LHM 280 for Melbourne

The year 2013 has been a good one for Liebherr Maritime Cranes in the Oceania region, with deliveries of mobile harbour cranes, ship-to-shore container cranes, and straddle carriers to the area. Ship-to-shore container cranes have been delivered in Tauranga, New Zealand and Melbourne, Australia, while Liebherr straddle carriers are now operational in ports at Lyttelton and Tauranga, New Zealand.

In Australia, the Liebherr mobile harbour crane has been flavour of the day, with two LHM 550s and one LHM 420 handed over to Patrick Stevedoring Pty Ltd in Henderson, Western Australia at the turn of the year. Also on the Australian west coast, a LHM 280 has been commissioned in Geraldton for operation with the environmental bulk handling system the Rotabox, while LHM 280s in both Fremantle and Bunbury are been assembled now. All three machines are for the company Qube Ports & Bulk, which provides services and facilities in 28 Australian ports. In total, Qube handles more than 40 million tonnes per annum of bulk products and expects volumes to increase. For that reason, a fourth LHM 280 has just been ordered for its Melbourne facility. In total, Liebherr has sold seven advanced mobile harbour cranes to Australia in only twelve months.

"Our machines are adaptable to all kinds of handling products, and the Rotabox is somewhere between a grab application and container handling, so it was no trouble for our experienced designers to come up with suitable solutions," said Gordon Clark, Liebherr sales manager for the Oceania region. The Rotabox technology is an environmentally friendly bulk handling solution based on a rotating container concept, optimized for mineral concentrates and ores.

"The Geraldton crane is now fully operational and has delivered the promised productivity gains anticipated to support the investment" said Todd Emmert, the director of Qube Bulks in Perth. "I've known Liebherr for a long time in various ports in Australia, and their machines are always a welcome addition to our operation. The local service through Morrow Equipment means we have an excellent combination of machine and support."

"The Australian ports market is riding on the back of a boom in the mining industry, so other projects are still possible," said Clark. "We also have other projects and deliveries scheduled for later in the year, including one to the Pacific Islands."

The LHM 280 is an 84-tonne unit with 40 metres outreach, and is available for container, bulk, general and project cargo. Its highly flexible propping system has made it a 'must' for the older wharfs in the region.

Equal to any challenge: the SENNEBOGEN 870 M special at Wismar seaport

Thanks to its central location, Wismar seaport in Germany is an important logistical hub for freight traffic between Central Europe and the Baltic. For flexible loading and unloading, Seehafen Wismar GmbH relies on the dependable, mobile SENNEBOGEN materials handling machines. A new SENNEBOGEN 870 M was put into service in the summer of 2013.

Wismar seaport can look back over an eventful 800 history, since the 13th century. Today in Wismar on 66 hectares, approximately 7mt (million tonnes) of bulk cargo and piece goods are transferred and shipped throughout the world. Since 2008, Seehafen Wismar GmbH has relied fully on the SENNEBOGEN Green Line material handling machines for demanding transshipment of bulk cargo, scrap or round wood. In June 2013, the company, LST Bau- und Industriemaschinen GmbH, was able to transfer a new 870 M special to the seaport. The machine is part of a multi-year rental contract and supplements the existing two 850 M machines and an 840 M. The new machine is particularly impressive with its extensive range of 24m and the robust and reliable design. Equipped with a 2m HGT log grapple, the SENNEBOGEN 870 M mainly works in timber loading applications and thus achieves work rates of up to 140tph (tonnes per hour). The comfortable maXcab, which can be elevated 3m and moved forward 2.6m, offers significant advantages, particularly when unloading ships. In this configuration together with the 0.75m mast, the new 870 M provides an ideal overview of the work area and an optimal view into the hull of the ship.

Ships with loads of up to 5,000 tonnes and a maximum length of 120m are unloaded by the SENNEBOGEN machines in Wismar. The flexibility of the mobile machines is a particular advantage when the task at hand is to approach different berths or to unload large ships piece-by-piece. The powerful 300 kW Deutz diesel engine ensures the necessary force reserves and is designed for ease of maintenance and ease-of-service.

Driver Sven Dominik has special praise for the camera system with rear and side-view camera and seven monitors, that ensures an optimal all round view — a valuable plus for safety, and which is provided as standard equipment. Dominik's experience confirms that the extensive range of 24m and the special materials handling equipment together with the curved banana boom and long grapple stick make the SENNEBOGEN 870 M the perfect machine for unloading ships.

Wismar seaport has been relying on the SENNEBOGEN mobile materials handling machines since 2008. An 850 M is also used to load round timber.

The machine is also used for loading on truck and rail. Operation up to 24 hours per day can frequently occur; this kind of work requires reliable and robust components. The local sales partner, LST Bau- und Industriemaschinen GmbH, handles regular maintenance and service and ensures smooth operation of the SENNEBOGEN machines.

A new SENNEBOGEN 870 M special has been working at Wismar seaport since June and transships up to 140 tonnes an hour of round timber to truck.

"We have profited from our long-standing collaboration with SENNEBOGEN, and again we decided on a machine that perfectly meets our requirements. As a modern seaport we always want to be equipped with the latest technology to satisfy customer requirements. With the new SENNEBOGEN 870 M we have had outstanding success in this endeavour," says Michael Kremp, CEO — Seehafen Wismar GmbH.

SENNEBOGEN

Up to 27 m reach with max. 7.5 t load, versatile equipments

Mastercab comfort cab with Skylift 900 vertical adjustment over 9,5 m

Up to 30% energy saving thanks to energy recovery system

Crawler-gantry undercarriage for efficient port logistics

with original **SENNEBOGEN grab**

875E

Specialist in port material handling

E-series: higher capacity - less consumption

SENNEBOGEN Maschinenfabrik GmbH
Sennebogenstraße 10, 94315 Straubing, Germany
Phone +49 9421 540-146

GO FOR GREEN
www.sennebogen.com

VIGAN

YOUR SOLUTION PROVIDER

Reliable handling solutions for dry agribulk cargoes

Pneumatic or Mechanical Ship Loaders & Unloaders
Port Equipment-Turnkey Projects

Mechanical CSU = up to 1,500 tons/hour

Most efficient hold cleaning

VIGAN ENGINEERING S.A. RUE DE L'INDUSTRIE, 16 ▸ 1400 NIVELLES (BELGIUM)
TÉL.: +32 67 89 50 41 ▸ FAX : +32 67 89 50 60 ▸ WWW.VIGAN.COM ▸ INFO@VIGAN.COM

Staying on the move with mobile unloaders from VIGAN

VIGAN mobile unloading unit fitted on a hopper.

VIGAN Engineering SA manufactures a range of bulk materials handling systems, including mobile equipment. Its main product range includes:

- mobile pneumatic conveyors or vacuvators or grain pumps;
- pneumatic continuous barge unloaders and mechanical barge loaders;
- mechanical and pneumatic continuous ship unloaders for vessels up to post-Panamax; and
- mechanical loaders for any size of ships.

VIGAN's capabilities include also complete turnkey projects for port terminal including shiploading and unloading, storage facilities and bagging operations.

Among the mobile equipment offered by the company are, notably, its portable pneumatic unloaders, commonly called 'mobiles' or 'grain pumps':

- **Model T120:** working in 'suck only', 'suck & blow' or 'blow only' mode, their capacity ranges from 100tph (tonnes per hour) to 170tph, depending on configuration and product transported; and
- **The high-capacity model T200** is able to unload at rates of up to 250tph in sucking-only mode, without producing any dust emissions. Products are discharged by gravity, optionally through an integrated belt conveyor. It is equipped with an automatic self-cleaning filter with air-compressor.

These mobile portable unloaders are particularly adaptable, as they can be put on a ship's deck or on quay: directly on the ground, on a frame or on a hopper (see picture above). With a wide range of accessories available, they can be customized to meet customer's needs for cargo handling in many different working configurations: from vessels to trucks/railcars/conveyors/silos or warehouses and inversely to load ships, but also for transshipment for instance.

Their compact dimensions (≈ 4.5 x 2.5m without booms) and low weight (≈ from 5 to 15 tonnes depending on the model and accessories) make them among the most flexible of all grain handling equipment.

For higher capacity requirements (from 200tph up to 800tph) and annual throughput (over 250,000 tonnes per year), VIGAN designs and manufactures pneumatic continuous ship unloaders (CSUs) on gantries, called 'NIV' models. Self-propelled on tyres or rails, they can be powered by diesel engine or electrical motors with cable reels.

The most frequent combinations found are either rail-mounted/electrical/discharging into quay conveyors to ensure a regular movement parallel to the quay conveyor, or on tires/diesel/into trucks for ports which are not equipped with rails and conveyors. Each gantry is designed bespoke according to the port requirements (dimensions, wheel load and/or rail span, etc.). Boom length, piping system diameter and length, airlock size volume, filter size and number of turbo blowers all determine the expected unloading rate. Many optional devices are available.

The mobility on the dock alongside the boat allows highly efficient unloading of vessels up to Panamax size, following the typical required unloading chart of the holds.

Furthermore, VIGAN's range of equipment also includes a mobile mechanical continuous ship unloader called 'SIMPORTER' designed to meet very high discharging rates up to 1,500tph (metric). It is particularly suitable for large bulk carriers up to post-Panamax. The twin-belt SIMPORTER technology offers major benefits: efficiency, cost-effectiveness (minimum energy consumption, reduced operational and maintenance cost) and environment-friendly qualities (minimum noise, dust control, etc.).

Commodities handled

VIGAN pneumatic unloading machines are suitable to convey all types of cereals, beans, seeds, most of the raw materials for animal feeding and also many other products such a chemicals,

alumina, soda ash, and more — not only in powdery form but also in pellets (granules) or prills for instance.

Generally speaking, the products must be free flowing — or, in other words, must flow down freely when a certain amount of product in your hands is released when progressively opening them.

The natural angle of repose is usually around 30°: the particle size and physical form must allow this free-flowing nature.

Usually the apparent density is around 0.5 to 1.5: i.e. 500kg/m³ to 1,500kg/m³. Humidity and/or fat content should be adequate to avoid the product sticking when travelling into the pneumatic pipes.

For slightly compacted material such as soy bean meal (SBM), VIGAN has engineered a special efficient accessory to free flow the material before its suction.

According to the product characteristics (its delicate nature), VIGAN will suggest the appropriate equipment to minimize breakage.

Mechanical unloading machines like Simporter are able to handle other products but each product in bulk has its own behaviour and specific handling techniques are required: VIGAN engineers have more than 40 years' experience in those areas.

For the loading of ships, almost all products in bulk with a granular form including fertilizers can be ideally transported by VIGAN equipment.

The most common products handled by VIGAN machines are: wheat, rice, corn, soybeans, soybean meal, rape seed, oats, rye, barley, malt, palm kernels, cocoa beans, coffee beans, wood pellets and other pellets from the agricultural industries; most feedstuffs; alumina, soda ash, and a few fertilizers.

Materials which are not suitable for transport by VIGAN machines include: sand; cement; coal and minerals such as bauxite and iron ore.

Major clients

VIGAN's major clients include:

- port authorities which manage and operate port equipment;
- independent port operators which offer loading and/or unloading services to their customers by using their own port equipment;
- direct customers which have their own handling equipment for their private usage: for instance a flour mill along a river with its own quay — for example, the Cargill group has many large industrial plants with VIGAN machines for its own usage.

There are of course variations to this — for instance, a port operator can have port authorities among its shareholders as well as some of its customers also as shareholders to guarantee sales volume.

Staying competitive

The CSU market is very competitive with experienced manufacturers mainly from Europe and/or North America countries.

Some new competitors from fast-emerging countries such as Brazil, China, India, Turkey for instance can be also active with equipment of quality.

For more than four decades, VIGAN has forged its reputation by offering reliable equipment adapted to the customer's requirements: technical characteristics most suitable to each particular project with value-for-money machines.

Guarantee of long term supply of spare parts from most well-known suppliers and highly professional technical assistance also remain first choice criteria that decision makers are considering for their industrial assets which are most critical for the profitability of their business. DCi

SMB-Shiploading

Material Handling Company

Loading systems
Level measuring instruments
Palletizers
Warehouse systems
Filling systems
Conveyor systems
Shiploader

SMB Group
best solution

SMB International GmbH
Friedrich-List-Str. 3-7 · D-25451 Quickborn
Phone +49 (0)4106/123 88-0
info@smb-gmbh.de · www.smb-group.de

Motor Driven Reels
- Monospiral and Level-Wind configurations
- Rugged and dependable magnetic coupler for dusty environments

Cable Festoon
- Corrosion-resistant, long-life rollers; precision sealed bearings
- Systems customized for the application
- Preassembled option, for easy installation

Cable Chain
- Rugged design for demanding environments
- Long operating life
- Custom-configured

Rugged Energy & Data Transmission Systems

Conductix-Wampfler has one critical mission: To keep your bulk material handling operations running 24 / 7 / 365. You need proven, worry-free energy solutions - and Conductix-Wampfler has them. Our systems provide reliable electric power and water to stacker/reclaimers, barge and ship loaders/unloaders, bulk conveyors, tripper systems, and gantry cranes. Conductix-Wampfler systems are rugged, low maintenance, and time-tested in tough, dusty environments. All products are backed by the largest sales and service network worldwide!

www.conductix.com

CONDUCTIX wampfler

DELACHAUX GROUP

Grain handling systems & technologies

Ag Processing partners with Conductix-Wampfler to modernize Grays Harbor grain shiploading facility

As demand for North American grain exports continues to grow, many US grain terminal operators are upgrading their bulk handling facilities to better serve customers. A US grain terminal operator, Ag Processing Inc (AGP®, headquartered in Omaha, NE), did just that by partnering with cable reel manufacturer Conductix-Wampfler to modernize its shiploader at Grays Harbor Terminal in Aberdeen, WA.

Formed in 1983, AGP is a farmer-owned co-operative engaged in the procurement, processing, marketing, and transportation of grains and grain products. The company is the largest co-operative soybean processing company in the world, comprising 175 local co-operatives representing 250,000 farmers in the Midwest, plus five regional co-operatives throughout the US and Canada. AGP operates nine soybean processing plants

Grain. It's your business.

We know exactly how valuable grain is to you and your business.
With peak capacity of up to 30,000 tons in a single silo, the total site storage can be as large as you require.
For a partner with the expertise, technology and manufacturing methods to ensure that your storage plant is second-to-none in terms of quality and processes, then look no further.

- **Silos** Supplied To European Din or Asae/astm Standards
- **Cleaners** • **Dryers**
- **Sales** • **Service** • **Parts**

You can trust in Chief.

CHIEF®
CHIEF INDUSTRIES *UK* LTD.

Tel +44 (0)1621 868944
E-mail sales@chief.co.uk
www.chief.co.uk

throughout the Midwest. Its Grays Harbor terminal in Aberdeen, WA handles whole grains and processed grains such as soybean meal, dried distillers grain, and beet pulp pellets.

The power cable on the shiploader at Grays Harbor was in need of replacement. Rather than replacing the old cable with the same type, AGP took the opportunity to replace it with a state-of-the-art composite power/control cable and a new motor-driven cable reeling system. The composite cable chosen has more power capacity (500mcm versus 350mcm), provides six optical fibres for data transmission, and has four 16 AWG twisted/shielded pairs for redundancy. Carl Parker, Director of Bulk Operations for AGP, explained that, "The previous wireless communication system experienced communication drop-outs, so we wanted to replace it with more dependable fibre-optic cabling. We also changed to a common control engine, which provides remote access to the shiploader's operating system and interfaces with the main PLCs. This facilitates programme downloads and upgrades and allows the addition of instrumentation and weather station data. The power side of the new cable can now accommodate additional horsepower as needed and the new control systems can accommodate additional communication and instrumentation in the future."

Parker went on to say that, "Conductix-Wampfler was chosen to supply the cable reeling system due to their extensive experience with the use of fibre-optic cables in the bulk handling industry. We received favourable references concerning their work. Conductix-Wampfler was able to provide the cable and custom-design the reeling system. We were impressed with the Conductix-Wampfler team throughout the cable selection process and the design of the reel, and during the procurement, delivery, and final installation phases."

Mark Zuroske, Bulk Handling Market Development Manager for Conductix-Wampfler, added that, "Since the 1980s, we have had a long, successful history of incorporating fibre-optics into our reeling systems. We were one of the first companies to offer a fibre-optic transmitter. The combination of the newer composite cables of today, coupled with our patented fibre-optic transmitter, creates a highly reliable system. Our newest transmitter can accommodate 6, 12, 18, or 24 channels, and either single mode 0.9/125 fibre, or 50/125 or 62.5/125 multi-mode fibres."

Zuroske went on to point out that, "Conductix-Wampfler continues to see a strong backlog of orders for cable festoons and cable reeling systems well into 2014 as many customer continue to modernize their bulk handling facilities."

J&B GRABS

With more than 60 years' experience, J&B Grabs is the name you can rely on


Hydraulic High Volume Grabs


45 m³ Hydraulic Grab


High Volume Rope Grabs 31.5m³


Hydraulic Rehandling Grab


Hydraulic Cactus Grab (1.6m³)

Rope Cactus Grab (10m³)

J&B GRABS FOR ALL KINDS OF BULK HANDLING

Products:

- Cactus Rope Grabs
- Rehandling Rope Grabs
- Hydraulic Cactus Grabs
- Hydraulic Rehandling Grabs
- Hydraulic Wood Grabs
- Hydraulic Demolition & Sorting Grabs
- Quick Change System
- Multipurpose Spreader

New Products:

- Big Bag Frame
- Cellulose Frame

All our grabs are custom made, designed and produced to our customers requirements.

J&B Grabs are highly efficient for large volume and low deadweight handling.

J&B GRIJPERS

J&B Grabs
PO Box 176, 3454 ZK De Meern
Netherlands
Tel: +31 30 662 1616
Fax: +31 30 666 3765
E-mail: info@jb-grabs.com
Website: www.jb-grabs.com

Moving grain with Nectar – more than just bagging systems

A Nectar pneumatic discharger unloading a bulk vessel.

Nectar Group has been active in the dry bulk industry for over 40 years. Aside from pioneering the concept of bagging bulk cargo at destination, Nectar has also been involved in providing bulk handling solutions for various types of commodities including grain and cereals.

Nectar currently owns over 100 bagging lines which are used in bagging operations in various ports and inland locations worldwide to conveniently bag grains and other free-flowing products wherever they are needed. All machines are built in Standard 10ft or 20ft ISO containers to ensure full mobility and access to remote locations. Recently, to cater for the increased demand for bagging in one-tonne bags, Nectar has also designed the Compac XL120 mobile bagging unit to bag bulk commodities into jumbo FIBCs (flexible intermediate bulk containers) at a rate of 120tph (tonnes per hour). Further additions to the range of products include the 'Impac' single-line bagging equipment specifically to cater for warehouse operations where space is an issue. All equipment is Dutch Weights and Measures-(NMi) certified and offers an accuracy of ±0.5%.

Nectar prides itself on offering innovative bulk handling solutions. As well as offering a range of mobile bagging equipment, the Group also owns and operates a fleet of grabs, bulk cargo conveying systems, bulk hoppers, mobile trimming equipment and pneumatic dischargers.

The Group offers tailor made bulk handling services which includes the bulk discharge of grain from ships using grabs and hoppers to client's trucks or other means of transport and handling of bulk cargo to and from storage for stacking and reloading on to transport for further distribution.

For bulk discharge operations, Nectar uses its grabs and pneumatic dischargers for discharging from ships, barges and rail-wagons. This equipment is also ideal for lightening operations. The pneumatic dischargers are each able to move grain at speeds of up to 100tph and several units can be combined to provide discharge or lightening speeds of 10,000–11,000 metric tonnes per day based on a 24hr operation. This is ideal for discharging cereals and wheat cargoes.

Nectar often uses its fleet of bulk handling and bagging equipment in multi-modal operations. These operations involve different types of equipment to be used simultaneously. For

Grab unloading directly into a Nectar containerized bagging system.

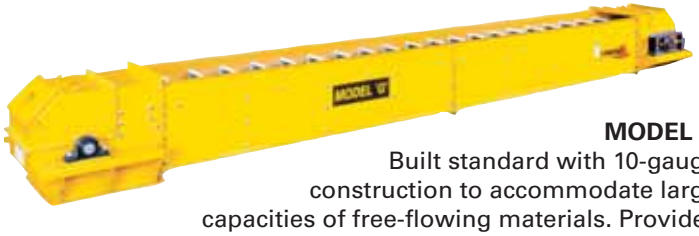
TRAMCO®

The World's Most Complete Line of Chain and Enclosed Belt Conveyors.

TRAMROLL™
Enclosed belt conveyor with innovative features such as; self-reloading and self-cleaning tail section, and multiple inlets. The heavest-duty design in the industry.

JETBELT™
An efficient system requiring less horsepower than other systems. Used for dry bulk handling requirements in a variety of products.

