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MAY 2013 issue

featuring...

Advancing steam coal trade

Import demand for dry bulk commodities around the world still seems to be firmly on a moderate upwards trend, which could continue into next year and beyond. Prospects for additional seaborne trade in many commodities used by industrial processes are fairly encouraging. But signs of renewed growth in agricultural cargoes, particularly grain, are awaited.

The latest indications of economic output trends, with implications for dry bulk trade, show a mixed picture. Revised forecasts by the IMF, published a month ago, suggest that GDP growth rates in 2013 will be similar to last year's sluggish or slow (in most countries) performances. In the advanced countries group (mainly USA, Europe, Japan and Korea) growth averaging only 1.2% is expected this year, but in China a slight improvement to 8% is predicted.

Coal

Global seaborne coal trade could experience another sizeable increase this year. Among importers just two countries, India and China, probably will account for a large part of the incremental volume, however. Elsewhere the outlook is less promising or, alternatively, unclear.

In the largest sector, steam coal, comprising about three-quarters of overall coal trade, growth of around 5% may be seen in 2013. Estimates for Asian importers are shown in table 1. A recent forecast by Australia's Bureau of Energy and Resource Economics suggests a more cautious 30mt (million tonnes) or 3% global increase this year, to 988mt (including land movements, but mostly seaborne). In this outlook, Asia contributes all the annual world expansion.

Iron ore

During the current year a limited strengthening of the global steel market may unfold, continuing into next year and benefiting trade in raw materials, iron ore and coking coal. Expectations were reinforced by publication last month of the World Steel Association's short range outlook.

These projections point to global steel demand growing by 2.9% in 2013, an improvement compared with only a 1.2% rise in the previous twelve months. Of more significance for bulk commodity trade is the regional breakdown. The WSA predicts a 3.2% steel demand increase in Asia, mainly reflecting a 3.5% rise in China. Japan by contrast could see a 2.2% reduction, while the EU's performance may be almost flat.

Grain

Indications of how grain trade will develop over the remainder of this year and into 2014 will become gradually clearer in the next few months. Uncertainty is especially notable in the period leading up to domestic harvests in northern hemisphere countries. These harvests, which are not easy to forecast because of unpredictable weather, have a large impact on import requirements.

The latest International Grains Council forecast for the current 2012/13 crop year, ending June, shows a global wheat and coarse grains trade reduction of 11mt (4%), to 259mt. Weakness among importers is widely spread although declines in north and sub-saharan Africa, and Mexico are prominent. At present there are no obvious reasons for expecting a sharp rebound in 2013/14, but lower prices (if the recent trend is sustained) could promote extra purchases.

Minor bulks

Seaborne trade in minor bulk commodities includes large quantities of a variety of agricultural products. Movements of oilseeds (excluding soyabeans) and meal, rice and sugar plus fertilizer raw materials and semi-finished products apparently totalled around 330mt last year, a huge volume. Some further growth is envisaged during 2013.

Bulk carrier fleet

After more than doubling in size over the past five years, one segment of the bulk carrier fleet is likely to see a sharp deceleration this year. The Capesize fleet's deadweight capacity may increase by a relatively slow 6%, as shown in table 2. A steep fall in newbuilding deliveries, coupled with relatively high scrapping seems likely to greatly moderate the expansionary trend.

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

	2008	2009	2010	2011	2012	2013*
Japan	111.0	96.2	107.9	106.6	113.7	115.0
South Korea	80.0	87.0	95.2	103.2	98.9	101.0
Taiwan	54.7	49.2	53.2	56.0	55.2	55.0
China	34.0	92.1	119.0	138.4	181.5	198.0
India	35.0	46.0	74.0	93.0	115.0	127.0
Total of above	**314.7**	**370.5**	**449.3**	**497.2**	**564.3**	**596.0**

source: various & BSA estimates **forecast*

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

	2008	2009	2010	2011	2012	2013*
Newbuilding deliveries	8.6	21.0	38.6	45.6	42.0	27.0
Scrapping (sales)	2.2	1.4	2.6	10.5	12.3	11.0
Losses	0.0	0.0	0.2	0.0	0.0	0.0
Plus/minus adjustments	5.5	6.8	3.6	4.9	-0.1	0.0
Fleet at end of year	**143.5**	**170.1**	**209.5**	**249.5**	**279.1**	**295.1**
% change from previous year-end	+9.0	+18.2	+23.3	+19.0	+11.9	+5.7

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

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Bumper year for South America's soya exports

Another remarkable record-breaking volume of soya and grain exports is predicted for South America this year. The total could exceed 140mt (million tonnes), more than 50% above annual quantities seen in the mid-2000s. Wheat and corn exports could decrease, but improved soya harvests are expected to massively boost sales of soyabeans and meal.

Although forecasts prepared last month provide a guide to changes during 2013, expectations for harvests now under way in Argentina and Brazil may change during the harvesting period. Also, perceptions of global import demand, and competition from suppliers in other countries, are constantly being modified. So calculations indicating a 10mt or 7% rise in the region's soya and grain exports are provisional.

One beneficial development for South American exporters has been tighter world supplies following reduced soyabeans and corn production in the USA last autumn. This tightening is proving particularly advantageous, amid slow expansion of global soya imports, and an actual reduction in global import demand for wheat and coarse grains.

An impressive forecast

During 2013 exports of wheat, corn and other coarse grains, plus soyabeans and meal, from Argentina and Brazil, are expected to total 143mt, as shown in the table below. This quantity is 9.7mt (7%) above the 2012 total which, in turn, was 7% above the previous year's figure.

This overview is derived from several separate US Dept of Agriculture forecasts published in mid-April. The calculation is not as precise as it seems at first sight, because slightly differing marketing year periods are used for oilseeds and cereals exports in the two main South American supplying countries. These marketing period differences mainly reflect the varying timing of harvests. But the numbers do provide a useful guide to what can be expected. Changes clearly indicated are sharply lower wheat exports from Argentina, lower corn exports from Brazil, and much higher soya shipments from both countries.

Wheat and corn prospects

Harvesting of wheat in Argentina starts South America's annual cereals and oilseeds production cycle. The Argentine wheat harvest completed in early 2013 was almost 30% below the preceding crop at 11mt, because of a lower area cultivated. Consequently export availability was greatly reduced, and exports in the year ending November 2013 are likely to fall by 8mt or 61%, to only a small 5mt volume.

By contrast, corn and sorghum production in the 2013 crops now approaching completion is estimated to rise by over 6mt (26%) to almost 32mt, amid improved yields resulting from good rainfall and growing conditions. In the marketing year ending February 2014, exports are forecast at 22mt including 19mt corn, a 2mt (8%) rise.

Corn sales by Brazil have become a very prominent part of the regional export picture in recent years. Brazil's wheat is a relatively minor element, with output of around 5mt annually and exports of 2mt. The much larger corn output, derived from two separate crops, is likely to be marginally higher in 2013 at 74mt, but USDA analysts are expecting a 20% fall in sales to foreign markets during the year ending March 2014. From the previous year's 24mt, exports could be down to about 19mt.

Outlook for soyabeans and meal

South America's soyabeans and meal sales to markets around the world fell last year to under 74mt, a 14% reduction. This decline is expected to be more than reversed in the current year. Argentina's and Brazil's combined exports are set to surge by well over 20mt, reaching 95mt, a 29% increase. Potential for restoring the upwards trend shows the region's strong competitiveness in many markets, including China where import demand is still expanding.

Adverse weather last year damaged Brazil's soya production, but the current harvest looks set to be about one-quarter higher at 83mt, because of a larger crop area and good weather. Beans and meal exports in the 2013/14 marketing year ending January could be up by 9mt (19%), at 54mt, based on USDA's estimates.

Argentina's soya harvest seems likely to increase strongly as well, by over one-quarter to 51mt, benefiting from an enlarged crop area and greatly improved growing conditions. During the marketing year ending March 2013, beans and meal exports could be over 12mt (44%) higher, exceeding 40mt.

Import demand aspects

Export forecasts are not determined solely by producing countries' output and surpluses. Perceptions of how import requirements in foreign markets are likely to evolve over the period ahead, and competition from other suppliers, are key influences. Brazil and Argentina compete with the USA and many other producers.

The global import demand outlook currently is not especially favourable. There are only limited signs of expanding soyabeans and meal trade, mainly in China, while wheat and coarse grains trade is experiencing one of its periodic setbacks, reflecting weaker demand in many regions. However, if there are significant reductions in domestic grain harvests among northern hemisphere importing countries in mid-2013, the scene could become more positive.

Another possible scene-changing event is a rebound in US corn and soya output later in 2013, recovering from last year's downturn when a devastating drought and extremely high temperatures devastated a large part of the harvest. In the meantime, South American suppliers are in a strong position to expand sales, despite the mediocre import demand picture.

Richard Scott

SOUTH AMERICAN GRAIN AND SOYA EXPORTS (MILLION TONNES)

Argentina and Brazil — wheat, corn, sorghum, soyabeans, soyameal (varying marketing years — see text)

	2008	2009	2010	2011	2012	2013*
Wheat	12.0	7.2	6.3	12.0	14.9	6.7
Corn and sorghum	23.8	18.5	29.9	26.4	44.5	41.4
Soyabeans	36.3	31.5	42.9	44.2	38.0	50.7
Soyameal	37.1	33.5	42.5	41.9	35.8	44.2
Total	**109.2**	**90.7**	**121.6**	**124.5**	**133.2**	**143.0**
% change from previous year	-4.5	-16.9	+34.0	+2.5	+7.0	+7.3

source: US Dept of Agriculture (10 April 2013) & Bulk Shipping Analysis **forecast for 2013*

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Global cement trades

India suffers with significant idle capacity in its cement works

Deceleration in economic growth, high inflation refusing to go away and policy paralysis as parliamentary elections are due next year has left the Indian cement industry, the world's second largest after China, with considerable idle capacity, *writes Kunal Bose*. According to a report by India Ratings & Research, a unit of global rating agency Fitch, cement capacity use in India fell to 71% in the year ended March 2013 from a high of 89% in 2009/10. In the calendar year 2012, as much as 34mt (million tonnes) of new capacity was commissioned to take the total to 360mt. Ahead of India feeling the impact of global economic meltdown starting 2008 second half, Asia's third largest economy was growing at a stunningly high rate, next only to China.

Cement demand here is primarily driven by the housing sector with a share of 67% of the total, followed by infrastructure (13%), commercial construction (11%) and industrial construction (9%). It was in response to strong demand growth for housing and also commercial construction predominantly in the pre economic downturn that the local cement industry went for a major capacity expansion drive both by way of greenfield ventures and expansion of existing mills. This will explain the creation of more than 100mt of capacity in the last five years.

In the past too, since the withdrawal of licensing and marketing and distribution controls in phases, the country witnessed large new capacities coming in a bunch at regular intervals of five years, causing low capacity use, price falls and regional price disparities. In a sense, then, history is continuing to repeat itself in cement. Industry woes will not be over too soon. Capacity overhang notwithstanding, the industry will be commissioning new capacity of up to 25mt by the final quarter of 201/14. This new capacity is resulting from projects launched some three years ago. Like in steel, the demand for cement depends largely on how well or badly the economy behaves over a period. No wonder, the industry's capacity utilization last year was distressingly low as the economy grew only 5%, against an 8% growth during 2007/11.

What also impacted cement demand negatively were persistently high inflation and interest rates and local currency value eroding vis-à-vis the US dollar in which energy prices are denominated. Rural and semi-urban house building and other construction are influenced to a large extent by the behaviour of Indian south-west monsoon that occurs during June-September period. Last year, the monsoon deficit on long period average basis was 8%. Incidentally, more than half the country's cultivated area is still dependent on monsoon rains. The 2012 summer crop suffered a setback because of deficient rains and drought in some states. Farmers and also the ones involved in agriculture allied activities invest in house building and other construction work when the crop is good and prices for crops are fair. This was not the case last year.

A natural fallout of this was rural cement and steel demand contraction in the second half of last year. "Rural India will account for less than 25% of total Indian cement demand. What has kept cement demand in rural centres low is the use of cheaper building materials for making non-permanent structures. The growing idle capacity in the industry should motivate major cement manufacturers to work unitedly in framing a strategy to educate rural folks why they should be using cement for building permanent structures and save money in the long run," says leading industry analyst Mahesh Choksi. In any case, as Chandra Shekhar Verma, chairman of India's largest steelmaker SAIL says "success in marketing in rural India is much about taking products, steel or cement virtually to the doorstep of people living there and convincing them about the benefits of using them. The point is use of more steel will create incremental demand for cement and other building materials. You can say a

case of symbiotic relationship. That there is scope for all building materials piggyback riding on steel as low cost rural housing of permanent kind gets a leg up is a given." In fact, the government too wants that cement and steelmakers should work with architects and builders to promote low cost housing across urban, semi-urban and rural breadth of the country.

Cement company margins are under pressure for a while. The industry's largest UltraTech Cement, part of Aditya Birla group, saw its fourth quarterly profit fall 16.3% year-on-year basis. The two Indian subsidiaries of Holcim of Switzerland ACC and Ambuja Cements could not make much headway in 2012. According to Thomson Reuters SmartEstimate data, UltraTech will slash capital expenditure by as much 50% in the next 12 months compared with estimated spending of Rs44.3bn ($806m) during 2012/13. Surplus capacity weighing heavily on prices and homebuilding and construction far from gaining the desired pace are leading other cement industry constituents also to settle for a highly modest capital expenditure programme for this and next year. This certainly is not the ideal time to push the pedal for expansion. Cement exports are also becoming increasingly challenging with deceleration in economic growth in neighbouring countries too.

The industry suffered a double-whammy last year. Fall in capacity use was accompanied by sharp rises in input costs and muted cement prices. Ambuja Cement says "costs on account of raw materials consumed (by it) increased by 18% over 2011. Power and fuel costs registered an increase of around 16%. These account for approximately 30% of total operating costs of the company." A common refrain of cement producers irrespective of sizes of their operation is that their costs are staying ahead of benchmark levels largely because of irregular coal supply from mines with which they have official linkages. This is forcing them to buy coal which is auctioned by government-owned Coal India Limited and/or import the fuel. Local coal supply is becoming particularly difficult for the units commissioning new capacity. A disturbing development in the industry is Builders Association of India having an issue with cement makers supposedly acting in concert to rig prices of the building material. In fact, on the basis of a complaint by the Association for alleged violation of competition law by some cement groups, the Competition Commission of India has levied penalties totalling Rs63bn. The ones inviting penalties have sought stay of the order.

The industry is waiting for the Indian economy to get back the bounce of the past so that over a period of time, capacity use comes to optimum level. According to most industry officials, the economy growing at 6% this year will create conditions for cement demand rising between 7.5% and 8%. The industry optimism is based principally on government commitment to spending $1 trillion in the 2012/17 plan period, urbanization gaining in pace and pick up in house building activity in both urban and rural centres. Much, however, will depend on India transiting from high to low interest regime incentivizing house building sector.

Analysis of balance sheets of cement makers shows that the ones successful in consolidating capacity and with presence in the principal consumption centres are better placed to ride out the present difficult market with less damage than industry constituents with capacity ranging from 1mt to 5mt. No doubt many small players are waiting for the next upturn in cement leading to improved valuation of cement capacity to sell their units to large groups.

After disappointing 2012, Brazil looks forward to rosy future

Votorantim is the only company with mills in all Brazil's five regions.

Brazil's 'big two' cement companies, are looking abroad, after a disappointing year in Brazil in 2012, *writes Patrick Knight.* But big plans for spending on infrastructure should guarantee good times ahead. With the domestic economy growing by less than 1% last year, Brazil's two largest cement companies, Votorantim and Camargo Correa, which together have a 60% share of the 65 million tonnes Brazilian market, sought to consolidate their activities in the rest of the world in 2012.

Both companies have plants or joint ventures in most of Brazil's neighbours, notably in Argentina. Votorantim has plants in both the United States and Canada, while Camargo Correa, one of Brazil's largest construction companies, is building a 1.6mt (million tonne)-capacity cement plant in Angola.

Under pressure from Brazil's regulatory body, Cade, which has suggested that several leading companies have formed a cartel to fix prices and reduce competition, the two companies, which in 2010 together bought 51% of the Portuguese Cimpor group, a company with mills in 13 countries, completed a series of asset swaps last year.

PRODUCTION BY COMPANY

'000 tonnes

Company	2010	2011
Votorantim	22.459	23.101
Joao Santos	6.555	6.892
Camargo Correa*	5.967	6.392
Cimpor*	5.306	5.584
Lafarge	5.608	5.689
Holcim	4.391	4.420
Itambe	1.435	1.591
Others	6.651	8.125
Total	59.191	63.925

Source: National Union of Cement Industries, (SNIC)

** Both part of the InterCement group since mid 2012*

Votorantim transferred to Camargo Correa the Cimpor shares it bought in 2010, in exchange for Cimpor assets in China, Spain, India, Morocco, Turkey, Tunisia and Peru.

In turn, Cimpor, whose headquarters will remain in Portugal, will take control of Camargo Correa's assets in Brazil, Argentina, Paraguay, Bolivia and Angola, and will retain assets in South Africa, Mozambique and Egypt, which will form part of the new InterCement grouping.

Votorantim, along with Camargo Correa and four other leading cement companies in Brazil, Holcim, Cimpor, Itabira and Itambe, have come under pressure from Cade, which insisted that Votorantim, the only company with mills in all Brazil's five regions should dispose of its share of Cimpor.

In 2010 the two Brazilian cement giants together outbid the National Steel Company, CSN, to gain control of Cimpor. CSN is a relative newcomer to cement, but which now makes about 3mt a year at mills next to its steel works. CSN is apparently seen by allies Votorantim and Camargo Correa as dangerous rival.

CSN had also tried to buy Votorantim's share of the Usiminas steel mill, the proceeds of which sale were used by Votorantim to buy Cimpor shares. But in this case, the bid by CSN was topped by that from the Italian–Argentine Techint group.

Whether Votorantim really wanted Cimpor's assets, or just joined forces with Camargo Correa to block CSN is not clear in the light of what has happened since.

Ideally Cade would like no company to have more than a 20% share of the cement market in any region, but this is not practical in many of the states.

The two Brazilian giants have little to worry about from the two other large international cement companies active in Brazil, Lafarge and Holcim.

Four of Lafarge's nine mills are in the state of Minas Gerais, there is one each in Sao Paulo and Rio de Janeiro states, two are in the north east and one is in the centre west. All of the five mills in the Holcim group are in the south east region of the country, in either Minas Gerais or Sao Paulo states.

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PRODUCTION BY REGION

'000 tonnes

	2010	2011	2012
North	3.288	3.582	3.600
North East	11.281	11.975	13.600
Mid West	6.268	7.036	7.800
South East	29.567	31.910	33.300
South	8.787	9.422	10.000

Source :- National Union of Cement Industries (CNIC)

MILLION TONNES PRODUCED

kg per capita

2012	68.0	350
2011	64.5	333
2010	60.0	320
2009	52.1	275
2008	52.0	274
2007	45.0	250
2006	42.0	230
2005	38.0	21

Source: National Union of Cement Industries, (CNIC)

The majority of the ten mills in the Joao Santos group, which makes about 7mt a year, are in the north east where the company has five mills, or in the north where it has three. Joao Santos also has one mill in the south east.

Only two companies have plants in Northern region, basically Amazonia, where about 3.6mt were produced in 2011. The Joao Santos group has three mills there, as does Votorantim, Brazil's largest cement company by far.

Five companies have plants in the North East region, still Brazil's poorest, but which has been growing faster than average in the past 15 years, partly because labour intensive companies have re-located there from the congested and high wage South East and South. There are 21 plants in the region, and Votorantim has five of them, where it produced about 4mt in 2011, while the Joao Santos group produces 3mt at its six plants there. Cimpor, which has now merged with Camarga Correa to form the InterCement group, produces about 2.5mt from its four plants in the Centre West. Lafarge produces about 1.4mt at two plants, while a Camargo Correa mill there makes about 300.000 tonnes. There are three plants belonging to smaller groups in the region.

There are seven plants in the sprawling Centre West region, between them making about 7mt. The Votorantim group produces about 3mt from its three mills in this region, the local Ciplan group makes 2mt, while Cimpor, Camargo Correa and Lafarge each have one plant in the region.

About 50% of all the cement produced in Brazil is made at the 37 mills in the South East region, where 32mt was made in 2011. Votorantim made 8.4mt at its eight mills, the Holcim group made 4.4mt at its five mills in 2011, and Camargo Correa made 5.4mt at its five mills. Lafarge has six mills in the region, where 4mt was made in 2011, while there are ten mills belonging to smaller companies in the region.

Votorantim dominates production in the Southern region, where it has six mills, where 9.4mt were made in 2011. Cimpor has two mills in the South, while the Itambe group has one mill.

Estimates as to how fast the Brazilian economy will grow in 2013, vary considerably, ranging between little more than a repeat of the disappointing 1% of 2012, half what the government had promised, to a maximum of 4%.

If industry looks like having another poor year in Brazil, with little new investment planned, record grains crops in the past two years, have put intense pressure on the country's crumbling transport system. The government has finally been forced to take action which will favour the construction industry and boost demand for cement.

Last year, Brazil exported an all time record 22mt of maize, which helped fill the gap left by the fact that the US harvested 100mt less than usual.

Because far less soya was grown last year than usual, the ports were able to ship maize in the second half 2012

But a massive soya crop of 84mt this year, means that at least 10mt more soya will be exported than in 2012. The oilseed will continue to be shipped until October or November this year, leaving no space for lower value maize.

Because of a shortage of both trucks and drivers, and because new laws mean drivers must halt more frequently than in the past, as well as a hike in the price of diesel, freight rates are up to 50% higher this year than in 2012.

Grains, sugar and meats now generate 40% of Brazil's export earnings, so are vital to the countries economic health.

Less than 1.5% of Brazil's g.d.p has been spent on building or maintaining roads, railways and ports in the past 25 years, when just to prevent them from deteriorating, at least 3% needs to be.

The result of the neglect has been that roads are crumbling and bottlenecks have built up at ports and on the railways.

The government has now launched a crash programme, with up to US $100 billion to be spent building 8,000km of new roads, or adding a second lane to existing ones, building or upgrading 10,000km of railway tracks and expanding ports each year.

Four major new railways will allow the grains and oilseeds grown in the centres west to reach ports faster and at lower costs, while much more grain will be taken by barge along the Amazon river and its tributaries to four or five new ports, all of which are four or five days less sailing time from destinations than Santos or Paranagua.

Shipowners and unions raise concern at casualty reporting failures

Shipowners and seafarers' unions have joined forces to express concern at flag states' failure to submit maritime casualty reports as required under international Conventions.

The International Chamber of Shipping (ICS), which represents 80% of the world merchant fleet, and the International Transport Workers' Federation (ITF), which represents seafarers' unions worldwide, have made a joint submission to the International Maritime Organization (IMO) commenting on the apparent failure of some flag states to submit maritime casualty reports to IMO. This is a requirement under several international maritime Conventions, including the Safety of Life at Sea Convention (SOLAS).

ICS and ITF hope that governments will give consideration to this important issue at the next meeting of the IMO Maritime Safety Committee in June. In accordance with SOLAS regulation I/21, maritime administrations undertake to conduct investigations into any casualty occurring to ships under their flag, and to supply IMO with pertinent information concerning the findings of such investigations.

In accordance with other Guidelines adopted by IMO, this is meant to include incidents defined as being a "very serious marine casualty" involving the total loss of the ship, a death, or severe damage to the environment.

"The lack of investigation and accident reports hinders the development of appropriate measures by IMO to address the cause of serious incidents in which seafarers may have lost their lives." said ITF Acting General Secretary, Stephen Cotton.

"It also frustrates efforts by ship operators to learn from the reports and to amend or develop new procedures, or implement other measures to prevent or mitigate similar future incidents." said ICS Secretary General, Peter Hinchliffe.

ICS and ITF have therefore suggested that further consideration might be given by IMO to what constitutes "a very serious marine casualty" and the extent to which flag states should retain the latitude which they currently enjoy when determining whether the results of any investigation should be submitted to IMO.

As a first step, they have suggested that, in consultation with ICAO (the International Civil Aviation Organization), IMO might consider whether any lessons might be learnt from the approach taken towards the submission and dissemination of accident reports within the aviation industry.

New leadership at ABS & ABS Group

ABS, a major provider of classification services to the global offshore and marine industries, has announced a change in leadership with the election of Christopher J. Wiernicki, currently President and Chief Executive Officer of ABS, to the position of Chairman of ABS. This decision was made by the ABS Board of Directors, who voted at their April meeting to transfer the additional duties of Chairman to Wiernicki.

"I appreciate the confidence expressed by the ABS Board of Directors in naming me Chairman," Wiernicki says, "and I look forward to proving each day of my tenure that their trust has been well placed."

With the expanding scope of classification in recent years, it is clear that the role of class will continue to change at an accelerated pace, and Wiernicki is optimistic about the organization's ability to meet this challenge.

"ABS is determined to be the leader in defining the role of class in this new environment and will continue to partner with industry in targeted research and development efforts that address operational challenges in today's exacting frontiers," Wiernicki says. "Innovation will be the focus of ABS' entire global technology programme," he says.

"Today's playing field is being framed by regulatory initiatives, new technologies and customers who want their preferred class society to be better integrated within their operational and safety programs. ABS has to be positioned to continue to promote the security of life and property at sea and the natural environment in a constantly changing regulatory and technological environment," he says.

Wiernicki is eager to take on the challenges that lie ahead. "My primary goal will be to ensure that ABS is at the forefront when it comes to providing the innovative products and efficient services that will define ABS as the class society of the future," he says.

This transfer of responsibilities to Wiernicki from ABS Chairman Robert D. Somerville is the final step in a carefully planned leadership transition strategy that has been executed over the past two years. The effective date of the transition is 1 May 2013.

Separately, the Board of Directors of ABS Group of Companies, Inc. a subsidiary of ABS also elected Wiernicki to the position of Chairman.

Wiernicki, a 20-year veteran of ABS, joined the company in 1993 as Vice President of Engineering within the ABS Americas Division. Other senior positions include President and COO of ABS Europe Ltd., Chief Technology Officer and President and COO of ABS Group of Companies, Inc.

Wiernicki holds a BS in Civil Engineering from Vanderbilt University, an MS in Structural Engineering from George Washington University and an MS in Ocean Engineering from Massachusetts Institute of Technology. Wiernicki is a graduate of the Harvard Business School Advanced Management Program.

About ABS

Founded in 1862, ABS is a leading international classification society devoted to promoting the security of life, property and the marine environment through the development and verification of standards for the design, construction and operational maintenance of marine-related facilities.

Inchcape Shipping Services opens new office in the Amazon

Inchcape Shipping Services (ISS), the world's leading maritime services provider, is set to capitalize on the growing demand for its services in the Amazon and Brazil with the opening of a new office in Santarem, Pará State.

The new office, the company's third in the Amazon, in addition to Manaus and Belem, will enhance its presence in the booming Brazilian market and is its tenth office in the country.

Cpt. Mariano Martinoia, General Manager, ISS Brazil said: "The new office will allow us to better serve our current break bulk and cruise lines client base, as well as explore new business opportunities in the region for dry bulk and grains.