MODEL RB
Designed for self-cleaning and quiet operation with a u-shaped trough for handling soft stock or materials that are easily crumbled or broken.



MODEL G
Built standard with 10-gauge construction to accommodate large capacities of free-flowing materials. Provides years of trouble-free service under extreme applications.

BUCKET ELEVATOR
Centrifugal Discharge design used for the bulk handling of free-flowing fine and lose materials with small to medium size lumps. Built-to-last for the toughest requirements.

BULK-FLO™
The heavy-duty chain conveyor designed specifically for processing applications such as; wet and sticky, varying sizes and densities, and abrasive or corrosive materials.

1-316-264-4604
www.tramcoinc.com

AGI
AG GROWTH INTERNATIONAL

instance, a typical multimode operation could involve grain or cereals to be discharged from a gearless Panamax vessel using Nectar's mobile pneumatic dischargers. The grain is then bagged alongside the vessel using the Compac M140 and then conveyed straight onto rail wagons or trucks for despatch.

Another example of a multi-modal operation is taking the cargo out of a mother vessel by using pneumatic dischargers, followed by performing bagging operations on the deck of the vessel and then delivering bagged cargo via a specially designed chute system on to barges. This kind of multi-modal operation is ideal where the mother ship is restricted by her arrival draught to go alongside hence the operations can be carried out on board. It is also useful where the discharge berth has limited facilities for bulk operations. Multi-modal operations could involve different permutations subject to type of cargo handled and clients' logistical requirements.

With various types of operation, the services offered by Nectar adapt to the client's requirements. In some projects, the Group offers service packages that include stevedoring, provision of equipment along with international technical supervision up to stacking on the receiver's transport or storage areas. In other projects, Nectar provides expediting services, where it uses its local knowledge and contacts in order to minimize the vessel's time spent at the discharge port. This is ideal for clients who are not familiar with a particular port and working on a Liner-Out basis.

This year Nectar has started to offer warehouse management services where the company manages and monitors the cargo delivered in the warehouse as well as cargo being taken from the warehouse for inland delivery.

Pneumatic dischargers and bagging units in operation at the quayside.

In addition to the provision of bulk handling and bagging equipment and services, Nectar has also been involved with various consultancy and bulk terminal management projects. Nectar offers a customized service with a typical project involving technical and operational management of bulk handling equipment and bulk handling facilities. This also involves the day to day running of the terminal, ensuring the targets are met and the procedures applied in operating the terminal are at an international standard.

Nectar also offers consultancy services for projects including renovation of bulk handling facilities, capacity improvement of existing facilities and independent advice on evaluation, selection and implementation of new bulk handling/discharge equipment.

Nectar is continuously looking to expand its activities whether through a joint venture or long term agreement with various partners. Nectar strives to cover full logistical solutions.

STEMA – Matola Silos and Grain Terminal SA – provides storage of dry bulk grains up to 45,000 tonnes in at Maputo Port in Mozambique




STEMA, SA – DRIVEN TO CUSTOMER SATISFACTION

The company was established in Maputo, Mozambique in 1996 to operate in national and international grain markets to serve the Mozambican milling industry and trade. Its facilities also act as a transit centre within the country. Since its establishment, Stema has invested nearly US$7 million in equipment which has increased productivity in storing grain and distributing it by sea, rail and road.

In addition to equipment, the company employs a team of technical staff, all Mozambican nationals, qualified and specialized in the latest grain handling developments.

Apart from the local milling industry, at present, the company serves also South Africa, Zimbabwe, Botswana and Swaziland markets on grain import and exports.

Stema receives cargo at a berthing pier able to handle ships up to 30,000dwt. Its sea terminal is equipped with a fully pneumatic ship unloader (250tph [tonnes per hour]), and linked to the silos through a belt-type conveyor of around 700 metres with capacity to move up to 500tph.

A similar system is used for loading vessels which is normally at a rate of 500tph, depending on the weather.

Wheat, corn, rice, soybeans, soya flour, sun flower pellets are the commonly handled commodities. Compared to 2010, in 2011, the company has increased its volume by 25%. This includes exports of South African corn to Mexico and South Korea.

Beyond handling, the company also has equipment for the disinfection and cleaning of grain.

The company is planning to increase its unloading capacity to more than 600tph at the sea terminal and to enlarge its storage capacity to 100,000 metric tonnes — all in concrete silos.

The terminal works on a shift basis without interruption 24 hours a day, weekends and national holidays excluded.

Operations are on an automatic and integrated fully computerized system (PLC) allowing full and efficient control of the inflow and outflow of grain.

Euroports: agribulk business is booming as operator handles record loads

The Magsenger 19 *at the Euroports terminal in Rostock Germany (photo: Thomas Kahle).*

With a service offering and terminal network fully supporting international agribulk industry and trading, it comes as no surprise that the Euroports group is handling record breaking agribulk volumes both inbound and outbound.

Euroports is one of the most diversified agribulk terminal operators. The company supplies maritime supply chain solutions in several agribulk market segments combining terminal handling operations with in-house transport services such as road transport, inland navigation, customs clearance and ship agency. Agribulk handling facilities of the terminal network can be found in Rostock (Germany), Tarragona (Spain), Marghera (Venice, Italy), Antwerp, Ghent, Renory (Belgium) and Rouen (France). In addition to the traditional agribulk cargoes, Euroports is also handling sugar on dedicated terminals in Antwerp and Le Havre.

Most recently, Euroports has seen an increase in lot size for agribulk cargo shipments both in imports and exports, with two record breaking agribulk handling operations at its Rostock terminal and at its Venice terminal.

On 24 July this year, the Euroports Getreide Service Rostock terminal received the *Magsenger 19* (bulk vessel with a capacity for 115,396 tonnes) for the loading of 95,000 tonnes of grain onto the ship for shipment to the Middle East. The harvest period in Germany had been going on for some time before these operations, resulting in the 122,000m³ storage capacity at this terminal receiving the cargo weeks in advance for this cargo load. After loading operations, the supply of grain, wheat and barley to the terminal for storage has been continuing. Based on future trading deals, the terminal will be loading bigger and smaller vessels for shipment to end consumers around the world.

In Italy, about 65,000 tonnes were handled at the Piemonte berths of Molo B at Euroports Italy. The vessel *TEN JIN MARU* (LOA: 240m × 38m, deadweight: 98,000dwt) carrying a cargo load of 65,000 tonnes of agribulk arrived on 2 August to be unloaded. The cargo was stored at the berth's 100,000-tonne-capacity silo while it awaited onward shipment.

The TEN JIN MARU *mooring at Euroports Italy in Marghera, Venice (photo: Riccardo Vianello).*

These handling operations were a record in terms of size for both the Port of Rostock and the Port of Venice.

Andreas Janetzko, Euroports Holdings Chief Commercial Officer, sees this as a recognition of Euroports' handling expertise: "Being entrusted with these large handling volumes only proves Euroports is on the right track to become the partner of choice for maritime supply chain solutions for the agribulk market."

Agribulk remains VIGAN's core market

VIGAN's 250tph pneumatic barge unloader, in operation at the Bashundhara Group's flour mill in Dhaka.

Offering more than shiploaders/unloaders, Belgium-based VIGAN Engineering SA is a global solution provider for port development. The diversity of VIGAN's range of equipment is a key asset when finding the best solution to any project requirement.

At VIGAN, ship-unloaders/loaders are ever evolving. Every year changes are minor, but the most important of these is VIGAN's capacity to innovate continuously by investing in human and physical resources with a medium and long-term vision in its market.

Originally, all VIGAN equipment as designed to convey dry agribulk cargo such as: all types of cereals, beans, seeds, and most of the raw materials for animal feeding. Moreover, these proved to be also suitable for handling fragile products (malt, cocoa beans, etc.), certain chemicals (dense soda ash, alumina, urea…), and also many products in pellets such as wood pellets for instance. However, agribulk definitely remains VIGAN's core market.

The demand for grains remains strong. As grains are a basic staple food in many countries, many governments and/or private companies are continuing to invest in handling equipment. Nevertheless, each region has its own characteristics and unforeseen political or climatic conditions can heavily influence their ability to improve quickly their infrastructure for handling large amounts of agribulks.

Many countries that were previously part of the Soviet Union have become important exporters with sizeable investments in port infrastructures. Many countries in the Middle East and Africa continue to import large amounts of agribulks for their population. Far East countries — and mainly China — are also continuously investing in handling equipment for those commodities.

Focus on Bangladesh

Bangladesh is typical of a country where a large and fast-growing population requires adequate and modern infrastructure to deal with the challenge of handling the required imports, such as agribulks.

A few years ago, Bashundhara Group, one of the leading industrial conglomerates in the country, ordered a large size flour mill in Dhaka for the Italian company Mill Service Spa.

For the import of wheat and its transport by barge to this new, state-of-the-art factory, a pneumatic barge unloader was delivered by VIGAN in 2012 with a capacity of 250tph (metric tonnes per hour). After unloading, the wheat is conveyed by several conveyors to the silos supplied by the Italian companies PTM and FRAME.

Most interesting in this project is the fact that — using the same technical approach and analysis of unloading equipment alternatives as those used in Europe for similar plants along rivers or canals — a pneumatic continuous unloader was chosen in this less-developed country. Indeed, high average handling efficiency and reliability — as well as other advantages of this technology — were deemed important and resulted in this choice over traditional methods, such as grabs or retro excavators.

The pneumatic unloader is dust-free, and therefore causes no river pollution. This is a major factor in a large city such as Dhaka, which is populated by several millions.

This unloader is installed on a small concrete platform of 5m × 5m, with access stairs which were erected by the customer. VIGAN supplied all the continuous pneumatic unloader equipment.

Once the wheat is unloaded, a simple chute allows for feeding by gravity of a wharf conveyor to transport it to the storage silos.

A filter tower on slewing ring pedestal is mounted to the concrete platform: it includes a rotating airlock of 200 litres.

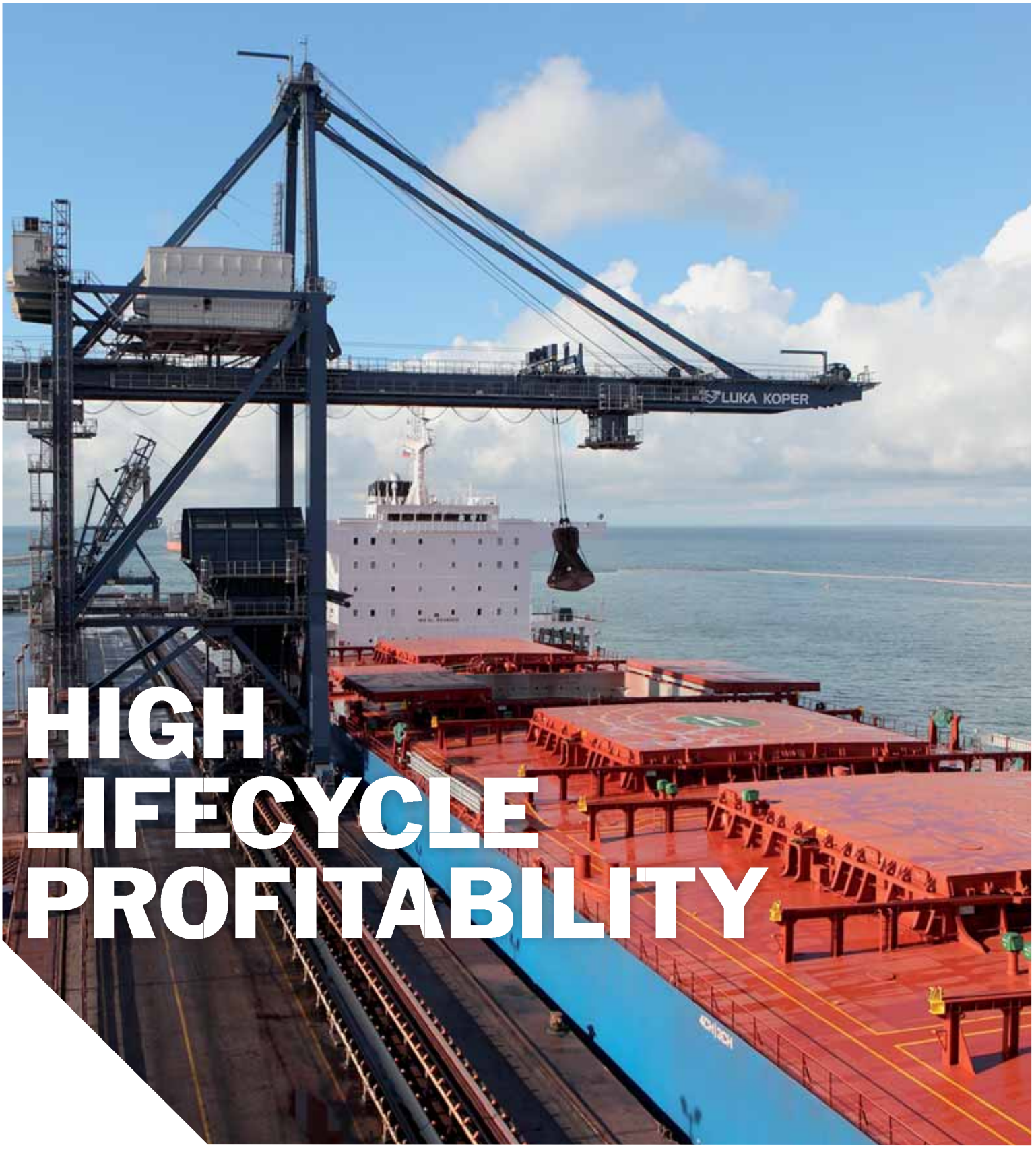
The machine is also equipped with a 17-metre fixed suction boom. The suction pipe system supported by the boom includes a round suction nozzle as well as vertical and horizontal telescopic tubes, both in two parts.

The electrically driven turbo blower assembly is located in a machinery room placed behind the tower on the platform. This assembly includes the main electrical motor with direct drive of the four-stage VIGAN turbo blower, a speed variator (frequency inverter) and the main electrical switchboard. This allows the machine to guarantee a nominal capacity of 250tph.

Suction pipes movements are operated by a remote control box from the barge deck: the rotating of the tower and of the boom, the horizontal and vertical travelling of the telescopic pipes and the automatic pneumatic suction stopping.

Recent contracts

VIGAN has recently been awarded several contracts in North Africa and other nearby countries, as well as in other continents such in Europe, the Middle East and the Far East. It is also evaluating projects in other continents.



HIGH LIFECYCLE PROFITABILITY

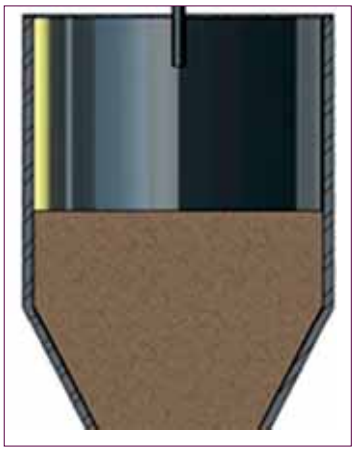
The Konecranes AGD Grab Unloader offers you the best lifetime value. A simple, remarkably effective rope reeving design and standard components give you high operational reliability and reduced maintenance. And your drivers will enjoy the good response time of the modern AGD control system.

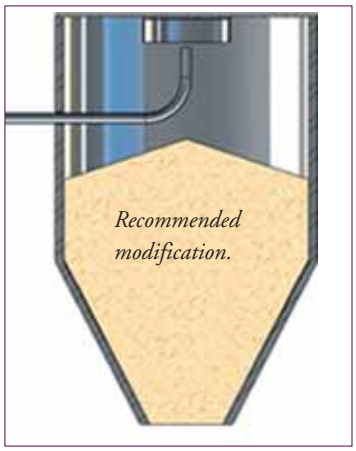
Konecranes (Ports) P.O. Box 662, Koneenkatu 8, FI-05801 Hyvinkää, Finland
Tel: +358 20 427 11 Fax: +358 20 427 2599 **www.konecranes.com**

KONECRANES®
Lifting Businesses™

Improving flow, reducing caking, attrition & segregation with Jenike & Johanson

Jenike & Johanson is a major technology company for bulk material handling, processing, and storage. It delivers engineered solutions to achieve reliable powder and bulk solids flow based on proven theories and decades of project experience. The company is very active in the handling of grains and related commodities.





Companies in the Food & Beverage industry strive to supply food to new markets quickly and inexpensively, convert to more efficient packaging techniques (e.g., single serve packets), demonstrate to consumers that their products are superior to those of their competitors, find new ways to transform ordinary foods into value-added (e.g., organic), or convenience products.

Taste, smell, appearance, and other sensory triggers are all critical aspects affecting the success of a food product. Additional key factors a producer considers include shelf-life, stability, marketability, and obviously, costs.

Common challenges

During handling of raw ingredients (flour, sugar, salt), additives (baking soda, citric acid, phosphates), or finished products (cereal, dry powder beverage), food manufacturers frequently encounter poor flow. These problems can lead to process upsets, down time, and require frequent operator intervention. Product quality problems can be triggered by spoilage (i.e., microbial growth) or powder caking, both of which are often the result of material stagnation in food storage bins. Other problems may include attrition (breakage), uneven distribution of seasonings, and segregation. Poor material flow has been a root cause for some of the recent recalls of food products.

Common materials handled

Jenike & Johanson has successfully handled a wide range of bulk materials for the Food & Beverage industry. A small sampling includes: flours (white, wheat, coarse); grains (whole, shelled); cereals and granola; sugars (raw, cane, beet, 10x); salts (coarse, fine, blended); snacks and seasonings; coffee (beans, flake, ground); candies and mints; and drink mixes.

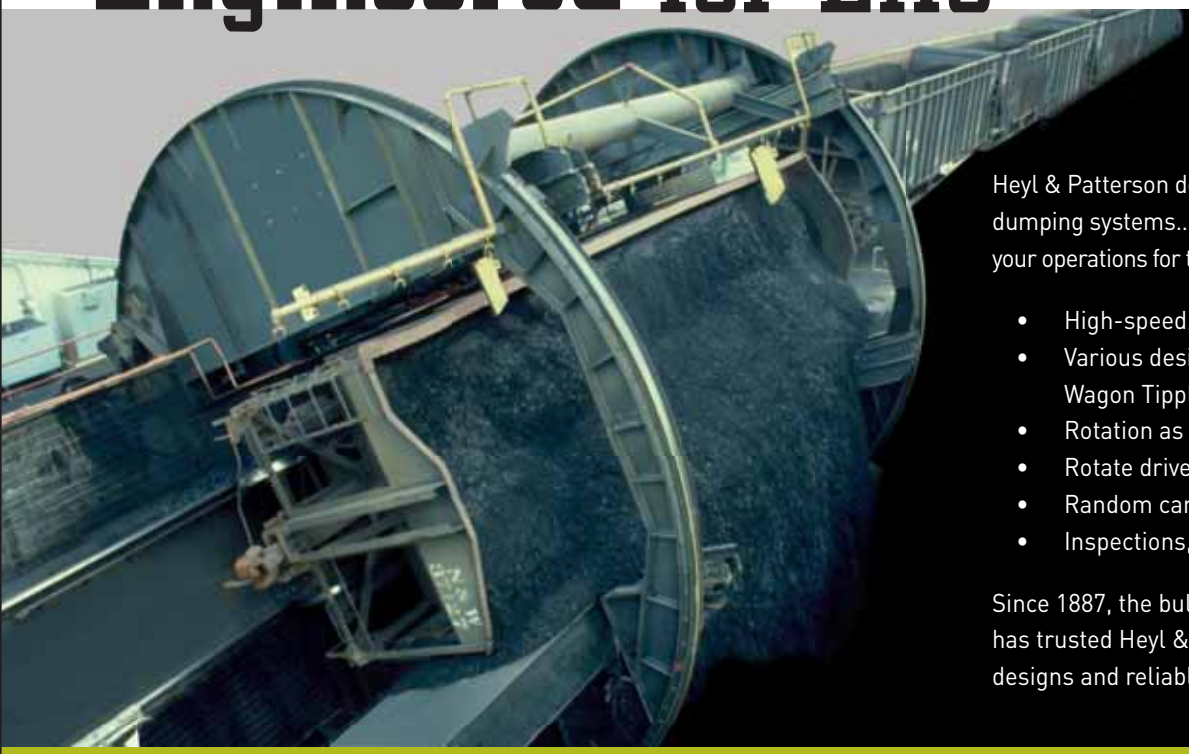
Food & Beverage industry services

Jenike & Johanson offers a wide array of services for the Food & Beverage industries:

- ❖ on-site review of flow, segregation problems;
- ❖ food powder characterization;
- ❖ silo and feeder design for finished goods, ingredients;
- ❖ pneumatic conveying testing of food powders;
- ❖ anti-segregation equipment supply; and
- ❖ mixing/blending testing to evaluate blenders

Whether feeding sticky food ingredients into a mixer, conveying powders from a storage silo to a weigh bin, or high-speed packaging of a dry powder beverage or baked goods, J&J can help to achieve reliable material flow and maintain food quality.