The office will be managed by Port Manager, Patrick Nogueira, who recently joined ISS especially to take on the role.

Adds Gilberto Costoa, new Operations Manager for ISS Brazil: "We are very excited to open up our third office in Amazon area, where business is growing significantly and pleased to add Patrick to our team. The Brazilian economy is growing strongly and this further office opening helps us to further service the needs of shipowners and operators."

ISS has a proven ability to operate successfully in some of the harshest and most remote areas of the world. From Dutch Harbor, Alaska, to Punta Arenas, Chile, as well as now covering the whole Amazon region. Inchcape Shipping Services has 293 proprietary offices in 65 countries. With a workforce of over 3,820, the company's diverse global customer base now includes owners and charterers in the oil, cruise, container and bulk commodity sectors as well as naval, government and inter-governmental organizations.

Oslo office strengthens Braemar Seascope

Braemar Seascope is further strengthening its shipbroking division by opening a new tanker chartering office in Oslo. This follows the recent establishment of a deep sea tanker chartering desk in Houston.

The Oslo office will focus on the specialized tanker sector forming part of Braemar's existing specialized team of 14 brokers. It will be led by Joachim Hagen-Hansen who will commence broking within the next three months.

The office will be opened by Eirik Hagen with effect from 6 May.

James Kidwell, CEO of Braemar Shipping Services Plc, commented: "We are delighted to welcome two brokers of the calibre of Joachim and Eirik and to have the opportunity to extend our commitment in this important sector. They will develop our client services and market coverage in an exciting way."

Tighter discharge regulations to protect marine environment

Recent amendments to Annex V of the International Convention for the Prevention of Pollution from Ships (MARPOL) have created a tougher regime for shippers and crews over discharges into the sea. The UK P&I Club has received numerous enquiries from members concerned about their obligations under the amended regulations.

Accordingly, the Club has produced a pamphlet entitled *How to Comply with MARPOL Annex V, in partnership with the International Tanker Owners Pollution Federation (ITOPF)*. It focuses on the concept, requirements and process of classifying HME in cargoes and the processes involved in the eco-toxicity testing. It is supported by a checklist poster for on-the-spot crew use which summarizes what they can and cannot discharge into the sea, depending on the composition of the material and vessel location.

Any discharge of garbage at sea is regulated by the MARPOL Convention. The aim of the Convention is to "eliminate and reduce the amount of garbage being dumped into the sea. This includes all kinds of food, domestic and operational waste that are likely to be disposed of during the normal operation of a ship". Under the recent amendments, there has been a focus on the discharge of wash water created in cargo holds, with any non-recoverable cargo residues or cleaning agents contained within wash water being classed as garbage under the convention.

Discharge of garbage is more restricted in six Special Areas designated by MARPOL: the Mediterranean, Baltic and North Seas; the "Gulfs" area; the Wider Caribbean including the Gulf of Mexico and the Antarctic area. Similar status has not yet been given to the Black and Red Seas, due to a reported lack of reception facilities. These Special Areas require more stringent controls, due to having greater sensitivity to pollution.

From 1 January 2013, the amendments to MARPOL Annex V have meant shippers must provisionally classify bulk cargoes as 'harmful to the marine environment' (HME) or not. From 1 January 2015, they will have to classify according to seven eco-toxicity based criteria; acute toxicity; chronic toxicity; carcinogenicity; mutagenicity; reproductive toxicity; repeated exposure of specific target organ toxicity (STOT) and the plastics, rubber and synthetic polymer content.

No cargo classified as HME may ever be discharged at sea and should be disposed of at a suitable reception facility. Admittedly, these facilities are limited in some areas.

All vessels carrying solid bulk cargoes already have to comply with the IMSBC Code. As cargoes must already be tested by the shipper relative to IMSBC physical parameters, it would be sensible to carry out any additional testing for HME at the same time.

UK P&I Club

The United Kingdom Mutual Steam Ship Assurance Association (Bermuda) Limited is generally known as the UK P&I Club. As a mutual association, the UK Club has no outside shareholders and no financial links with other organizations. Since its establishment in 1869, the Club has existed solely for the benefit of its members. Its structure as a mutual insurance association enables it to respond to the changing needs of its assureds and allows it to provide superior service, attention and coverage.

Valemax vessels service ArcelorMittal

CVRD has used a Valemax vessel for the first time to transport iron ore to Arcelor Mittal via the port of Rotterdam. The initial shipment was handled by EMO.

The company is already using these ships to supply the Italian steelmaker Ilva via the port of Taranto; the German steelmaker Rogesa via Rotterdam; and ThyssenKrupp and HKM, via the EECV terminal in Rotterdam. Other than these ports, the Valemax bulk carriers have also docked at ports such as Vilanueva, in the Philippines, Tubarao and Ponta da Madeira, in Brazil, Sohar in Oman and Oita in Japan.

At present, the operational fleet consists of 23 vessels, but this is expected to increase to 35 vessels by the end of this year. *Barry Cross*

Chinese desert Brazil as congestion increases

As some Brazilian ports now require a 40-day wait for vessels to be handled, some Chinese importers of soya have redirected vessels to ports on the US Gulf to pick up shipments from suppliers in that country. In future, however, bulk carriers servicing the Chinese market will use ports on the US West Coast.

Brazilian ports have been impacted negatively by strikes in protest against changes to ports legislation, with the situation exacerbated by infrastructure that is unable to cope with downpours of rain and a record harvest this year. Santos and Paranaguá have been particularly badly affected by strikes. *BC*

Shiploaders arrive at Sudeste port in Brazil

The new Sudeste super port being built by MMX in Brazil has taken delivery of two shiploaders built in China. The company has invested around $20 million in these machines, each of which can handle 12,000 tonnes of iron ore per hour. The shiploaders, which are rail-mounted, stand 50m high and weigh nearly 2,000 tonnes. Dock rails allow them to move a distance of up to 590m, thereby allowing them to operate across two adjacent berths.

Sudeste port is due to open later this year and both shiploaders will be deployed in the first phase of operation. Initially, the port will be able to export up to 50,000 tonnes of iron ore per year, with the shiploaders fed by a brand-new conveyor belt system that is also currently being installed. *BC*

Angamos now leading copper port in northern Chile

The Chilean port of Angamos has handled 11mt (million tonnes) of copper since it first opened, making it the country's premier export facility. In 2012, it handled 1.4mt, which represents about 60% of the output from the Antofagasta region.

In total, it has a copper stockpile area of 7 ha, which allows it to handle up to 116,000 tonnes of the mineral at any one time. It also has in place a traceability system, which is handled by a Wi-Fi network in the stockpile area. This allows each client to know what stock they are currently holding in the port, with updates given daily. *BC*

New agribulk terminal in Chiapas

Gramosa Agroalimentos has invested $5.6 million in the phase one construction of its new Agribulk terminal in the Mexican port of Chiapas. This new facility occupies an area of 102,500 m², of which 80,000 m² are given over to storage and administration. At the moment, it has put in place four brand-new silos capable of handling up to 26,000 tonnes of grain. *BC*

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Costa Rica dry bulk terminal gets the go-ahead

The government and a private consortium have given the go-ahead to construction of a new dry bulk facility on the Pacific coast of Costa Rica, which will require investment of $34 million. Work will be undertaken by Sociedad Portuaria de Caldera, which is backed by Colombian and Costa Rican financiers.

The terminal will be built in the existing Caldera port, which became operational in 2001. Construction work will take two years to complete and will consist of a 180-metre quay, which will be accessed by a 160m-long bridge, with a stockpile area are land of around 6,000m².

BC

New grain terminal for Quequén

An Argentinian consortium is to invest $58 million in a new grain and oils terminal in the port of Quequén. The consortium, which is headed by Pyme, is to build a grain silo in the port, which will be available to third parties. Two other publicly accessible grain silos also exist in the same area: at Quequén and Bahía Blanca, but these belong to Nacional de Granos.

Once in operation, the new silo will double existing capacity in the port.

In 2012, Quequén beat all existing traffic records and is now in the tender process involving dredging work costing $30 million.

BC

Italiana Coke buys into Genova

Italiana Coke has acquired the dry bulk terminal in the Italian port of Genova for around €10 million. It purchased the facility, Terminal Rifuse Genova, from Euroports. The terminal, which has three berths, covers an area of 154,000m². The 1,500m quayside has alongside draught of 12m and is worked by eight cranes and 3,000m of conveyor belt. It also has two covered warehouses with capacity for 40,000m³ and 30,000m³ respectively, and can also handle block train deliveries.

Italiana Coke is to spend €13 million on relaunching the terminal, which will handle both domestic and international traffic. Much of the money will go on making the terminal environmentally acceptable, as well as restructuring equipment and goods handling areas. It is also considering moving into agribulk, in addition to the industrial minerals it already handles.

In the same region, the company also has a controlling interest in Terminal Alti Fondali in the port of Savona.

BC

Russian cargo sustains Finnish dry bulk terminals

Barry Cross

In 2012, the western Finnish Port of Kokkola reported dry bulk traffic of 7.5mt (million tonnes) compared to the 7.8mt handled in 2011. According to port director, Torbjörn Witting, these broadly similar quantities are the result of good, long-term contracts signed with different clients in three market areas. Indeed, one-third of the port's dry bulk traffic is generated by local heavy industry close to the port, another third from the mining sector in Central Finland, and a further third from northwestern Russia.

"We mostly serve the mining industry directly or via the various value-added products that it generates," said Witting.

The year 2013 is also proving to be a very buoyant one, with the port currently 11–12% ahead of where it was last year, so a year end increase is forecast, although Witting suggests that the exact percentage is difficult to predict at this point in time.

In terms of investment, some €78 million has been spent in recent years as part of an overall development plan. This is spread across the port's three main terminals, although the biggest on going project is in what is known as the 'dark bulk' deep port area, which is gradually being reclaimed from the sea. This project has been in place for the past 20 years, although investment last year was particularly intense, says Witting.

In many ways, Kokkola is unusual in that, once land is reclaimed from the sea, the port authority is not only responsible for providing all the necessary quays, but also supplies the cranes, warehouses and terminals on a case-by-case basis to the stevedores.

In addition, all specialist warehouses are built and managed by the port.

A tippler terminal for inbound Russian and Finnish rail wagons has been inaugurated in recent years to enable iron-based raw materials in various shapes to be handled more efficiently.

"Kokkola is the only port in the Nordic area to have an all-weather terminal, too," reports Witting.

There is around 2mt of spare capacity at Kokkola at the moment, which means that there is sufficient room for dry bulk traffic to grow. This is important, since over the past eight years there has been a 160% increase in this type of traffic.

The most important commodity remains iron-based products, such as concentrated pellets, where Kokkola is already the leading national port for this traffic.

A second terminal specializes in so-called 'white bulk', such as limestone.

"Given the increase in traffic in recent years, we forecast that dry bulk volume will continue to grow steadily for the

foreseeable future," says Witting.

Adjacent to the port, there are six large industrial units, which make use of zinc, cobalt and a variety of salts, all of which arrive by sea. However, inbound commodities coming from central Finland have no value added to them while they transit the port; they are simply handled and nothing more.

"In theory, about two-thirds of our current dry bulk traffic could we handled by other ports, but that leaves us with a good one-third base that we can always rely on," says Witting.

Average vessel size are typically around 70,000dwt, being Panamax bulk carriers, although the largest vessel ever handled was a 170,000dwt Capesize. Most iron-based raw materials are shipped out on Panamax vessels, which have up to 13m of safe water through which they can navigate. Grab cranes are deployed on the largest ships, although there is also a conveyor loading system available for specialist cargo.

"In the case of Kokkola, it's very much the business that dictates the size of vessels and not the draught. However, it's always worthwhile to take oversize ships, because our cranes and equipment can handle really biggest ships, if necessary," says Witting, who adds that the draught is being deepened, with the state providing money to dredge the fairways to a depth of up to 14 metres of safe water.

Leading Finnish stevedoring company, Steveco, handled around 660,000 tonnes of dry bulk in 2012, which spokesperson Tapio Mattila says is broadly similar to 2011. However, for the current year, he predicts that end-of-year volumes will amount only to 350,000 tonnes.

"The reason for this dramatically lower volume is very simple: we have sold a warehouse to a Russian company who will make use of their own stevedoring company in the handling of Russian fertilizer. In addition, they have built a new warehouse of their own at Kotka, where they also have their own conveyors and a shiploader. In contrast, Steveco's focus at Kotka is to handle only import bulk for domestic industry located at Mussalo," he says.

As a consequence of this hiving off of activities, Steveco has undertaken no investment at all in dry bulk at the port in recent times.

In respect of capacity, Mattila says that, in general, the company has enough, although not in Mussalo, given its strategy of selling this off.

"However, for smaller consignments and/or special dry bulk traffic, we intend to develop our presence in the port of Hamina via an affiliated company, called Saimaa Terminals."

As for the main commodities handled, these are kaolin clay and lime, with volumes relatively stable given the current limited warehousing capacity that the company can leverage. Furthermore, at the moment, Steveco simply handles the bulks it receives and undertakes no processing.

The largest vessels handled by Steveco tend to be around 70,000 tons in weight when loaded, requiring draft of up to 15.6 metres. Kaolin clay invariably gets shipped in 15,000-tonne vessel, while lime is imported in small quantities, hence vessel size Is modest.

In February 2010, the Fertilog group was founded in Finland. It consists basically of three companies: Fertilog, Logifert and BTK, each of which owns its own storage facility, wagon discharge equipment and shipload. In November the following year, it acquired permission to set up two storage complexes for the transshipment of bulk cargo at Mussalo Harbour in the port of Kotka, specializing particularly in the transshipment of fertilizer, which would be brought in by rail from Siberia and the Ural region of Russia.

Total investment was in the region of €20 million, with co-financing provided by OP-Pohjola, among others. The masterplan for the terminal was drawn up by EP-Logistics. The first consignment of transshipment cargo from Russia commenced in December 2011. In the first three months of operation, the new terminal handled more than 300,000 tonnes of fertilizer, which was shipped to destinations in Central America, Europe and Southeast Asia. According to spokesperson, Yuri Pystin, in 2012, around 1.2mt of cargo was generated.

In total, the Fertilog installation can handle more than 4mt per year. It is accessed via a 600m-long berth, alongside which there is draught of between 13.5m and 15.3m. Dockside loading equipment, which was built in Russia by OMT, can handle around 30,000 tonnes in one day and two vessels can be work simultaneously. Vessels of up to 100,000 tonnes can be accommodated.

The terminal itself has three transshipment complexes and 52,000 m² of warehousing, which can hold up to 170,000 tonnes of fertilizer. The company offers the option of the pre-packaging of transshipped cargo, if required. Up to 300 wagons a day of inbound rail cargo can be unloaded at one of four and loading stations, while shiploaders on the dock, which were built by the Russian manufacturer OMT, provide productivity of between 600 and 1,200 tonnes per hour.

The installation was essentially set up to handle chemical fertilizers, such as cardamide, ammophos, NPK, diammonium phosphate and phosphate raw materials. In addition, facilities are such that both alumina and other ores can also be handled.

In terms of development, the forecast is that volume of cargo handled will increase to around 2.8–3mt annually in the short term, thanks to available capacity of the rail terminal.

Significantly, in its first full year of operation, Fertilog encountered problems with the ACT port union, which commenced a blockade of the terminal as a means of influencing the signing of a collective bargaining agreement with the port stevedores. In response, stevedores were brought in from a Latvian company, which prompted the port union is to commence a blockade of the port. However, Fertilog went to the District Court of Helsinki, which found in favour of the company and ordered ACT to cease the blockade or be fined €500,000. Previously, Fertilog had used stevedoring services provided by both Steveco and Stella Stevedorica, which it claimed it wanted to go back to.

The choice of Kotka was determined by its close proximity to the Russian border, which is just 130km distant, while St Petersburg is 250km away. About a quarter of all current cargo at the port comes from Russia. In part, this is because Kotka offers ice free access all year round. Other ports where Fertilog might well have set up business include the Russian port of Ust-Luga.

Nowadays, Fertilog relies on three major clients. PhosAgro is one of the world's largest integrated manufacturers of high-great phosphate raw materials, phosphate fertilizer and feed phosphates. Kemerovo-Azot is one of the largest chemical companies in Russia and the only producer of mineral fertilizers for the agricultural sector east of the Urals. Finally, Uralchem is one of the world's largest producers of nitrogen and phosphate fertilizer in Russia and the CIS. It is the second-largest ammonium nitrate producer in the world and the leading one in Russia, where it is also the second-largest nitrogen fertilizer producer.

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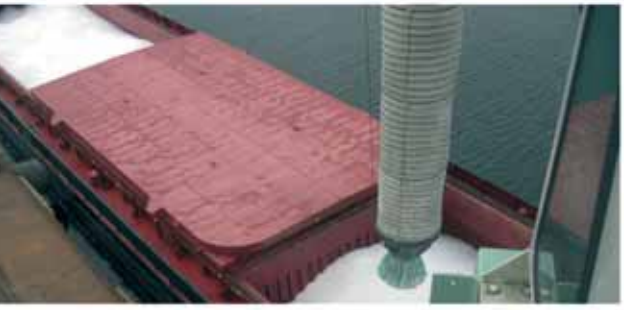

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The Port of Pori relies on the brand of Mäntyluoto

The Port of Pori in Finland has plenty of free space inside the port gates and in the areas nearby the port. Recent investments have also brought plenty of capacity to handle all kind of cargoes and vessels of all sizes. The Port of Pori has strengthened its marketing activity in the property business. The Port and the City of Pori have launched a campaign to market the M20 Industrial Park. The 'M' in the brand M20 stands for Mäntyluoto Harbour which, for decades now, has been a highly valued port in the seafaring circles of the world. Actually M20 Industrial Park is divided into three different operational business areas: Mäntyluoto, Tahkoluoto and Peittoo Recycling Park.

M20 Industrial Park offers diverse sites for industrial companies, international trading and logistic businesses utilizing the services of the port. The industrial area includes over 200 hectares of free plots. The shape and location of the plots can be customized to needs of the individual companies. Some of the plots are shovel-ready. In the brand new office building of the Port of Pori (see picture above), there is free office space for example to the logistics companies. The M20 Industrial Park is one of the few industrial and logistics areas in the Baltic Sea Region where there is room for growth for both small and large businesses within the immediate proximity of a well-functioning general port.

The number 20 in M20 refers to the 20 advantages settling in the area offers for the companies. Many of these advantages can be derived directly from the benefits of the Port of Pori. The fairways are deep. There is a 15.3-metre fairway to the Tahkoluoto deep harbour, where energy products and other dry bulk is handled. All the vessels passing the Danish Straits are able to call the Port of Pori. In Tahkoluoto, there is also a chemical port. The latest investments to the 12-metre fairway ensure that Panamax vessels can call at Mäntyluoto, where project cargo, containers, sawn timber and dry bulk are handled. "In Pori, water under the keel will not run out. This in important as the average ship size is continuously growing," underlines Jaakko Nirhamo, Port Director of the Port of Pori. Surprisingly Pori is probably the best winter port in Finland due to the lacking archipelago, deep waters and favourable wind conditions. Ice breakers are rarely seen in the waters of Pori. For example in the past winter vessels calling at the Port of Pori didn't need ice breaking assistance.

Uncongested land transport connections in all directions, railways and a connection to the Russian border create good accessibility also from the land. Finland has the same railway gauge than Russia. The M20 Industrial Park is developed to be a node with already existing excellent traffic connections to Finland as well as to Russia, Scandinavia and continental Europe. The marketing campaign is thus international. The Finnish route to Russia is awakening more and more international interest. It must be said that the grade of co-operation between Finland and Sweden has been low in the questions of shipping and ports. Ice breaking is an exception from this rule.

The ports on the Swedish side of the Gulf of Bothnia don't know the strengths and opportunities of the Finnish ports and vice versa. For example, the Port of Pori has the deepest fairways in the Gulf of Bothnia, the sea area between Finland and Sweden. Thanks to the EU projects, the situation is changing. New routes must be found to the Russian and Eastern Europe markets. Finland, Sweden and Norway are acting co-operatively to resolve that question. The fact is that Finland is a gateway to Russian. The Port of Pori is taking part of the Bothnian Green Logistic Corridor (BGLC) project. The corridor is a strategically important link within the transport system of goods in Northern Europe. In the BGLC project, the Port of Pori is making a feasibility study of re-opening a railway line Pori-Parkano-Haapamäki, which could open a new route to Russia, but also a new route to the booming Finnish mining industry.

The mining industry is one example of the branches of industries that could take advantages of the co-operation in the M20 Industrial Park. The big question of Finnish national economy will be in the future where the further processing of ores and minerals will be done: in Finland or abroad. Several international industrial companies have already settled in M20 Industrial Park and nearby the park. The most significant Finnish cluster specialized in copper and nickel refining operates already in the Pori region. The production chain extends from primary refining stages to finished products. For example, copper concentrate delivered from the mines is refined into pipes and other copper products. This cluster has created some important international innovations related to production techniques.

Cluster is a broad concept including logistics of raw materials and end-products. For example mining cluster needs chemicals, but also manufacturing of mining equipment and machineries are part of the mining cluster. This means that the cluster needs the services of a real general port such as the Port of Pori, where all kind of cargo is handled. The Port of Pori has, for example, the best crane capacity in Finland. It has the strongest fixed harbour crane with the lifting capacity of 200 metric tonnes and a Liebherr mobile crane of 144 tonnes. Even heavier lifts are

possible with the fixed crane of the neighbouring shipyard.

"The versatile and efficient business network" perfectly describes the operations of M20 Industrial Park. The mining and metal clusters are only examples of the possible networks. Finnish heavy industry is mainly located in the belt which starts from the west coast and reaching the Russian border in the east. The Port of Pori is the westernmost point of this iron and timber belt. In this belt are located the most industrialized cities in Finland. M20 Industrial Park is thus an excellent choice also to logistics companies and value-added industry serving the heavy industry. Pori is the capital of the Satakunta region, the most industrialized region in Finland. The Helsinki Metropolitan region is the home base for the headquarters of industrial companies, but production is not done there. It is done mostly in the iron and timber belt of Finland.

M20 Industrial Park has own web-pages on the port's website. The Port of Pori is leading the marketing campaign of the M20 Industrial Park. The next step is the international trade fairs. The Port of Pori is taking part in Break Bulk Europe in Antwerp from 14–16 May and TransportLogistic in Munich from 4–7 June.

E-Crane's growing success in the Scandinavian market

E-Crane, the only Belgian manufacturer of port cranes with subsidiary companies in the Netherlands (E-Crane International Europe) and Ohio, USA (E-Crane International USA), keeps on expanding its market with a brand new 1500 series crane in Sweden for Mälarhamnar AB. This is another success on Scandinavian territory for the company in only two years' time: in December 2010, the Port of Kokkola, located in mid-west Finland, officially put into service a 2000 series E-crane.

Second E-Crane for Mälarhamnar AB

The Swedish company Mälarhamnar AB has recently installed its second E-Crane in the port of Västeras, situated in the heart of Sweden's industrial belt. This is the second machine for Mälarhamnar AB who commissioned a rail-mounted 1500 series back in 2003.

The brand new 1500 series E-Crane commissioned late in 2012 is being used to unload Handysize vessels. It can load and unload a large number of different bulk materials and break bulk as well as logs from vessels of up to 10,000dwt. Bulk materials handled include peat, coal, peat, and scrap.

The new Equilibrium crane has an outreach of 104ft (31.7m), and a lifting capacity of 17.1 US tons (15.5 metric tonnes). Mounted on a rail-bound gantry, the crane is electrically powered. Benefits of this setup include smooth crane movement and high operator comfort.

CUSTOMER ENGINEERED: SPECIFICATIONS

Customer	**Mälarhamnar 2**
Type	9317B+ GA-E
Location	Västerås, Sweden
Application	Coal, logs, peat
Mount	Rails
Lifting capacity	17.1 US tons/15.5 metric tonnes
Reach	104ft/31.7m
Power source	300hp/200kW electric motor

Customer	**Port Of Kokkola**
Type	17359 B GA-E
Location	Port Of Kokkola, Finland
Application	Offloading zinc concentrate loading iron ore
Mount	High portal on rail lower
Lifting capacity	23.1 US tons/21 metric tonnes
Reach	117 ft/ 35 m
Power source	600hp/450kW electric motor

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The E-Crane is a truly unique and revolutionary machine with the lowest power consumption cost in the industry. The E-Crane runs on clean electric energy, saving customers large amounts of money when compared with diesel powered equipment. E-Cranes also have very little associated maintenance costs due to E-Crane's innate design.

The key to the E-Cranes' efficiency is the parallelogram design linking the stick to the moving counterweight. This unique four-bar mechanism ensures that the E-Crane remains in near-perfect balance throughout its working range. Compared with conventional cranes that require as much as 80% of their available energy just to move the boom, stick, and grab, the E-Crane allows gravity to work for you instead of against you, reducing horsepower requirements and power consumption by up to 50%, reducing maintenance and operating costs.

E-Crane Worldwide can supply the E-Crane® in five model ranges, the size of which is based on the maximum jib length and lifting capacity. Each E-Crane and auxiliary equipment/systems are custom engineered for the customer's specific application type, production goals and profit potentials. DCi

Port of Kokkola

The Port of Kokkola purchased a rail mounted 2000 Series E-Crane, model 17359 GA-E for unloading iron ore, zinc concentrate, and coal. The crane has a maximum outreach of 35 metres (117ft) and a duty cycle capacity of 21 metric tonnes (23.1 US tons).

E-Crane was chosen by the port due to its high transloading capacity and precise operation. The balanced E-Crane can reach capacities of up to 1,300tph (metric tonnes per hour) and can be operated easily, with utmost precision.

The E-Crane at Port of Kokkola successfully loads and unloads iron ore oxide into large handy-class sized vessels (shore-to-ship operation). More demanding jobs are no problem either; the E-Crane also offloads zinc concentrate from coasters into an existing travelling hopper, located on the side of the dock (ship-to-shore operation). It also obtains fast cycle times of 40 seconds per cycle. Utilizing the E-Crane, equipped with a 7.5m³ hydraulic clamshell bucket grab, results in a net payload between 14 and 16 metric tonnes, and peak offloading capacities in the 1,150 to 1,300tph range (zinc concentrate).

Heyl & Patterson joins PA mining initiative in Southern Africa

Heyl & Patterson Inc., a renowned global suppler of thermal processing systems and bulk material handling, announced in late April that it has joined the Pennsylvania Mining Export Program (PAMEX), an initiative that provides assistance to ten Pennsylvania-based companies to successfully penetrate the Southern African market.

Heyl & Patterson is one of ten Pennsylvania companies participating in the programme.

PAMEX is part of the Pennsylvania Office of International Trade Development, and is designed to promote and increase Pennsylvania mining and service equipment in the Southern Africa region, with assistance from the United States Department of Commerce. The scope of PAMEX includes the nations of Angola, Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, Tanzania, Zambia and Zimbabwe. Implementation of the programme will be conducted by the Pennsylvania Authorized Trade Representative (ATR) office based in Pretoria, South Africa.