Engineered for Life



Heyl & Patterson doesn't just engineer railcar dumping systems...We become a real partner in your operations for the life of your equipment, with:

- High-speed, semi-automatic unloading
- Various designs – Single, Tandem, Rotary, Wagon Tippler, Turnover, C-Shaped
- Rotation as fast as 35 seconds per car
- Rotate drive – Rack & Pinion or Chain
- Random car or unit train applications
- Inspections, upgrades and field service

Since 1887, the bulk materials handling industry has trusted Heyl & Patterson for innovative designs and reliable equipment.

HEYL&PATTERSON INC
Trusted Since 1887

412-788-9810
info@heylpatterson.com
info.heylpatterson.com/dci

Mack

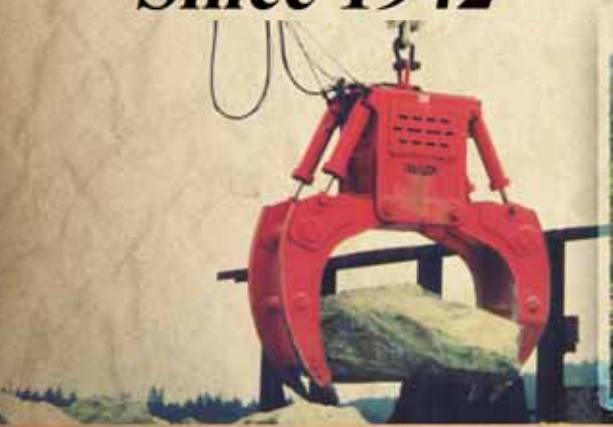
Manufacturing

Grapples & Buckets

"Quality First"

Since 1942

www.mackmfg.com



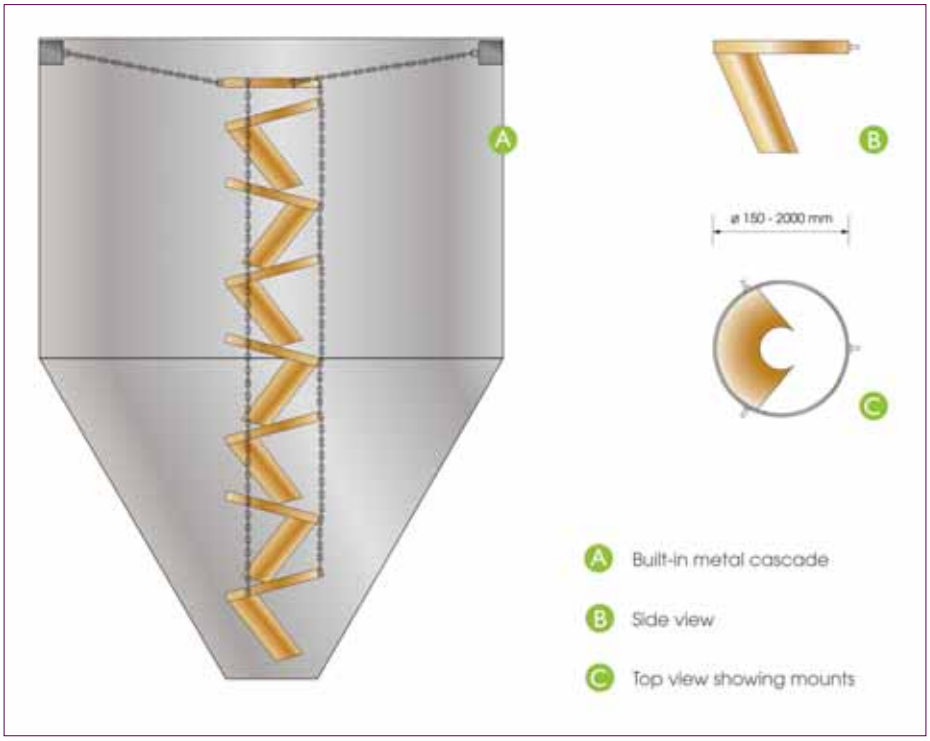
7205 Bellingrath Road, P.O. Box 1559, Theodore, Alabama 36590, USA Telephone: +1-251-653-9999
Fax: +1-251-653-1365 Email: sales@mackmfg.com Website: www.MackMfg.com

Grain flow improved with new filling unit from LISTENOW GmbH

It is a common problem for materials of various shapes, sizes and weights to become separated during filling — including grains. This significantly reduces the quality of mixed materials

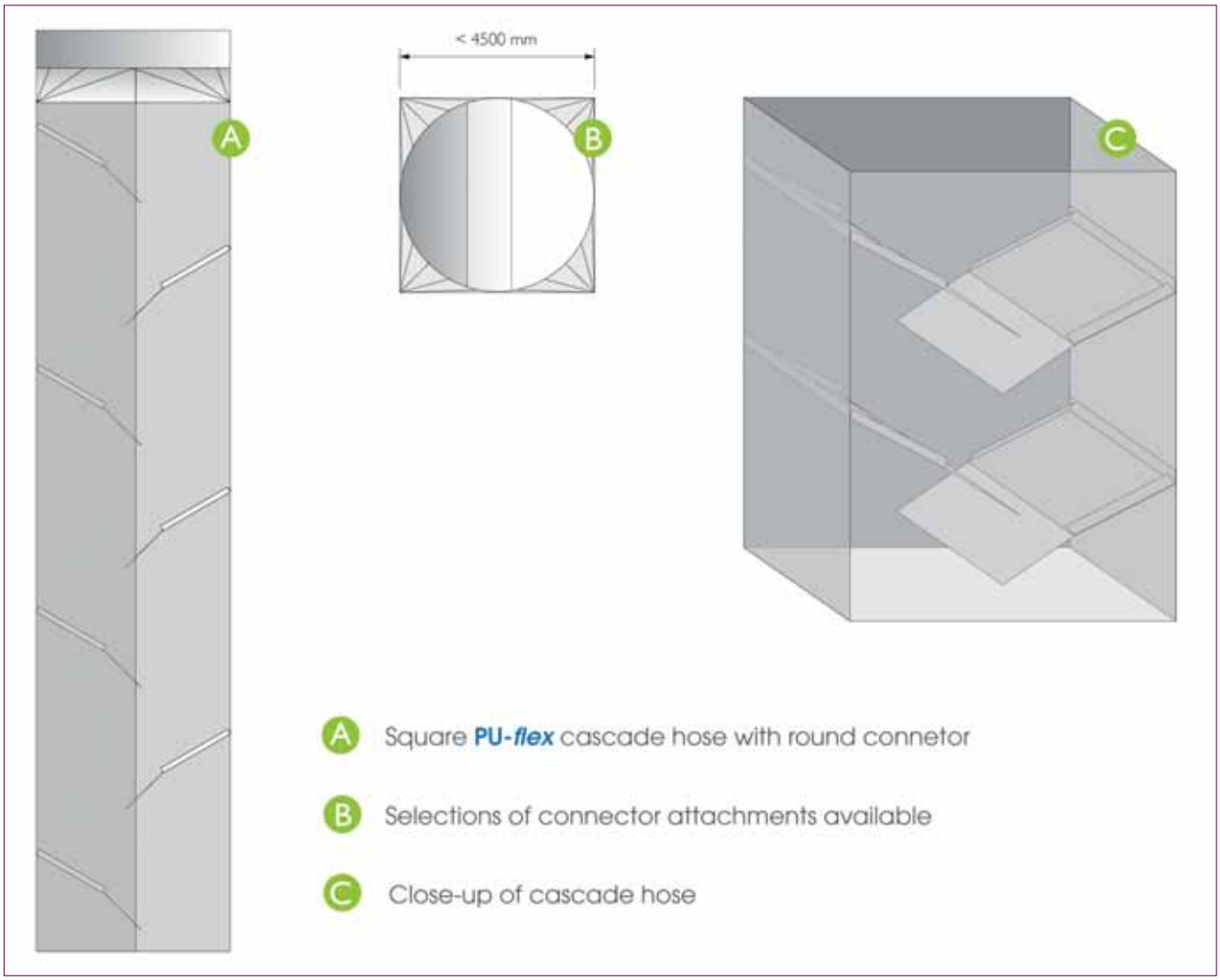
After a long testing phase, LISTENOW GmbH & Co has introduced a new filling unit ready for wide-scale distribution that uses specially positioned cascades to create a dosing solution for practical people, developed by practical people.

The unique design of the individual cascades and their robust and easy-to-use construction promises fault-free and highly efficient filling. The solution allows the speed and volume of material throughput to be regulated such that its quality is maintained without separation right up until container output, even when the material is drawn off.



FLOW-stop is ideally suited to a variety of applications

FLOW-stop can be used for much more than just the grain industry. It is also suitable for the chemical or pharmaceutical industries, or for the filling of construction materials and other foodstuffs. Thoughtfully designed LISTENOW flow-stop



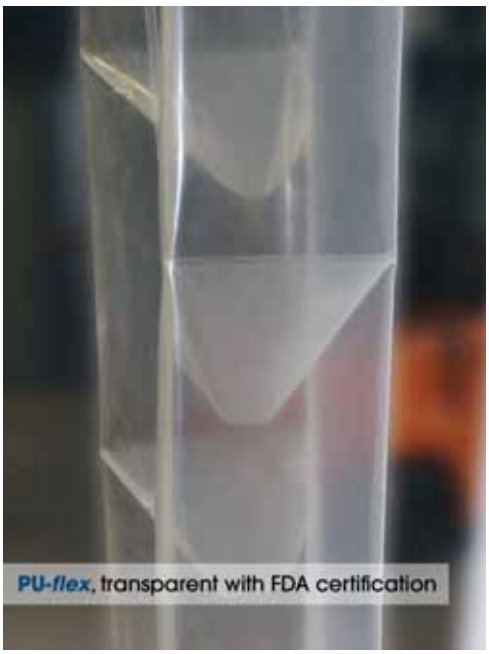
construction is equally suited to other bulk materials of all types, be they irregular, powdered or granular. Individual units are built to customer specifications and, depending on use, can be constructed from either painted or galvanized steel.

LISTENOW supplies the food industry with units constructed from pickled or glass bead blasted stainless steel or anti-abrasive plastic.

Surprisingly simple and cost-effective solutions for a broad variety of tasks

The FLOW-stop filling unit is securely built into the filling system and is very easy to clean. In order to prevent the filling material from forming into piles at the bottom of each cascade, the cascades are aligned slightly apart to transfer the material without allowing it to fall freely for any great distance. In addition, the angle of the cascades can also be adjusted to regulate flow speed and prevent separation.

The unique shape of the individual cascades allows for overflow during filling to ensure containers can be fully filled.



FLOW-stop also as a feeding system

LISTENOW's wealth of experience in the manufacture of filling hoses from diverse polyester fabrics and with a variety of coatings opens the door to further interesting applications using materials of various strengths, including PU-flex. For example, the combination of FLOW-stop and PU-flex enables allows mill feed to be deposited onto sensitive tumbler screens without damage and Tetra Pak tops to be continuously fed to packaging machines.

Transparent polyurethane sheeting also makes it possible to constantly monitor fill quantity by staff or using sensors.

EFFICIENT BULK HANDLING

Reliable and Economical

Terex is a world leader in equipment and solutions for ports and terminals, offering a variety of bulk-handling options.

The range of Terex® Fuchs material handling machines is the ideal choice for bulk handling alongside vessels up to coaster size and in smaller terminals.

What it means for you:

- **Large working radius up to 23 m for efficient handling**
- **Fast work cycles provide efficient handling capacity**
- **Energy efficient drives for low operating costs**
- **Undercarriage and drive options tailored to your needs**

www.terex-fuchs.com

TEREX® | FUCHS

WORKS FOR YOU.™

Meeting evolving challenges in grain handling

The specifics of grain handling installations vary from project to project and region to region but the trend towards larger scale operation is universal, *writes Bill Lewis, Sales Engineer at Guttridge*. Storage and handling facilities at individual farms are increasingly being replaced by grouped co-operative-owned capacity while across the globe grain is flowing, and being stored, in ever larger volumes, as new regions connect into the worldwide commodity grid. These global trends are being driven by the need to ensure food security in the face of:

Centralized grain storage at Woldgrain, UK.

- growing populations;
- strongly fluctuating grain prices; and
- climate change.

Upgrading storage facilities to ensure that grain can be maintained in a safe state for consumption, for prolonged periods, is increasingly important.

Here in the UK, Guttridge is seeing strong demand for upgraded on-farm grain handling facilities as old equipment reaches the end of its life, underpinned by generous tax relief for SMEs (Small and Medium Enterprises), while on the global stage the company is very aware of considerable growth across the MENA (Middle East and North Africa) countries. Guttridge works across a diverse range of grain handling projects from large-scale port facilities — where it typically operates as part of a multi-partner contract — to the supply of single conveying machines for individual farmers. Business is brisk across the board.

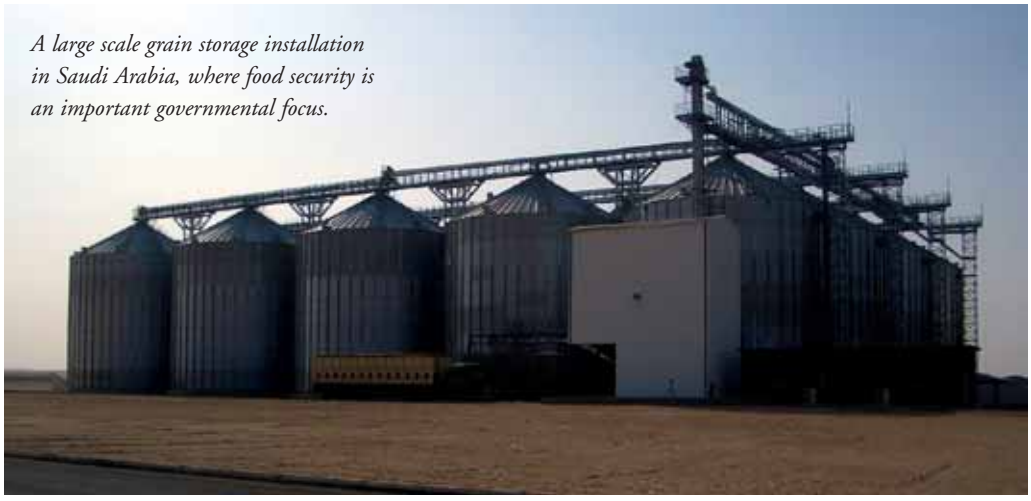
Equipment for grain handling

Reflecting demand for larger-scale projects, the core Guttridge conveyor range now extends well beyond 600tph (tonnes per hour), and includes bucket elevators, chain, belt and screw conveyors, and all associated ancillaries. Guttridge Hi-Load elevators are particularly well-suited to heavy duty grain applications, with a design refined over decades to deliver energy efficient transport, high reliability and straightforward maintenance. Key features include:

- high efficiency parabolic buckets giving maximum throughput in a minimum casing size;
- replaceable heavy duty, close tolerance, curved sweep plates, at head and boot, for high efficiency transfer;
- high tensile belts with excellent longevity EP (polyester/polyamide) core and SBR (styrene butadiene rubber) covers; and
- generously sized and well-placed access doors for maintenance.

Bespoke systems that draw on Guttridge's extensive expertise for grain applications are always an option, for very high throughputs for example, or to meet specific operational issues.

Lower throughput machines for on-farm use are often subject to intermittent operation but, when the harvest is in progress, must be unfailingly reliable. Guttridge owns the Carier brand (since 2004) and over the last five years has developed a new range of elevators and conveyors under the Carier brand name to serve this market. This range covers flow rates of up to 100tph and is designed to provide reliable service at a cost level suitable for this highly competitive market sector. All handling machinery produced by the old Carier company and by Guttridge is now supported across the UK and Ireland by Guttridge's rapid repair and genuine spares services, which can be crucial for extending the life of older machines.



A large scale grain storage installation in Saudi Arabia, where food security is an important governmental focus.

Case study: centralized grain storage at Woldgrain

A project at Woldgrain Storage Ltd, Hemswell, UK, provides a useful illustration of trends within the UK. Woldgrain Storage Ltd was established in 1980 as a farmers' cooperative, operating on a non-profit basis to provide a cost-effective grain storage option for farmers in the area. Over the intervening years capacity had been expanded to 30,000 tonnes of ventilated storage but, in 2010, the decision was taken to implement a further, substantial, increase — ultimately to 57,000 tonnes. Guttridge supplied materials handling equipment to GAME Engineering Ltd, the company awarded the contract to design, supply and install all the handling and processing systems for Phase I of this project, for Clugston Construction Ltd.

Working to a tight timescale of just three months, Guttridge supplied a bespoke solution of 13 chain and flight conveyors in three widths, ranging from 7–95 metres in overall length, and two 300mm-wide soft flight chain conveyors, all with a rated capacity of 250tph. These convey material considerable distances across the site. Seven Hi-Load belt and bucket elevators ranging from 12–24 metres in length were also delivered, for vertical lifting, as required. Screw feeders and 18 associated inline electro-pneumatic slides to fit the chain conveyors completed the order. This substantial upgrade to the facility was delivered to time and budget with the increased capacity coming on stream as planned and running effectively from start.

Grain elevator and conveyor capacities are increasing in response to trends in global commodity flows.

Looking ahead

The growing scope and scale of global grain handling projects means that it is becoming increasingly important to identify a partner for materials handling with the resource and expertise to meet requirements. Economic robustness, breadth of experience and the ability to deliver to agreed deadlines are all important selection criteria. As for the machines themselves, longevity is undoubtedly important but so too is reliable, efficient and trouble-free operation over what can be a considerable lifespan. Equipment suppliers are ramping up support here with a trend towards lifetime care, complete with long-term maintenance and spares contracts that support those reaching for the highest operational targets. The criticality of grain across the world makes its efficient handling a vital global issue and conveyor and elevator suppliers are rising to the challenge, engineering cost-efficient, reliable solutions that will help to ensure food security into the coming decades.

"The E-Crane system has cut our unloading time in half, cut our maintenance time dramatically, simplified operation and reduced our costs."

Mike Barton, Utility Supervisor at PowerSouth Energy Cooperative, Lowman Power Plant

Visit us @
International WorkBoat Show
Booth # 1756, October 9-11
New Orleans, LA, USA

www.e-crane.com

E-CRANE®
EQUILIBRIUM
Worldwide

Hazardmon.com – revolutionizing site monitoring and maintenance

It is well known that transporting dry dusty materials — including grain — can create explosive atmospheres. The following conditions have to exist in order for the explosive state to occur: there needs to be high concentration of dust; then there must be oxygen; and there should also be an ignition source. If all of these appear in a confined space, an explosion will happen. The most common ignition sources have long been identified as over-heated bearings, misaligned belt, slipping belt and misaligned pulleys. The industry is saturated with various sensors and controllers that monitor those conditions and stop the machines automatically to prevent explosions. These systems (including a variety of systems from 4B) work really well, but there is one big problem with all of them. All them rely on the on-site personnel not to modify the system in order to run in bypass mode. With the ever-growing demands on the performance and efficiency of terminals and processing facilities, it is understandable that a shift manager may make a decision under pressure to keep operating even after an alarm has been detected. One can appreciate that there still are a number of ways to cheat the safety system and carry on running regardless of the dangers imposed to equipment and personnel.

4B Components has identified this problem and created a solution that will revolutionize the industry by introducing a greater level of transparency and record keeping. Hazardmon.com is a secure cloud based industrial monitoring solution that allows any registered user to login and see all their facilities in real-time from anywhere in the world. This product offers seamless integration with 4B's communication BUS system — the T500 Elite 'Hotbus'.

Hazardmon.com platform features

- the website is designed to be modern, simple and user friendly. A new videos section will be appearing on the website very soon, which will have short videos demonstrating how flexible the product is and giving examples of how to use some of the more advanced or hidden features;
- secure and encrypted login and data transfer of industrial strength – 256bit SSL. This ensures website security and data safety;

Hazardmon.com front page.

- no on-site server or PLC needed. No upkeep and upgrade costs. No hardware to replace or back up. The F500 unit sends data directly to 4B's server in the cloud;
- all the data is stored in the cloud and backed up in multiple locations making the data extremely secure. The end-user does not need to worry about backing up the data off-site. In the event of an explosion, because the data is stored off-site it will not be lost, and it would be possible to analyse the data and use it as evidence in determining the cause of explosion; and
- the webserver is constantly being updated and the user experience improved. Additionally more and more products from 4B are being supported.

Live sensor view

Hazardmon.com live system view.

It is possible to view multiple sites from one system dashboard page. This is very unique as the normal procedure is to log in to each site's VPN and then view each SCADA/PLC system one by one. The latter is very timely, requires long and complicated set-up and is not user-friendly. Hazardmon also indicates all active alarms from all the facilities in one place as soon as the operator logs in. The manager can see if any problems exist on any of his sites in seconds!