Heyl & Patterson has been a major presence in the design and manufacture of thermal processing systems and bulk material handling equipment since its founding in 1887.

"PAMEX provides us with mining representatives who are familiar not only with the nation of South Africa, but the entire Southern Africa market, and this gives us the ability

John Edelman.

to expand our reach geographically," said John Edelman, President of Heyl & Patterson. "This business venture could have a significant impact on Heyl & Patterson."

The ATR will conduct market research and appointment setting in the Southern Africa markets. A Mining Marketing Representative (MMR) will attend initial business meetings scheduled on behalf of the Pennsylvania companies, and those companies are expected to follow up on the meetings with potential importers within three working days. This process will result in reportable sales for the companies involved.

About Heyl & Patterson Inc.

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

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Strategic alliance created for Transfer Point Technologies

Two global innovators in bulk material handling technologies have formed a strategic alliance specifically to design and manufacture state-of-the-art conveyor solutions for engineered transfer points. The announcement comes from Martin Engineering, a major global equipment manufacturer making bulk material handling cleaner, safer and more productive, in partnership with CCC Group, an internationally-recognized general contractor that delivers construction, manufacturing, design and engineering services.

By the terms of the agreement, CCC will design, engineer and install the chutes, with Martin Engineering delivering the transfer point components, including load zone and settling zone. "CCC will take the lead on all projects, with Martin support during system specification, design, installation and commissioning," explained Martin Engineering USA managing director Mark Huhn. "We will be providing components such as impact cradles, engineered chute walls and trackers, as well as skirting and sealing technologies," he said.

The primary benefit to customers will be a very specific focus on transfer points involving two pioneers in material handling technologies. "CCC's focus and engineering expert'Telestack have recently commissioned and installed a mobile reclaim hopper into a sand and gravel operation in Europe'

in chute design will be complemented by Martin's experience and innovation in product design and service," Huhn continued. He added that the two partners will initially be targeting coal-fired power, mining, aggregates, biomass and ports applications, eventually expanding into other industries and materials.

CCC Group is headquartered in San Antonio, Texas, serving industries throughout the US and in select overseas markets. The firm currently operates 11 domestic locations and three international facilities, employing approximately 2,500 people in all. The company is a nationwide contractor, holding appropriate licenses and/or registration in all states where it works. Classified as a large corporation, the privately-held firm had an estimated sales volume of over $400 million in 2012. CCC Group has been recognized numerous times throughout its history, including OSHA Star Awards, the ABC National Platinum Safety Training & Evaluation Process Award and the Tampa Electric Company Gold Safety Award.

Founded in 1944, Martin Engineering provides equipment to make 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 license with ESS Australia.

New cable carrier accessories

Tsubaki Kabelschlepp has unveiled new accessories for its ROBOTRAX cable carriers, which are designed to increase service life and minimize downtime.

The ROBOTRAX PROTECTOR protects the cable carrier against premature wear, absorbs shocks and impacts and is easy to mount. The combination of PROTECTOR and PULL-BACK UNIT significantly increases the service life of the ROBOTRAX cable carriers again. The cable carriers are designed for three-dimensional swivel and turn movements on robots, and are at risk of wearing out faster if they touch the robot arm. This is prevented by the use of the company's PROTECTOR.

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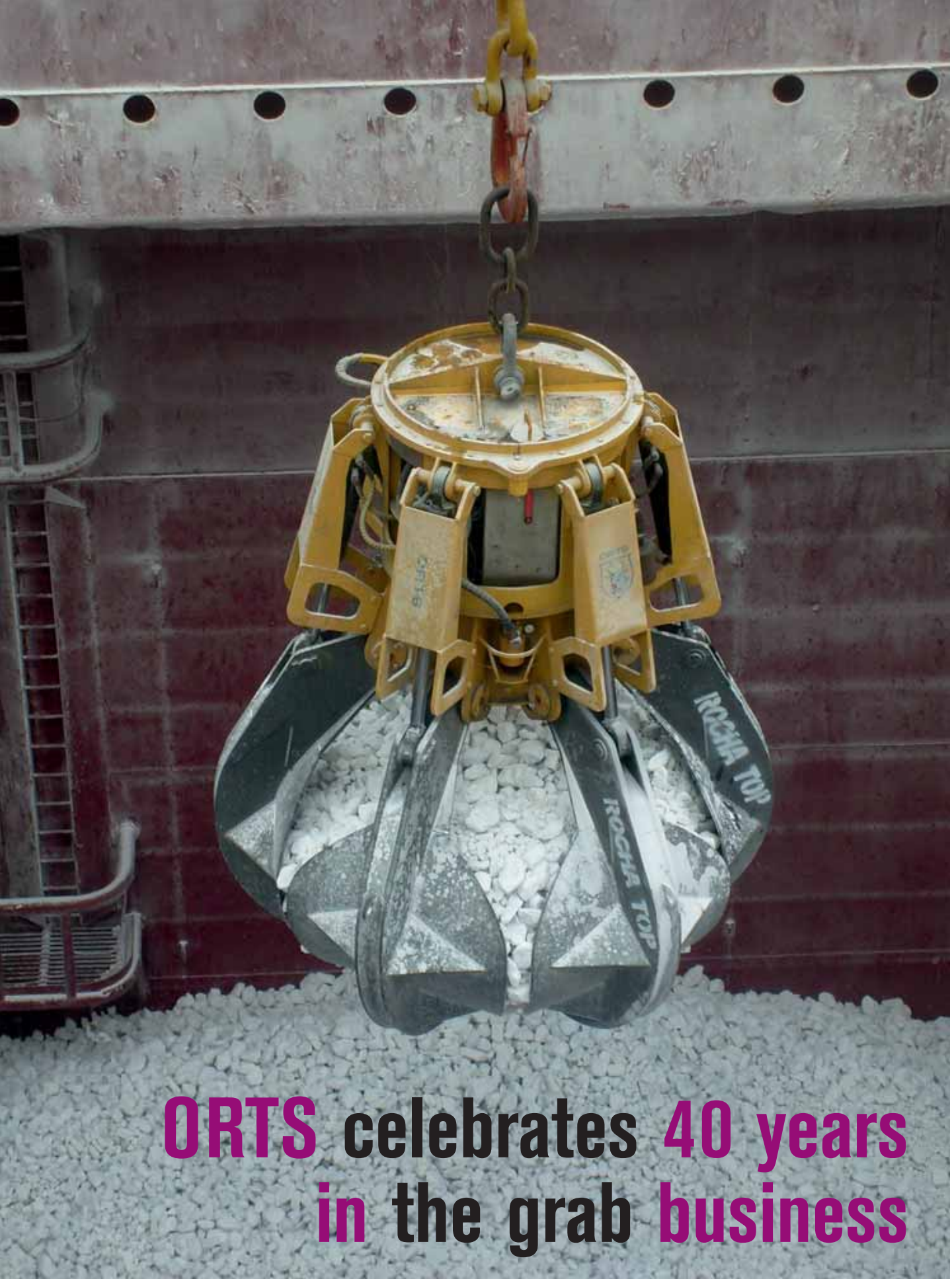

ORTS celebrates 40 years in the grab business

German company ORTS GmbH Maschinenfabrik has been operating successfully on the grabs market for over 40 years. For the last 20 years, the company has also supplied its radio-controlled diesel-hydraulic grab — in fact, ORTS is the maker of the original radio-controlled diesel-hydraulic grab.

ORTS is able to guarantee that its grabs are of the highest quality, as they are all manufactured in the company's own workshop near Lübeck, Germany.

Twenty years ago, ORTS started development work on the very first radio-controlled diesel-hydraulic grab. This grab from

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ORTS GmbH combines the advantages of mechanical single-rope grabs and electro-hydraulic grabs in one grab.

The ORTS diesel-hydraulic grabs only needs a hook to operate. Therefore, this type of grab can operate on all types of crane. No additional equipment is required to get the same — or even better — performance than that offered by an electro-hydraulic motor grab, but without the disadvantages of mechanical single rope grabs (with or without radio control).

With 20 years of experience in diesel-hydraulic grab technology, ORTS offers a very effective, reliable and flexible grab with optimum discharge rates when handling all kind of bulk cargo.

ORTS also offers an orange-peel clamshell grab for scrap or stones. Over the years, the company's diesel-hydraulic grabs have proved their reliability handling all types of cargo.

ORTS has ensured that it follows a programme of continuous improvements to its grabs, often in consultation with its customers. Its first prototype, which is now 19 years old, is still in operation today.

ORTS's diesel- hydraulic grabs are in operation around the world, in a wide variety of environments. These range from very warm regions like the Persian Gulf, South Africa, Brazil and Australia to very cold areas such as Estonia, Finland and Norway.

In 2013, ORTS GmbH introduced a new generation of small and compact diesel-hydraulic grabs for other applications and projects, including biomass plants, building contractors and big farmsteads.

All ORTS grabs (diesel-hydraulic, electro-hydraulic and mechanical) are renowned for their effectiveness (high discharge rates), reliability and a long lifetime handling millions and millions of tonnes. ORTS's grabs typically offer a working life of over 15 years, so the initial purchase price becomes less important as the years go by. In the long term, what counts is quality, reliability and effectiveness; a cheap grab can very quickly become an expensive grab. A grab is not cost-effective when it needs its first spare parts after only a short time in operation, nor when it experiences operational breakdowns. Also, to be fully cost-effective, the grab must be able to accommodate a full load. It becomes costly to operate when the clamshells are never really full.

ORTS's global customers know and appreciate the quality and technological superiority of its grabs. Over the years, new ideas related to grabs and related technologies have originated at the ORTS facility in Lübeck. One example is a floating oil-salvage grab, which can take oil from the water surface after ship accidents. This grab has been in highly successful operation for many years.

Some of the world's largest grabs have been made by Eng. Sigvard F. Orts (the biggest has a dead weight of 115 tonnes). The company has delivered dredger grabs to Russia, every single tooth of which weigh almost 1,000kg. These dredger grabs have been used to move stones with a single weight of up to 60 tonnes. The dead weight of the dredger grab is 80 tonnes.

ORTS GmbH's drawing board is also responsible for a salvage clamp and an orange-peel dredger grab with a dead weight of 50 tonnes. The company's product range also includes load traverses/lifting beams with a lifting capacity of up to 100 tonnes, as well as other lifting equipment. DCi

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Cement handling and storage

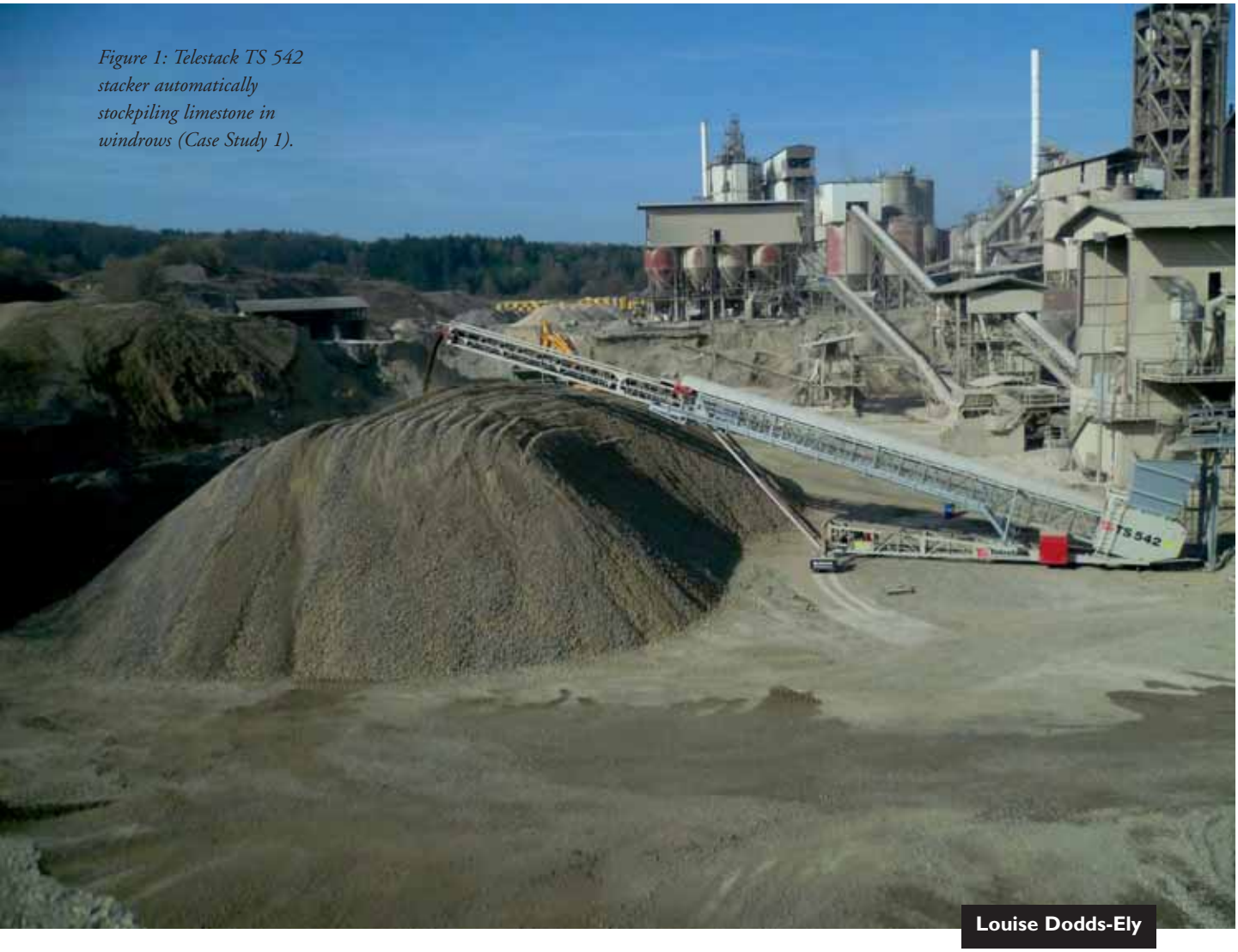

Figure 1: Telestack TS 542 stacker automatically stockpiling limestone in windrows (Case Study 1).

Louise Dodds-Ely

Mobile equipment from Telestack: flexibility and efficiency for cement industry

Telestack offer a range of mobile bulk material handling solutions. This article details three case studies, which illustrate three different applications. They show the flexibility that Telestack's technology provides to the cement industry.

Case Study 1 (see Figure 1 above)

Telestack's customer in Europe operates a limestone quarry for its cement plant operation. It handles a range of materials for construction and cement manufacturing such as lime, cement, plasters, mortar, crushed sand, aggregate and various environmental products within its plant. It is critical that these materials are handled in the correct manner.

The recycled material from the calcinations of the limestone for the making of the cement was previously stockpiled using wheel loaders. This method was ineffective in operation as it created unwanted dust generation, degradation and segregation and compaction of the material, as well as high costs for fuel, labour and maintenance of the wheel loaders. As the material was stockpiled in this way, this significantly degraded the quality of the material to feed into the furnace.

To reduce costs and improve this process, the customer installed the Telestack radial telescopic stacker which is used to stockpile the raw material for the plant that was to be loaded into the furnace for the cement making process. During this process within the furnace, the material can only be loaded if it is within certain specifications; this is to ensure that only the 'in-specification' material is fed into the system to ensure the correct product ratio. For the customer to achieve this 'in-specification' material, Telestack installed the radial telescopic stacker to automatically stockpile the material in windrows. The method of stockpiling is scientifically proven to reduce/eliminate the segregation, degradation, contamination and compaction of the material.

The radial telescopic stacker automatically stockpiles the material and radials left/right via the electric hydraulic driven wheels, raise/lowers and telescopes in/out to allow for a

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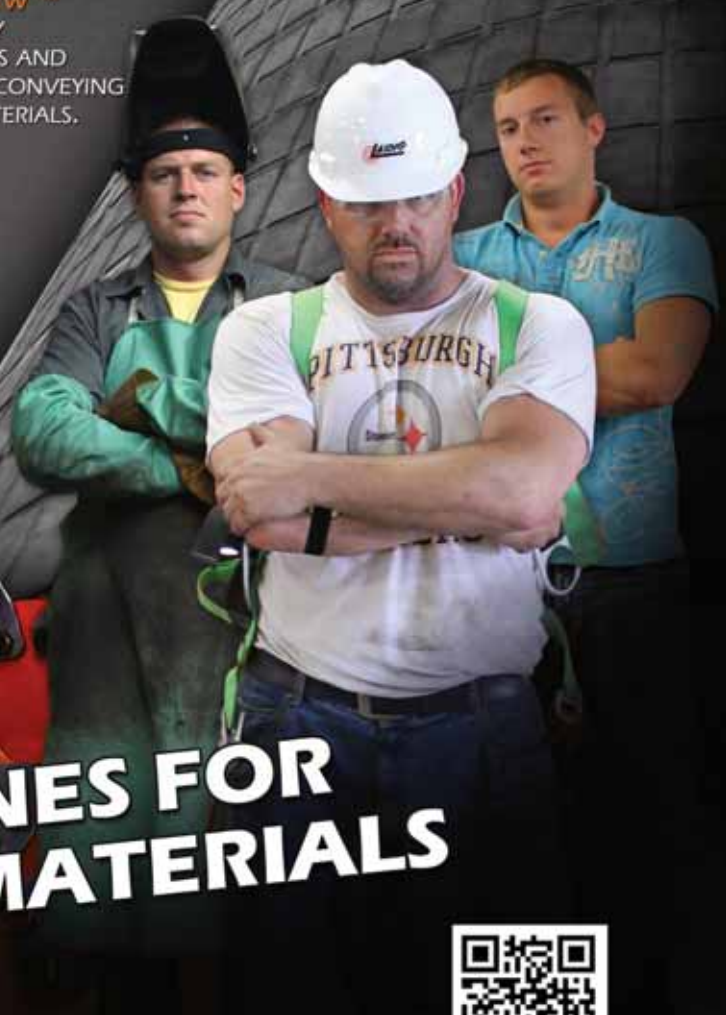

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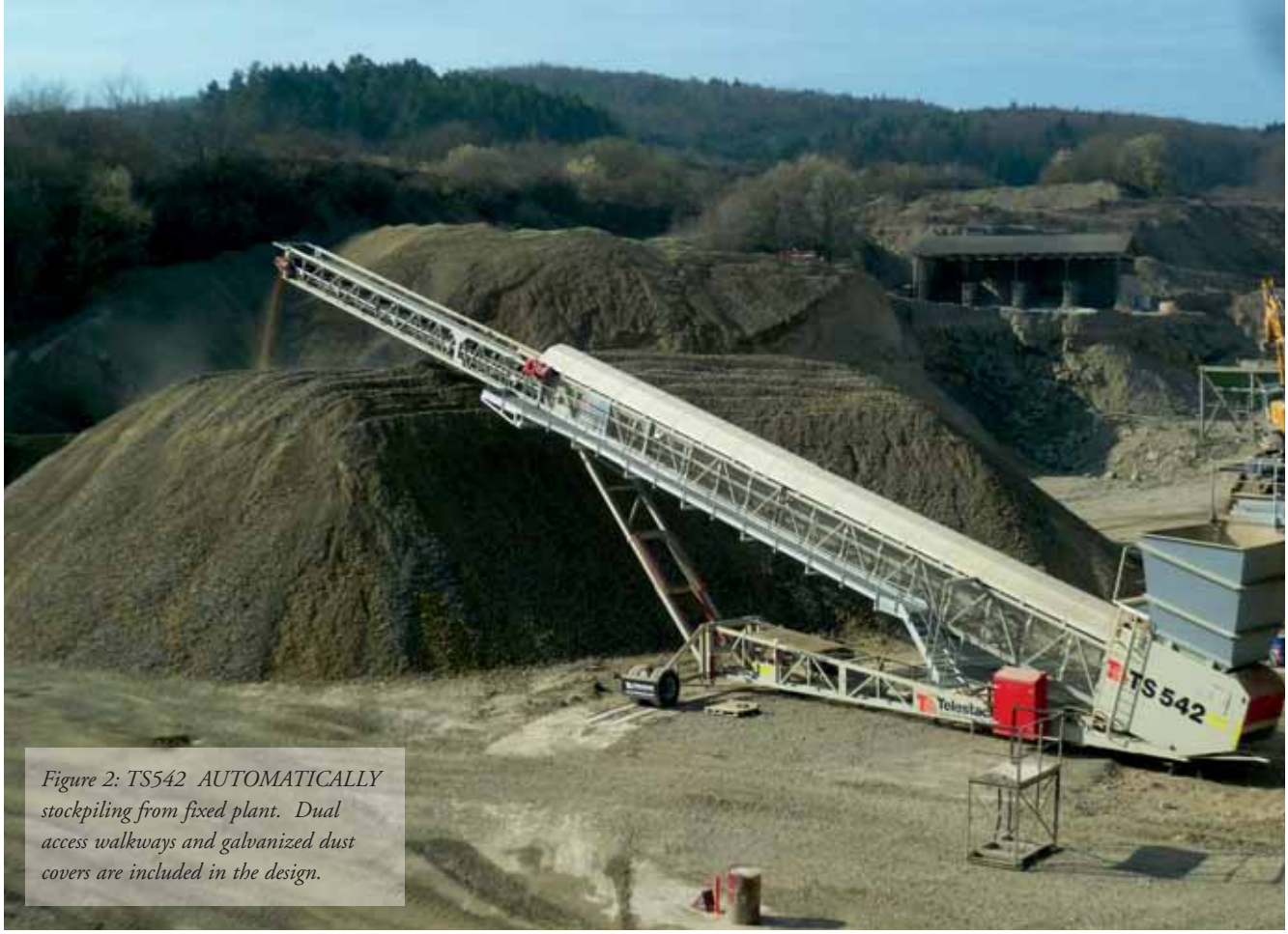

Figure 2: TS542 AUTOMATICALLY stockpiling from fixed plant. Dual access walkways and galvanized dust covers are included in the design.

windrow type stockpile to ensure the 'in-specification' material is maintained throughout to feed the furnace. The all-electric driven unit stockpiles up to 96,600 tonnes of material at 270° (based on 1.6t/m^3) in one area for large stacking capabilities. The unit is fully integrated into the current electrical communication system within the plant so it can be monitored and controlled from one central location. The inclusion of full length galvanized dust covers ensure there are minimal dust emissions on site. Also, the dual access walkways the length of the outer conveyor allow for easy maintenance and safety for the operator. At a full length of 42 metres (140ft) length, the TS 542 radial telescopic stacker can discharge at heights up to 13.05 metres (43ft) at 500tph (tonnes per hour) for maximum capacity in the small areas within the site.

Figure 3: Windrow method stockpiles automatically created by the TS542 for 'In-specification material'. This replaced the use of wheel loaders stockpiling the material which was both ineffective and expensive.

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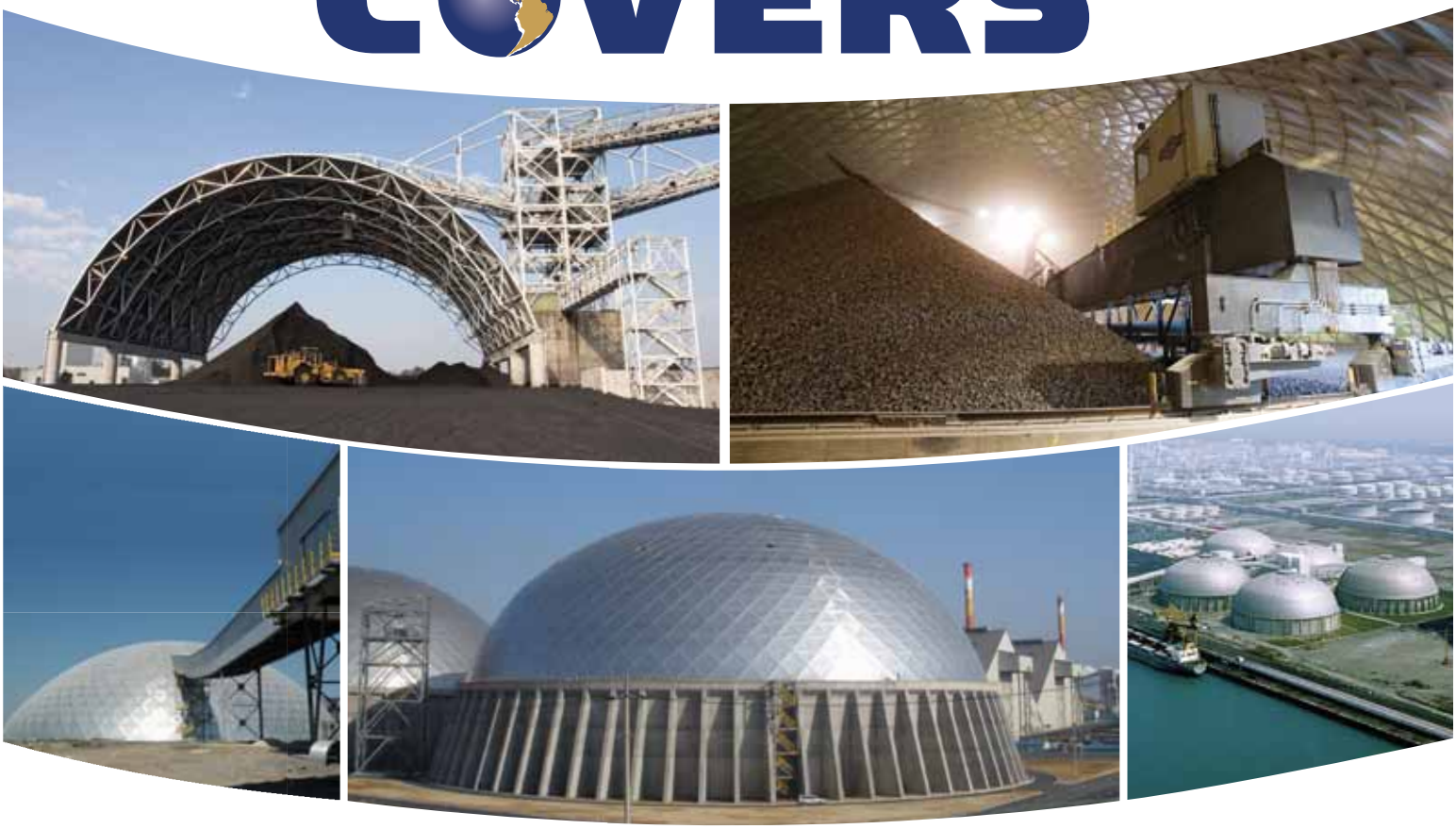

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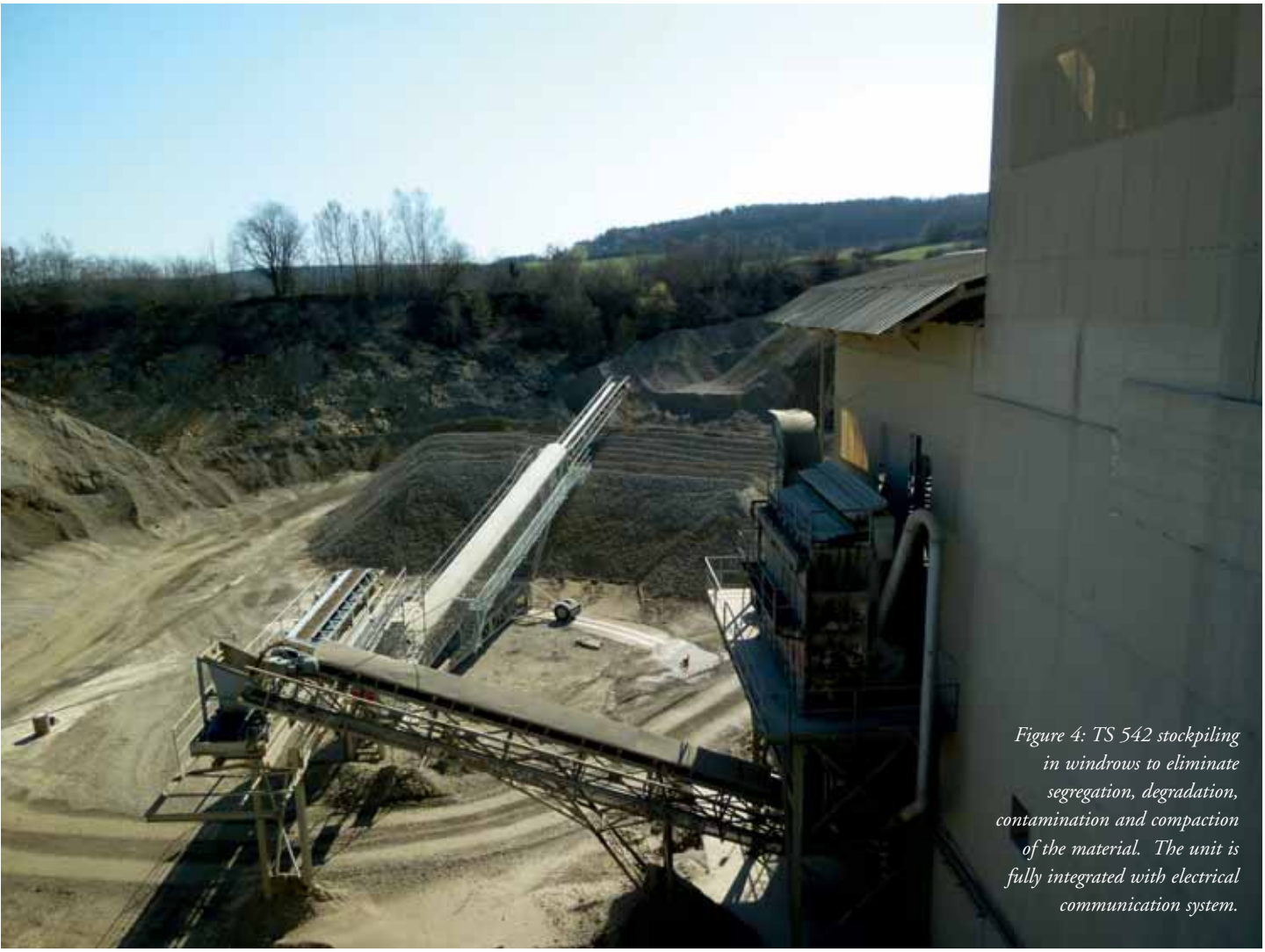

Figure 4: TS 542 stockpiling in windrows to eliminate segregation, degradation, contamination and compaction of the material. The unit is fully integrated with electrical communication system.

By utilizing Telestack's technology, the customer has reduced his operating costs significantly. The elimination of the use of wheel loaders for stockpiling the material has meant a saving of 3,000 hours per year of operation of the wheel loader, which if we consider the fuel consumption, labour and maintenance (tyres and so forth) of a typical medium-sized wheel loader, these are significant savings. In terms of fuel alone, the customer has saved 40,000–50,000 litres of diesel per year by using the Telestack radial telescopic stacker in place of the wheel loaders that were previously in operation. Also, from an environmental point of view, the carbon emissions have been significantly reduced on site, the noise level is reduced and the dust generation is significantly less.

Telestack can also help improve site safety as the elimination of wheel loaders reduces site traffic movements and the potential for accidents.

Case Study 2

Telestack has recently been awarded a contract for a mobile track mounted truck unloader in South America for stacking cement clinker in covered storage. The unit was chosen for several reasons but a major factor was the flexibility and mobility of the system.

The client imports clinker into the country in Handysize Vessels and unloads the vessel using mobile harbour cranes into conical hoppers. Road trucks receive the material from the

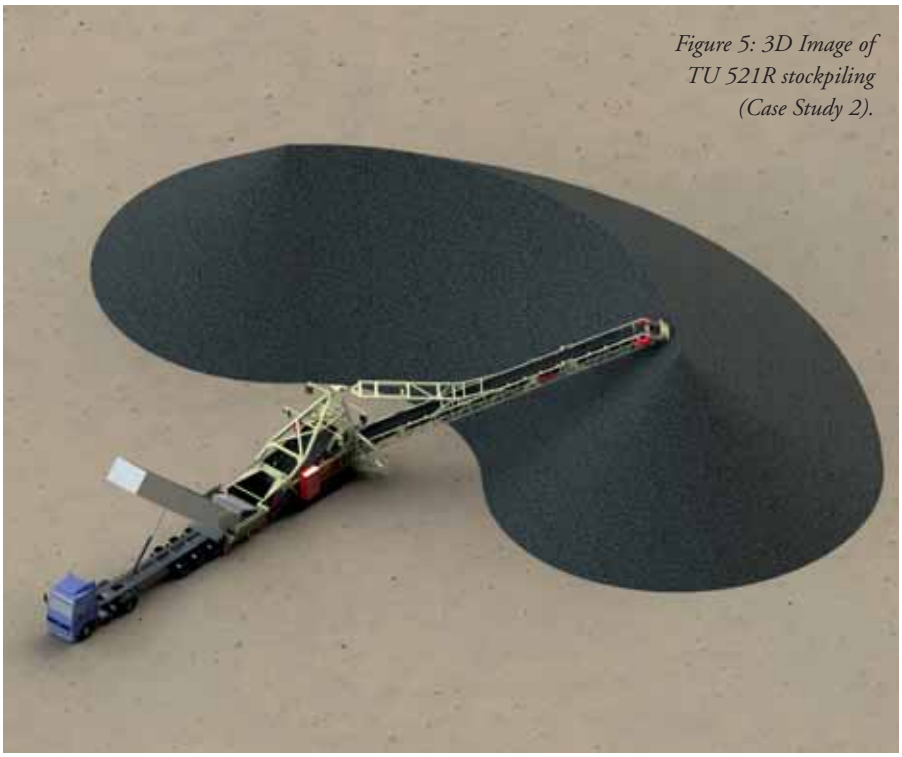

Figure 5: 3D Image of TU 521R stockpiling (Case Study 2).

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conical hoppers and bring the cargo to the covered storage area. The trucks then reverse onto ramps which are hydraulically foldable for transport and they will then tip the material into the Telestack mobile truck unloader for the stacking of the material. The material will be regulated in the feeder by means of a leveling blade which can be manually adjusted. The material is then transferred via a chute incline radial conveyor boom. The boom has the ability to slew ±45°, creating a radial stockpile. The radial boom slews on slew bearing and is driven by a hydraulic motor with limit switches, limiting the slew range to a maximum 45° angle of centre line in left/right direction. The incline boom can be positioned at a angle of inclination from 8° up to 23°.

An additional feature of an ultrasonic height sensor allows for a minimum drop height of clinker which reduces dust emissions and degradation of the material. The unit can stockpile to a height of 9 metres which gives a conical capacity of 1,680 tonnes at 1.4t/m³ and a radial stockpile capacity at 90° of 6,125 tonnes.

The truck unloading/stockpiling machine is fully self contained with a CAT 4.4 litre engine generating 96Kw of power. The mobile truck unloader is track mounted and has optional rubber pads therefore not marking the concrete within the storage area.

The client commented that the TU521R will significantly reduce his operating costs for stacking of the clinker in the storage area. Prior to this contract, a 30-tonne excavator was used which would only attain a heap height of 6 metres. The client also will increase his storage capacity with the same footprint. He also expects less dust to be generated when stacking, a better quality product and a safer environment for his employees.

Figure 6: Tracked hopper reclaiming aggregate to overland conveyor (Case Study 3).

Case Study 3

Telestack has recently commissioned and installed a mobile reclaim hopper into a sand and gravel operation in Europe. The client replaced a previous system which could only be fed with a 50-tonne excavator and consequently the diesel consumption for the excavator was excessive. The client had a very specific design brief for the new mobile reclaim feeder and some of the technical features are listed below with regards to the unique design to meet the client's particular requirements.

The client chose a CAT 980 wheel loader to perform the reclaim operations from the mineface to the mobile reclaim feeder. Due to the reclaim hopper being track mounted, it can be easily manoeuvred along the uneven mine surface to a suitable position from where the wheel loader will feed it. This distance can vary between 20–50 metres. After 50 metres, load and carry distance has been reached the client moves the ground conveyor closer to the mineface and repeats the process.

The wheel loader picks up the run-of-mine material which ranges from fine sand to 350mm gravel boulders. The wheel loader then carries the material to the hopper which is fitted with 1,500mm aperture tipping grid. The grid is a heavy duty construction and the grid bars are made up of coffin shaped bofor bar. The grid size is remote control operated from the driver's cab of the wheel loader.

The grid can be tipped to an angle of 80° which enables the effective removal of boulders which normally would become entrapped in the grid. The grid is reversible which enables it to be quickly changed to tip either side of the hopper. The material greater than 150mm is rejected and material under than 150mm passes through the grid and into the hopper which is lined with 10mm Abro 400 liners.

The hopper has a capacity of 18m³ and incorporates a drag out feed out conveyor. This feeder is speed controlled by means of a variable-speed drive and in conjunction with a variable height gate means that the client can finely set the machine output.

The feed conveyor of the hopper is fully skirted up to the discharge point where it passes onto the incline conveyor. The incline conveyor has the ability to slew ±90°. The incline boom also incorporates an anti roll back system to prevent the larger boulders from rolling back in event of material feed stopping.

Figure 7: CAT 980 wheel loader tipping material into tracked hopper.

The complete system is powered by a 165kVA CAT enclosed generator set or can be powered by mains electricity to further reduce operating costs. From the mobile reclaim conveyor the material is then transferred to a ground conveyor which feeds the material onto a primary surge stockpile. The stockpile is automatically reclaimed and gives a buffer of three days processing to the crushing and screening plant.

The client has realized the benefits both in terms of reduced operating costs for reclaiming and also increased manoeuvrability and quicker set-up times.

Telestack

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Mixed media fuel for the generation of heat and power in cement processing

It is estimated that 5–6% of total man-made greenhouse gases are the result of cement production. Some of these emissions from conventional cement production are caused by using fossil fuels to heat up limestone to the high 1,500°C required by the process. It is therefore unsurprising that alternative fuelling methods are now being thoroughly investigated. The use of alternative fuels in European cement kilns is now estimated to be equivalent to 2.5 million tonnes of coal per year.

The use of alternative fuels is considered to represent the Best Available Techniques (BAT) for all cement manufacturers. Many UK cement producers have signed a climate change levy agreement with the UK government. The agreement sets a target of both kiln fuel and electricity, which will result in a substantial reduction in carbon dioxide emissions.

Cement plant using PSP pellets.

Alternative fuels used in cement manufacturing have differing characteristics such as SRM (secondary raw materials), RDF (refuse-derived fuel), SRF (solid recovered fuel) and PSP (pelletized/processed sewage pellets) when compared to the more conventional fuels. Switching from conventional fuels to alternative fuels presents several challenges that must be addressed in order to achieve successful application. Poor heat distribution, unstable pre-calciner operation, blockages in the pre-heater cyclones, build-ups in the kiln riser ducts, higher SO_2, NOx and CO_2 emissions, dusty kilns and excessive wear in pipe work, valves, burners, chutes and cyclones are some of the major challenges.

The same problems arise in the increasing number of industries that are replacing fossil fuels with renewable materials or supplementing fuel streams with mixed waste and recyclate in order to achieve carbon offset. However, managing biomass and mixed media can take its toll on processing equipment unless it has been designed or adapted for handling products with varying characteristics that create excessive abrasion and corrosion.

Kingfisher Industrial is a world-recognized expert in the protection of plant and equipment for handling aggressive materials, such as mixed media fuels for cement plants, power generation, chemical processing and incineration.

As such Kingfisher, can help cement plant operators ensure that their fuel handling equipment is able to withstand the rigours of conveying mixed media by offering a tailored solution to each situation to counter the detrimental effects of processing

Alternative fuels explained

Bio fuels are based on organic materials (plant or animal) and include organic waste, residues from agriculture and energy crops, meat and bone meal, methane from animal excrement or produced by bacterial action, ethanol and biodiesel.

Solid bio fuels (usually referred to as biomass) include plant tissues, such as wood, charcoal and yarns; agricultural by-products such as coffee husks, straw, sugar cane and its leaves, rapeseed stems, palm nut shells, rice husks, and so forth. There are other non-agricultural biomass elements, such as animal fat, sewage, waste meats and bones, food scraps and domestic or industrial biodegradable wastes. In all cases, these materials are primarily composed of carbon based organic matter, which releases energy through combustion.

Refuse-derived fuel (RDF) is a product of municipal waste/recycling programmes. It is available in increasingly vast quantities from local councils and authorities and from processors and is likely to be used more and more in the future.

Secondary raw materials (SRM) is a by-product of municipal recycling. SRM consists of materials such as paper, glass, metals and some plastics that have been manufactured, used then discarded and are to be used again.

Solid recovered fuel (SRF) is produced by sorting, shredding and drying mixtures of municipal solid waste (MSW) and other low grade materials. Strict specifications are specified so that a consistent quality of fuel is maintained.

Processed sewage pellets (PSP) are made by heat treating the sludge remaining after sewage processing. The technique was originally used to produce agricultural fertilizer or to ensure the sludge was acceptable for landfill. Its use as fuel is increasingly common and expected to continue growing.

abrasive minerals and media. The main technique used is to fit handling equipment with an appropriate hard-wearing lining system, matched to the materials being conveyed. For any given project, Kingfisher will assess the situation, recommend solutions based on the type of media mix design and manufacture plant for conveying, storing and processing the fuel, install and commission it. This will ensure that fuel handling equipment is reliable, wear- and damage-resistant over an extended working life (which is often measured in many years of service)

By implementing best engineering practice, Kingfisher says that key plant and equipment can operate on a continual basis and lead to increased efficiencies and profitability. The company has considerable expertise in combating wear and corrosion within cement and other heavy industrial plants and has frequently extended the service life of key processing equipment by utilizing its range of protection systems.

Kingfisher works with a number of preferred materials suppliers to offer an unbiased approach to solving the problems experienced when handling bulk solid materials and allow it to offer the best solution or solutions for any given situation.

Despite manufacturers' many claims to offer the ultimate material in the 'fight against wear', success levels can vary enormously, so there is a need to analyse each individual set of circumstances. Sometimes the wear-resistant properties of one material type may be in excess of requirements and conversely, those same properties may under-perform in a different application, putting the material's suitability in either case under question. Careful assessment is a key requirement for success.

Technically speaking, three familiar material groups are most common for wear protection duties: ceramic, metallic and polymer.

Ceramics are available in their long-established cast form and as state-of-the-art pressed products and are used in many, many situations: they range from high alumina, fused cast basalt, silicon carbide to fused corundum.

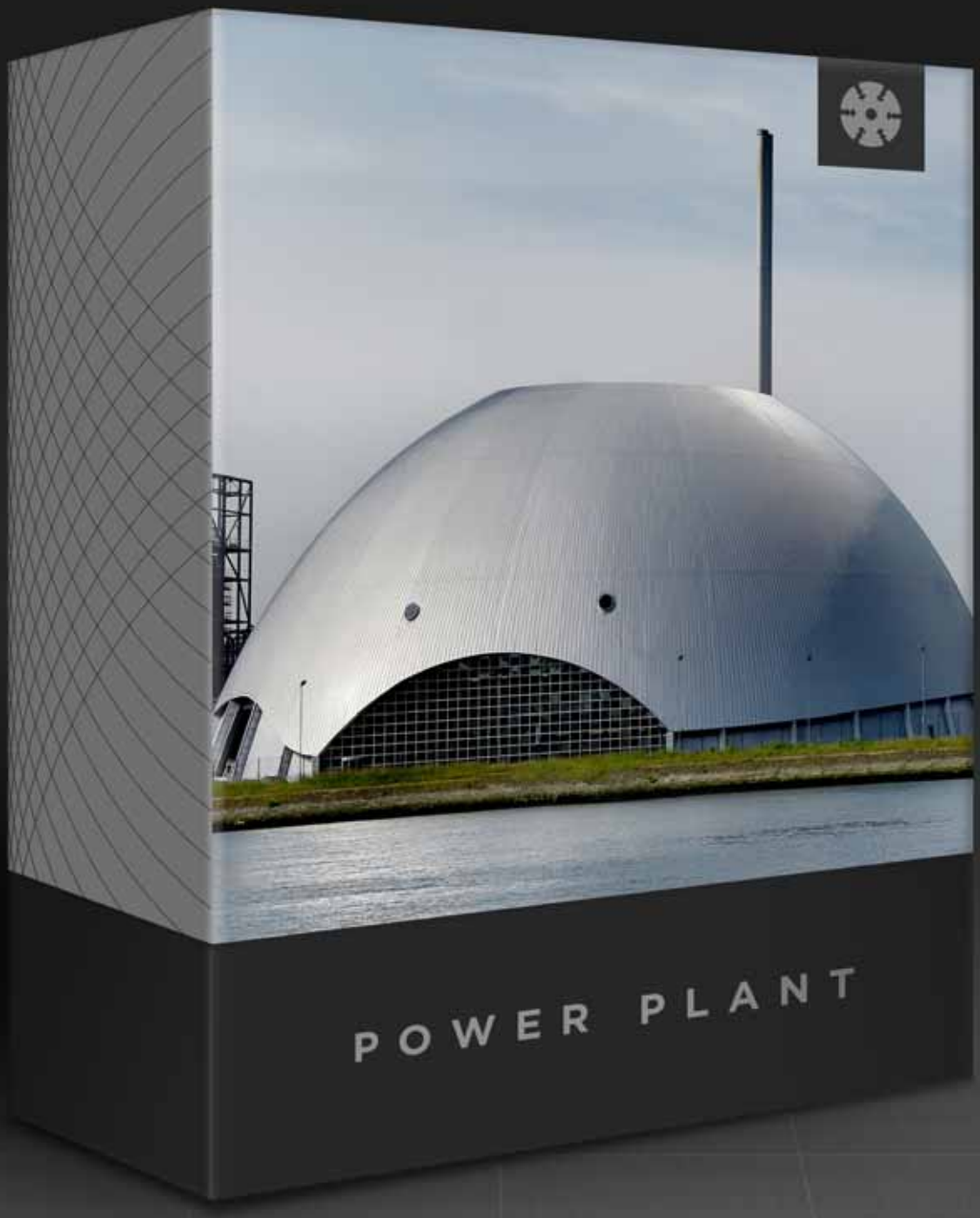
Metallic solutions are usually based on hardened versions of common metals and are suitable for a wide range of applications. They have been in use for many years and are much favoured by many users. Specialist metal alternatives are also available and can provide the optimum outcome to unusual situations, such as high chrome, ni-hard, manganese castings and chrome carbide overlay plate.

Polymers like rubber often work in a counter-intuitive way, having the ability to absorb the shock of impact and dispel the damaging forces. Other polymers such as polyethylene, with its very low coefficient of friction, encourage the material to glide over it as opposed to scouring the surface thus, reducing the effects of friction or sliding induced abrasion. Polymers tend to be lightweight, flexible and relatively easy to apply.

The use of polymers to protect equipment where extreme impact prior to crushing is evident benefit from being lined with hard rubber liners and likewise the difficulties associated with the storage of coal and cement are eliminated due to the low coefficient of friction that polyethylene liners offer in assisting discharge. In all of these cases and in many more, the cement industry can achieve significant benefits when employing wear-resistant linings and wear-protection systems. New or existing equipment can be retrofitted with a protection system to add to its current asset value.

Kingfisher has wide expertise with all three material groups and carefully tailors solutions to each specific situation. Before making recommendations, Kingfisher undertakes a full in-depth analysis of a plant's operational criteria and identifies a system that is fit-for-purpose to meet the many requirements of the end user. Criteria that are reviewed in the decision making process include the type of material being conveyed, size and shape, volume and velocity, operating temperature and of course the budget constraints versus the operating life cycle required.

Kingfisher has installed its wear-resistant lining solutions within a number of plants that use the different types of alternative fuels. Referring to a project carried out at a cement plant situated in Derbyshire, the manufacturing plant has been working with the SRF since 2009. During the installation of the SRF system, Kingfisher was approached by a process engineering company to supply pipes lined with K-BAS Cast Basalt wear-resistant lining systems. After a couple of months of operation, the plant was advised to upgrade its conveying bends to K-ALOX ceramic wear systems instead. "Due to the erosive nature of the material, the K-BAS lining system did not meet the life expectancy of the system," commented MD John Connolly, "as part of our after-sales service our engineers identified the problem and advised the customer to upgrade the lining system



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MacGregor systems serve Precious duo

Two new 20,000dwt cement carriers on order in China will feature advanced MacGregor cement handling systems for autonomous, flexible, environmentally-friendly cargo operations at high handling rates

MacGregor, part of Cargotec, has secured an order with Shanhaiguan New Shipbuilding Industry in China for advanced bulk-handling systems for a pair of 20,000 dwt cement carriers on order for Singapore-based Associated Bulk Carriers (ABC) which is a fully owned subsidiary of dry cargo shipowner Precious Shipping PCL, Thailand.

Precious Shipping operates in the small Handysize sector of the tramp freight market. The identical sisterships will be equipped with MacGregor cement self-unloading/loading systems combining mechanical and pneumatic technologies to deliver a self-unloading rate up to 1,000tph (tonnes per hour) with pneumatic discharge system or 2x250tph with discharging directly to on shore cement trucks and a self-loading rate up to 1,000tph for both pneumatic and mechanical loading systems.

Equipment for the first vessel is scheduled to be delivered this summer with the second following later in the year; the order also includes an option for a third system.

"As well as being environmentally-friendly, the MacGregor systems will offer a flexible, reliable and efficient approach to dry bulk transfer," says Anders Berencsy, sales manager of Selfunloading systems. "They will give the vessels the ability to use almost any port facility. This level of versatility was one of the main reasons for choosing our system.

"We presented our cement carrier concept and demonstrated how its totally-enclosed technology could make significant savings for Precious Shipping, by delivering flexible, highly-efficient discharge operations."

He continues: "One of the critical factors when handling cement is avoiding water ingress. MacGregor's totally-enclosed system eliminates the risk of water penetration; it is ideal for the South East Asian climate, subject to the problems associated with Monsoon rains and high humidity.

"Our continuous loading/unloading systems are designed to provide dust-free bulk cargo transfer, which is a major environmental requirement in almost all locations. Dust emissions are further curbed by a totally-enclosed conveyor system equipped with dust collectors. We can deliver our self-loading/unloading systems as dedicated cement-handling systems, as in this case. We have a range of self-unloading technologies, including gravity-type systems, for materials such as coal, iron ore and aggregates," he adds.

to an alternative material type"

Adding to the process Kingfisher has engineered bends with a removable wear back that is fitted with its very own Abralarm wear-detection system. The system comprises a low voltage electrical indicator that is integrated between the lining system and steel casing; when the lining system is breached, it will sever the induction loop and send a signal through to the SCADA/PLC system located in the customers central room which enables the operation team to plan for replacements.

Kingfisher was also approached by the plant engineers to provide a suitable lining option for a silo used within the SRF process, the problems encountered by the plant included 50–80mm bed of excessive material which was recovered at the bottom of the silo after every shutdown. Usually the silo would be reasonably full, hence the lining solution provided must be able to endure high impact without causing any issues. During the site visit carried out by Kingfisher's sales manager, he commented "the largest piece of material entering the silo was measured at 150x20x3mm thick. As material degrades in the silo, the moisture increases and the inside of the structure becomes saturated which in turn creates a dew point and excessive corrosion becomes a major problem if left untreated.

The solution suggested was Kingfisher's polymer-based epoxy resin spray application. The characteristics offer a tough, impermeable barrier suitable for steel and concrete surfaces. Providing outstanding resistance to most chemical agents, particularly strong acids (including 98% sulphuric acid) alkaline, and many solvents. The low odour system forms a very hard and excellent gloss finish being evident on the surface of the plant and equipment.

The materials that make up typical mixed media and biomass fuels can create many problems due to the size, shape, density and tonnages that are handled. This is demonstrated by another international manufacturer within the cement industry, which has

K-BAS lined bend.

used alternative fuels since 1992. It has done so by successfully implementing the use, of recycled tyres, meat and bone meal (MBM) and SRF. Kingfisher has supplied pipe work for the existing pilot plant, the pipe work supplied was lined with the K-BAS cast basalt lining systems.

Kingfisher has also supplied similar wear-resistant pipe work systems used at one of largest sludge drying centres in Europe. The plant processes sludge from hundreds of wastewater treatment plants into processed sludge pellets (PSP).

A Kingfisher solution will allow for this and will also optimize plant layout for clear flow lines without bottlenecks or other points of weakness. Applications such as the installation of low friction linings systems within the fuel reception hoppers can also eliminate the need for mechanical aids or personnel having to gain access in order to clear blockages. A Kingfisher-built or adapted system will generally need far less maintenance, as the protective systems reduce the need to continually undertake repair work.

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As well as handling the fuel, the Kingfisher technologies can also be applied to the actual process of cement manufacture, all the way from the quarried limestone to the bagged despatch point. This involves a multitude of activities with each operation depending on the success of the previous stage. Kingfisher can solve the problems experienced with mineral excavation, blending of clay and chalk, firing, cooling and storage of clinker and finally milling and conveying of cement. Equipment such as front loading buckets, crushing equipment and reception hoppers have seen extended service life through the use of protection systems such as chromium carbide clad plate or manganese steel castings.

Plant and equipment that can achieve continual operation when handling aggressive bulk solids in the harsh environmental conditions of cement production is of the utmost importance if efficient, lean production is to be achieved. Correct application of protection systems within process critical plant and equipment can deliver substantial savings in downtime and maintenance costs when engineered correctly, however investment in the wrong system being used in the wrong application can lead to increased costs all round!

About Kingfisher Industrial

Kingfisher Industrial provides wear solutions for process plant used to convey, process or store bulk solid materials, in either dry or hydraulic states. Such plant often suffers premature wear due to handling large quantities of materials at velocity in a constant operational cycle. With its range of ceramic, metallic and polymer protection systems, Kingfisher can overcome wear problems; engineering suitable protection systems that can add many years' of life to a plant, and in some cases outlast the design life of a process completely. These solutions cater for the operating criteria, budget and life cycle of equipment.

Abralarm detection system.