All the sensor data can be viewed in real-time in any browser. The website is completely dynamic and the sensor status and value are updated automatically without the need to refresh the webpage. The website was designed to dynamically resize as the screen resolution changes and it is optimized for tablet and mobile phone platforms.

Historical data analysis

All data can be viewed as graphs. A unique drag–and-drop feature of the graphing page allows for a quick display of graphs for the sensors that you are interested in and compares the values side-by-side. A range of time windows can be selected, ranging from 1h to 30 days. Charts are interactive and show

Hazardmon.com graphing – shows two bearings on a single shaft. One bearing is failing.

point values and sensor statuses on mouse-over as well as supporting zooming and scrolling.

All alarms are stored in a separate alarm log. Using the website filtering options it is very easy to generate a report and save it as an excel spreadsheet. All the alarms are grouped into

LAIDIG

www.Laidig.com

50 Years 1961-2011

PIONEERING RECLAIM SOLUTIONS FOR 50 YEARS

LAIDIG'S SUCCESS IS BUILT ON A 50 YEAR HISTORY PIONEERING WORLD CLASS, FULLY-AUTOMATED STORAGE AND RECLAIM SOLUTIONS FOR HARD-TO-HANDLE MATERIALS. A LAIDIG SYSTEM IS MORE THAN WELDED STEEL, IT'S THE PRODUCT OF OUR HIGHLY SKILLED AND DEDICATED TEAM MEMBERS, A COMMITMENT TO LIFETIME SERVICE AND SUPPORT, AND OUR INDUSTRY LEADING GUARANTEE...

"IF WE DESIGN, AND INSTALL YOUR STORAGE & RECLAIM SYSTEM, WE GUARANTEE IT WILL WORK."

DOMINATOR™

TRACK DRIVEN RECLAIM SYSTEM FOR DOMES & SUPER SILOS. COST EFFECTIVE SOLUTION FOR HIGH VOLUME, HARD-TO-HANDLE APPLICATIONS.
UP TO 120'

FLUIDIZED SCREW™

HYBRID TECHNOLOGY COMBINING AIR SLIDES AND MECHANICAL SCREW CONVEYING FOR FLUIDIZABLE MATERIALS.
UP TO 160'

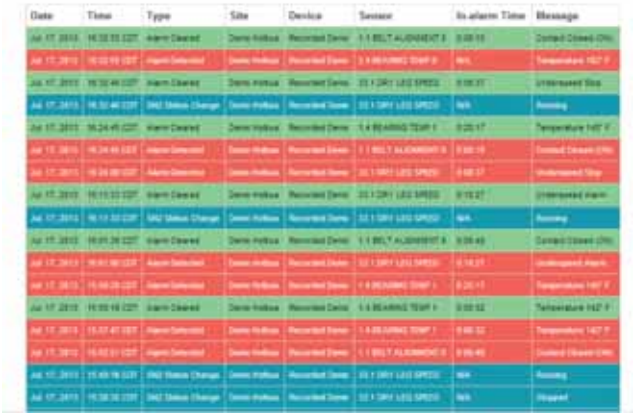
X-TRAKTOR™

LAIDIG'S LARGEST AND MOST RUGGED RECLAIM SYSTEM DESIGNED TO START UNDER A FULLY LOADED SILOS OR DOMES.
UP TO 160'

TOUGH MACHINES FOR TOUGH MATERIALS

Laidig Systems, Inc. 14535 Dragoon Trail, Mishawaka, IN 46544 USA
+1 574-256-0204 sales@laidig.com

FIND OUT MORE
WWW.LAIDIG.COM



Hazardmon.com alarm log unfiltered.

different alarm types, like 'Alarm Detected', 'Alarm Cleared', 'Device Power Up', etc. All this allows information to be extracted in a few clicks and create a report in seconds.

Email and SMS notifications engine

A very flexible notification system allows any user to receive email notifications when sensors go in to and out of alarms; when the internet connection between the 'Hotbus' system and the server is lost or when an alarm has not been cleared for a number of minutes. It is possible to receive emails only when an alarm has not been clear for a specified number of minutes or if more than a specified number of alarms were detected on a particular site in the last hour.

Report generation tool

An advanced analytics tool allows reports to be generated that summarize the safety and efficiency of the factory. Currently it is possible to see which sensors caused most of the alarms, which hours of the day had most alarms and a pie chart that shows the distribution of alarm types. The start and end dates of the report can easily be altered and the report re-generated. It can then be saved to the user's PC in a single click.

Hazardmon.com Maintenance feature.

Automated maintenance and testing functionality

It is important to periodically check that the electronics monitoring system will in fact detect an alarm when a dangerous condition occurs. The current standard in the industry is for the technicians to walk around the site and test sensors. A paper report is then generated and in some cases this report is converted to an excel spreadsheet or similar. There is still absolutely no guarantee that the technician actually performed

Hazardmon.com alarm log filtered.

any of the testing. HazardMon's automated sensor test tool function on the website (4B calls it 'maintenance') is unprecedented and novel. It ensures test procedures are carried out, logged and reports automatically generated, facilitating sensor testing for technicians and giving confidence to site managers. This feature provides documented evidence that each sensor has been tested to ensure it is working correctly and is capable of generating an alarm when needed. The user needs to go to the maintenance tab of the website and click on a sensor that needs to be tested. The website then temporarily stops the alarm notifications for this sensor, so that no nuisance alarm notifications are sent out. The user then has five minutes to cause and alarm and five minutes to clear the alarm. The whole process is fully automated and a report can be generated at the end of the process in just a couple of clicks.

Conclusion

As more and more facilities have an electronic system installed to monitor the site's safety the main cause of problems, which is the human factor and lack of transparency still exists. The Hazardmon.com combined with the 4B Hotbus monitoring system will allow the senior management, engineering management and technicians — to all have real-time access to the data, which dramatically increases transparency and therefore the management can be certain that the company policies are fully adhered to and that their facility is safe.

Hazardmon.com was launched at the GEAPS Exchange/Expo in Louisville KY, USA, in February 2013 where it was also a featured product in the GEAPS WHAT'S NEW PROGRAM. There was much excitement from industry leaders and plant managers. They could see how this new product would give them 'eyes on' their plant 24/7 and help make their plants to be safer and more reliable. Since the exchange a number of US and EU grain handling companies have installed HazardMon and many more are planning on using it. DCi

Construction - Earthmoving

Agriculture - Forestry

Mining - Quarrying - Cement

Material Handling - Utilities

Marine - Port Installations

Water - Chemical - Recycling

Energy - Petrochemical

Plastics - Rubber

Pulp - Paper - Print

Food - Beverage - Tobacco

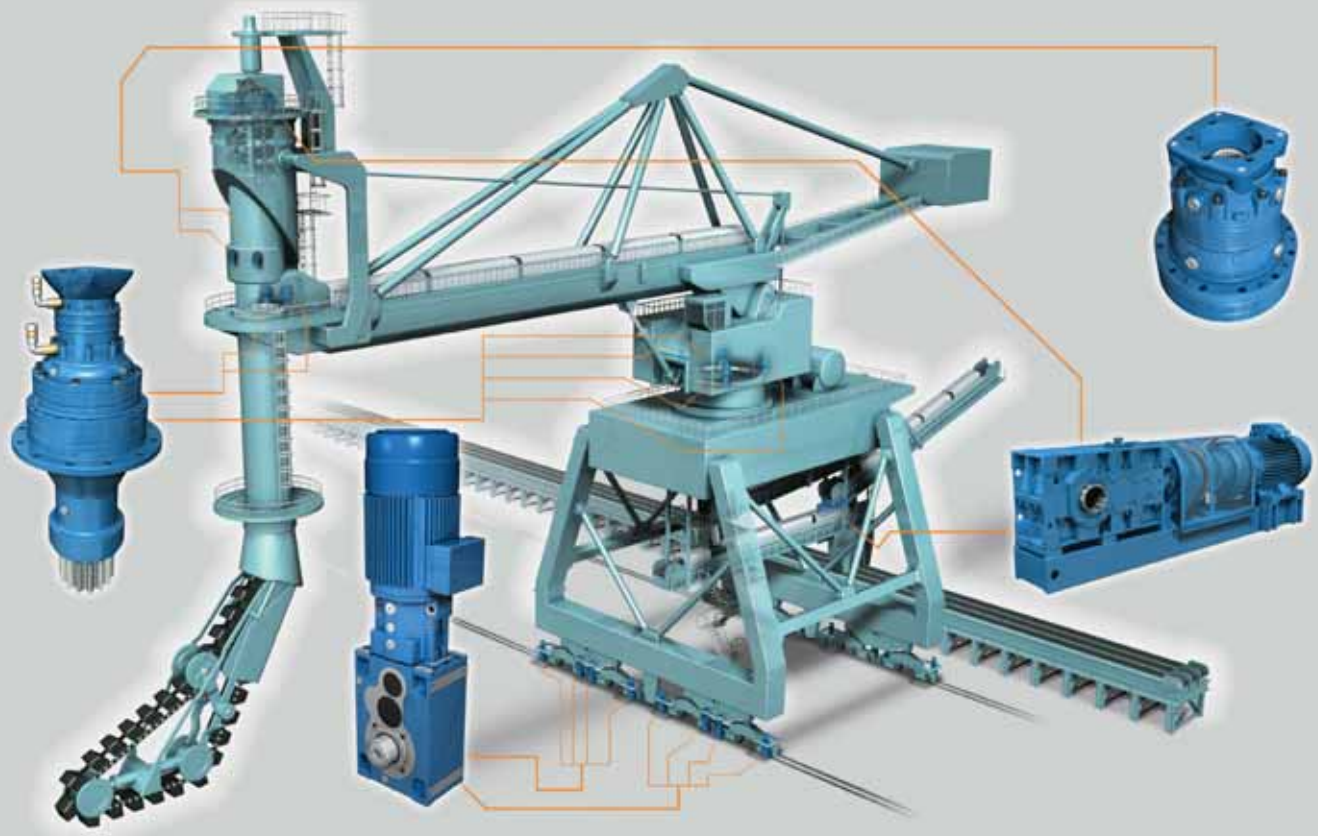
Industrial Equipment

brevini power transmission

www.brevini.com www.piv-drives.com

Solutions for ship unloaders

For many years, PIV Drives and Brevini Riduttori have been industry leaders in power transmission solutions for all kinds of marine, port and material handling applications. PIV and Brevini, both part of Brevini Power Transmission, offer a wide range of products: from standard modular gear reducers to custom solutions for special applications. Our unparalleled quality and reliability are acknowledged worldwide. Through a global sales and service network, we are proud to provide prompt delivery and excellent service.



PIV

PIV Drives GmbH - Justus-von-Liebig-Straße 3 - 61352 Bad Homburg - Germany
Tel. +49 (0)6172-102 0 - Fax +49 (0)6172-102 381 - info@piv-drives.com

SMB Group delivers second shiploader to Klaipeda

Automation and instrumentation for material handling from a single source

Klaipeda Stevedoring Company (Klasco) in Lithuania continues to invest in the expansion of its existing terminal handling capacities. It has therefore ordered from German SMB Group, based in Quickborn near Hamburg, another high throughput state-of-the-art shiploader for the loading of fertilizers at its deep water quay.

"We expect to have the shiploader commissioned by December 2013," announced Andreas Heckel, managing director of SMB Group. SMB delivered the first shiploader to Klasco about six years ago. "It has proven its investment worth," Heckel continues. "Even though the first shiploader was only constructed for one- or two-shift operation, the significantly increased handling volume for fertilizers had the shiploader running nearly around the clock in the last two years. There were no problems from it at all." The enormous strain from wide temperature fluctuations and weather influences in the harbour of Klaipeda and the highly corrosive effects of the fertilizer shipped were added factors weighing on the shiploader. "The shiploader system was really strained, but ran reliably. The installed technology convinced Klasco such that we have now been awarded with a contract to supply a second shiploader as well," says Heckel proudly.

Loading capacity of up to 2,000tph

Different products can be loaded from four separate docks into Panamax class bulkers at Klasco's fertilizer handling facility. The storage capacity is 120,000 tonnes and the possible annual total turnover is approximately 2mt (million tonnes). The quay is of a suitable length: it is about 264 metres long and has a water depth of 14 metres. The fertilizers mainly arrive from Russia by train, are product compatibly unloaded by Klasco (up to 1,600tph [tonnes per hour]) and put in interim-weather protected storage

silos. High-performance conveyor facilities then load the fertilizers via the current SMB shiploader onto bulkers at a loading capacity of up to 2,000tph. "The new shiploader will even have a capacity far in excess of 2,000tph," Heckel reports. Additionally, Klasco will also invest in the construction of new storage capacities.

The shiploading division of SMB Group can look back at two decades of experience in project planning, design and construction of shiploading systems. Within this period around 100 systems have been delivered, ranging from stationary loading systems to mobile facilities travelling along the quay on rails. All important components and assemblies are produced by SMB

in-house and tested in detail before delivery of the systems. The shiploaders are designed for bulk or bagged material loading facility, or as combined bulk and bagged material loading facility, depending on the customer's requirements.

High production capacity

SMB Group has decided for a high percentage of in-house production capability. In this way, customer requirements are spontaneously and effectively implemented whilst maintaining a high quality. The internal design and production of mechanical and electrical assemblies forms the basis for the high level of vertical integration. Heckel: "This ensures best reliability in quality and delivery time for our customers."

"We see ourselves as complete solutions provider for all tasks in which material must be filled, stored, internally transported and finally shipped," Heckel defines the supply range of SMB Group. "Our customers have the benefit of getting transport and filling facilities, palletizing facilities or complex shiploaders, reclaimers and conveyor technology from a single source. All modules are not only perfectly aligned with each other, but also with the characteristics of material to be transported."

Logistics and bulk level measurement

SMB Group comprises two companies: SMB International GmbH and MBA Instruments GmbH. "Two brands — one idea," Hans-Heinrich Westphal describes the group's philosophy. He manages MBA Instruments GmbH together with Andreas Heckel. "SMB and MBA have focused their business activities in the company claim 'Material Handling'. Planning, development, manufacturing, global distribution and service not only of the highly complex, automatic loading and storage systems, but also of level measurement technology are part of our product range."

The product offering from MBA consists of many components with integrated measuring principles and a wide application range. Some examples of this: the product range includes membrane switches that are used as limit switches for bulk materials. The switching process takes place when slight pressure is applied by the bulk material on the stainless steel membrane. A micro switch is operated by this and triggers an electrical signal.

Rotating paddle technology: for the first time with Stepper motor

The rotating paddle measuring technology is independent of the properties of bulk material. The measuring instrument type MBA200 for example is used as a full, demand and empty indicator of bulk material both in large storage silos and in small containers. In loading chutes and conveyor facilities, it signals a blockage in the product flow in time. "While a synchronous motor turns the paddle in the established rotating paddle device series MBA200, we have used the first stepper motor in the new device concept of the MBA800 series," Westphal explains. "This was based on the MBA-owned patent of the magnetic slip clutch. Its function has in the meantime become an integral part of each stepper motor. The logical next step was using the adjustable parameters of this motor type to enlarge the application diversity of this measuring technology and an additional registration for a new patent." Speed, torque, trigger time, switching delay and other parameters can be adjusted individually to reach different applications.

Andreas Heckel, managing director of SMB International GmbH/ Member of SMB Group

Hans-Heinrich Westphal, managing director of MBA Instruments GmbH/Member of SMB Group.

"The new device series is complemented by the special version MBA808 with its double function 'levelling and measuring'," as Westphal reports. "To completely utilize the silo capacity, the bulk level measuring device MBA808 flattens the angles of repose. The new stepper motor version is strong enough to turn the extremely long and slightly bent paddle arms of the device and thus push aside light to medium to heavy bulk materials such as powder, granulate or pellets." Only when the flanks of the cone are filled with the bulk material and the paddle is entirely covered with the bulk material and cannot turn anymore, will a 'full' signal be sent.

The vibrating paddle measurement technology with a patented single rod is also mainly independent from the filling material properties: the MBA700. This procedure is particularly suitable for powdered bulk material and has mainly become established over the vibration fork measuring technology.

The MBA 369 perpendicular system was constructed for use in extremely narrow silos. It may be used for the semi-continuous level measurement of all bulk material. A so-called sieve weight can even be used to measure the height of sediments under water or other liquids. Radar impulses reflected by the material are also the basis for continuous measurement. The essential benefits: the MBA radar products work contact free and can be used for the bulk level measurement of stockpiles.

"The new shiploader for Klasco is equipped with level measuring devices by MBA," Westphal says. Four devices of the series MBA220 are used here. They prevent the fertilizer from blocking the cascade headchute if the conveyor output is too high and thus secure the high reliability of the entire loading process.

Register now for the BIG event for BIG cargo in the Americas...

Breakbulk AMERICAS

PROJECT CARGO, HEAVY-LIFT & RO-RO LOGISTICS

Seeking Supply Chain Stability in Uncertain Times

September 23-26, 2013

Ernest N. Morial Convention Center · New Orleans, Louisiana, USA

Breakbulk Americas Workshops: September 23-24

Executive Presentations & Exhibition: September 25-26

Breakbulk Americas 2013 is the largest exhibition and educational forum in the Americas addressing the needs of traditional breakbulk and project cargo logistics professionals. The targeted programming at Breakbulk Americas will ensure that you develop skills and strategy to help you do your job more effectively. Gain your competitive advantage by attending, sponsoring, and exhibiting at Breakbulk Americas 2013.

TO ATTEND: Visit www.breakbulk.com for additional information and to register.

TO EXHIBIT OR SPONSOR:

NORTH & SOUTH AMERICA: Christian Thompson +1-281-416-4672 cthompson@breakbulk.com

EUROPE: Adrian van Beuningen +32-2-808-4355 avanbeuningen@breakbulk.com

ASIA: Gary Tang +852.2585 6199 gtang@breakbulk.com

www.breakbulk.com

Dust control systems

Jay Venter

Loading bulk solids with explosive characteristics

Cimbria Bulk Equipment has serviced the dry bulk industry for decades, focusing on the loading and conveying of all kinds of industrial bulk goods. The company has thereby gained a vast experience within industrial bulk handling. This experience is constantly being put to use in developing new solutions which meet the demands of authorities and users for functionality, quality and environment friendly operation.

The solutions have been developed on the basis of a product range consisting of various types of loading chutes for open and closed loading of dry bulk materials into e.g. trucks, rail wagons, containers, ships and for stockpiling. The loading chutes are sold under the brand name Moduflex.

Handling explosive products

Dust is an important issue when handling various bulk products such as grain, feedstuff, flour, sugar, wood or other organic materials, as it can be the cause of great nuisance in the work place. Not only because it can have a harmful effect on the human body working in a dust laden atmosphere, but also because the storing and handling of these products always contains an explosion risk that might cause destruction of buildings and production equipment and in worst case - loss of human life. However, recent years increased focus on preventing dust explosions with the implementation of the ATEX-directive has proven to have a preventative effect.

The demands for explosion proof equipment imply that the whole machine should be suitable for installation in high explosive risk areas. This means that all relevant mechanical parts and electrical components are special constructed and certified for use in areas where ATEX-zones are in force. All precautions taken endeavour to create a safe working environment. Beyond the direct improvement of the working environment by bringing down the amount of airborne dust, the risk of a dust explosion — when handling such products — is thereby reduced to a minimum.

Meeting ATEX demands

Through the years, Cimbria Bulk Equipment has supplied loading and conveying equipment in compliance with different national and international regulations. With the introduction of the ATEX-regulations, Cimbria Bulk Equipment was the first manufacturer of loading chutes to get an ATEX-certification. Today, the company has a standard working policy to insure that the supplied equipment is in compliance with the rules laid down in the ATEX-directive. Not only are the individual parts scrutinized, but the complete working unit where all factors including preventing the build-up of static electricity and max. surface temperatures are taken into consideration.

Key words in connection with ATEX related equipment is approval, marking and documentation, where the manufacturer's declaration plays a key role.

As a part of the approval of the Cimbria Moduflex loading chutes, is the compilation of a comprehensive technical dossier based on the mandatory risk analysis, which among other contains considerations concerning health and safety aspects in relation to the ATEX-rules.

Supply of loading chute no. 13,000

Due to the factors mentioned above Cimbria Bulk Equipment has already delivered many Moduflex loading chutes manufactured for plants where dust control, hygiene and compliance with the ATEX-directive are an essential prerequisite for the supply.

Cimbria Moduflex partner in Lithuania, Firma Liucija, has most recently placed an order for 8 Moduflex loading chutes of the

Chute Module with antistatic strips.

Chute outlet with earth connection according to ATEX directive.

type HDF400. Each loading chute is fitted on a positioning unit for optimal manoeuvring when loading rail wagons from the same silo battery. One of the ordered units is Moduflex loading chute no. 13,000, which has been supplied worldwide for numerous installations throughout the years.