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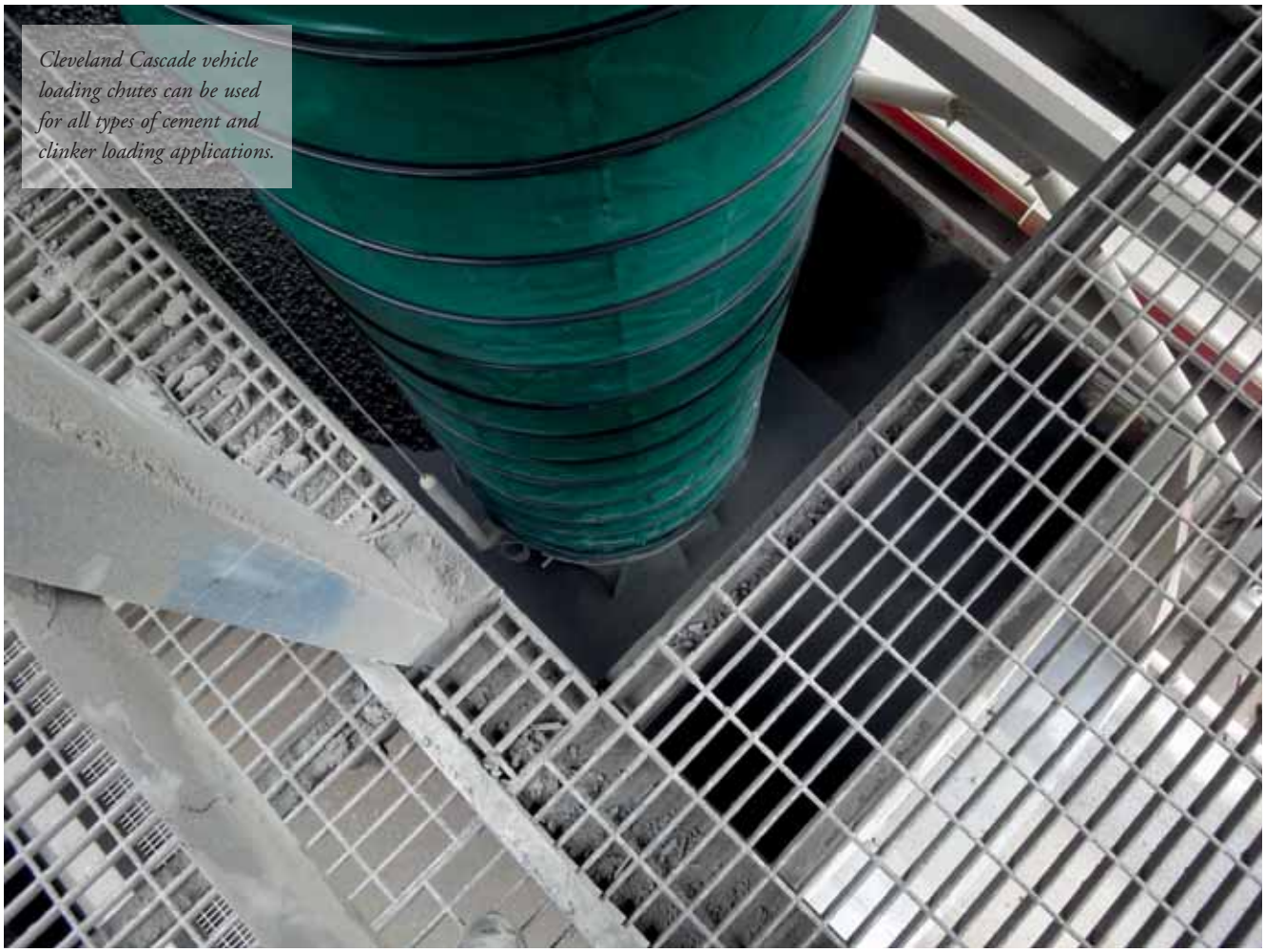

Cleveland Cascade vehicle loading chutes can be used for all types of cement and clinker loading applications.

Cleveland Cascades Ltd, renowned for its global supply of bulk material loading chutes for shiploaders and silo loaders, is seeing increased demand for its vehicle loading solutions, in particular in the cement industry.

The company has designed and supplied over 500 loading chutes since 1992, from shiploaders for alumina in Australia to silo loaders for coal in Israel. These systems use the company's unique Cascade loading system, whereby the loaded material cascades vertically through an arrangement of oppositely inclined cones the length of the chute. The material is loaded at a low velocity, yet high volume, and this means problematic materials can be transferred with minimized dust emissions and also minimized degradation and segregation of product.

The vehicle loading solutions use the same Cascade technology, but whereas quayside shiploaders can be over 30 metres in length, the vehicle chutes need to be much shorter and to accommodate more frequent loading patterns and more intricate logistics of tanker and open vehicle loading.

The vehicle loading systems are more lightweight in comparison to shiploaders, but are designed with the similar operational functionality of the larger chutes. Material detection probes housed in the carrier of the systems allow for automatic raising on detection of material, which facilitates continuous material loading. Limit switches in the hoist system can be set to allow travel limits which enable the optimum loading levels.

The Cascade technology is ideal for the loading of materials such as cement and clinker, which are notoriously problematic to handle in terms of dust emissions. Clinker is also a very abrasive product, and is often loaded at material temperatures in excess of 90°C. For such applications, the Cascade chutes are specified with ceramic linings, to offer optimal abrasion resistance and with specific electrical componentry, such as material detection probes, that can withstand bulk loading at these high temperatures.

The unique Cascade system allows high volume, low dust emission loading of problematic materials such as cement and clinker.

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E-Crane: modern solutions for the cement industry



With a growing market presence in recent years, E-Crane has quickly become a major name in balance cranes around the world. The E-Crane has proven to be successful in the cement industry, with multiple sales and successes throughout Europe, North America, and especially Asia. Last month, we discussed the significant success of E-Crane in the Asian market. This month, we will be focusing on a more specific part of that market: the cement industry. E-Crane has proven time and time again that it can offer tailor-made solutions for that industry.

As discussed last month, the region in which E-Crane Worldwide has proven to be very successful is Bangladesh. In 2011 and 2012, E-Crane completed the installation of nine cranes for the cement industry in Bangladesh. Many customers did not order just one crane to operate at their facility, but two or even more. This is no surprise since the E-Crane is an ideal solution for handling not only cement, but also scrap and other bulk materials.

Among the companies which ordered an E-Crane during that period are the Bashundhara Group and Premier Cement Mills Limited (PCML). Two 1000 Series/Model 7264B E-Cranes were commissioned for the Bashundhara Group. Both cranes have a maximum outreach of 26.4 metres (86ft) and handle material for a grinding mill with a total capacity of 3,500 tonnes/day. Premier Cement Mills Limited purchased two 700 Series/Model 4264 PD-E E-Cranes with a 26 metre (86ft) outreach and 5.5 metric tonnes (6.0 US ton) duty cycle capacity.

Also, in July of 2012, Madina Cement installed a brand new 700 series E-Crane to handle cement for a grinding mill with a total capacity of 4,200 tonnes/day and a conveyor capacity of 500tph (tonnes per hour).

This is not the end of the success stories in the cement industry for E-Crane Worldwide: the company expects a significant increase of its share in the Asian market in the years to come.

China eyes cement equipment market

After making a mark as a supplier of a wide range of plant and machinery to Indian aluminium, steel and power sectors, China's target is now the cement industry in the country, which traditionally is dependent on suppliers from the West for technology and plant building. Critical spares will also come from the West. Chinese arrival in cement machinery sector in India is heralded by Hong Kong-based Sinoma International Engineering, a subsidiary of Chinese government owned National Materials Group. Sinoma, which so far had a marginal presence in India by way of some 'co-operation' arrangements with French cement group Lafarge steadily adding muscles to its Indian business, recently acquired a majority holding of 68% in LNV Technology, a Tamil Nadu-based cement equipment manufacturer.

LNV now becomes a joint venture between Sinoma in the driver's seat and the original two promoters owning 16% each. Sinoma is the near monopoly supplier of cement machinery in China. It has over 40% share of the global cement machinery market, excluding China. Naturally, its arrival here in cement machinery manufacturing through a JV is widely welcomed for the competition it is going to create among machinery suppliers.

Sinoma is in the process of making LNV Technology a lot more than just a manufacturing platform. The JV will be enriched by regular flow of Sinoma R&D results, design, installation of machinery and equipment and after-sales service. The objective is to motivate clients to place repeat orders. No doubt, the acceptability of the Chinese group in the eyes of Indian cement manufacturers will rise by several notches with it taking management, production and customer service control of the JV. What now needs to be seen if LNV Technology will emerge as the leading supplier of cement machinery in India in the next five years, as is claimed by Sinoma.

Sinoma proposes to fill a blank in the cement machinery industry, that is, engineering, procurement and construction (EPC) capabilities using the JV. Industry officials believe the offer of EPC contracts along with Sinoma's engineering skills will help the JV to bid for and win major orders in India. In future the likes of FL Smidth of Denmark and Germany-based KHD and Polysius will find a major competitor for India business in Sinoma. The consensus among machinery suppliers is that in three to four years, the Indian cement industry will overcome excess capacity situation and start growing in size creating new opportunities for machinery suppliers. Will European manufacturers following the example of Sinoma be opening shop in India to protect their share of cement machinery market?

Kunal Bose

BEUMER upgrade considerably increases belt bucket elevator's service life

Lafarge Group's cement plant. The systems have been completely modernized, as it is important to Lafarge to have an energy-efficient and environmentally sound production process. (All photos: BEUMER Group GmbH & Co. KG.)

Spectacular residential and office buildings, tunnels and other infrastructure facilities – nothing can be built without cement. To produce cement for various applications in an economic way, Lafarge modernized the production facilities at its plant in the town of Wössingen, in the Baden region of Germany. The modernization included the existing belt bucket elevator to the raw mill. The intralogistics specialist BEUMER offered its innovative heavy-duty bucket elevators, permitting higher conveying capacity and longer service life. Thanks to this new technology, the existing bucket elevator could be easily altered.

The preheater tower of Lafarge Group's cement plant looms just a few hundred metres before the sign Wössingen, near Karlsruhe. In the 1970s, the plant was been taken over by the international producer of cement. "We have almost 78,000 employees in 78 countries," says Stephan Schenk, head of Servicing & Development at Lafarge Zement Wössingen GmbH. Worldwide, Lafarge is market leader in many countries, such as France, England, Poland, Greece and Austria. In Germany, Lafarge is among the six leading producers. "Thanks to the state-of-the-art technology and a high sense of responsibility, we produce approximately 800,000 tonnes cement per day for various applications and requirements at our Wössingen site," explains Schenk. Lafarge places particular value on production methods that are both energy-efficient and environmentally sound. For this reason, the systems have been modernized for more than €60 million in 2008 and 2009. Now, the cement plant has a five-stage heat exchanger and a new clinker cooler.

"We changed from the Lepol process to the energy-saving dry process with heat exchanger and precalciner with no interruption to the operation. To make the production more cost-effective and environmentally sound, we changed from the two-kiln operation to a single rotary kiln," explains Schenk. "The kiln line has now a considerably higher capacity. The system is fed with approximate 150 tonnes of raw material per hour. Accordingly, the complete production has changed," the engineers says. Due to the increase in performance and modernization of the kiln line, the flow rate of the bucket elevator for the raw mill had to be increased considerably. The bucket elevator transports limestone to the mill bunker.

High wear of the belt

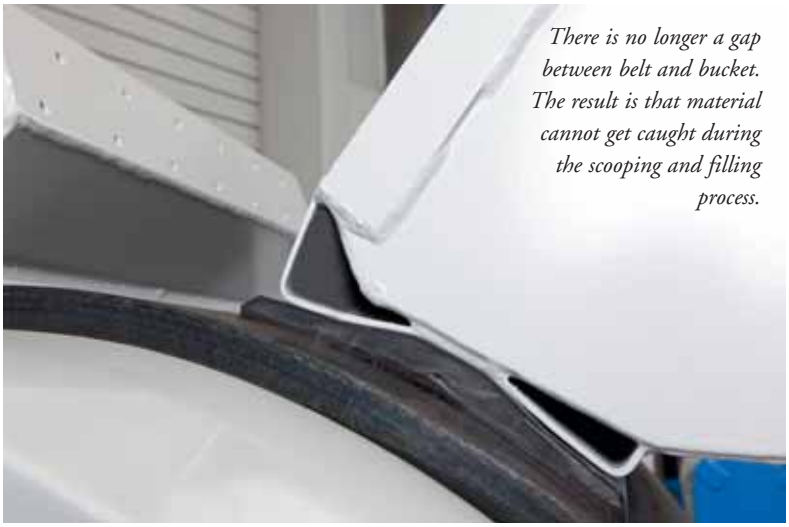
"Due to the higher flow rates we had to face more problems with the coarse-grained material," remembers Schenk. Larger particles became repeatedly jammed between belt and bucket, causing substantial wear. Conventional belt bucket elevators are limited by the maximum grain size of the material to be conveyed as the conventional bucket mounting results in a gap of about 25mm between bucket and belt. Larger particles may get stuck in this gap. This quickly results in belt damage when the belt runs around the return pulleys. "The belt became porous already after two years," explains Schenk. A new solution needs to be found both to avoid belt cracks and to meet the growing requirements. Nevertheless, long-term thinking was called for. "Because a new belt is very expensive," adds Schenk.

New heavy-duty technology gets the job done

At first, the engineers from the Wössingen plant wanted to replace the existing belt bucket elevator with a central chain

The belt bucket elevator has been upgraded with the BEUMER heavy-duty technology. The new bucket shape ensures smoother running and thus less generation of noise.

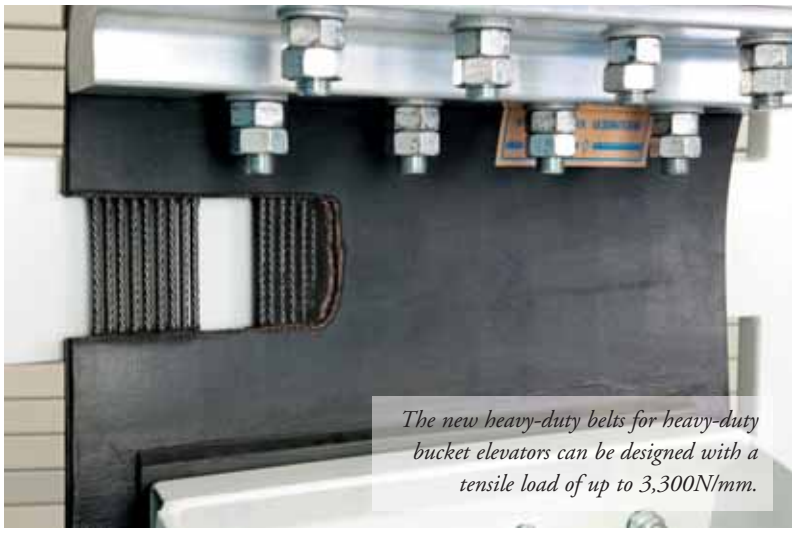
bucket elevator. "We would have solved the problem with the transport of coarse-grained material," says Schenk, "but a new central chain bucket elevator would have become quite expensive." In search of a suitable solution, the cement producer contacted some manufacturers of vertical conveyors — among others, the BEUMER Group, headquartered in Beckum, Germany. The co-operation between BEUMER Group and the cement plant in Wössingen has a long tradition. For decades, the market leader has established itself successfully in this sector and could impress the customer with its solution. "When specifying our conditions, BEUMER recommended the newly developed technology," remembers Schenk. "Central chain bucket elevators which transport limestone are subject to high wear as the raw material contains abrasive particles which act as sandpaper," says Schenk. Though identical with that of belt bucket elevators if used for materials that have little abrasive action, the service life of chain bucket elevators is much shorter in the case of strongly abrasive materials. After thorough consultation with the BEUMER specialists only the belt and the buckets were renewed applying the new heavy-duty technology. This technology is used to feed material with particle sizes up to 120mm and up to 6% moisture into the raw mill. "The capacity is now 800tph [tonnes per hour]," enthuses Schenk.



There is no longer a gap between belt and bucket. The result is that material cannot get caught during the scooping and filling process.

This is possible thanks to the new bucket geometry. There is no longer a gap between belt and bucket. Coarse-grained material does not jam during scooping and filling process. The buckets are mounted firmly to the back of the belt by segments and bolts. Belts with wire-free zones are used for the new heavy-duty bucket elevators just as with all BEUMER belt bucket elevators. The buckets can be fastened to the belt without damaging the steel wires or even cutting them. The traction forces of the bucket elevator belt are maintained to a full extent. The new bucket shape also ensures smoother running and thus less noise. Depending on the material to be conveyed, BEUMER offers buckets which are adapted to the material or mounts a dynamic bottom into the bucket elevator boot. This prevents wet and sticky material in the bucket elevator boot. And if explosive material is to be conveyed, all components are available in ATEX version.

To convince the employees of Lafarge by the new technology, BEUMER invited Schenk and two of his colleagues to Beckum. "The new technology was demonstrated with a miniature bucket elevator. This hits the nail on the head," he says with a smile. Demands that neither conventional belt bucket elevators nor central chain bucket elevators can meet. "BEUMER adapted the buckets to our specific requirements by using test material."



The new heavy-duty belts for heavy-duty bucket elevators can be designed with a tensile load of up to 3,300N/mm.

A belt that resists high loads

While developing the heavy-duty bucket elevator, the tensile strength of belts with wire-free zones was strengthened. The current belt has a tensile load of 2,500N/mm, the new belt with wire-free zones has a tensile load of 3,300N/mm. The conveyor belts are more resistant against mechanical wear, and they are able to transport coarse-grained material and have high tensile load, all this makes the new heavy-duty bucket elevator the favourite conveying system for strongly abrasive material with high capacity and large centre distance. "This belt has twice the service life of a chain. Bucket elevators fitted with this belt are a clear improvement over central chain bucket elevators when used for strongly abrasive material, such as clinker, ore or blast-furnace slag," Schenk learned in Beckum.

The timeline was tight, just two months to plan and realize the modification. "We've got the ball rolling in October. The date of delivery was at the beginning of January and the bucket elevator was operated at the end of February," Schenk says. Employees of Lafarge carried out the assembly under the watchful eye of the BEUMER specialists. It was less for an undertaking for the cement plant. "BEUMER handled all the planning, we only had to mount the buckets and the belt."

"This solution saved us a lot of money", says Schenk. "The complete modification cost about €80,000. In comparison, a new conventional belt would have cost €60,000. If we assume that the BEUMER solution lasts twice as long, the modification would amortize after a short period of time," stresses Schenk. "Even after six months of operation there are no signs of wear. This was quite different with the old belt."

BEUMER Group

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

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Breathe deeply

VIGAN continuous ship unloaders: expertise in pneumatic (front machine) and mechanical (rear machine) unloading.

bulk handling using pneumatic – and mechanical – equipment

VIGAN compares the relative merits of pneumatic and mechanical CSUs

Major supplier of both pneumatic and mechanical continuous ship unloaders (CSUs) VIGAN has considered the advantages offered by each system, and has shared its conclusions with *Dry Cargo International*.

There are many different criteria to consider; some of these are key to making the right decision when acquiring unloading equipment.

Therefore, port operators or project managers must take the following factors into consideration.

Average efficiency and hold cleaning

The most challenging operational task for any ship unloader machine is its ability to clean the holds quickly.

As a general rule, the nominal capacity (also called design capacity), given in metric tonnes per hour, is fairly similar to the maximum capacity. This is usually measured somewhere in the centre and at the top of the hold.

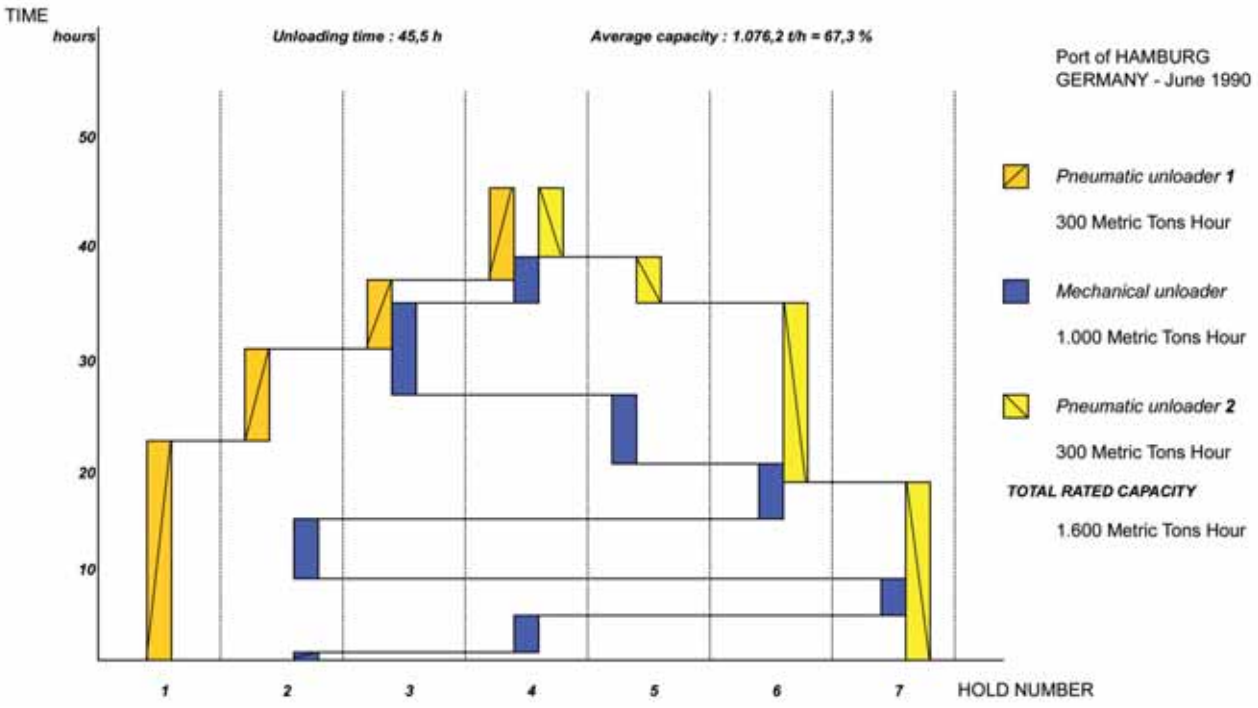
The average capacity includes the whole unloading process, including the final cleaning of the holds. The average efficiency is the ratio in percentage between average and maximum capacities.

Because the mechanical and pneumatic CSU have different technologies for handling the products, the consequences will mainly be the following ones:

- **pneumatic** unloaders will be able to very efficiently 'suck' the product being unloaded, right down to the hold floor surface, as well as its corners. (They are basically 'big industrial vacuum cleaners.) In practice, this means that pneumatic unloaders are often the first choice for the unloading of barges and vessels of any size. A lifting hoist with a capacity of more than 10–12 tonnes can be installed on the suction boom for auxiliary equipment in order to speed up the cleaning process even more.
- **mechanical** unloaders maintain a constant handling rate during 80–85% of the hold volume, leaving only 15–20% of the product in the hold for the cleaning operations. However, it is much more time-consuming to discharge this percentage remaining in the hold. This remaining layer is the height needed for the intake booth to be able to pick up products, and it typically 70–100cm deep. This means that a significant amount of product has to be fed to the intake device (screen, belt or chain type), usually using auxiliary equipment such as bulldozers.

Unloading procedure: one mechanical and two pneumatic unloaders

unloading 48,985 metric tonnes of soya beans



For both categories of equipment, average efficiency is also influenced in a similar way by a range of factors. These include the size of the ship, the skill level of the workers operating the unloaders, restrictions from the ship's captain, weather conditions, and so forth.

In practice, figures obtained from VIGAN customers indicate that average efficiency for pneumatic equipment is around 75% to 80%. For example, a detailed report in 2001 reported an efficiency of up to 80%, using a 12-year-old machine. More recently, in 2012, another customer reported an efficiency of 78.43% over 82 ships, using a ten-year-old machine.

The average efficiency of mechanical unloaders is lower, for the reasons given above. The graph above, showing performance with one mechanical and two pneumatic unloaders, confirms VIGAN's own experience. VIGAN manufactures a popular mechanical CSU, the SIMPORTER, which uses twin-belt technology.

The graphs shows that, although the two pneumatic unloaders were helping the mechanical unloader with the cleaning, the average efficiency was only 65–70 %.

Energy consumption

As in many other sectors, in recent years, there have been major improvements aimed at reducing power consumption.

For the CSU, the most significant ones are related to the speed variator technology (also called frequency inverters) and all the energy monitoring devices for the fine tuning of the engines and the other mechanical components in general.

Therefore, compared with 12–15 years ago:

- **pneumatic equipment:** the power consumption has fallen from 0.9 to 1.0kWh/t down to 0.6 to 0.8kWh/t;
- **mechanical equipment:** from 0.5–0.7kWh/t down to 0.35 to 0.45kWh/t.

The table below gives some relevant figures relating to the power consumption of VIGAN pneumatic equipment.

Annual cost comparison

Both the average efficiency of the CSU, and its energy consumption, have significant impact on some annual costs.

Using widely accepted assumptions for a European port, the

VIGAN PNEUMATIC CONTINUOUS SHIP UNLOADERS: POWER CONSUMPTION 2008–2012

Country	Unloading rate (tph)	Power consumption (kW)	kWh/ ton	Comments
South Korea	480	368	0.767	Corn — hold cleaning Density: 0.72
Pakistan	610	372	0.610	Rapeseed — top of the hold Density: 0.72
Egypt	470	315	0.670	Wheat — hold cleaning Density: 0.75
Colombia	615	400	0.65	Corn — top of the hold Density: 0.73
		Average	**0.682**	

table (right) shows that pneumatic unloaders are a highly interesting alternative.

The figures also show that energy costs have much less of an influence on bottom-of-the-page results than the average efficiency. These realistic and reliable figures have been confirmed from a range of sources, including experienced professionals working in the field.

Other aspects

The relative importance of the following aspects will mainly depend on the circumstances of each project, and the port conditions:

Total weight of the equipment

Old quays not designed for heavy equipment, or with debilitated structure, will require lower-weight equipment.

For a similar unloading capacity, pneumatic equipment weight will be around 40–60 % less in comparison with a mechanical one. Indeed, in most cases, the pneumatic machine will not require any counterweight for balancing the heavy weight of the vertical and horizontal steel structures as it is the case for the mechanical type unloaders.

When a new pier is being constructed, important savings can also be achieved with lower weight port equipment.

Ship size workable capability

The technical director of a major flour mill was asked: "After such a deep technical evaluation of both alternatives [mechanical or pneumatic], why did you choose pneumatic equipment?" He replied: "A most important reason, because it allows me to unload a wide variety of ship sizes, thanks to its vertical and horizontal telescopic pipes. This is definitively not the case with mechanical equipment, due to the rigidity of the intake arm and horizontal conveyor."

Damage to the products: delicate cargoes

VIGAN pneumatic CSUs are able to discharge malt, rice cargo and cocoa beans: reports from very prestigious companies like Cargill, Heineken and ADM confirm that the high conveying speed in VIGAN pneumatic machines is definitively not causing any damage.

The twin belt technology (SIMPORTER machines), in comparison with chain or screw type CSUs, offers the advantage that products do not suffer any friction during handling by the belts, as the particles are static and caught between those belts.

Safety

This is a major concern today, and often companies proudly advertise their accident statistics at the entrance to their plants. A pneumatic suction nozzle does not have any running components, therefore the accident risk is non-existent.

Maintenance and repairs

Suction pipes do not require maintenance (no running parts!) and can be easily repaired: there is no need to dismantle a complex mechanical system.

Almost all maintenance can be done in the main engine room, which is easily accessible and therefore there is a higher probability that it will be carried out properly.

Risk of cargo residues (eventually fermented due to high humidity content)

This is avoided in pneumatic machines because the large volume of air is continuously cleaning the pipes and the other components such as the filter bags for instance.

ANNUAL COST COMPARISON

Basic assumptions		
Annual unloading volume		900,000 tonnes
Energy costs		€0.10/kWh
Nominal capacity		600tph
Tie-up cost	per day	€39.500
	per hour	€1,646
Labour cost	per day	€250

	Mechanical	**Pneumatic**
Average efficiency (%)	70	75
Average unloading (tph)	420	450
Power consumption (kWh/t) per tonne	0.40	0.70
Unloading time (hours/year)	2,143	2,000
Unloading time (days/year)	89.29	83.33
Rounded figures	*89*	*83*
Annual energy costs	€36,000	€63,000
Annual tie-up costs	€3,527,143	€3,292,000
Labour costs	€22,250	€20,750
TOTAL	**€3,585,393**	**€3,375,750**
		minus 6 %

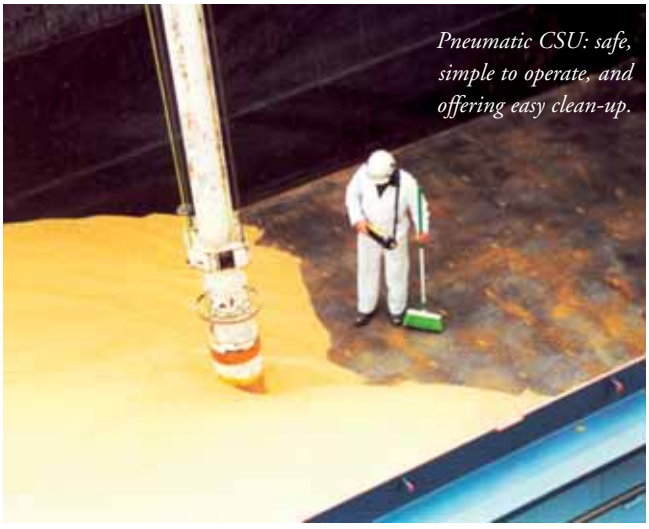
Conclusion

The most important factor is the lower CAPEX (capital expenditure: mainly the investment and financial costs) of pneumatic equipment, for the same handling capacity in comparison with mechanical unloaders. In the case of mechanical CSUs, energy cost savings are frequently ruled out by higher CAPEX figures.

Reliability in handling (confirmed by field reports from well-established and renowned customers), combined with up-to-date technologies using latest-generation components, result in low OPEX (operational expenditure).

Both CAPEX and OPEX figures are almost always in favour of pneumatic CSUs.

Nevertheless, the mechanical CSU can, under particular circumstances (mainly for high annual volume unloading operations), also be an interesting alternative. For large size projects or existing unloading facilities, the combination of both systems can offer the benefits of both technologies.



Pneumatic CSU: safe, simple to operate, and offering easy clean-up.

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Bühler: the choice between pneumatic and mechanical depends on user needs

Bühler manufactures both pneumatic and mechanical equipment, so that it can offer the best solution to its customers according to their specific requirements.

Pneumatic unloaders, such as Bühler's Portanova, are particularly useful in situations where the annual unloading volume is low, and overall efficiency is not of the highest importance. For customers with a high annual throughput, who expect high overall efficiency from their unloaders, mechanical unloaders — which are capable of higher capacities — can be a more appropriate solution.

Bühler's equipment is used to efficiently handle free-flowing bulk materials such as grains, cereals, oils seeds, but also more complex and delicate products such as feed pellets. Moreover, Bühler unloaders also handle non-free-flowing products such as soya meal.

The company's major clients include large grain terminals, which specialize in the loading or unloading of bulk material. Other major customers are large end users such as commercial mills, feed mills, etc.

Bühler Portanova operating in Saudi Arabia.

Portanova in the Philippines.

Bühler's experience is that there has not been any significant change in global competition recently, though the trend for purchasing unloaders from Chinese manufacturers does seem to have slowed. Although the initial investment costs for these unloaders is lower than that of loaders from companies like Bühler, unloading performance tends also to be lower. Therefore, higher costs-per-tonne, higher-than-anticipated maintenance costs and a generally lower quality of the installation all add up to a higher total cost of ownership.

Bühler is highly specialized in the unloader market, and has a full product portfolio. The company has long experience in both pneumatic and mechanical technologies. It offers calculation tools to clients, to assist in making the right decision when acquiring equipment for an individual application. Further advantages offered by the company include the fact that the various components and machines used in an installation are all designed by Bühler, and built in such a way that they are a perfect match. Moreover, project managers are able to have an optimum overview of the process, with direct customer contact.

Recent contracts

Bühler has been awarded a contract to install a Portanova in Bangladesh with a nominal capacity of 250tph (tonnes per hour) for the unloading of barges with a maximum capacity of 5,000dwt. In addition to the Portanova, Bühler will install a total silo with a volume of almost 100,000 tonnes and the mechanical equipment required.

General company background;

Bühler is a global technology expert which specializes in the supply of equipment, systems and services for the conversion of renewable resources derived from food and synthetic substances into top quality functional products and materials. Bühler operates in over 140 countries and has over 10,000 employees worldwide. In fiscal year 2012, the group generated sales revenue of CHF 2,409 million.

Bühler Grain Logistics delivers products and complete solutions for the entire value-added chain, from agricultural product collection points right through to food processing plants.

Portanova in the Philippines.

Why opt for a pneumatic system? Neuero has the answers

Neuero has supplied two 600tph ship unloaders to Russia's biggest oil extraction plant.

Neuero Industrietechnik asks why it is that a system that is safe, generates the lowest noise and dust emissions, completes the job including clean-up, is highly efficient and requires lower investment is not always the first choice.

The answer is simple, says Neuero. Many manufacturers do not invest in research and development, or have simply gone in the wrong direction, resulting in the loss of technical expertise. When big companies in the flour milling market do this, they argue that a pneumatic system is not the best choice. This can result in uncertainty from clients, even those that have used pneumatic systems for years.

Also, some manufactures make recommendations that are based on their product offering, rather than on the best interests of the clients.

Therefore, users' decisions are made all the harder, and this can result in restrictions in the use of a system, based on erroneous assumptions. Neuero says that this situation can be rectified, by illustrating some real-life examples that illustrate technical innovations.

Neuero has invested in not only a new testing and research laboratory, but more importantly in technology. The result is a new turbo blower with direct drive. The result can be seen in a reduction in energy requirements while maintaining a high capacity.

The energy requirement has been is the only weak point in the pneumatic unloader compared with a mechanic unloader. The power requirement gap has been reduced with the new Neuero blower direct drive compared with older pneumatic technologies. This also gives the opportunity for Neuero to be active in refurbishing less efficient existing installations.

In addition to the energy reduction, reliability has also increased. The direct drive is now equipped with temperature and vibration sensors to monitor bearing conditions and provides a warning to prevent a bearing failure or notify maintenance to change it. The use of fewer parts also reduces the need for maintenance.

Projects

In addition to new installations in Russia, Egypt, Romania, Saudi Arabia incorporating the new Neuero blower direct drives,

Original blower.

Replacement blower.

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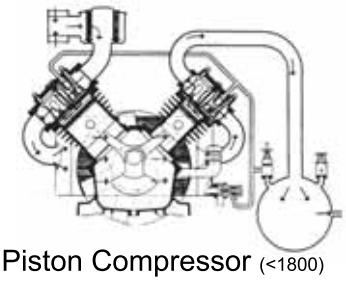


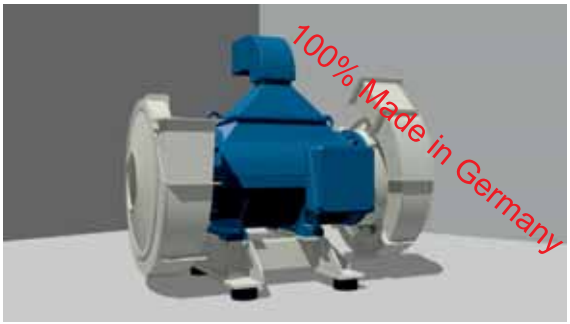
Piston Compressor (<1800)

Roots Blower (1900)

Fan with Air Flow Regulator (1960)

Fan with frequency inverter and automatic belt tension (2000)

TURBO POWER single stage (2009)



TURBO POWER double stage (2011)

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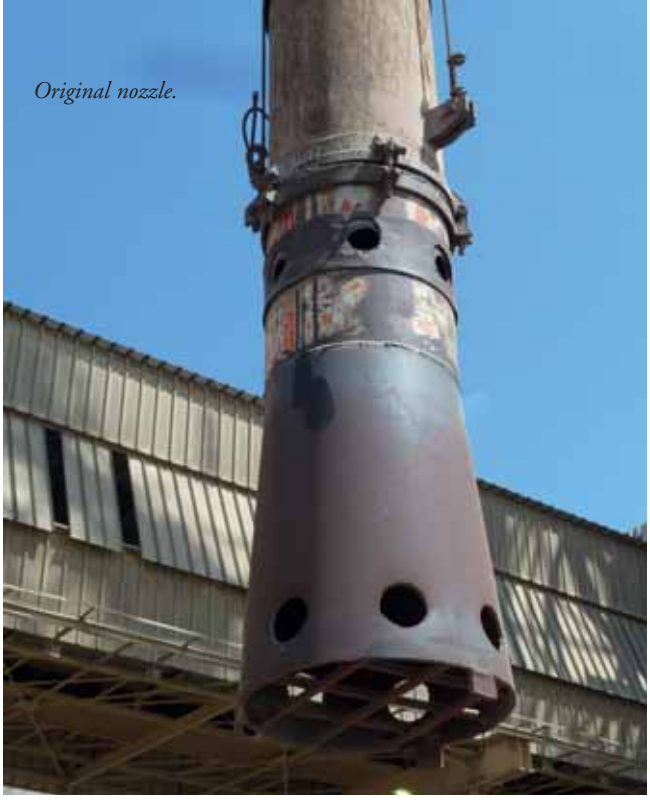
Original nozzle.


Replacement nozzle.

Neuero is also giving a second life to older installations. The first is now in Damietta, Egypt where a 30-year-old shipunloader (not made by Neuero) reached its original capacity with the new blowers and conveying adjustments, while cutting power consumption in half.

Russia: two ship unloaders of 600tph (tonnes per hour) each for the biggest oil extraction plant in Russia. This is part of a third expansion at the site. Neuero has delivered two shiploaders for this project as well.

Damietta: this is interesting because here you can see the evolution in pneumatic shipunloading based on real comparison. The upgrade of the blower (see pictures on p66) is like carrying out a heart transplant, because many unknown factors need to be considered. Neuero has done several similar jobs with various manufacturers' unloaders around the world, like in Iran, Philippines, Saudi Arabia and Oman.

The task

The modernization of a competitor's shipunloader built in 1985. There are two identical units installed in Damietta. Each dual line unloader was sold to have a nominal original capacity of 2 × 350tph. However, it has not been confirmed whether they ever reached this capacity in the past. The new goal was to get 300tph per line.

The main problem in any modernization project is to know in advance all the necessary parts that need to be replaced. This is normally not possible because of hidden problems that can only be detected after the replacement of key components. The bottleneck passes to the second phase.

In the Damietta project, in order to maintain the lowest investment cost, we installed only a new Neuero blower with direct drive on one line and tested using the original conveying piping. The second phase was to replace the old boom and piping and nozzle (see pictures above) as well as installing a new belt airlock. The results are shown in the table, right.

The results show what is possible with relatively low investment in existing installations to get back to original capacity with lower energy requirements. Here, Neuero developed the conveying pipes in Hardox 450 for a longer life and also supplied Neuero winches for the necessary movements.

The capacity of 350tph was reached for short periods of time.


Existing airlock.

Original blower.

For example, a new ship unloader designed today to reach the capacity of 350tph, a 330kW motor is installed and less than 300kW consumed. This gives a power consumption of 0.80kW/ton.

Why in the past was more energy needed?

There are many possible answers to this question. First, the use of rotary piston blowers requires more energy. Second, most manufacturers do not design the unloader around the customer's requirements. They use their existing designs and parts and try to adapt instead of engineering a product for the application. The result is to supply what they want and not generally what is the best for the customer or the application considering energy optimization and maximum unloading capacity.

DAMIETTA PROJECT RESULTS

Pos.	Description	OLD*	New 1**	New 2***
01	Power kW	630	315	315
02	Capacity tph	2 x 125 = 250	200	300
03	kW/tonne	2.9	1.6	1.05

**OLD existing first unloader with two boom without improvements*

*** Modified second unloader first boom with only new turbo blower*

**** Modified second unloader second boom with new turbo blower and new suction nozzle*

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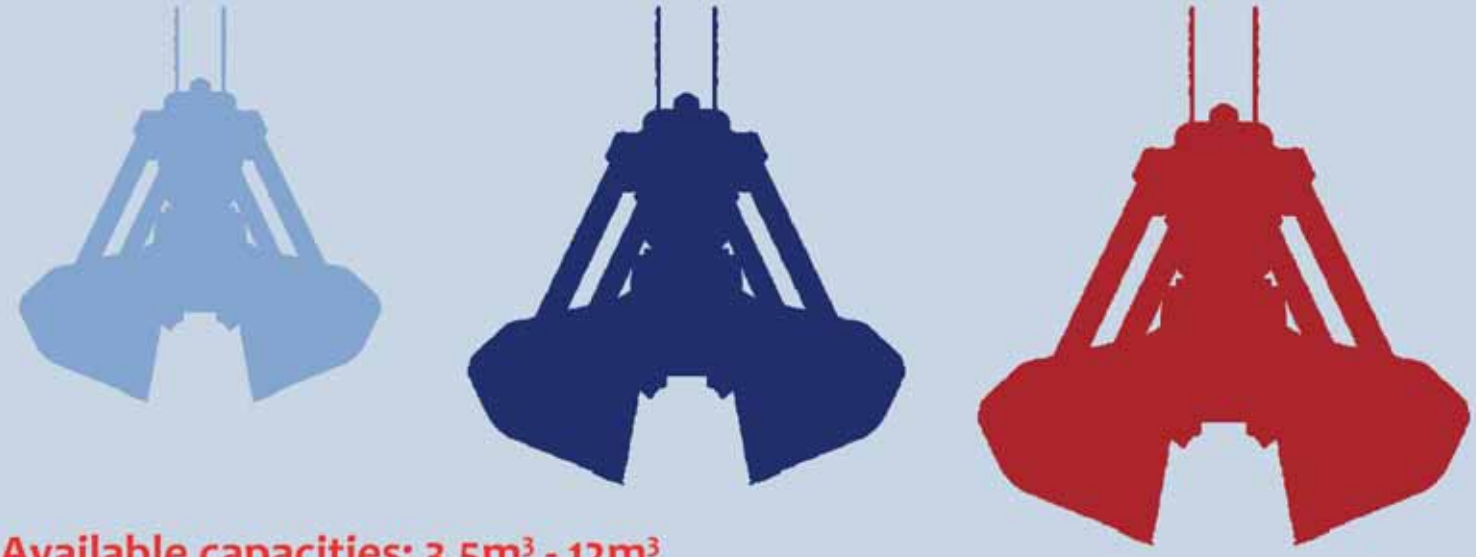

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Biomass

industry must learn to adapt to challenges inherent in biomass handling and storage

Reclaiming stockpiled woodchips. (photo: courtesy of GREEN CIRCLE)

Biomass transportation

Developments in the use of biomass as a replacement for power generation coal in Europe has quickened pace as evidenced by growing exports from the USA, Canada, and West Africa, *writes Walter Mitchell.*

The essence of biomass is organic plant-based material that contains stored energy. A product of biomass that has grown in favour is wood pellets, which is compressed wood product. When it is extruded, the lignin that is resident in the wood helps bind the wood particles together. The bound wood is dried and compressed, which serves two critical purposes: 1) it increases energy content as a function of volume, and 2) allows the product to handle similarly to a dry bulk material that is suitable for marine vessel handling. The finished product has relatively little carbon, which makes it desirable for carbon abatement in generation firing, and in NOx and SOx stack

The demand mandate

European demand for biomass has been triggered by the EU's announced 'Europe 2020' programme in which climate change and energy initiatives are specified under the title '20/20/20'. This aspect of the programme sets the following targets:

- reduce greenhouse gas emissions by at least 20% compared to 1990 levels (or by 30% if the conditions are right);
- increase the share of renewable energy sources in final energy consumption to 20%; and
- increase energy efficiency by 20%..

To meet the first two targets, converting fuels from those with high carbon footprint to those with low carbon footprint becomes necessary. Europe has done considerable work in the solar and wind sectors, and recently has embraced utilizing biomass as an additional measure as part of these strategies.

A number of EU power generation companies have committed to using biomass as either primary fuel or as supplementary fuel to co-burn with coal, and it is in this sector where there has been significant growth in marine deliveries. As example, in the UK, many of the ageing coal plants have been scheduled to be withdrawn from service because of the mandated emissions requirements under the Large Combustion Plant Directive (LCPD) and the Industrial Emissions Directive (IED). Firing with biomass provides the opportunity to keep the plants operating beyond withdrawal dates, avoids massive capital investment to replace, and reduces stack emissions.

Wood pellets as marine cargo

As a cargo, wood pellets are somewhat similar to grain. Wood pellets stow at 53–57 cubic feet per tonne with a similar angle of repose as grain. As a result, high cubic capacity vessels are not necessary, although some have been chartered for the business. In one case, a modern NYK-operated wood chip carrier has been fixed. In other cases, log carriers and vessels with the box-hold configuration such as found in the Saga Forest Carriers fleet have been fixed. Other vessels transporting trans-Atlantic wood pellets cargoes are in Lauritzen, Norden, Oldendorff, Spliethoff, and FedNav fleets. In the case of Norden, wood pellets now comprise its second largest dry bulk cargo volume

Grabbing hold of the biomass market

Just a few months ago, German company ORTS GmbH Maschinenfabrik worked together with a customer to custom-design a small radio-controlled diesel-hydraulic grab.

The customer, a specialist in emptying and cleaning biomass silos, needed this grab to empty the silo prior to cleaning.

Because of the advantages offered by ORTS's diesel-hydraulic technology (and following 20 years of experience with diesel grabs), the customer is now able to operate the new grab from an auto/truck crane beside the silo, or from any other crane available at the site.

The grab is small and also fits cranes with low lifting capacity, because some high-capacity cranes are too large and will not fit alongside the silo.

A mechanical single-rope grab (even one that is radio-controlled) will not work under these circumstances, because you cannot use the crane rope to activate the closing mechanism before lifting the grab.

The biomass handled is mostly sludgy or semi-liquid, and a mechanical grab would sink into this. The new-generation ORTS grab is ideal for this task.

transported, next to coal.

Moisture content ranges from 5% to 7%, and fortunately does not migrate in the cargo column during the voyage. However, the cargo is hydroscopic requiring covered storage and suspension of loading and hatch closures should rainfall during cargo operations become significant.

The indicated vessel is a single-deck bulk carrier with economies of scale matched to the vessel size restrictions of the port pairs. The largest vessel we've seen in the trade is a Supramax. At loading, crews trim the vessel as completely as possible to mitigate oxygen in the cargo hold, using small but effective trimming machinery to complete each hold. Holds are topped off to the underside of the hatch cover in effort to eliminate oxygen in the hold. Most vessels are CO_2-fitted, and this is becoming a requirement for vessel fixture.

While most vessels in the fleet and in this size range are geared for self discharge, the discharge piers in most European ports have on-quay cranes and grabs. Even as the pellets are relatively sturdy, care is taken to avoid pellet degradation and creation of fines caused by grab discharge.

Demand volumes

RISI forecasts that in order to meet the Europe 2020 targets, the EU will require imports of near 20mt (million tonnes) by the year 2020, however other forecasts indicate a much higher requirement. The main import countries in Europe of industrial-grade wood pellets at present are the UK, the Netherlands, Belgium, and Denmark. Minor importers include Sweden, Italy, and Latvia. Some specific end-user situations are described below.

DRAX Power Station, by far the largest coal-fired generation in the UK, has committed to burning biomass in three of its six generating units, involving investment of close to US$1 billion. In July 2012, DRAX confirmed its plans to transform itself into a predominantly biomass-fuelled power generator. The first unit will have completed conversion in the second quarter of 2013, and the second in 2014. The indicated annual biomass fuel requirement is 7.5mt by the year 2017.

Imports will be handled at three ports: Port of Tyne – 2mt existing capacity; Hull – 1mt under construction; and Immingham – 3mt contracted. In the case of existing capacity, the Port of Tyne has invested over £20 million to handle, store, and transport wood pellets imports.

DRAX receives considerable supply of wood pellets from US Gulf and East Coast ports. DRAX is also an investor in two wood pellet plants in the USA that are planned to come on stream in 2014, with combined capacity of 900,000 tonnes production.

RWE. In 2011, the Tilbury B power station on the River Thames was converted from using coal as primary fuel to 100%

biomass, using wood pellets for the remainder of its lifetime under the LCPD. RWE is reviewing life extension of the station which would allow it to operate as a dedicated biomass power station for an additional 10–12 years beyond its LCPD date of 2013. To meet what are called 'New Plant Standards', the power station must be significantly modified, and upon completion would be renamed Tilbury Biomass Power Station.

The new station would consume approximately 2.7mt per annum of wood pellets that would be sourced primarily from the USA South, Canada, and within the EU. Currently, Tilbury is consuming approximately 1.3mt wood pellets. The plant utilizes a just-in-time pellets delivery system whereby the delivering vessel represents the fuel stockpile. There is no virtually no biomass stored onsite; instead, the wood pellets arrive on a vessel and are unloaded and burned during the course of a week. Once the vessel completes discharge and departs, another vessel berths alongside within hours and the plant fuelling process starts again.

In 2005, the **Electrabel** subsidiary of **GDF SUEZ** achieved a world first by transforming the Awirs power plant in Flémalle, Belgium from burning all coal as fuel to burning all wood pellets. Wood pellets consumption is noted at 1,200 tonnes per day, equating to approximately 425,000 tonnes per annum. Because of its inland location, Awirs receives product by barge on the Meuse, and by truck.

Another Electrabel plant, Rodenhuize, is also burning 100% wood pellets at a reported rate of 700,000 - 800,000 tonnes per annum. Approximately 45% is imported from the USA South, and approximately 30% from Canada. Agreements have been concluded with Pacific BioEnergy of Vancouver, BC, and with Enviva LP, of Bethesda, USA. Pacific BioEnergy will export 225,000 tonnes per annum over ten years from production in Prince George, BC. Enviva reports an annual supply agreement with Electrabel of 480,000 tonnes over a long-term agreement. Shipments are received at the Port of Ghent.

Verdo A/S has contracted to import 750,000 tonnes over 5 years of Ghanaian wood chips (as opposed to pellets) for the company's biomass activities. These activities are planned to include trading and internal consumption at Verdo's owned CHP plant in Randers, Denmark. The biomass comes from rubber trees, which no longer produce rubber. Cargoes are loaded at the small but diverse Ghanaian port of Takoradi, and shipment lots to date have been small, in the 10,000–15,000-tonne size.

With the Ghanaian agreement, Verdo secures long-term delivery of high quality biomass with Norden, a compatriot shipowner and operator. Imports are discharged at the Port of Aarhus.

Verdo points out that supply from Ghana instead of nearby Baltic ports avoids the delays and other logistical problems posed by wintertime ice in ports and waterways.

Half of the imported biomass is consumed at the CHP plant at Randers. The other half is resold to other energy companies.

DONG Energy. Since 2004, DONG Energy has used wood pellets as fuel at its CHP plant 'Avedøreværket' south of Copenhagen. Wood pellets replace coal, gas and oil in one of the plant's two boilers. In 2011, Dong burned over 1mt of biomass sourced primarily from the Baltics, Poland, and Russia, and has commenced importing from the USA South.

By 2020, Dong Energy intends that biomass will constitute at least 50% of its Danish heat and power production. In 2012, biomass constituted 21%.

E.On has placed a second wood pellets-fired unit on line at its Ironbridge UK plant. Ironbridge retains the capability to co-fire up to 20% coal. Total wood pellets consumption is expected to be 1.75 million tonnes per annum. Importation would be via an east coast UK port, such as Tyne or Immingham. E.On has entered into a multi-year supply agreement with Enviva LP for marine deliveries from the USA, and *DCi* has learned that there are a number of agreements in place to supply Ironbridge. As is the case with many of the European consumers, there is also significant supply tonnes from on-Continent sources as well as those within the UK.

Vattenfall of Sweden aims to reduce the use of 'hard coal' by 40% in the company's power stations in Denmark, Germany, Poland and the Netherlands before 2020. It had at one time a three year transportation arrangement for the delivery of 600,000 tonnes of wood chips (not pellets) from Liberia in approximate 25,000 tonne lots, although it has sold its interest in that production to its joint venture partner and is believed to be focusing on biomass projects within Europe.

The supply mandate

To meet this demand, USA wood pellet producers have ramped up production considerably from the 2007 level of 650,000 tonnes. According to RISI, USA exported very close to 2mt in 2012, a 52% increase from 2011, and including exports from Canada, the 2012 volume from North America to Europe is more than 4mt. RISI further forecasts that by 2017, export tonnage will reach 10mt with the USA responsible for 5.6mt and Canada the remaining 4.4.mt.

GREEN CIRCLE BIO ENERGY produces 600,000 tonnes annually at Cottondale, Florida and exports from the Port of

GREEN CIRCLE BIO ENERGY produces 600,000 tonnes of biomass annually at Cottondale, Florida. (photo: courtesy of GREEN CIRCLE)

Panama City on the USA Gulf Coast. It is one of the largest export wood pellets producers in the USA South, and one of the earliest having commenced production in 2008.

Deliveries on the 50-mile route are transported by dedicated rail cars on a short line rail service. Pellets are unloaded and stored in a 32,000 tonne-capacity flat bottom warehouse. Company exports about 30 vessels a year and have already dispatched 90 vessels since starting operations. Presently, all of its production is exported to Europe under shipping contracts tied to specific off-take contracts.

Green Circle executives believe that export volumes ex-USA will increase more than RISI estimates simply because the Europe 2020 mandate is far from having played out. The company is seeing other European countries such as Poland, Italy, and Spain emerge into the buyer realm, and once certain in-country issues are resolved in those countries, each could become large volume buyers of wood pellets sourced from the USA South.

Green Circle senior executives come from the international shipping industry, and have been able to leverage that experience and expertise into a highly efficient marine delivery programme for its customer base.