These chutes will be used for loading soya beans and raw sugar, and due to the nature of the product the loading chutes are provided with explosion proof components in accordance with the ATEX-directive. The chutes are equipped with a 13,5m² built-in filter that is fully self-contained with its own pressure tank, fan and diaphragm pulse valve. Furthermore, are the chutes equipped with six chute modules with antistatic strips and earth wire, which give the chutes an extended length of nearly 4,200mm.

Each loading chute is fitted on a FlexPositioner, a motorized positioning unit that ensures the right position of the chutes in relation to the rail wagon loading hatch. Instead of the rail wagon having to be stopped precisely under the chutes, the chute itself is manoeuvred by the remotely controlled positioning unit. In loading situations where a long train of rail wagons would otherwise have to be driven into a precisely determined position, the unit can offer effective saving in total loading time.

Cimbria Bulk Equipment supplies dust-free loading systems through a network of agents in more than 30 countries around the world.

FlexPositioner – for loading chute no. 13,000.

Transshipment ports 'demand' eco-friendly grabs

The legal requirements for port companies in terms of bulk goods handling are becoming increasingly important with regard to emissions. The fact that many handling companies are situated in the vicinity of residential areas makes it all the more imperative to avoid environmental impacts such as dust formation and ground water pollution.

With 35 years of experience in loading and shipping practices, grabs expert Franz Lehnert, sales director at Kröger Greifertechnik, Sonsbeck, provides an overview of the necessary requirements on future-oriented, ecologically responsible loading grabs.

"Open the grab jaws. Grab the bulk goods. Transship. Things are no longer as simple in harbours and ports," says Franz Lehnert. "Today it implies: grab the bulk goods. Do not lose any of it. Protect the environment." This mainly applies to free-flowing bulk goods. 'Free-flowing bulk goods' primarily include aluminium oxide and ilmenite. However, closed grab designs are required in case of 'normal' bulk goods such as salt, slack, phosphate or animal feed (e.g. grains) as well in order to avoid dust formation. While open grabs were absolutely normal earlier, today one almost exclusively finds closed loading grab types in Europe. Winds occurring on water and in the harbours compel handling companies to appropriately protect their conical piles.

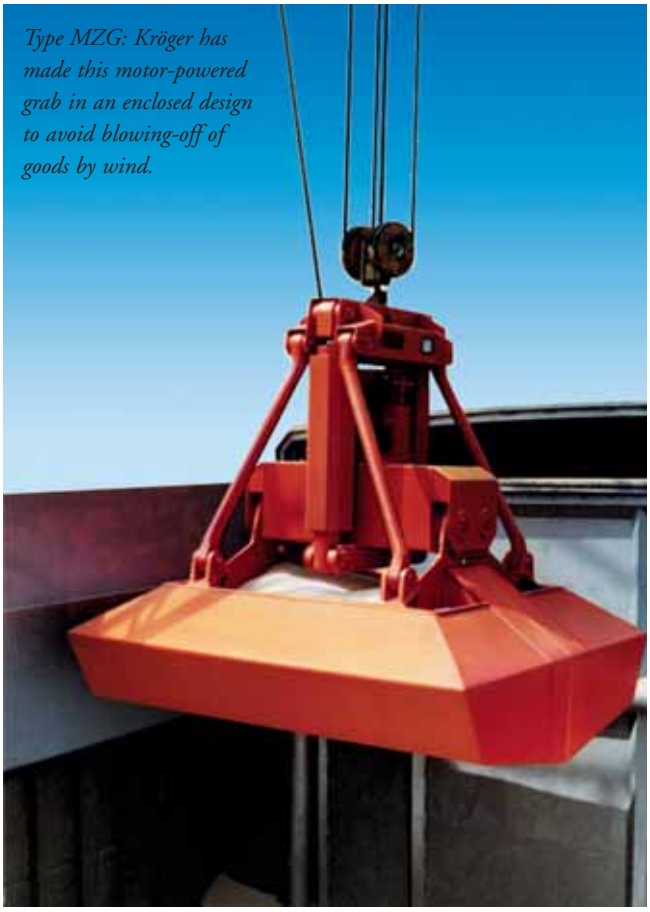
As a matter of fact, there are mainly three areas in a grab that need to work in an eco-friendly manner: the specifically raised grab jaws, the grab edges and the hinge bearings. Let us first consider the eco-friendly grab jaws. The grab jaws are raised above the angle of repose so that the often strong winds in harbours and ports are left with no chance to affect the conical piles and, consequently, the light, dust-forming bulk goods. Here Kröger speaks of a so-called 'open bag'. Specifically, it means that the jaws remain open in the above area in order to avoid explosion during closing and, thus, prevent environment pollution. An ideal solution to the problem of blowing-off of goods.

Matters become more complicated during tight closing of the grab edges. This requires higher effort in terms of structure and design so that the grab jaws are able to operate as absolutely 'watertight' units even under extreme loads and continuous, long-term usage. This is because free-flowing bulk goods such as salts or phosphates need secure closing of the loading grabs. In 90% of the handling goods tight closing of grab jaws can be achieved by means of double Pantanax round-bar steels both on the bottom scrapers as well as the side blades. The jaws close tightly through the bedding in of both the linked round-bar steels until a watertight closure is reached.

However, in practice such free-flowing bulk goods are also transshipped that are more flowing than water: aluminium oxide and ilmenite are examples of such bulk goods, for which tight closing of grab jaws by bedding in the Pantanax round-bar steels is not sufficient. In this case, tight closing is achieved through a rubber seal. Here, an open profile from the opposite grab jaws presses into a replaceable rubber lip (foamed rubber with hardness number of 20 Shore) during the closing operation. The rubber fits up to one-hundredth of a millimetre into the open profile and, in this way, prevents loss of the special bulk load due to trickling. The rubber lip itself is protected against damage by means of a Pantanax round-bar steel mounted all around.

The term 'sustainability' is becoming increasingly important even for port handling companies, as trade supervisory boards are also continuously updating the requirements and imposing restrictions. Therefore, it is no wonder that from water and soil pollution right up to ground water protection everything plays an important role. We are talking about protecting the environment from oils, greases and lubricants. For this reason, all Kröger grabs are designed to be not just low-maintenance, but absolutely free

Kröger's grab, type STLBG: An enclosed cable loading grab for dust-free bulk goods of any kind.



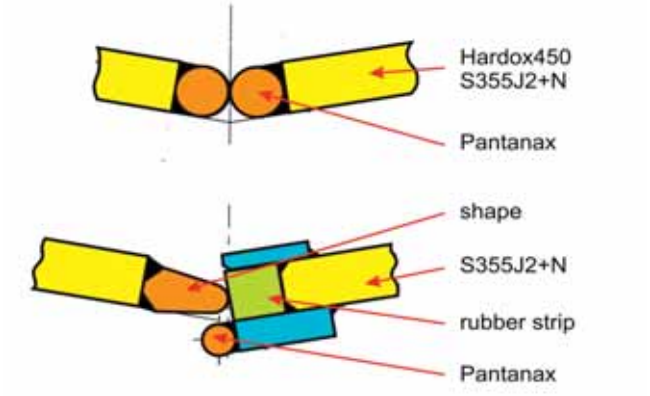
Type MZG: Kröger has made this motor-powered grab in an enclosed design to avoid blowing-off of goods by wind.

of maintenance, i.e. they require no lubrication either during guiding the closing ropes and mounting the pulley, or while positioning the hinge bearings. The latter is yet another innovation of the Kröger 'think tank' that fulfills the requirement of environment protection in addition to achieving high cost effectiveness through longer operating life: old grease no longer 'squeezes' out of hinge bearings, old lubricants no longer end up in (ground) water. Undesirable follow-up costs are therefore a thing of the past, which is also seen in the daily endurance and critical tests in sea ports and inland harbours. Until now, for instance, the situation was that especially during salt and coal handling deposits would form on the lubrication nipples, making the work difficult and polluting the environment.

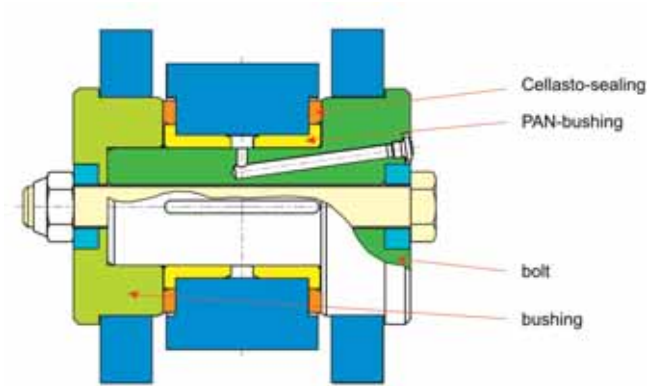
Kröger makes use of all three eco-friendly technologies with good experience not only in cable and motor-powered grabs, but also in the fast hydraulic grabs. When asked to comment on the eco-friendly loading grabs for harbours and ports the sales director for exports, Marcel Modler, smiles and says: "Actually these grabs deserve the Blue Angel."

Type KZH: The enclosed construction, which protects the environment, is clearly evident in this hydraulic grab.

The two Kröger grab edge designs to prevent loss by trickling: Above, with double Pantanax round-bar steels for free-flowing bulk goods; below, the even more eco-friendly rubber edge design, suitable for bulk goods that flow more freely than water.



The innovative, maintenance-free hinge bearings of Kröger grabs with PAN-bushing and Cellasto sealing that can do without constant lubrication and thus protect the environment.



DSH Systems Ltd cares about your air

DSH Systems wishes to announce the appointment of Ian Walton as chief executive officer. Walton was previously employed as commercial sales manager and has proven his potential to guide the company into the future and says he is looking forward to rising to the challenge. He will continue to liaise with the company's global key clients and company representatives as necessary.

The company has also expanded its operation by moving to larger premises in the commercial hub of Auckland and the employment of further engineering support staff will enable the company to maintain the momentum of its global successes.

Dust is a widely recognized industrial hazard which inhibits visibility, presents an inhalation danger for personnel and is capable of forming an explosive cloud. Controlling dust is therefore crucial for health, safety, economic and environmental reasons.

Tandem system for Cargill in USA.

DSH Systems can provide an effective solution for one of the routine operations capable of creating problematic clouds of dust — bulk loading of dry, granular, free-running products.

The DSH System can be quickly installed as it requires no utilities and the absence of internal moving parts results in less product degradation. The DSH System contains the dust within the product stream when discharging dry bulk materials, thus avoiding the need for the more complicated retractable or telescopic loading spouts and resultant expensive maintenance.

With its supply and implementation of hundreds of standard hoppers and working in all types of industries, DSH Systems has eliminated or greatly reduced the dust issues of its customers globally, but with this global success there was a requirement for further innovation driven by its customers' request to 'push the envelope' of what the hopper can achieve.

The DSH System is proven at reducing the dust once the product is delivered into the hopper itself, but DSH Systems has no control over the delivery system. Often dust issues are caused by the product falling off a conveyor belt and taking trapped air with it, sometimes the product is free-falling from a height and the final velocity causes large amounts of dust discharge as it enters the open top hopper — perhaps due to the lack of a grain brake.

This is not such an issue when running for example fertilizer at 50tph (tonnes per hour) inside a shed, but with recent installations of over 1,000tph and on a large variety of products, the amount of dust generated prior to the hopper taking control is as important as the correct working of the hopper itself. Also, the hopper is frequently operating in an outside exposed working environment (such as the port area on the shores of the North Sea) where the issues are only exacerbated.

So, based on good engineering practice and customer feedback R&D was applied and the DSH Tardis hopper was born.

The Tardis unit basically works as an interface between the standard DSH hopper and the customer's existing feed system. It consists of a steel cover which fits over the standard DSH hopper and comes with a flange (project specific) to fit the customer's requirements.

Also added to the Tardis are spigots for the fitting of dust socks. The quantity, size and type of sock are specific to the size of the hopper and the product being handled.

For special applications the spigots and socks can be replaced with welded-in inspection hatches with filter inserts. These have

Tardis model for port client.

the dual function of working as filters plus allow product sampling through the hatch. The units can be fully enclosed with a flange fitting directly onto the existing loading spout resulting in an integrated unit with hatches for the air to escape but with all the dust contained.

This unit was produced for a mineral company in Utah loading salt — DSH Systems initially supplied four units and these were such a success the company has since supplied another two.

The Tardis unit has greatly enhanced the DSH System when being used for ship loading. It can either be hard-bolted to the existing ship-loader for permanent installations or the flange supplied can be of a quick release version to allow for easy changing of the hopper for a trimming unit when operational requirements require the change in technology.

At Napier Port, New Zealand DSH Systems was required to supply a unit for large scale ship-loading of wood pellets. Here everything was about robustness and strength. The amount of dust and the operational pummelling of the equipment were extreme, but the company was up to the challenge. The result was a totally encased Tardis hopper made from Hardox 450 Steel, made to be easily removed from the ship loader (due to multiple products being loaded by the one unit) and DSH Systems supplied it with a custom made stand for when the unit was not in use. DSH Systems clients include many of the world's leading corporations including Cargill, Mosaic Crop Nutrition, Bunge, US Silica and SabMiller.

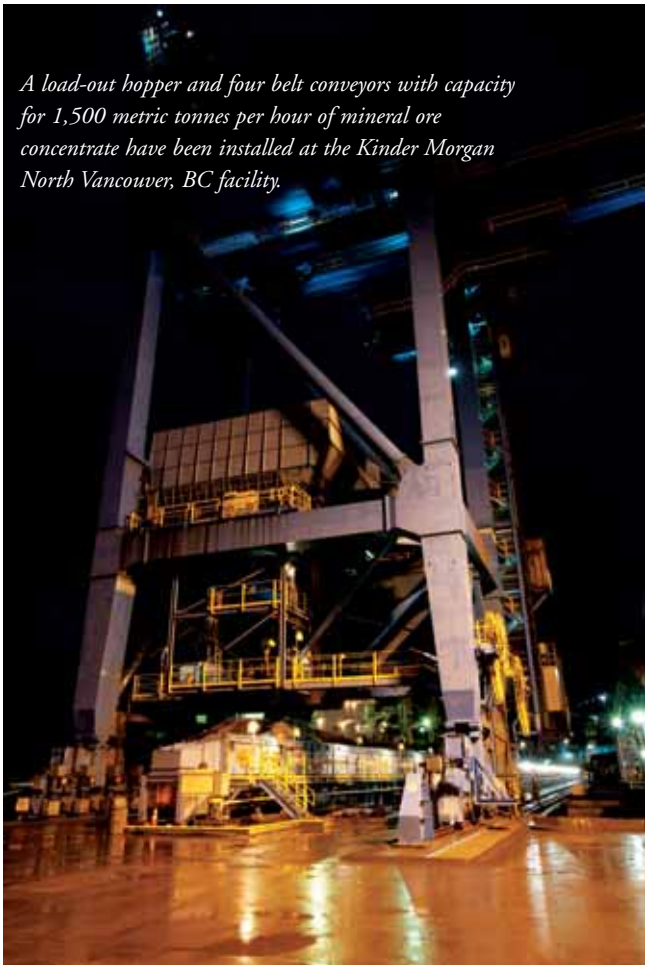
Transfer point upgrades raise throughput, reduce dust

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

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

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

Environmental Stewardship and Safety are among Kinder Morgan's core principles, and all the minerals concentrate storage and handling facilities at the terminal are fully enclosed to ensure that no fugitive material escapes into the environment. "When we spent some time reviewing the existing transfer points, it became apparent that there was now better technology available, and we wanted equipment that could elevate the performance and containment to a new level," said K-M Engineering & Project


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

Development Manager Al Price-Stephens.

During initial meetings, the Martin Engineering team

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

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

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

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

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

Weekly meetings were held from the beginning of the project through final design, which allowed all participants to see and discuss the status of each transfer point as it was being designed. "Martin engineering works with a 3D model, which not all designers do," Price-Stephens said. "It's much easier to look at a 3D model and resolve some of the potential issues before fabrication."

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

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

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

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

Dustless loading with Cleveland Cascades Ltd's award winning loading chutes

Having achieved awards for environmental engineering, environmental achievement and export achievement, there is no doubt that Cleveland Cascades Ltd is proficient in bulk loading solutions, using its unique cascade system.

Based in the UK, the company employs the original inventors of the cascade chute, together with a dedicated team of experts in design, manufacture, assembly and commissioning of bespoke loading chutes for the handling of dry bulk materials.

The unique Cleveland Cascade chute originated from an in-house project developed at a bulk handling facility on Teesside in the early 1990s. The facility had faced pressure from port operators and surrounding businesses relating to the safe and efficient loading of potash. "At the time we looked at the existing market for loading chutes but were unable to find a system to meet our requirements, so we put our heads together and designed our own," says chairman Ian Barnard. The success of the system saw the idea patented and sold worldwide, handling a vast variety of dry bulk materials, from large lump iron ore and coal, to fine powders such as soda ash, phosphate and alumina.

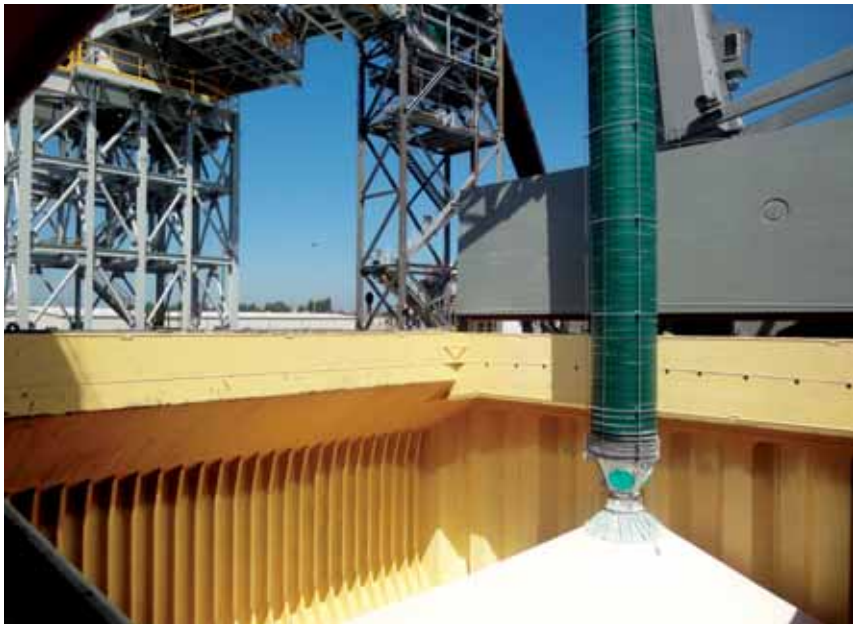
The Cleveland Cascade system allows a controlled yet efficient transfer of materials from conveyor to ship, silo or stockpile. The material is loaded at a low velocity, yet high volume and this means products can be transferred with minimized generation of dust emissions and also minimized degradation and segregation of product. Such is the low environmental impact of the Cascade chute, Cleveland Cascades Ltd offers one of the lowest dust emissions for specific loading applications available from any manufacturer around the world.

With over 600 systems operating worldwide with applications in ship, silo, road, rail and tanker loading, the company's key to success is its proven ability to provide a well-engineered solution with professional and committed support.

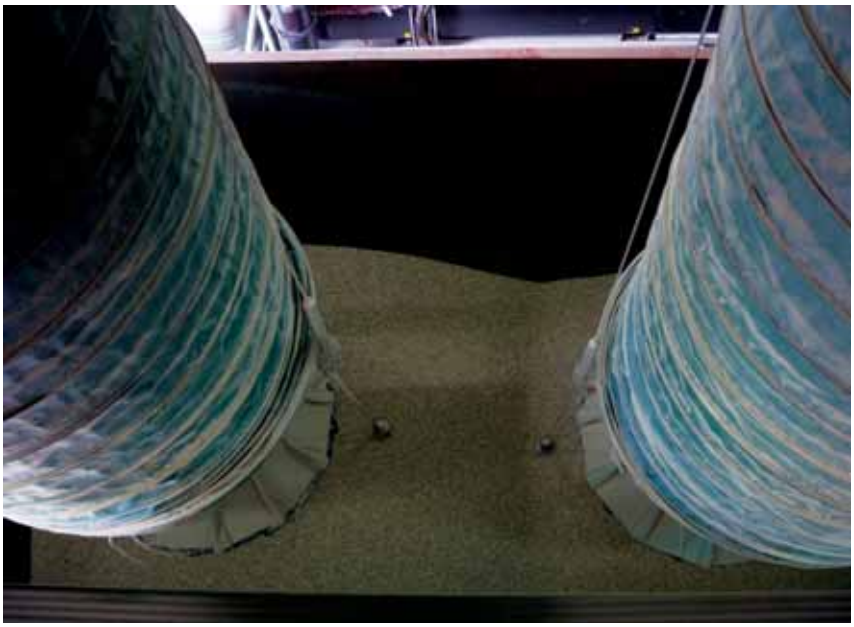
"Supplying projects to many of the world's leading corporations, including ThyssenKrupp, FL Smidth, BHP and many more, each project delivered brings new challenges in terms of project specification, environmental issues, material handled performance criteria and increasingly dust emissions. Our approach is for our Commercial, Design and Engineering teams to work closely with our customer counterparts from project inception right through to project commissioning," adds Barnard.

More recently, the Cascade Chute has been used to effectively handle biomass in large quantities of up to 2,000tph (tonnes per hour). The renewable energy source is particularly dusty and can be potentially explosive. By engineering the exact system to suit each customer's requirements, Cleveland Cascades Ltd is fast becoming the solution to the industry's biomass handling needs, reducing dust emissions, whilst maintaining the quality of the product.

Drawing on previous experience, the company is constantly bringing in new ideas, product development and expanding its product range. The patent pending VariFlow System is the second generation Cascade Chute, with the ability to automatically adjust cone inclination during loading to ensure absolute minimal dust emissions at all times, regardless of fluctuations in product feed rate. Similar in concept to the Cascade system, to optimize flow rate the VariFlow can operate in alternative modes. In standard mode, cone inclination is maintained at a fixed angle to suit the range of materials anticipated. In remote mode, the cone angles are adjusted to optimize flow rate for a particular material. In intelligent mode, sensors in the system monitor the material's speed of descent



Dust-free soda ash loading at rates of up to 2,000tph (tonnes per hour) at Port of Portland, Oregon, USA.



Biomass loading into trucks at 620tph. Biomass is a very dusty product to handle. Notice the surrounding environment is dust-free due to the Cascade loading through oppositely inclined cones in order to reduce emissions and maintain product quality.

Cleveland Cascades' shiploader handling phosphate at up to 1,000tph. Notice how the dust emissions are controlled (left) in comparison to a conventional loading system (right).

and the cone angles are constantly adjusted to optimize the flow rate. Where materials are damp, dust free or slightly sticky, the VariFlow System can operate as a free-fall chute.

In addition the company has also developed and supplied Cascades Transfer Chutes to solve the dust emissions problem created at conveyor transfer points. This represents a logical step for the business, as for years it has provided the means for materials loading from the conveyor to receptor, ship, rail wagon or tanker etc. And so now it is providing materials loading in the same controlled manner between two conveyor belts.

The transfer chute combines existing cascade and materials flow technology, along with experience with innovative design and engineering solutions. The transfer chute is able to work between belts positioned at 90° to one another, inclined belts, and also height adjustable belts. Use of an outlet which presents material onto the belt in its natural profile, creates maintenance free and dust free delivery onto the belt.

While Cleveland Cascades Ltd actively promotes Cascade technology, a proportion of the business is for applications that do not require the stringent dust control and reduced degradation effects offered by the Cascade system.

To this end, design and manufacture is offered for a range of lower cost conventional telescopic chutes, together with a range of smaller chutes for truck, tanker and rail loading operations. These chutes are robustly constructed and well-engineered. Materials of construction are bespoke to the application and special requirements are catered for. The design is such that these products will give many years of trouble free service.

Cleveland Cascades Ltd remains at the forefront of innovative design within the bulk industry, taking its technology and experience, and tailoring it to meet the demands of individual customer needs.

Designing an efficient intake pit dedusting system with Bühler

The unloading of bulk materials such as cereals into intake pits is generally associated with considerable dust emissions, *write Andreas Rembeck and Rico Hindemith, Bühler GmbH, Beilngries*. The reasons for the need for an efficient receiving pit dust control system can be diverse. They range from reducing dust emissions in neighbouring residential areas to improving health and safety at work for those working on site and the imperative requirement of preventing serious damage to plant and danger of fatal injury from dust explosions.

Bühler Grain Logistics offers a choice between two systems, depending on application requirements: namely central or distributed receiving pit dust control. These can be further subdivided on the basis of whether extraction is above or below the grid iron. Both systems are of modular design and can therefore be customized to the specific conditions of each situation.

To ensure that the required aspiration capacity of the intake pit dedusting is kept to the minimum, every component needs to be optimized. It is therefore an advantage if there are gates at the entrance area which are kept closed at all times during unloading so that undesired air draughts and dust escaping to the surrounds can be prevented at the outset. For an optimum air flow inside the reception area, the upper section of the side wall is fitted with louvers. This prevents dust getting whirled up and ensures that the dust which collects is directed towards the extractors (Fig. 1).

Another technical step towards minimizing dust emissions can be taken by installing a dust barrier. The barrier has dust retention panels (Fig. 2) and prevents dust whirling up in the hopper. Practical experience from day-to-day operations has shown that up to 75% of the dust which is generated is produced when the bulk material hits the floor of the hopper. The dust barrier reduces air requirements, allows smaller filters and fans and cuts the power requirements of the fans by approx. 60%.

Filters for intake pits (decentralized)

For operations such as grain collection facilities or farms where the amount of dust generated is insignificant or plays only a minor role at most, decentralized dedusting is the more appropriate solution (Fig. 1). In this case two adjustable inlet openings allow the air which requires cleaning to flow into the filter panels, from which it is directed to the fan through a manifold pipe line. The filter modules are connected together by connecting elements to form a single unit and the cleaned dust falls back into the reception pit via a diagonal plate.

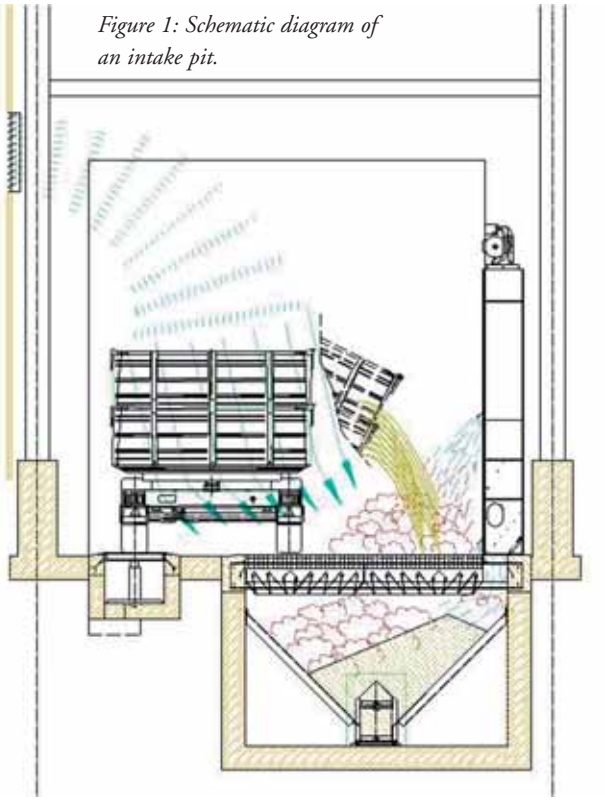
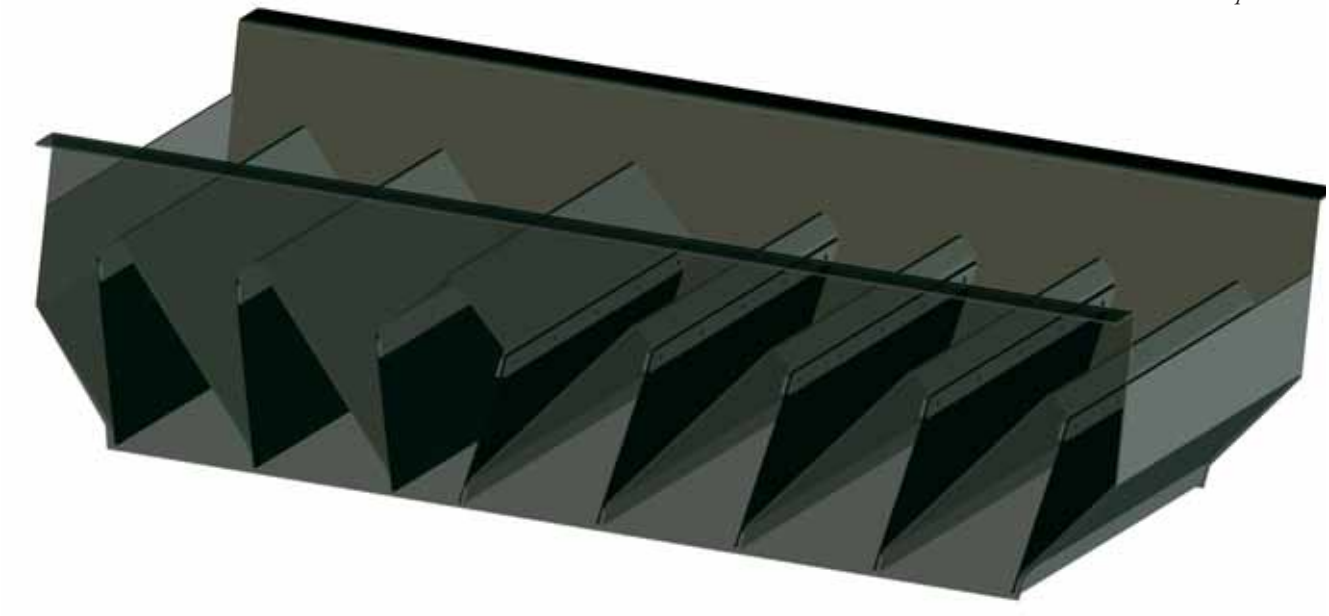


Figure 1: Schematic diagram of an intake pit.

Centralized intake pit dedusting

Centralized dedusting is designed more for food processors such as grain mills and producers of pasta, where removing dust from the raw product is essential. As in decentralized dedusting, the air to be cleaned is also caught by an aspiration panel. The individual aspiration modules are screwed together, which means that a variety of intake hopper sizes can be created ranging from 4m to a maximum of 24m in length. The aspiration panel is

Figure 2: Dust retention panels.



connected to a dust manifold pipe line which leads to a Bühler round filter. The round filter is a central filter with a jet-pulse cleaning system. This is where the flow of raw gas which is picked up and the dust which is retained are separated. The dust is conveyed through dust discharge chutes to separate dust containers or big bags. As a result, the unwanted dust no longer comes into contact with the product, thereby ensuring improved hygiene and greater safety. This system could be described as a form of initial pre-cleaning.

Filter

TA-Luft directive requirements under the German Federal Emissions Control Act stipulate emission limits of 20 milligrams of residual dust per normal cubic metre of air. The use of anti-static filter bags is one way of ensuring compliance with these reference values. They are more effective at cleaning than filter cells and also permit higher air to cloth ratios.

Cleaning is on a time-controlled or/and differential pressure controlled basis, which ensures optimum filter performance and saves energy.

Comparison

The two types of intake pit dedusting systems can be designed for both side and rear unloading. With their adjustable double gap they can be customized to local conditions and are capable of aspiring even if the intake pit is overfilled. Depending on requirements the walls can be supplied with filter modules only or with partition walls as well, enabling sizes ranging from 2×3m² to 4×24m².

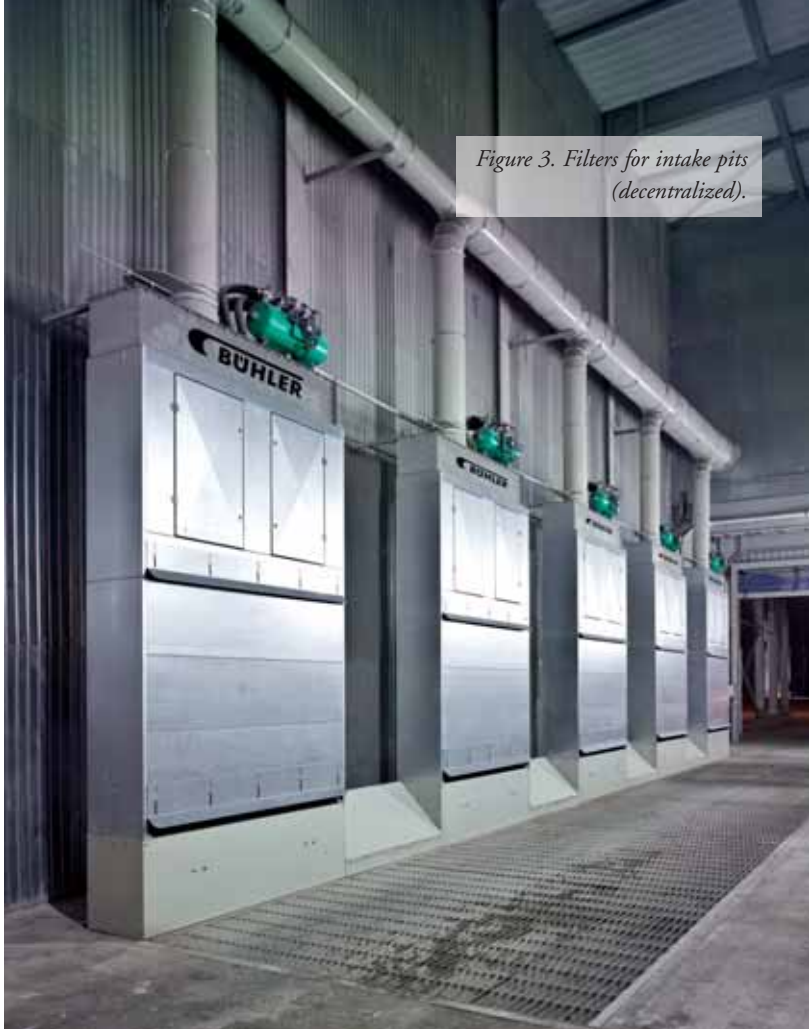


Figure 3. Filters for intake pits (decentralized).

Figure 4: Type RB round filter.

The differences between the two filter systems are as follows: whereas the decentral dedusting system has a larger surface and therefore a lower filter load than the central dust removal system, the maximum dischargeable air rate of 55m³ per minute and meter of pit length with a filter load of 5m³ per minute and m² of filter surface (grain) is less than the dischargeable air rate of the central solution, which is a maximum of 65m³ per minute and metre of pit length for the same filter load.

Separate dust separation in the central version means that the central version requires more space for Bühler round filters (Figure 4) and dust containers. On the other hand the decentralized dedusting system involves additional costs in terms of compressed air for cleaning the filter bags.

The purchase costs of the central receiving pit dedusting system are generally higher than for a decentralized system because the former has more components. In terms of operating costs, however, the central solution normally works out better. Both systems have their advantages. The decision as to whether preference should be given to the central or decentral option depends on the specific application.

Buttimer: designing for dust control

Buttimer Group has been designing port facilities and bulk handling equipment for more than three decades. From complete turnkey bulk terminals, to design and fabrication of bespoke shiploading and unloading equipment, the company has encountered many diverse bulk handling environments, developing comprehensive experience of dust suppression and environmental control techniques suited to each bulk product and port.

The requirements of environmental regulations placed on ports, the need to provide a safe and clean environment for port workers and those living in close proximity, and a greater awareness of fire safety and ATEX precautions relating to the dust from dry bulk materials has drawn an increased awareness of environmental control needs at port facilities. Buttimer has recognized this increased awareness and demand from customers and works closely with clients to provide optimized environmental controls for dry bulk handling systems, from turnkey terminals to mobile hoppers.

Many problems occur as a result of airborne dust. Firstly environmental; bulk cargoes range from feedstuffs, grains and cereals, fertilizers, coal, iron ore, biomass and others and each product has different health hazards and safety issues associated with it, these are further accentuated when the port area is in close proximity to residential or commercial buildings. Sea or water contamination can also be a concern. Secondly, the dust can cause havoc with mechanical equipment on the quay. Air filters and engines can become clogged and choked in short periods of time. Thirdly, cleaning of the surrounding areas can be time-consuming and expensive, not to mention hazardous.

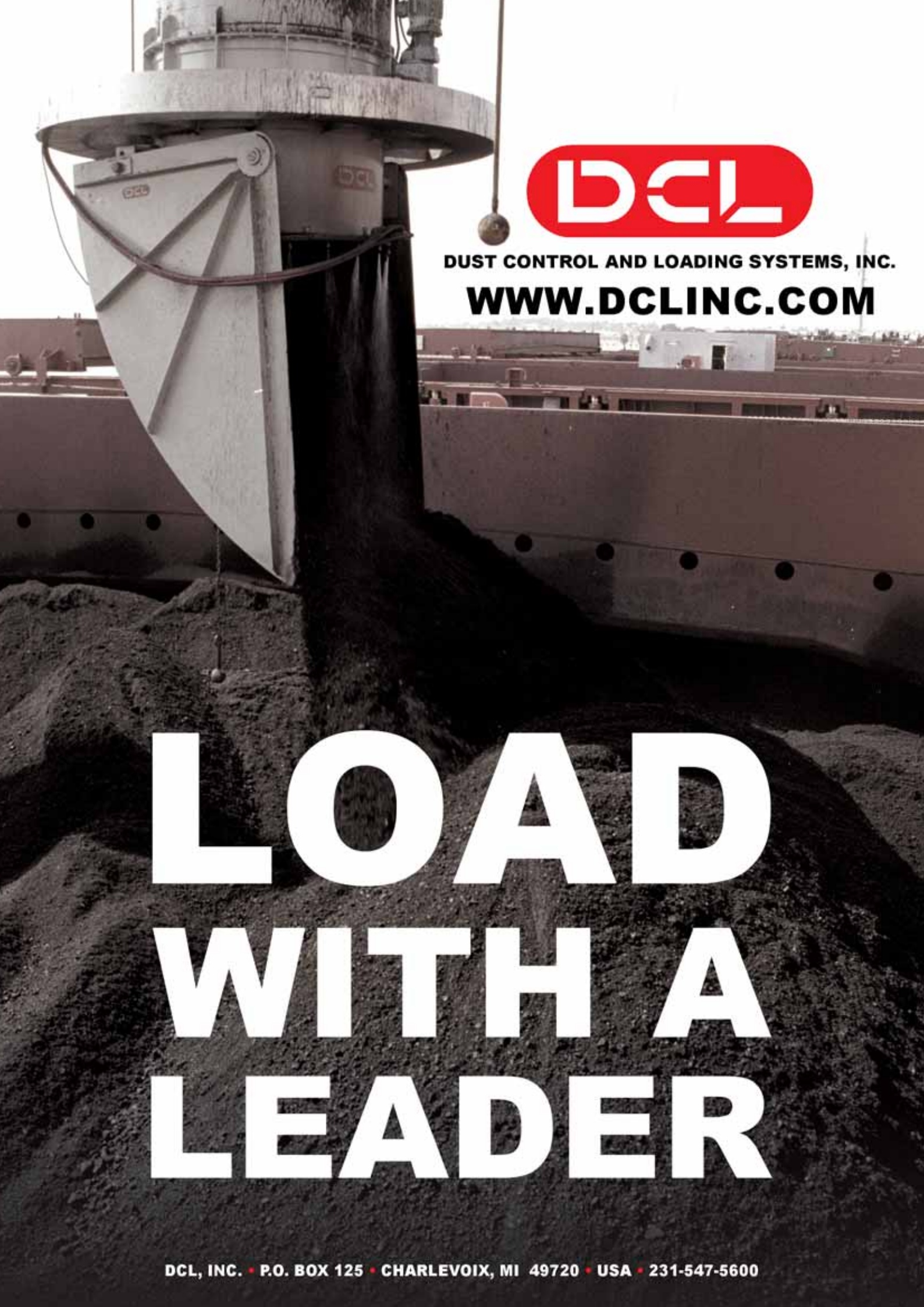
Designing a dust control process

Buttimer has been designing and building mobile, rail and stationary dockside unloading hoppers for more than 20 years. During this time, numerous technical challenges have been encountered and solved — be they functional, structural or mechanical. In recent years, the demand for quicker cycle times of both unloading and loading of ships coupled with larger vessel sizes, has led to an ever increasing demand for larger capacity and throughput of handling equipment. This, however, brings with it its own problems; the larger the capacity means the larger the equipment, and so there are huge structural and mechanical demands — plus the rapid displacement of large quantities of

dusty product creates explosion risks, mechanical problems and environmental hazards, as described.

As a direct consequence of the nature of crane and grab bulk unloading, large quantities of airborne dust are generated. The main areas where this occurs are where the grab releases the product into the hopper and where the product is then fed from the hopper into a truck or wagon or onto a conveyor. As the cargo is dropped into the hopper an equivalent quantity of air is displaced and as it evacuates the hopper it brings dust with it. Then, as the product is released into open wagons and trucks, the effect is repeated.