GEORGIA BIOMASS is owned by the German energy company RWE Innogy, whose business area is sustainable energy. With head office in Savannah, USA, Georgia Biomass has built up its production plant into one of the world's largest manufacturers of wood pellets. Annual production capacity at its Waycross, Georgia facility is 750,000 tonnes, all of which is presently exported by marine vessels.

Product is railed to the East Coast Terminal in the Port of Savannah for marine transportation into RWE's distribution network, and specifically to supply RWE's Tilbury station (see above mention of Tilbury). Georgia Biomass ships under contract about 30 annual voyages from Savannah.

ENVIVA LP confirms production capacity of approximately 1.2mt per annum, with an additional 500,000 tonnes announced to come on line later this year. Production is at Ahoskie, NC and at two plants in Mississippi, and all current production volume is exported to Europe. Ahoskie production is delivered to Enviva's owned terminal at Paradise Point in the Port of Chesapeake, adjacent to Hampton Roads, VA. The facility was acquired in 2011, and has annual throughput capacity of 3mt.

Enviva's selection of Chesapeake is brilliant; it is geographically closer to Europe than other wood pellet export terminals, and leverages that location into decreased transport time and cost of freight. The terminal has 39 feet of available draught alongside and is long enough to accommodate Panamax vessels.

Two 48m-tall, 53m-wide storage silos receive, store and then load up to 90,000 metric tonnes of wood pellets to waiting vessels. The domes have systems for continuously monitoring and controlling temperature and fire prevention and detection. They can also withstand hurricanes and winds of up to 300+ MPH and an 8+ Richter scale earthquake.

At the Port of Mobile, USA, Enviva leases space in a strategic partnership with Cooper Marine. Enviva's pellet manufacturing facilities in nearby Amory and Wiggins, MS, are situated along major inland waterways and highways that make transportation to the port easy and efficient. Pellets from the Amory facility are transported along the Tombigbee River and stored in barges until they can be loaded onto an ocean-going vessel. Pellets manufactured at Wiggins are transported to the port by truck. Enviva dispatches shipments of wood pellets every four to six weeks from the Port of Mobile.

FRAM RENEWABLES was established in October 2005 through the efforts of Per Arneberg, the Norwegian who is connected with the shipowning entities with the same Fram name. Fram Renewables produces 300,000 tonnes of wood pellets at Baxley, Georgia annually. Baxley is conveniently located on rail that can transport product to both Savannah and Brunswick for export loading. A second facility is due to come on line in 2013 at Hazlehurst, with annual production there of 500,000 tonnes. From Hazlehurst, export tonnage will be railed to the East River Terminal in the Port of Brunswick for loading onto Europe-bound vessels.

OTHERS. There are at least half dozen wood pellet projects announced for the USA South that would create additional production capacity of 2mt. At this writing, approximately 1.4mt is known to be for export. Many of these planned facilities are owned or controlled by European entities in the power generation sector. These facilities will be located in Texas, Louisiana, and Mississippi, and ports of loading will include Baton Rouge and Port Arthur.

In future, we should expect to see larger vessels transporting wood pellets, more vessels in-fleet that are CO_2- fitted, more volume production that will appear in the trans-Atlantic, South America, and East Asia trade lanes, and more investment and supply chain management by consumers in the production of wood pellets in the USA South.

ACKNOWLEDGEMENTS

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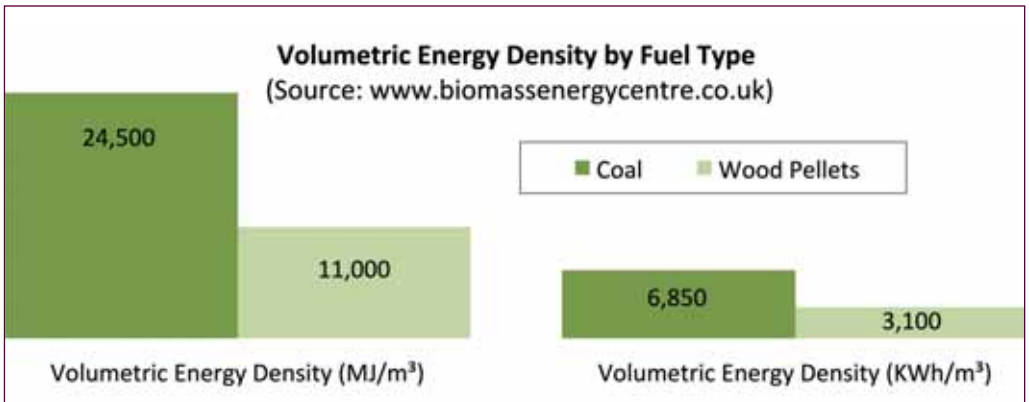
3. DRAX Power Station, Selby UK
4. Enviva LP, Bethesda USA

WBMitchell
Mitchell Consulting Group, Inc.

Cleveland Cascades Ltd – at the forefront of biomass loading solutions

Global manufacturer of loading chutes, Cleveland Cascades Limited, is seeing increased interest in biomass wood pellet applications, on top of another year of sales growth in 2012 that saw the company post record annual sales and be short-listed for two prestigious local business awards.

The Teesside-based (UK) company is well known for its shiploaders, silo loaders and road loaders for dry bulk materials such as potash, fertilizers and coal, with over 500 of these loading chutes already supplied throughout the world.



Its lower bulk density and lower calorific value means that more than twice the volume of wood pellet biomass is required to produce the thermal and electrical energy of coal. This presents significant considerations in the design and manufacture of biomass loading chutes.

"So far this year, we have delivered silo loaders for soda ash to the USA, for sulphur to the UAE and for sulphates in Spain", says Commercial Manager, Chris Wise. "In many ways, this is our core business, as these are the types of applications we have supplied over the past decades. We are, however, also seeing increased biomass enquiries for our Cascade Loading Chute. So far we have already supplied biomass chutes to UK power stations and the port of Tyne, however more recently we won an order for a shiploading facility in Canada. This demonstrates the versatility of the Cascade system, in that it can load huge volumes for sea freight from North American ports, but can also handle more specific loading, such as rail tanker loading when

Handling wood pellets in ports and power stations

The year 2012 saw Cleveland Cascades deliver and commission loading chutes for the loading of wood pellet biomass in port unloading facilities and power station storage applications.

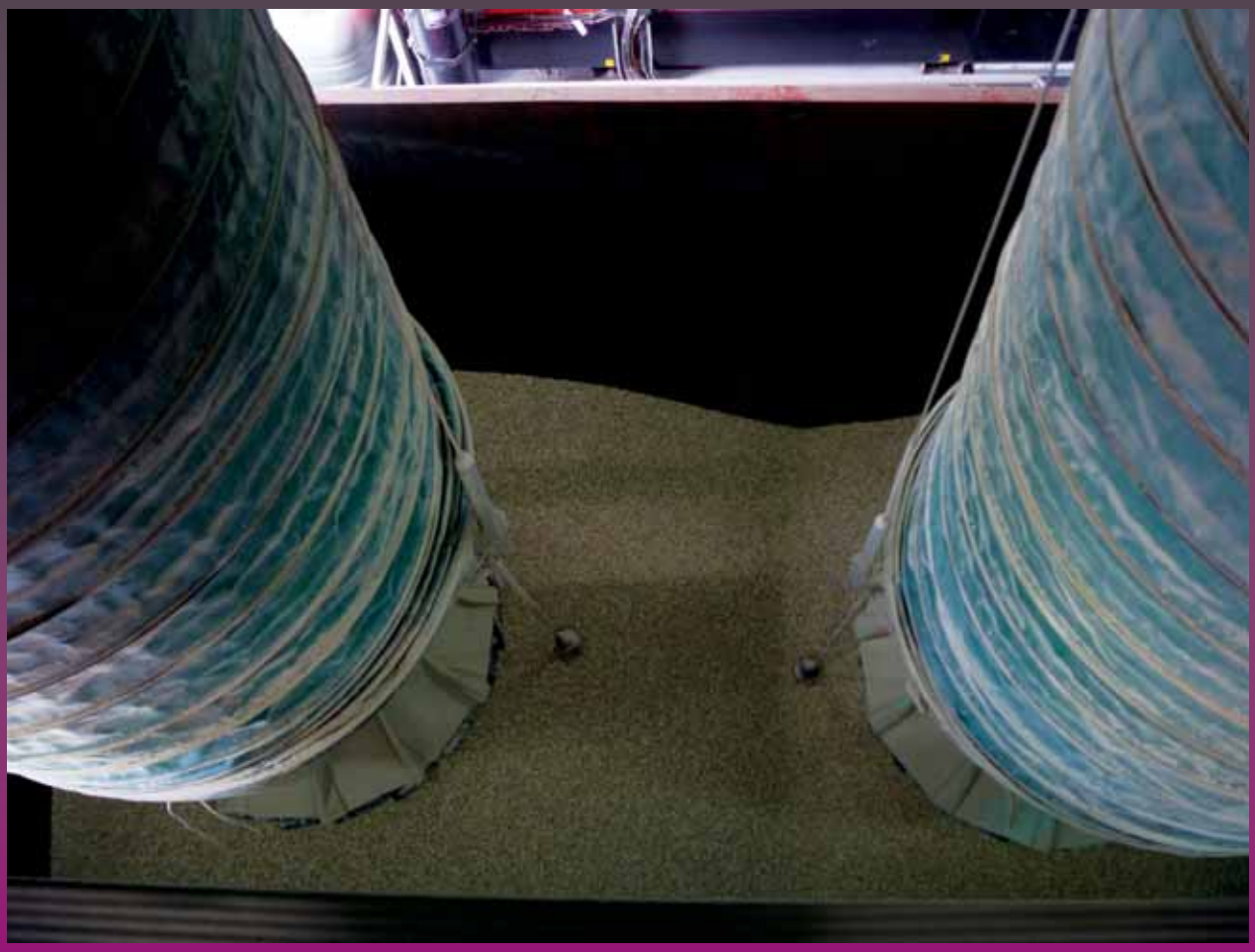
Unlike coal, which can be stored outside, biomass wood pellets need to be stored in a dry environment to prevent biological degradation. Storage of the material also needs to be continually rotated, as prolonged residence times in the silo can lead to further degradation.

The Cleveland Cascades Cascade loading chute allows the safe and efficient loading of wood pellet biomass and is available in a variety of configurations: shiploader; silo loader; road loader; and rail/tanker loader.

Controlled loading of biomass wood pellets

The Cleveland Cascade loading chute allows the controlled and efficient loading of material from conveyor to ship, silo, stockpile or rail/road loader. This photograph shows biomass wood pellet loading of a road tanker at the port of Tyne, United Kingdom.

The material is supported the full length of the chute by means of an arrangement of oppositely inclined cones. This arrangement controls the mass flow of the material; loading at low velocity and high volume which means that products can be transferred with minimized degradation and segregation of product, meaning more efficient loading and minimized dust emissions.



the biomass reaches the UK.

Biomass wood pellets are being increasingly used as a renewable fuel source, predominantly as an alternative to coal. The loading of biomass wood pellets poses particular loading challenges however. Wood pellets are brittle and are prone to material degradation, therefore improper handling can result in increased dust emissions.

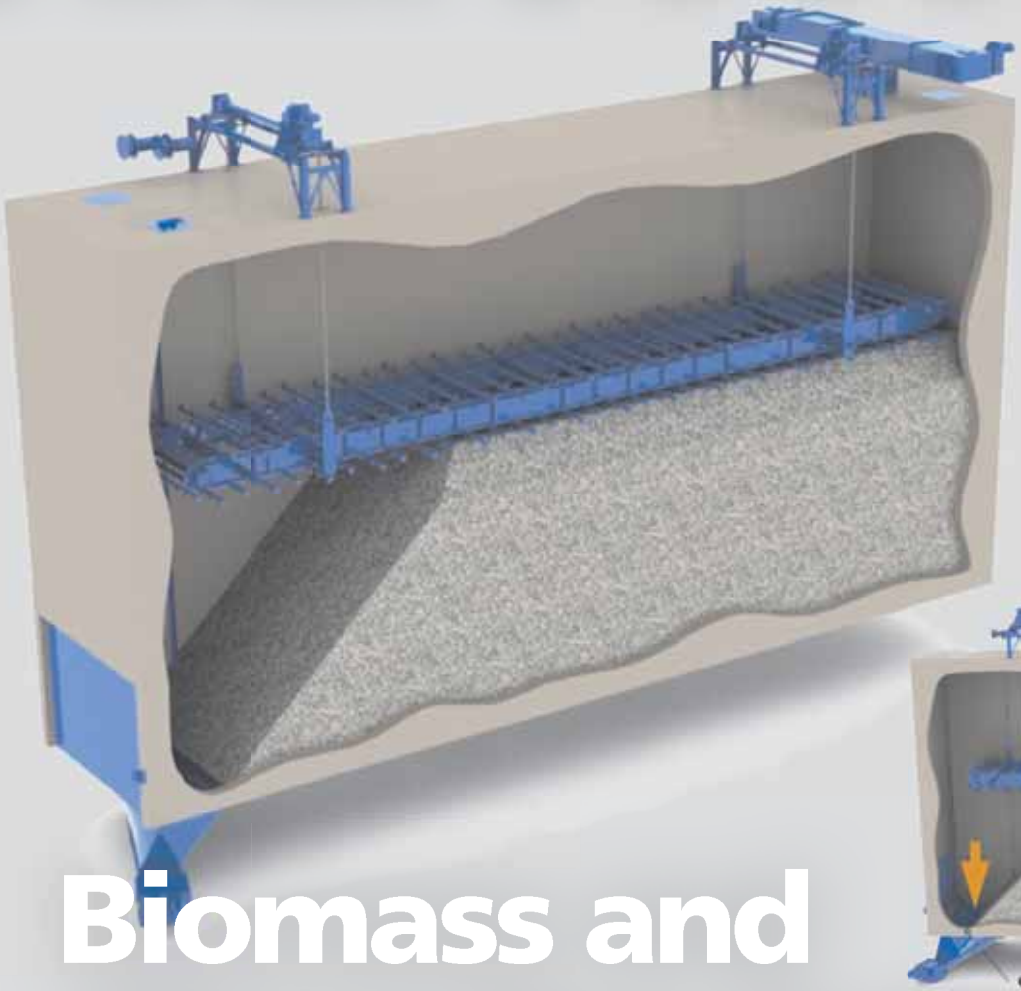
The material is also relatively low bulk density but needs to be handled in huge volumes to be economically viable. Wood pellets also have a lower calorific value than coal, which all means that the Cascade loading chutes need to be capable of handling large volumetric loading rates. This also means that silos need to be bigger and taller, meaning longer chute lengths. "This is something that we have encountered in the biomass projects we have already delivered. As in all our projects, our design teams worked closely with their client counterparts to develop the best possible solution to these issues."

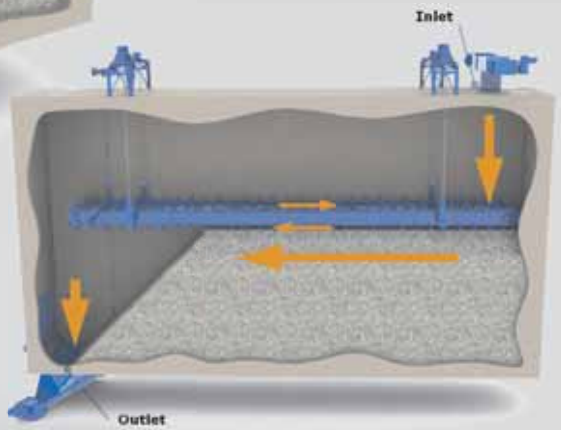
Traditional loading chutes that allow the freefall of material from conveyor to pile would result in high material velocity, subsequent material degradation and dust emission. The higher the loading drop, the greater the material velocity and the bigger the problems. This is avoided with the Cascade loading chute, as the material falls for a minimal distance from cone to cone throughout the length of the chute. As the pile height increases during the loading process, the chute is retracted, which allows greater pile heights and optimizes storage utilization in the vessel or silo.

The importance of biomass wood pellets as a source of renewable energy looks set to continue, with industry estimates of a threefold increase in demand by 2020. Cleveland Cascades recognizes this, and its staff recently attended a biomass training course at the renowned University of Greenwich Wolfson Centre for Bulk Solids Handling Technology.

This is part of the company's proactive and innovative approach to bulk solids handling, which has resulted in continued sales growth and peer recognition in the upcoming North East Business Awards. "We have been shortlisted in two awards, the Export Award and Manufacturing Award" says Chris Wise. "It is a nice bonus to be recognized in this way, especially given the strength of competition in these categories."

One Source





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DSI: keeping dust at bay when handling biomass

50 foot/15 metre tall DustTamer Wind Fence protecting a fuel storage pile at a biomass power plant in the California desert.

Handling biomass fuel sources can easily create large amounts of dust from a variety of material handling systems. Dust Solutions Inc. (DSI) headquartered in Beaufort, South Carolina, USA, has many years of experience in dealing with these difficult dust sources, many in very dry and hot environments, some in very cold environments.

Large receiving hoppers such as truck tippers, loader dumps and grab hoppers are commonly used for the supply of wood waste, wood chips, sawdust, pellets and hog fuel. At the receiving hopper, the Dust Solutions Dry Fog™ System works by injecting sub-micron water droplets into the dump pocket at the point of dust creation. The fog droplets attach to like size airborne dust particles as they try to escape the pocket. The slightly wetted particles agglomerate to other particles, creating sufficient mass to settle the dust back into the hopper. No chemicals are used and, unlike a dust collector, nothing is collected so no secondary waste stream is created.

For these dump pockets, DSI uses two stages of attack. Stage one fills the pocket with fog just prior to receiving the material. This 'pre-fog' supplies a reservoir of fog-charged air that when displaced by the falling material will scrub the air. As an example at a truck tipper, the fog manifolds at the dump hopper activate as soon as the tipper platform starts to rise.

Stage two is the same foggers continuing to operate during the complete dump cycle. This stage will attack the creation of additional dust at the dump as the truck continues to discharge fuel into the hopper. It is important to note that Dry Fog systems will not add any detectable moisture to the fuel, avoiding a BTU penalty normally associated with water sprays.

One of Dust Solutions' latest biomass projects is the Nacogdoches 100MW generating facility in Texas, owned by Southern Company. This project was named Best Biomass Project for 2012 by Power Engineering Magazine. DSI provided Dry Fog dust suppression systems for the three truck tipper hoppers at this plant.

Conveyor transfer points can easily generate concentrations

DustTamer Wind Screen side panels prevent cross wind dust generation at tipper to hopper transfer point.

Truck tipper hopper with Dry Fog in hopper.

Dust Solutions can solve these types of dust problems that are typical at many locations.

Truck tippers at biomass power plant with DustTamer Wind Fences in background. Right side tipper with a Dry Fog system. Tipper on left dumping the same wood-waste material without Dry Fog operating for comparison purposes.

of dust that exceed safe limits for both respirable and explosive dust as well as contribute to exceeding fugitive dust limits. At these points, dry fog is injected into the covered conveyor head chute and at the receiving conveyor load point. If applied correctly, dry fog can achieve a zero visible emissions rating.

For ship and barge loading/unloading operations, DSI has modular fixed systems and portable systems that can fog at discharge chutes or across the ship hold to suppress dust that could enter waterways. It is important to note that, unlike water sprays with fans sometimes called fog cannons, dry fog will not wet the process material, only the airborne dust. Fan-like sprays use gallons per minute of water with 100 micron or larger droplets that are really defined as a mist or drizzle. Dry fog nozzles are rated in gallons per Hour and produce a 1–10 micron droplet size, true fog.

Preventing dust generation from biomass fuel storage piles is another important issue. DustTamer™ Wind Fence Systems are a much less expensive and often a more effective alternative to water sprays, chemical treatment, domes and buildings. The DustTamer system uses a specially designed fabric that can withstand winds in excess of 100mph. Its slotted design vs. a basket weave pattern helps prevent the fabric from plugging with fuel materials that can load up other fabrics. When fabrics like basket-weave-style shade cloth plug, the wind load becomes higher and the fabric will tear at some point.

DustTamer is resistant to the effects of UV rays, salt spray, and exhaust fumes. Some installations are approaching 20 years of service with no significant fabric deterioration. Additional benefits can include reducing the amount of air infiltration into a fuel storage pile that can contribute to spontaneous combustion. If water sprays are used at the pile, DustTamer can increase the time between applications times by slowing evaporation caused by air movement over the pile. Worker safety can be enhanced by reduction of airborne dust and fuel.

According to David Gilroy, sales manager for DSI, DustTamer is also used at truck dumps and loader hoppers in conjunction with the Dry Fog system to help contain the dust and fog in the hopper, combating the effects of both ambient air movement and displaced air from the dump.

In conclusion, each material handling situation requires careful evaluation to determine how to best approach the solution. DSI can assist in this evaluation and provide highly effective dust control measures for a variety of biomass material handling operations.

Flowing free with Standard Industrie products

Standard Industrie International designs and manufactures equipment that facilitates the storage, the free flowing, conveying and cleaning of powdery and bulk products, including major biomass commodity woodchips. Constant innovation is the motto of the company offering equipment to the latest technology and ever more efficient.

Founded in 1978, the company is now present around the world with subsidiaries in Europe, but also in South Africa, China, Canada and in Mexico. A new subsidiary just opened in the United States in order to increase the presence on the American Market.

The network of Sales Representatives Export is in charge of Eastern European countries, Asia, Central Africa, Middle East and Maghreb.

Liftube® conveying wood pellets.

The company's values are simple:

- professionalism: qualified teams ensure the installations as well as the maintenance activities;
- quality: certified ISO9001 and OHSAS1800 (internationally recognized), the company guarantees rigorous controls of the equipment; and
- Safety: Standard Industrie International always provides its customers with solutions ensuring the protection of their operators.

Standard Industrie International offers four ranges of products. Firstly Standard Industrie International is a major provider of solutions used for the declogging of silos and hoppers thanks to its air cannon, the AIRCHOC®, for which it has held a patent for more than 30 years. Its principle is simple: a volume of compressed air varying between 1 and 400 litres is released instantly. The effect obtained corresponds to a deflagration due to the sudden expansion of the compressed air. Today, the AIRCHOC® enjoys an international reputation on the bulk handling market during these last thirty five years.

Committed to innovation, Standard Industrie International has developed the MACSYS®, an air cannon with several heads, perfectly suited for hot areas and difficult access. In order to better meet its customers' needs, the company has developed a wireless version. Adaptable to the AIRCHOC® and to the MACSYS®, this innovative concept includes, as its name indicates, the installation of cable trays. With a control panel and a remote control, it is possible to remotely pilot up to 128 air cannons for optimum safety.

Currently, Standard Industrie International offers the widest range of air cannons on the market.

Standard Industrie International has also developed an efficient solution designed for conveyor belts to optimize their sealing property and safety: the LIFTUBE®. Also available in large width and high temperature versions, the LIFTUBE® ensures a reduction of dust emissions, loss of products, maintenance time and guarantees the safety of the operators.

Standard Industrie International also designs and manufactures equipment for industrial vacuum cleaning. Its know-how and expertise in industrial processes, completed by a personalized technical study, helps to provide the best cost effective technical answers to the applications whist ensuring a safe and healthy environment for operators.

From mobile units to vacuum trucks, Standard Industrie International offers all the configurations: from 3 to 300HP, electric or diesel, on container or on silo… whatever the cleaning needs.

Finally, Standard Industrie International offers cleaning services and declogging of hoppers and silos thanks to the GIRONET®. This mechanical cleaning is safe because it excludes any human interventions inside the silos and hoppers. In addition, through the use of compressed air and an aluminium housing around the engine, all risk of explosion is avoided.

Effective on any type of blockage, product or storage unit, the GIRONET® can be used without stopping production. Therefore, the customer can quickly recover its full storage capacity while ensuring optimum safety for its operators.

Standard Industrie International is committed to:

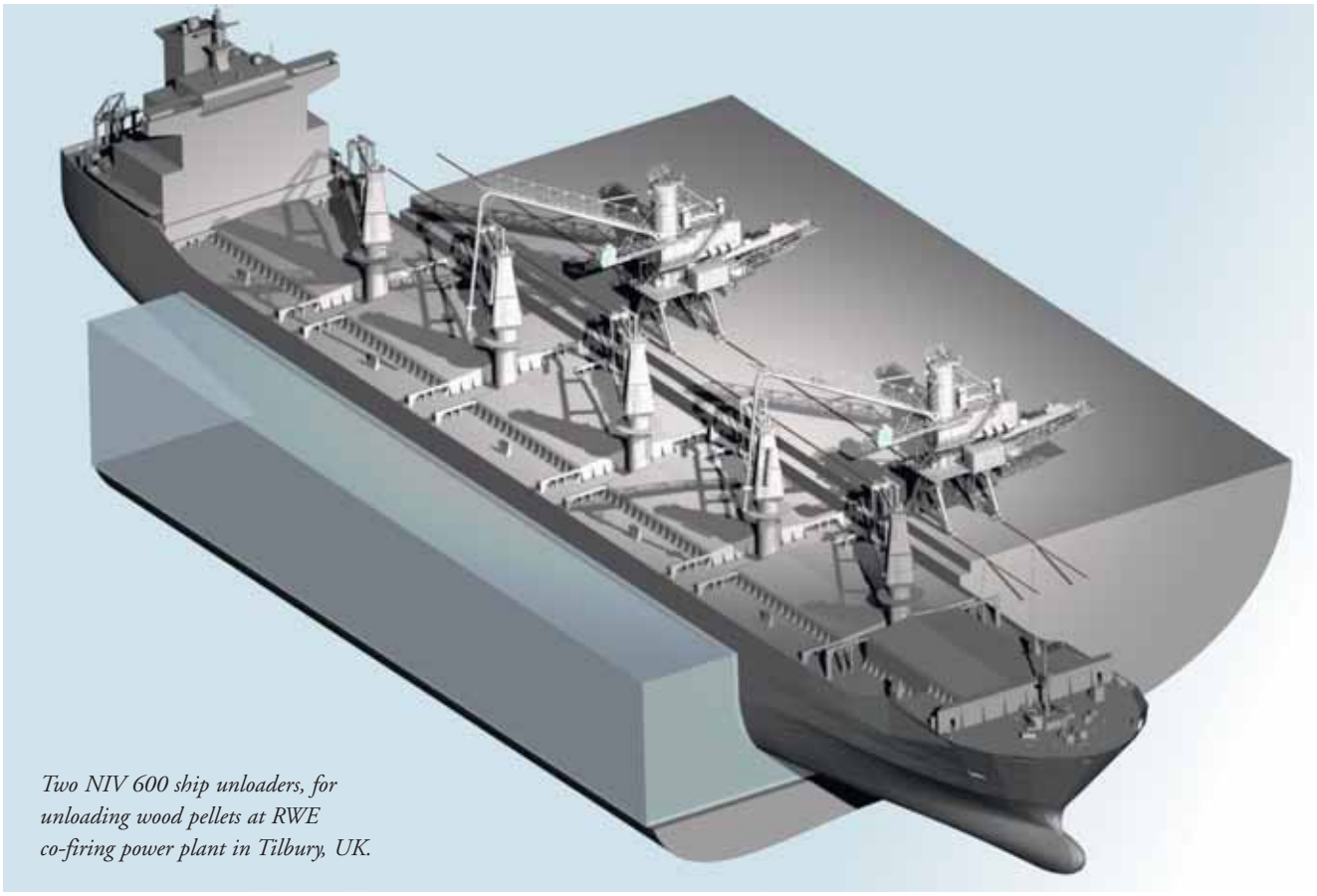
- providing innovative and tailored solutions to generate added value for customers;
- optimizing the manufacturing process;
- ensuring a working environment clean and safe; and
- reducing maintenance and production costs.