When Buttimer developed its unloading hoppers, DMLs (Dockside Mobile Loaders), RMLs (Rail-Mounted Loaders) and SMLs (Static Mounted Loaders), it endeavoured to address dust emitted in the loading and unloading of the hopper. Firstly, fitted on top of the hopper, is the loading thimble. This is an approximately 3m-high wall above the top of the hopper into which area the grab is situated before opening and discharging the product. Secondly below the thimble and directly on top of the hopper there is a thrash grid to stop any unwanted objects or lumps of product. This thrash grid is sitting on a flexible flap system. This is a simple mechanical system that has angle steel plates with vertically hanging rubber flaps. Finally the thimble sits flush with two sides of the hopper and on the other two sides it sits inside the hopper wall. Within this cavity are placed insertable reverse jet cassette filters.


DCL
DUST CONTROL AND LOADING SYSTEMS, INC.
WWW.DCLINC.COM
LOAD
WITH A
LEADER
DCL, INC. • P.O. BOX 125 • CHARLEVOIX, MI 49720 • USA • 231-547-5600

A brief description will demonstrate how this system creates effective dust containment in Buttimer's unloading hopper units. As the grab passes into the thimble opening and starts to discharge it creates an enclosed finite space bounded by the open grab on top, hopper at bottom and thimble on all four sides. As the cargo passes through the flexible flap system the flaps move to the side, the cargo slides over the angled plates and the rubber flaps close after stopping the dust passing back up through the grid as the air is displaced. However, approximately 10% of the grid is left open, to allow for the intake of air so that the reverse jet filters have the required quantity of air to pull. The reverse jet filters suck the dusty air from the thimble area through the cavity between the thimble and hopper sides. The reverse jet system then clears the filter bags and the dust then falls directly into the hopper.

In the unloading area there are installed hanging rubber curtains that the wagon or truck can drive through, again creating a controllable and finite space beneath the hopper — limiting the effects of wind or environment on dust at the release point. Also situated on all hopper outlets are mechanically operated loading chutes, which are fitted with an automatic retraction system so that the cargo will drop the minimum distance to the bed of the truck or wagon and hence generate as little dust as possible. There is a fan connected to the chutes which extracts dust up through it and is in turn blown back into the top of the hopper. Where a conveyor is the means for evacuating the product the connection between it and the hopper is easily controllable and so doesn't cause extra problems.

Protecting equipment

A common problem that Buttimer has identified with many mobile unloading hoppers on the market is that the generator, compressor and mechanical drives become choked with dust and over-heat. To solve this problem a dust-free control room has been situated in the mid-section of Buttimer's DML hoppers. This room is kept dust free by maintaining a high positive air pressure in the room and hence the dust is not drawn in. This is achieved by installing a fan system to blow the required volume of filtered air into the room. This also has the added benefit of keeping all running motors cool during operation in high temperatures.

Buttimer's equipment is designed for longevity and efficiency; using the flexible flap system described reduces the quantity of air that needs to be pulled through the cassette filters in the hopper's thimble by more than 60%, compared to having an open grid. This saves greatly on operating costs and substantially limits the dust emitted into the environment. The units are easily cleaned between use or bulk products by means of an onboard hose reel system accessible to all areas of the unit for flushing down. This is part of ensuring that Buttimer's units are able to cater for multiple products, easing or eliminating the fear of cross contamination.

Buttimer also designs and installs complete turnkey port terminals, where attention to environmental controls for individual units is compounded by a systematic attention to dust monitoring and safety concerns in the design, process engineering, procurement and installation project phases of a dry bulk port terminal. Bulk products such as animal feeds, oilseeds meal and types of biomass can be particularly flammable. Buttimer assigns ATEX fire safety codes both internal and external to all relevant equipment, including investigation of the ignition point. Where pertinent, equipment is fitted with special spark prevention features such as plastic casings on bucket elevators, anti-static rubber on drums, rollers and other high friction points, as well as using anti-static belts on conveying equipment. Assigning ATEX ratings, predicting dust levels in and around equipment, identifying transfer points and potential fire hazards are integral to Buttimer's process design. When dealing with a product like soybean meal or types of biomass, it is essential that the system be tailored to the product's characteristics; 'off-the-shelf' handling solutions will be ineffective and often unsafe.

Operations matter as much as design

Buttimer emphasizes that the design innovations and precautions mentioned will reduce and limit the dust emitted but cannot completely eliminate it. Due to the nature of the products handled and the fact the grab is open to the elements from ship to unloading hopper one can never claim to eradicate dust altogether. Also the effectiveness of the system is very much dependant on the competency of the crane and unit operators. Buttimer have supplied turnkey port solutions, as well as DML, RML and SML units to many different clients in numerous countries and for a broad spectrum of bulk products and have received very positive feedback — more convincingly, nearly 80% of Buttimer's business is repeat customers.

TRADE & COMMODITIES • PORTS & TERMINALS • ENGINEERING & EQUIPMENT • SHIPPING & TRANSPORT • BREAKBULK & BAGGING

DC: DRY CARGO international

SUBSCRIPTION FORM

Name ..... Position .....

Company Name .....

Address .....

Postcode ..... Country .....

Tel ..... Fax .....

Email ..... Website .....

Please state your particular area of expertise within the bulk industry .....

.....

Annual Subscription Rates

	☐ *1 year*	☐ *2 years*	☐ *3 years*
UK	£170	£280	£365
Europe	£210	£355	£460
USA & ROW	£260	£445	£580

Please charge my credit card ☐ VISA ☐ ☐ ☐ ☐

☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

No. of copies required .....

Cardholder's name ..... Expiry date ..... /.....

Signature ☐ Date ☐

I enclose a cheque for ..... payable to **Trade Publishing International Ltd**

PLEASE COMPLETE AND FAX TO: +44 (0)1206 562566

Dry Cargo International, Clover House, 24 Drury Road, Colchester, Essex CO2 7UX, UK
Tel: +44 (0)1206 562560 Fax: +44 (0)1206 562566 Email: info@dc-int.com
Website: www.dc-int.com

Make sure you don't miss the next issue...

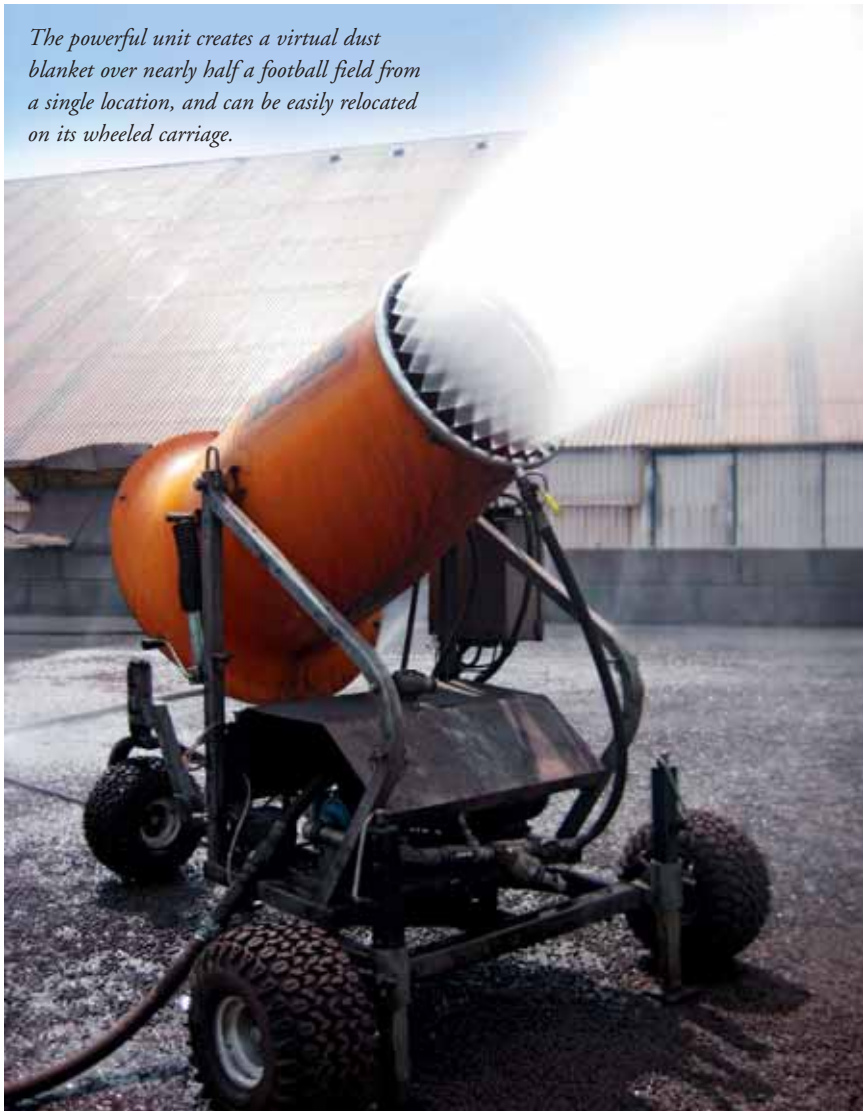
- **The world's only monthly dry bulk publication**
- **Five industry-specific editorial sections, with their own news and features every month**
- **Additional special focuses and regional reports**

Freight handlers flatten dust at Ukraine port terminal

The largest private stevedoring company in the Ukraine has significantly improved air quality and reduced dust-related complaints at the country's deepest port, a busy marine terminal where ocean-going vessels have 24/7 access to services. The key is a mobile dust suppressor designed to produce massive numbers of tiny water droplets that are specifically sized to attract dust particles. Launching an atomized mist with a powerful oscillating fan, one oscillating unit is able to cover 125,000ft^2 (11,613m^2) from a single location, an area more than two-and-a-half times the size of an American football field.

Situated on the Black Sea at Adzhalik Bay, about 24 km south from the city of Odessa, TIS (TransInvestService Ltd.) specializes in transshipment of coal, grain and fertilizers in bulk quantities. With the opening of its new coal handling berth at the end of 2008 — and a terminal that has the estimated capacity to move 10 million metric tonnes per year — the facility greatly increased its already significant potential for dust.

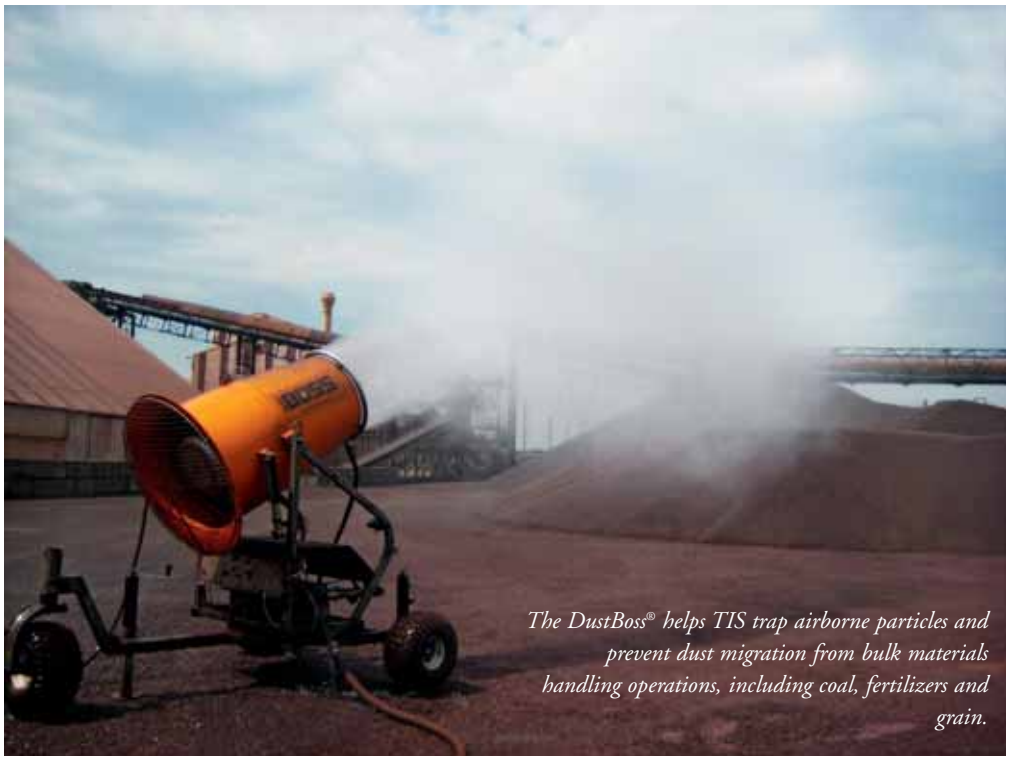
"With the ability to handle such large quantities of dust-generating materials, we felt that some form of suppression had become a necessary element of port management," observed Alexey Shlapakov from TIS. "We have specialized equipment for many of our operations, and we started doing some research on the available technologies for dust control. After comparing features and benefits, we specified a DustBoss® model DB-60," he said.



The powerful unit creates a virtual dust blanket over nearly half a football field from a single location, and can be easily relocated on its wheeled carriage.

The DB-60 is one of the largest designs in the product family from Dust Control Technology (Peoria, IL), a specialist in this growing niche industry. The firm currently provides a number of electric models, hydraulically-powered units, tower-mounted designs and remote controls, as well as many other dust-related components.

"Dust and odour management is becoming more critical all the time," commented the company's CEO, Edwin Peterson. "What used to be considered an option a few years ago is now frequently a mandatory component of project planning," he said. "Tighter regulations and greater environmental awareness are both contributing to that trend."



The DustBoss® helps TIS trap airborne particles and prevent dust migration from bulk materials handling operations, including coal, fertilizers and grain.

The facility

The port has an average depth of about 14 metres and a quay wall that is more than 1,000 metres long. It features two shiploaders capable of handling 950 tonnes per hour and a portal crane with a lift capacity of 16 tonnes.

Situated on 500 hectares of land, the TIS facility has a loading capacity of up to 25,000 metric tonnes of coal per day, with warehouse storage for about 270,000 tonnes. It can also handle as much as 35,000 metric tonnes of grain per day, with warehouse storage for approximately 380,000 tonnes, and is equipped to load up to 25,000 metric tonnes of fertilizers per day, with warehouse space for about 270,000 tonnes. Company officials estimate that as many as 1,000 trucks can be loaded in a single day, or up to 250 railway cars.

TIS is the largest private stevedoring company in the Ukraine, with busy terminals on the nation's deepest port at Adzhalik Bay, where ocean-going vessels have 24/7 access to services.

With that kind of capacity, TIS needed a dust control solution to match. The DB-60 is built around a powerful 25 HP motor that generates 30,000 CFM. It features 30 brass nozzles developed to atomize droplets to the optimum size for dust suppression — between 50 and 200 microns — and can be customized to suit specific particle sizes and operating conditions. The high-performance design includes an optional booster pump that delivers up to 200 PSI of pressure from a supply hose.

"We noticed the effects of the DB-60 right away," Shlapakov continued. "The air quality was noticeably improved, with a definite reduction in fine airborne particles. We soon found that dust-related complaints had also dropped. The unit has proven its value in service, under some very difficult conditions, and has met all of our expectations."

TIS is the Ukraine's largest private stevedoring company, located at the nation's deepest freight harbour. Situated on Adzhalik Bay, which never freezes, even the largest ocean vessels have unrestricted access to services around the clock. The firm is equipped with grab loaders, 11km of conveyors and other specialized equipment, earning it a reputation for rapid turnaround times.

Dust Control Technology is a leader in effective dust management solutions for bulk material handling, serving in port/shipping applications, coal power, demolition, recycling, composting facilities, mining operations and scrap industries. The company's DustBoss® product line has been supplied to customers in 40 different countries to date, helping reduce labour costs and free up manpower for more important tasks.

The automated units also use less water than hoses and sprinklers, with some customers realizing payback in less than six months and netting an annual cost savings of more than $50,000.

Dust control systems: TMSA – a South American expert

Fig.1. Mist or haze in tunnel.

Fig.2. Dust during truck unloading.

Fig.3. Dust explosion in Brazil (2001).

Each time products are elevated, transferred or handled, generate dust in high-volume, causing prejudice to the health of operators and damage to equipment, and might still cause fires and explosions, depending on its excellent combustion capacity. Dust control is a significant means of preventing explosions in grain storage units and reduces environmental contamination. The separation of the dust of the dust/air mixture is a process that requires a lot of care.

Dusts are particles with a diameter size between 1 to 100 microns, each particle type and composition influences its explosive risk. A concentration greater than 30gr/m^3 shows explosion risk, with dust of less than 60 microns, this situation is illustrated as an appearance of a mist or haze (*Fig.1*). Some products generate more dust than others, while being conveyed.

Environmental management and pollution control pose major concern to all sectors of mining, steel, power, cement, agro-commodities and other core industries.

Dust can be explosive (*Fig.3*) and the explosiveness of dust depends on multiple factors. In order to assure that an explosion is not produced, the equation 'dust + oxygen + ignition' must be altered. The elimination of any one of these requirements will prevent the reaction. This can be done by neutralizing ignition sources or eliminating or reducing the emissions of dust.

Dust is eliminated by controlling its generation or installing vacuum systems that collect the dust in filter bags at each point of emission.

With the increase in awareness of the problems related to pollution, a challenge has arisen to solve and control the spread of air pollution. Strict environmental regulations as well as the sensitivity with respect to air pollution has motivated TMSA Tecnologia em Movimentação SA, from Brazil, to adopt new approaches in engineering with an emphasis also on waste reduction for controlling the air borne dust emitted due to transport, transfer, storage and distribution of bulk materials.

Dust control technology is no longer an option but a requirement – this is how TMSA understands this issue

Energy efficiency, work safety and reliability are no longer a wish list for dust control systems.

To reduce dust emissions to the environment, to minimize explosions and fire risks, TMSA installs de-dusting systems at the emission source where the dust is aspirated, collected and treated or is controlled with very low or negligible emissions, maintaining the dust in the product flow. It contributes to reduce maintenance costs, preserve cleaner environments which improve health care, operational efficiency, and good neighbour relations.

Conveyor design also plays an important role in dust control. TMSA, as a strong conveyor specialist, reduces dust emission with special engineering and careful manufacturing, by:

- conveyor designs with low belt speed/control of air flows/ eliminating bumps between idlers/covered conveyors/good chute designs/minimizing transfer points;
- use of enclosed conveyors: screws, redlers, special designed belt conveyors as Manutubes (belt conveyor inside a plastic tube) and pipe conveyors;
- tight bucket elevators with good boot and head designs with no back legging and moderate belt speeds;
- avoiding long chutes with high angles and installing speed reducers; and
- avoiding dust accumulations and dust turbulences inside conveyors.

Dust control systems

TMSA offers different tools to control the dust: conventional with aspiration/innovative with no aspiration.

For any type of dust suppression system the principle is to suppress the dust at the source and thereby preventing to be air borne. Dust suppression systems are tailor made depending upon the application and behaviour of the dust generation and requires equipment sizing and selection considerations for capturing, conveying and collecting, plus hood and ductwork design options, system balancing and testing, fans or pulse-jet or

Fig.4. Rectangular and round filters in centralized systems aspirating several machines.

Ideal Solutions for Port Facilities

- Equipment for solid bulk material handling
- Designed to meet customer´s needs
- High quality, excellent durability
- Reliability and short term delivery
- Shiploader retrofit and upgrading
- Dust aspiration systems

Sugar 3,000 t/h

Grain 1,500 t/h

Iron Ore - 4,000 t/h

Grain/Ore 1,000 t/h wood chips

Grain - 1,500 t/h

Grain - 2,500 t/h / wood chips

Kaolin 1,100 t/h

Grain - 1,500 t/h each tower

Dust trap - Upgrading

TMSA
Tecnologia em Movimentação

Porto Alegre/RS - Brazil
Phone: +55 51 2131-3333
E-mail: comercial@tmsa.ind.br
Website: www.tmsa.ind.br

CERTIFICATE SYSTEM ISO 9001:2008

compressors and exhaust stacks.

TMSA's dust collection systems are engineered to each application. When it comes to selecting equipment to manage air quality you need a number of alternatives that can achieve the desired result. With nearly 50 years of experience and state-of-the-art capabilities, TMSA can meet and exceed any project needs.

TMSA offers a complete range of bag houses: high pressure, medium pressure, low pressure filters, with bag cleaning by fans, compressed air (jet-pulse) or Roots type pumps.

Fig 5. Vertical compact filters.

Styles ranging from round, square, vertical, horizontal with bottom loading filters and top loading filters plus a variety of inlet configurations, its engineering uses different types of fabric filter dust collectors with a focus on pulse-jet cleaning technology. In addition to the standard units, TMSA can manufacture special units, design centralized de-dusting systems with big central filters collecting from different sources (*Fig.4*) or compact filters (*Figs.5 & 6*) which collect dust in each source and returns the dust to the product flow.

The compact filters are an alternative to centralized aspiration systems, ideal to install on silos, transfer chutes, scales, ship loaders or individual conveyors and machines. The big advantage is their reduced size, low energy and that the collected dust is discharged directly on the dust generation point, continuing the product flow and making unnecessary the installation of dust containers and long collection tubes.

Dust Control systems for truck or wagon reception pits

Fig.7. Truck unloading at a port terminal.

Fig 8. Railcar reception with lateral dust collectors alongside the unloading area and filters.

Most materials, such as grain and other granular materials produce dust or have dust associated with them and the dust rises from the bottom of the pit in large quantities when a load of grain or granular material is dumped into the pit which may be 5 to 8 metres in depth (*Fig.7*).

This dust cloud is formed by the granular material hitting the bottom of the pit; the force of the material loosens the dust and

Fig.6. Horizontal compact filters.

also forces the air upwardly as the air in the pit is replaced by the solid material.

TMSA offers solutions related to hopper assemblies for receiving from a wagon or truck granular and/or grains dumped into a pit for storage or removal from the base of the pit while controlling and containing the

Fig. 9. Same concept for trucks.

Fig. 10. Port terminal truck dumping station in Argentina at pit of Fig.6, and after the DustMaster system with confined cabin.

(Below) Fig.11. Railcar reception pit for a sugar terminal in Brazil.

dust during dumping (*Fig.8 & Fig.9 & Fig.11*).

Its 'vacuum systems' have gravity baffles that pivot with the weight of the falling material. When unloading in the intake pit the system only opens in the spot where the product falls into the pit while the remaining pit area stays closed. At the same time, the generated dust quantity is collected and sucked down through the pit by means of a fan upon which the dust is

Fig.12. Truck unloading pit WITHOUT and WITH DustMaster.

separated through a filter.

The 'DustMaster System' (*Fig.10 and 12*) provides the unique method of controlling the emission dust from a pit into which granular or grains are being dumped, with no aspiration. Control of the dust is provided by the use of controlled metering sections and dumping sections which constitute a part of the cover for the pit.

The DustMaster provides for rapid unloading of grain or granular materials into a pit while preventing the dust generated thereby being carried by the air in the pit from escaping into the atmosphere. Offers a cleaner work environment; direct payback comes in the form of lower cost installation, energy savings and savings from the reduced shrinkage.

Dust control for loading trucks, wagons, silos, ships and barges

TMSA uses conventional solutions for loading trucks, wagons or vessels as retractable or telescopic loading spouts (*Fig.15*), and has also developed and patented a special dust control system for loading vessels: the 'Dust Trap' (*Fig.13 & Fig.14*) and has incorporated the DSH-Dust Suppression Hopper (*Fig.16 & Fig.17*) from New Zealand.

The shiploader usually has dust collecting points both in the belt conveyor admission area and in the discharge of the moveable head chute inside the boom. High efficiency circulator fans, cyclones and compact filters handle the dust generated during the ship loading. Collecting points are installed surrounding the areas where the dust could be generated in the belt conveyor admission. A square pipe is installed on the both sides far front of the boom at the head chute discharging area. A moveable car to collect the dust runs inside these sealed pipes back and forth over the full length of the stroke, attached to the head chute. The back portion of the boom will have a pipe also in both sides to carry the dust to the cyclone and filter.

TMSA has developed a system for dust suppression and trimming (combined): the 'Dust Trap'.

It reduces the dust emissions by straitening the space for product to go through the pipe, controlled by a PID circuit and sensors, makes the product itself to act like a seal against dust releasing, without strangulating its flow. It accumulates and compacts the product flow to a minimum, which reduces the dispersed amount of air in the interstitial space. It prevents the air/dust from escaping from the telescopic duct. It can be adapted for existing shiploaders.

Recently the DSH-Dust Suppression Hopper, from New Zealand, has been incorporated, with great success, having interesting and successful applications in Argentina and Brazil

The DSH system requires no air, no hydraulics nor electricity. There is no waste dust stream to handle and TMSA's load out rate was not affected at all.

This dust-free loading spout ingeniously contains the dust within the product stream when discharging dry bulk materials.

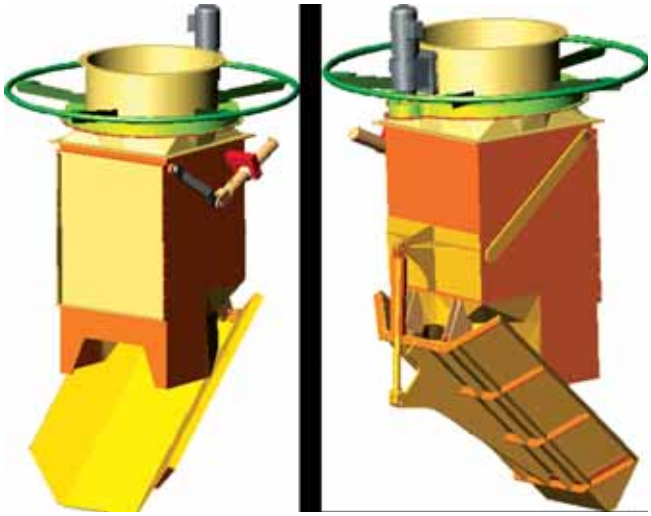


Fig.13. The 'Dust Trap' system concept

Fig.14. Loading WITHOUT and WITH Dust Trap.

Thus, it cleverly avoids the need for the more complicated retractable or telescopic loading spouts that are more commonly used in today's truck loading and out-loading applications. Easily installed, the DSH Systems hopper eliminates dust and reduce hazards, health risks and wastage.

TMSA Tecnologia em Movimentação S/A, is one of the big suppliers in the South American market for bulk solids material handling, especially in port terminals and heavy duty and long distance conveyors, together with its dust control systems.

Based in Brazil, TMSA Tecnologia em Movimentação SA's head office is located in Porto Alegre, Rio Grande do Sul State, where

Fig.15. Telescopic chute.

Fig.16. DSH Hopper loading fertilizers, Argentina.

Fig.17. DSH Hopper loading 1,200tph sugar at Santos Port, Brazil.

de-dusting specialists; all under ISO 9001:2000 Certification.

The working team is composed by approximately 500 employees including their branch offices in Belo Horizonte and Bulktech Argentina SA in Buenos Aires. There is a large team of over 50 multi-aged engineers and designers that guarantee a 'state-of-the-art' solution today and long-term support with in-house mechanical, structural, finite element analysis, electrical, automation and dust control specialists.

the company has an important manufacturing shop of 32,000m^2 with large and highly integrated engineering capabilities, with in house mechanical, civil, structural, electrical, automation and

DC

stevedoring & warehousing rotterdam

- PROJECT CARGO
- INDUSTRIAL BREAKBULK
- 730 METRES QUAY LENGTH
- HEAVY LIFT STORAGE AREA
- HEAVY LIFT UP TO 1500 TONS

Lifting your cargoes faster

ISPS CERTIFIED

AEO-F CERTIFIED

rhb ROTTERDAM

Waalhaven n.z. 4
3087 BL Rotterdam
P.O. Box 55092
3008 EB Rotterdam
Portnumber 2157

TELEPHONE
+31 (0)10 429 94 33

FAX
+31 (0)10 429 02 61

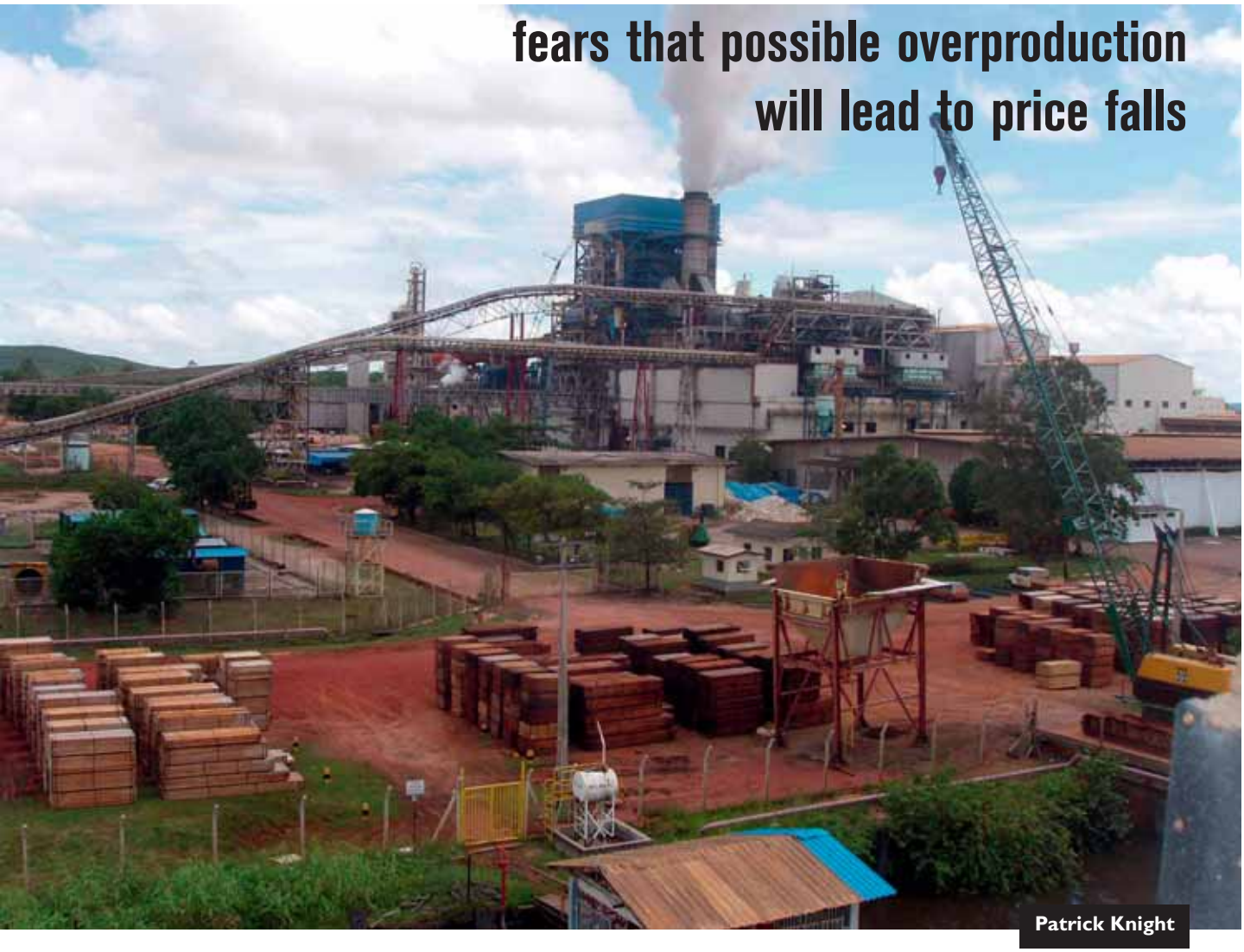
E-MAIL
office@rhb.nl

WEB
www.rhb.nl

shorecranes up to 208 tons

Pulp mill expansions on hold

fears that possible overproduction will lead to price falls



Patrick Knight

Should Brazilian pulp companies go ahead with new mills, or will this result in overproduction, and cause prices to fall? Opinion is divided.

The risk of overproduction and a consequent fall in prices, has resulted in two of Brazil's three leading producers of market pulp delaying expansions.

Fibria, the company formed by the merger of Aracruz and VCP and now the world's largest pulp producer, has postponed expanding its mill in Mato Grosso do Sul, while Suzano, which will start up its new 1.5mt (million tonnes)-capacity mill in the north east at the end of the year, has delayed making a start work on a second mill planned for the area.

On the other hand Eldorado, part of the JFS group, which also owns JBS, the world's largest meat packing company and whose 1.5mt mill in Mato Grosso do Sul started up at the end of 2012, plans to start building an even larger second line there next year.

Eldorado will be aided by low-cost finance from Brazil's National Development Bank, the BNDES.

The new line, to make 2mt, would allow Eldorado to move ahead of both Fibria and Suzano to become the world's largest maker of market pulp.

Suzano, which has postponed starting work on a sister mill to the new one at Imperatriz, in Maranhao state and located alongside the railway which links Vale's Carajas mines, to the port of Itaqui, worries that a second large new mill in Mato Grosso do Sul will cause the price of market pulp to fall.

Cellulose prices are already under pressure following the start up of Eldorado's first mill at the end of last year, and the start up of Suzano's new mill, together with one being built by Stora-Enso and Chile's Arauco in neighbouring Uruguay, could make things worse. About 1.5mt of additional market pulp is needed each year, to meet growing demand, but these mills will add more than that. On the other hand, some elderly mills in Europe, North America and Brazil itself, close down each year.

With the future of demand in key market China uncertain, many in the industry fear the world pulp price could fall to the

Keeping timber products safe and dry

A massive structure from UK company Rubb Buildings Ltd, is keeping a range of timber products safe and dry for Northern Ireland company Tradewood & Co.

Based in Belfast, Tradewood & Co needed to store a range of timber products — including doors, flooring and plywood — for distribution throughout Ireland and the UK. So it turned to major supplier of enclosed storage systems, Rubb Buildings Ltd. Rubb custom-built a massive structure; with a 332ft (101m) span x 312ft (95m) length, the Triple Link BVE provides a floor area of 9,595 square metres. On completion of the main structure the client added a 320m² mezzanine floor to provide office space.

For more details on some of Rubb's projects, please see p52–53 and p56–57 of this issue.

TRADEWOOD & CO: SPECIFICATIONS

Type:	Triple Link BVE
Span:	101m
Overall length:	95m
Clear area:	9,595m²
Eaves height:	8m
Overall height:	12.93m

point that no Brazilian company makes any money.

Suzano has suggested that because of this risk, the BNDES, which has lent pulp companies about $7 billion in the past few years, should step in and 'organize the queue' of companies planning new mills.

Fibria, which like all Brazil's pulp makers depends largely on finance from the BNDES, says it favours further consolidation of Brazil's still fragmented pulp industry. It probably has a merger of Fibra and Suzano in mind.

Eldorado's sister company, JBS, has bought dozens of meat packing companies around the world, largely with finance from the BNDES. JBS is often criticized for using the funds to invest abroad, rather than in Brazil. But Eldorado executives says the companies themselves should be allowed to decide when they invest, rather than the Development Bank.

Pine woodchips for making pulp.

For some years, the BNDES has systematically sought to identify Brazilian industries which have the potential to compete on the international stage. Both the pulp and the meat industry have been singled out.

Without low-cost financial aid from the Bank, neither Brazil's pulp nor its meat industry would be anywhere near the international force they have become today.

The prospects for Brazil's pulp industry have improved greatly in the past few months, following the 20% devaluation of the currency, the real, so far this year.

The real rose by about 40% against the $US dollar and other currencies between 2004 and the middle of last year. This made exporting more difficult and cut profits.

During those years, the cost both of building new mills and operating them also rose sharply in Brazil, following sharp rises in wages, the cost of transport, and of land and energy.

Rising costs threatened Brazil's previously unchallenged position as the world's lowest-cost producer of market pulp.

If on the one hand, mills are benefiting from the weaker real, those companies which have borrowed in US dollars to fund their expansions, are having to pay much more for their loans.

The giant Klabin company, a leading exporter of packaging paper, made largely from pulp made from pine, rather then the 100% eucalyptus used by the other pulp companies, plans to spend about $2.3 billion on building a 1.5mt-capacity pulp mill in Santa Caterina state. But Klabin scrapped plans to raise $500 million in a rights issue recently, following little interest from potential investors.

Klabin, a leading supplier of the Tetrapak company, both in Brazil and abroad, also plans a new paper machine to transform much of the extra pulp into packing for liquids, demand for which continues to grow fast.

The future of Brazil's pulp industry depends to a great extent on what happens to the Chinese economy, as China has been the leading single market for Brazilian pulp in the past few years.

EU members and countries in North America are still more important customers for Brazilian pulp than China. But demand in these areas has been static in the past few years.

The average Chinese citizen now uses only 2.7kg of paper each year and the prospect of this rising to close to the world average of about 20kg, is a major attraction.

Numerous paper mills have been built in China in recent years, but an increasing proportion of the pulp they need has to be imported. There is tremendous competition in China from grains and other crops for any spare land and above all, for the water needed for plants to do well.

Even if the cost of labour continues to rise in Brazil, the country continues to produce more wood per hectare of land each year than anywhere else, and there is no sign yet of these increase in productivity slowing.

The number of trees planted per hectare, all of them now cloned, has been increasing steadily in recent years. Rather than trees being allowed to re-sprout after a first cut at seven or eight years, previously the norm, stumps are being grubbed up, or herbicides applied, with new, higher yielding stock planted in its place.

Experiments are now under way with introducing a gene from other species of tree, which tests indicate can increase yields by a further 20%.

Close to seven million hectares of land are now planted with commercial forest in Brazil.

Almost half this is owned by the pulp and paper industry, with much of the rest owned by the iron and steel industry, which relies on charcoal for much of its energy. Brazil has only small reserves of coking coal, so has to imports much of its needs.

The varieties of eucalyptus used by the iron and steel industry have more energy potential than those needed to make pulp and paper.

INDEX OF ADVERTISERS

DC DRY CARGO international

SUBSCRIPTION FORM

PLEASE COMPLETE AND FAX TO: +44 (0)1206 562566

Dry Cargo International, Clover House, 24 Drury Road, Colchester, Essex CO2 7UX, UK
Tel: +44 (0)1206 562560 Fax: +44 (0)1206 562566 Email: info@dc-int.com

www.dc-int.com

Name .....

Position .....

Company Name .....

Address .....

.....

City .....

Postcode/Zip Code.....

Country.....

Tel .....

Fax .....

Email .....

SUBSCRIPTION RATES

	1 year ☐	*2 years* ☐	*3 years* ☐
UK	£170.00	£280.00	£365.00
Europe	£210.00	£355.00	£460.00
USA & ROW	£260.00	£445.00	£580.00

No. copies required: _____

Please charge my credit card: VISA ☐ ☐ ☐ ☐

☐☐☐☐ ☐☐☐☐ ☐☐☐☐ ☐☐☐☐ ☐☐☐☐

Cardholder's name:_____ Expiry date:____/_____

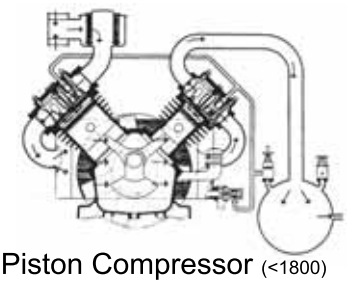
Signature:_____ Date:_____

I enclose a cheque for:_____ Payable to **Trade Publishing Int'l Ltd**

☐ Please invoice me

Make sure you don't miss the next issue...

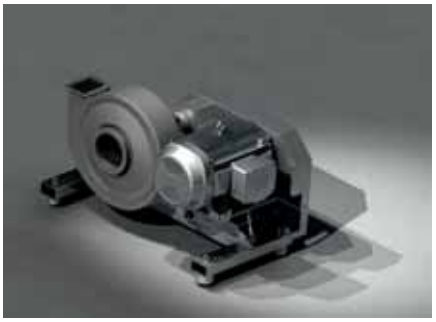
www.NEUERO.com



Piston Compressor (<1800)

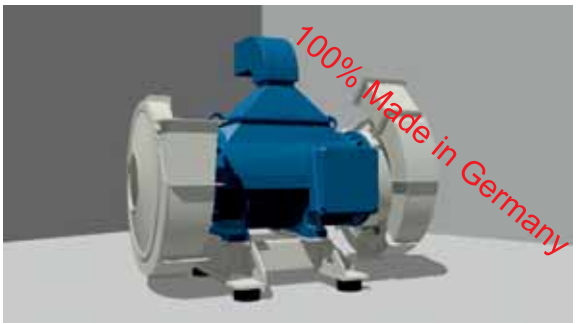
Roots Blower (1900)

Fan with Air Flow Regulator (1960)



Fan with frequency inverter and automatic belt tension (2000)

TURBO POWER single stage (2009)



TURBO POWER double stage (2011)

MULTIPORT SHIPUNLOADERS ADVANTAGE

- RELIABLE
- LOWEST POWER CONSUMPTION
- EFFICIENT
- 100% BLOWER DIRECT DRIVE - No V-Belts, No cardan joints, No bearing blocks...

With TURBO POWER Direct Drive (single or double) on the motor shaft. With temperature and vibration bearing monitoring control (upper right picture).

224-2012
NEUERO Industrietechnik für Förderanlagen GmbH
✉ Neuerostr. 1 ● 49324 Melle ● Germany
T: +49 5422 9503 0 ● **F:** +49 5422 9503 50 ● **E:** neuero@neuero.de **H:** www.neuero.de

As maritime needs grow, ClassNK has solutions.

As the world's economy grows and changes, the maritime industry is faced with ever greater challenges. With roughly 20% of the world's merchant fleet under class, we understand the requirements for the future of safe shipping, and we're working to develop new tools and technologies to meet the changing needs of the maritime industry. Learn more about our efforts to advance maritime safety and protect the marine environment at www.classnk.or.jp

Global Authority in Maritime Standards

ClassNK

www.classnk.or.jp