The distinctions of Standard Industrie International:

- designer and manufacturer;
- analysis and resolution of each customer's problems;
- installation and maintenance of equipment;
- on-site products demonstrations; and
- training.

Standard Industrie International has emerged as a major worldwide provider of bulk handling solutions. This company, of French origin, operates in sectors as diverse as, power stations, steel plants, mines, quarries … in order to give them all the necessary solutions regarding handling, production capacity recovery, working environment and safety.

VIGAN NIV 600 ship unloader: ideal for the handling of wood pellets



Two NIV 600 ship unloaders, for unloading wood pellets at RWE co-firing power plant in Tilbury, UK.

Major equipment supplier VIGAN has told *Dry Cargo International* that it is working actively in the biomass sector. The company acknowledges that the sector is still very busy, though it is likely that it is affected by current budget restrictions in many countries.

VIGAN is still receiving a number of enquiries regarding biomass handling equipment, some of which are still pending for final approval.

The company is working hard on ensuring that its technologies for biomass handling equipment are continuously improved. In particular, it is striving to maintain a global quality of its wear-resistant alloys, ensuring ease of maintenance. It is also working on guaranteeing a better match between global efficiency and energy consumption through more accurate measurements. All of VIGAN's products comply fully with international safety and environmental regulations.

A CO-FIRING POWER PLANT PRODUCES MORE ECOLOGICAL ENERGY WITH WOOD PELLETS

Alternative and renewable sources of energy are a major concern, not only due to limited resources of fossil origin but also within the context of worldwide efforts against gas emissions.

New power plants, as well as some existing energy producers, are upgrading their existing technologies with the latest innovations in order to fulfill their legal obligations of protecting the environment while containing costs.

The French group SUEZ is a major player in Europe and at worldwide level with about 200,000 workers and an annual turnover of more than US$110 billions. SUEZ has integrated this approach for many years with very significant investment in engineering developments and state-of-the art industrial installations.

ELECTRABEL, the electricity division of the group developed a special project during the last few years for its power plant in Gelderland (city of Nijmegen in The Netherlands) with a capacity of about 600MW.

TRACTEBEL, its Belgian engineering affiliate, was in charge of developing this co-firing project (biomass + coal) by increasing by a factor of around ten (from 8tph [tonnes per hour] to 75tph) the incorporation of wood pellets up to a rate of 20% of the total energy produced by this upgraded plant. Since its operational start in 2010, this ELECTRABEL power plant has become one of the world largest co-firing plants with wood pellets.

Wood pellets are transported to ELECTRABEL plant by barges from various origins, thanks to the excellent hinterland river and canal system in the Netherlands for bulk transport. Nevertheless the discharge of such volume for a key sector requesting 24 hours per day reliability requires the highest quality and the most efficient operational performances.

VIGAN Engineering S.A., also a Belgian company specializing in pneumatic and mechanical ship-unloaders mainly for agribulk cargoes, with 40 years of experience and more than 1,150 items of equipment around the world, was selected to manufacture and install the pneumatic unloader for the barges of wood pellets.

PNEUMATIC UNLOADING OF WOOD PELLETS

The transport of any wood residue involves the challenge presented by the low density of those materials. Therefore, the most common process is pelletizing in order to condense them into granules (usually about 10–15mm in length and a diameter around 5–6 mm).

Thanks to this process and with a reasonable content of

humidity, the wood pellets are quite free flowing and therefore easy conveying is possible from the production facility up to its use as an input in the power co-firing with coal.

During transport to the plant, those pellets can easily break and cause dust emissions: the use of grabs is not effective, due to major quay structural requirements, dust emissions, possible spillages than can be difficult and costly to clean up and, of course, low 'through-the-ship' efficiency when unloading small barges.

Pneumatic unloaders are known to be a more convenient solution for unloading barges, compared with grabs or mechanical unloaders. They offer:

- **higher unloading rate** mainly during the cleaning of the hold with the intake nozzle being able to suck down to the latest product particle on the hold floor but also to reach the hidden corners;
- **safety:** one operator is able to manage the whole unloading not only thanks to a remote control for all major displacements of the suction nozzle into the hold, but also by driving an auxiliary skid steer loader for even faster final clean-up;
- **environment:** no dust as the whole unloading system is under negative pressure and/or totally enclosed;
- **no spillage** and need to clean the surrounding quay;
- **minimum breakage** by optimizing the air and product speed in the pipes;
- **low weight equipment** with far less mechanical efforts on the quay structure.

The first pneumatic unloaders were manufactured at the end of the 19th century but continuous technological improvements have been introduced for higher reliability, better safety and optimum running costs.

VIGAN NIV 600 PNEUMATIC SHIP UNLOADER

To achieve those objectives, a VIGAN NIV 600 model in Gelderland has all the latest technologies available, such as the following as a few examples:

- **three turbo blower groups** (each four stages) with direct drive and controlled by latest speed variators (frequency inverters) by Schneider Electric.

  The direct drive is a major improvement because it reduces not only the numbers of bearings which are existing on traditional drive with belts but also the mechanical efforts on the turbine shaft.

  The multi-stage turbo blowers are maximizing the suction capabilities for a larger range of product characteristics to be handled with no need of any special feeding device and in combination with the speed control system, it make feasible to precisely optimize the energy consumption.

  Some VIGAN customers reported figures as low as 0.6 to 0.7kWh/tonne thanks to those technology developments and also chosen by ELECTRABEL.

  As also observed in this project, those three turbo blower groups are giving to the customer a convenient extra capacity of suction power reserve to face any unexpected event and to guarantee his daily unloading target.
- **air jet pulse system** for automatic cleaning of the filter. Widely recognized among the food and feed industry sectors for the global best performances and reliability, this system offers also a major ad-vantage about safety: no running mechanical parts are in contact with the air flow which could be eventually contaminated with dust and therefore could be the origin of explosion.
- **major reliability and safety** of this equipment are also due to special alloys against wear used for instance in the elbow between the vertical and horizontal suction pipes, in the airlock components and generally speaking by integrating most compulsive rules concerning latest European norms about engineering design, equipment manufacture and human resource protection.

The use of alternative sources of energy such as biomass will certainly increase during the coming years and all the logistic aspects of these inputs require very careful approach. Electrabel receives full credit for this landmark project in green electricity production. It also receives the credit for having understood the benefits of the pneumatic technology for a reliable and efficient unloader.

Mammoth silos to support huge demand for biomass fuel

Introduction

The worldwide usage of biomass fuel is growing at an exceptional rate, due to environmental as well as economic concerns, *write J.P.J. Ruijgrok: managing director of ESI Eurosilo BV and R. Spaargaren; sales manager at ESI Eurosilo BV.* Because of its organic origin, most types of biomass are seen as a renewable and CO_2-neutral source. Today biomass is increasingly used for co-firing and mono-firing power plants. The most common practice is co-firing in pulverized coal firing plants, while the most popular biomass fuel, by far, is wood pellets. As the use of wood pellets is expected to grow tenfold or more, the logistic solutions in the supply chain need to measure up to handling unprecedented volumes. Also the irregularities between production and demand will occur at a larger scale, causing transport and storage volumes to vastly increase. The proper storage solution is determined by a number of key elements, such as capacity requirements, material characteristics, local circumstances, environmental regulations, safety and more.

The European wood pellet market

The European wood pellet market shows a very exciting and promising development. Within the next decade, wood pellets will become a mainstream bio fuel in Europe. The EU 2020 targets for renewable energy sources and reduction of greenhouse gas (GHG) emissions are among the main drivers for this development. In 2009, approximately 650 pellet plants produced more than 10mt (million tonnes) of pellets in Europe. By 2020, the demand for wood pellets will range from 100mt up to 140mt per year, based on market forecasts for pellets in the energy sector. This will have a serious impact on storage, handling and transport.

Fig.1: Typical wood pellets

Torrefied wood pellets

An upcoming innovation in the wood pellet market is torrefied wood pellets. Torrefaction is a thermo-chemical treatment of biomass in the 280° to 340° Celsius range. Compared with untreated biomass, regular wood pellets offer superior performance on all relevant characteristics, such as heating value, grindability, combustion nature, storage and transport and handling characteristics. Compared with regular wood pellets however, torrefied pellets contain substantially more calorific value (18-21GJ/m³ versus 10-11GJ/m³), due to a higher energy density and a higher mass density. Also handling characteristics like grindability are improved. Because of their black colour, the torrefied wood pellets are also referred to as 'bio coal'. Conventional wood pellets are still most common, but the use of torrefied pellets is expected to grow within the next years.

Fig.2 Typical torrefied wood pellets.

TABLE 1: COMPARISON OF SOLID BIOMASS AND COAL

Properties	Wood pellets	Torrefied pellets	Coal
Calorific value [GJ/m³]	10–11	18–21	27–30
Particle density [kg/m³]	1,100–1,900	1,280–1,360	1,100–1,800
Bulk density [kg/m³]	500–650	610–670	640–920
Moisture content [%]	8.0–11.2	3.9–4.1	15–65

STORAGE AND HANDLING OF WOOD PELLETS

It is generally known that storing wood pellets involves risks of dust explosions. Dust build-up mostly occurs during the filling process of the storage facility. Therefore, the storage facility needs to be designed according to the ATEX or similar local NFPA regulations. The facility has to be equipped with safety equipment and the inner structure needs to be designed in such a way that the accumulation of dust on beams, rods, casings and other internal parts is prevented as much as possible.

Another vital aspect is to establish a conditioned environment in order to control the humidity. Keeping the wood pellets dry (<15% moisture) ensures that the essential fuel characteristics are preserved and that the biomass is prevented from heating up (self-heating). These problems however will not occur with torrefied wood pellets as these particles will be behave in a much more inert way due to the thermal treatment.

Recently the physical properties of pellets have been determined by a number of experiments and test at the Delft University of Technology. The decisive properties are:

- angle of repose;
- particle density and bulk density;
- effective angle of internal friction;
- wall friction angle with pe, concrete and mild and stainless steel; and
- attrition test (wear of material).

Recently respirometric tests have been performed at temperatures of 40°C and 50°C, respectively at different initial moisture contents. Figure 5 shows the CO_2 production. Hence, it can be assumed that there was no microbial reaction running this material. In case of storing woodchips the high microbial activity is the principal cause of the intense heat production, which normally occurs after the building-up of wood piles.

This high activity was not present at all tests with wood pellets mainly because:

- low water content of wood pellets;
- decomposition of the easiest-biodegradable components during pelletizing process; and
- sterilizing of the wood during pelletizing process.

Fig 3: Interaction of design parameters

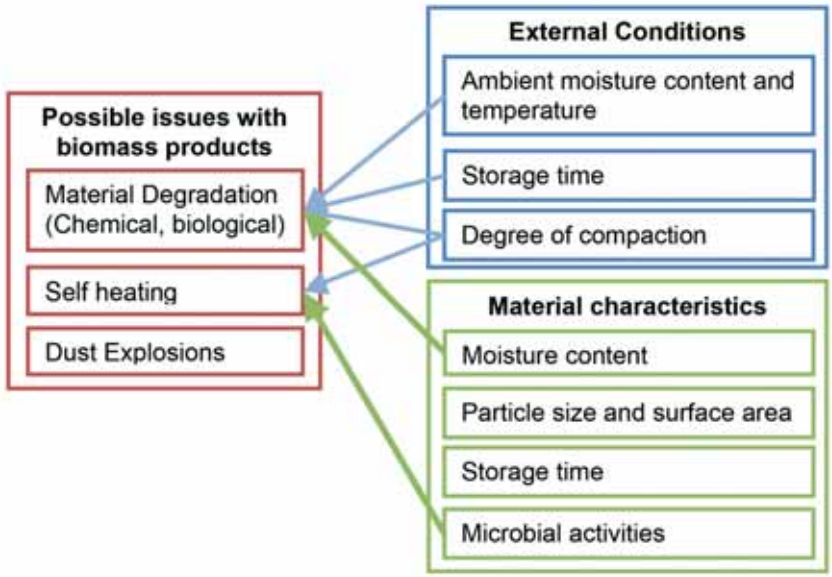


Fig 4. Attrition test of wood pellet.

Fig 5. CO_2 production in time of pellets

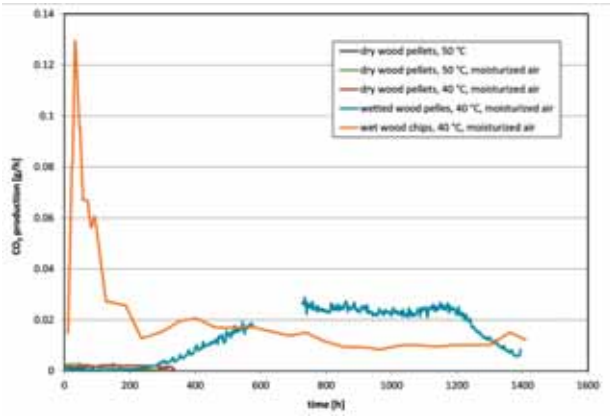


Fig 6: Typical layout of a Eurosilo for storing (wood) pellets

Storing (wood) pellets in a Eurosilo

Due to the increasing handling volumes various studies have been carried out to select the optimal storage system for storing pellets. Compared with covered stockpiles of circular domes, the Eurosilo system appears to be a feasible system for storage volumes up to 100,000m^3 per silo. The Eurosilo system is a proven concept for storing coal and other bulk solids. The solutions that are used for material handling and fire protection can be applied for coal as well as for wood pellets. This means that a Eurosilo designed for storing coal can be used for storing pellets as well and vice versa.

Comparing wood pellets and coal with regard to the design of a Eurosilo system, the following conclusions were made:

- the flowability of wood pellets is better than coal, so as far as the handling system is concerned, a coal silo is suitable for storing pellets;
- the moisture content of wood pellets is similar to high ranked coal (e.g. anthracite);
- time consolidation is not an issue for torrefied and relatively dry wood pellets; and
- attrition of wood pellets is very low on impact.

Fig.7: A twin silo system for storing coal, 2 × 100,000m^3.

The Eurosilo system uses augers to transport the biomass to and from the centre of the silo. This way, the biomass is stored layer by layer and evenly spread by the auger system. By this movement the biomass is also homogenized. Using the augers, the silo can be completely emptied out. Due to the layer-by-layer filling and reclaiming, the loads are circular symmetric, which is the optimal load situation. This results in a simple straight-on cylindrical (slip) formed wall.

The Eurosilo system is fully automatically operated, which prevents operators from being present in a potentially hazardous environment. The pellets within the silo system are continuously monitored by the installed safety systems. In case the pellets should heat up, fire-fighting equipment, like foam/gel throwing and purging equipment is installed to resolve the situation.

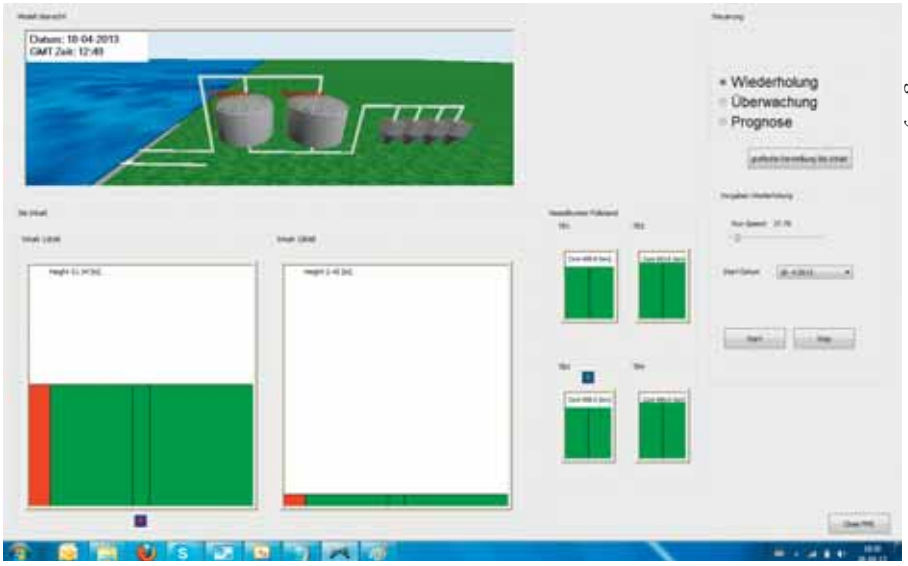


Fig 8. Fuel management system applied on a four-silo system, including day bunkers.

First-in, last-out

Inherent to the Eurosilo system is the 'first-in, last-out' system. Because of the low reactivity of dry wood pellets and the almost inert behaviour of torrefied pellets this system is well suited for storing these fuel types in large volumes. A storage level of approximately 28 metres and a diameter of up to 70 metres will result in a storage volume of approximately 100,000m^3.

For other types of biomass, like wood chips or poultry litter, which are more subject to deterioration, the storage time should be reduced and a 'first-in, first-out' system is preferred. However, depending on the logistics, a twin silo system can reduce the storage period drastically by filling one silo and emptying the second one. Such a twin silo system also offers redundancy, which increases the availability of the logistic chain. By simultaneously reclaiming from two silos each blend can be prepared by using a controlled proportioning system.

Fuel management system

Due to the high level of automation and the systematic loading and unloading of the Eurosilos, the fuel logistics can be monitored and controlled. The fuel management system supports operators with supply planning and silo visualization solutions. The fuel management system is fully integrated within the silo control system.

Conclusion

Based upon Eurosilo's experience in coal storage and its research on handling wood pellets in co-operation with the Delft University of Technology in the Netherlands and BAM Federal Institute for Materials Research and Testing, Berlin, it is clear that storing wood pellets in a Mammoth silo system is a highly effective, safe and reliable solution. Eurosilos meet the essential criteria for storing wood pellets in a safe and efficient way:

- keeping the stored material dry;
- minimizing the reaction with oxygen;
- allowing heat dissipation;
- enabling storage of high volumes with a minimal footprint;
- monitoring continuously the wood pellet condition; and
- taking precautions for dust explosion.

References

- Schott, D.L., Technical university of Delft in the Netherlands, Presentation on Handling properties of Wood Pellets (2010)
- Na Khan, Msa Bradley, Rj Berry University of Greenwich Best Practice Guide for Handling of Biomass Fuels and Coal-Biomass Mixes
- Schmidt, M., BAM Federal Institute for Materials Research and Testing, Berlin, Test report on testing the self-ignition behaviour of wood pellets, March 2013

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Big Bag Theory

Condepols' NOPALLET's main advantage is that it is not necessary to use pallets to transport it when users do not wish to use slings or loops.

Jay Venter

Condepols, a European leader in Big Bags and D-Bulks

Condepols is a Spanish company with more than 40 years of experience in the transport, logistics and distribution sectors, with a focus on the manufacture and sale of Big Bags and D-Bulks. Its mission is to offer innovative and efficient solutions to its customers, who are located around the world. Its philosophy is to act as a partner, helping customers improve productivity in a company area as sensitive as the storage and transport of goods.

Condepols is a clear example of how an enterprise located in southern Spain can become a major player thanks to continuous research and the development of new products for the market. The result is that its solutions are leaders in the industry and are trusted by customers like Repsol, Cepsa, Azucarera Ebro and Columbian Carbon. Furthermore, the company is characterized by its solid presence internationally, since 60% of its turnover comes from foreign markets, with strong activity in Europe and the Americas.

In terms of business areas, Condepols specializes in Big Bags or container sacks, such as its D-Bulks. Big Bags are recipients for storing large quantities: up to 2,000kg of a granulated product. They are particularly useful in construction, agriculture, the chemical industry, pharmaceuticals — thanks to their great strength and ease of handling. However, the company has wanted to go further, offering its customers added value. With this commitment, it has created special products like the NOPALLET, AQUABAG and fire proof Big Bags.

The NOPALLET is unique in the market, and in fact has been recognized for its usefulness in Spain. Its main advantage is that, due to its special shape, it is not necessary to use pallets to transport it when users do not wish to use slings or loops. This is a revolution as regards saving materials and space at the customer's facilities.

It is very simple to use because the key is to keep the position of the truck's forks equidistant from the centre of the bag. Furthermore, Condepols' technical department will give advice during *in situ* trials.

There are a number of advantages associated with this system, although the one most often mentioned by the companies who use it is the €4 saving for each unit, since there are no pallet costs. It is also more productive, since the same activities are carried out using fewer resources. Since pallets are not necessary, it is possible to make better use of space at facilities, and it also increases the practical load of transport vehicles. Studies carried out conclude that, for example, for a 6m lorry, it is possible to increase the load by 750kg, stacked on two levels, thanks to the system's special stability.

Other benefits include the strength of the fabric (240 g/m^2) and a strong ecological advantage, since it means forest timber is not used for making more pallets.

Another of the brand's star products is the AQUABAG, a flexible container for fluid materials. Once full, its exclusive design allows the recipient to stay rigid and stable in all kinds of

transport and storage conditions, meaning they can even be stacked on top of each other in two levels.

This product is ideal for liquids, viscous fluids and fluidized solids like cements or chemical products. Each has a capacity of between 500 and 1,000 litres. Another advantage over its competitors is that it is reusable and customizable, since made-to-measure designs can be ordered, choosing from a wide range of multiple valves and internal bags.

As part of this range, Condepols offers the RIGID AQUABAG, which incorporates all the advantages offered by the solidity of the classic Big Bags.

Condepols' AQUABAG is a flexible container for fluid materials.

Furthermore, Condepols' R&D department has created polypropylene fabrics with special bactericide properties that can eliminate 99.9% of bacteria coming into contact with the Big Bags.

Condepols also has launched a new Big Bag with an external prefixed polyethylene liner. It's a new model with an external polyethylene fixed liner that, once filled the big bag, allows a complete waterproofing keeping the inside clean, hygienic and protected from damp. Once at the final customer's warehouse, removing the external bag, the big bag can get into the facilities thoroughly cleaned of any dirt taken during transport or storage.

Other outstanding products are the Durapols Type C Conductive bag and the Durapols Q-bag, recognized for their optimized fabrics. Condepols has increased the watertightness of the stitches of this kind of product, improving its stability and reducing the risk of smiling. Furthermore, research has been done into the production of raffia with conductive properties to create certified containers like the Type C ones, which meet the most demanding IEC:2004 61340 – 4 – 4 standards.

D-Bulks

Condepols also has an important position in container liners. The D-Bulk is an exclusive interior liner for metal containers that keeps the load separate from the walls and floor, preventing contamination. It also allows a greater load to be transported, reducing handling costs and time as well as the number of bags needed. It is ecological and customized for each customer.

In short, Condepols is one of the biggest European developers of Big Bags and D-Bulks, the result of its constant research and commitment to innovation.

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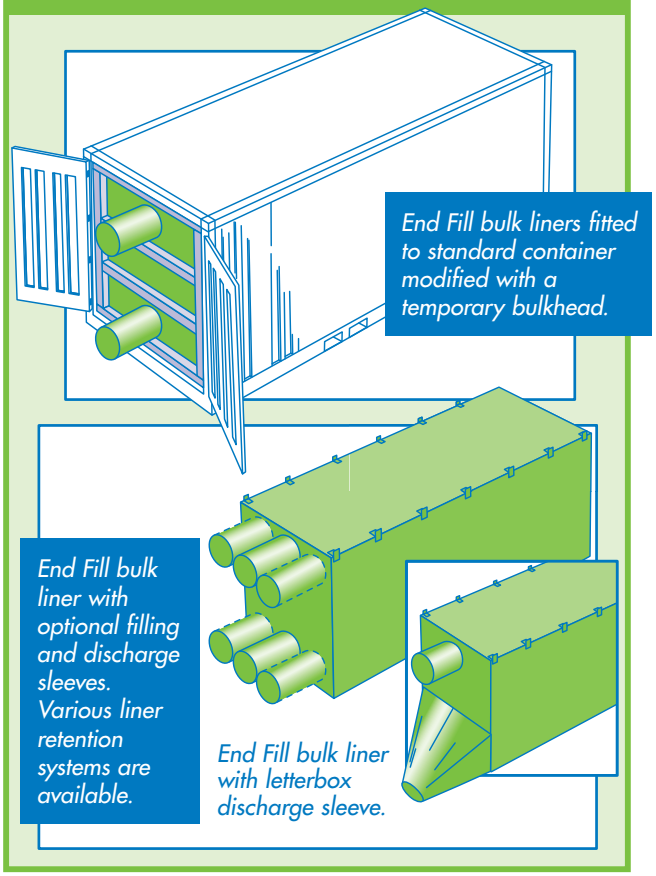
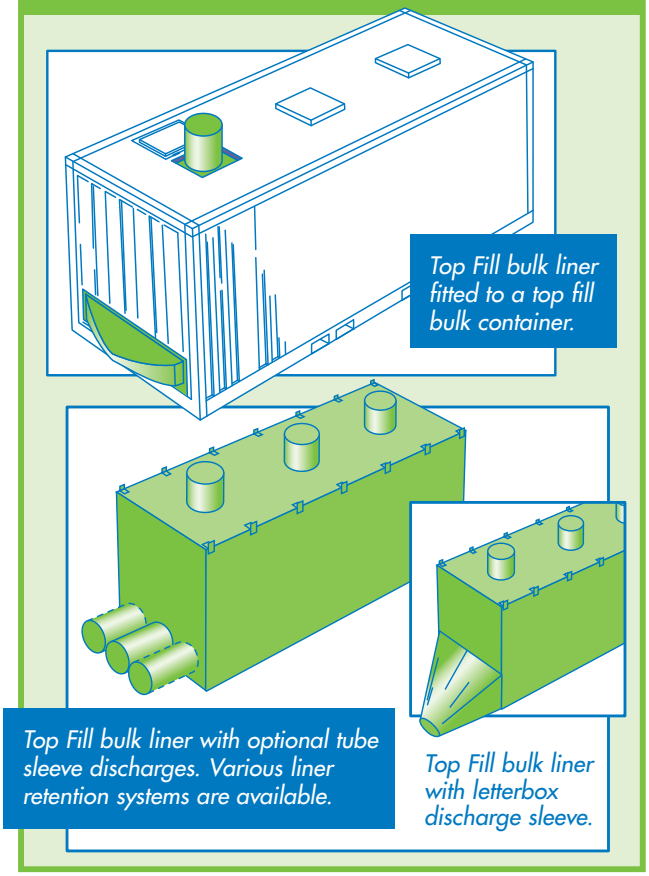


End Fill bulk liners fitted to standard container modified with a temporary bulkhead.

End Fill bulk liner with optional filling and discharge sleeves. Various liner retention systems are available.

End Fill bulk liner with letterbox discharge sleeve.

TOP FILL BULK LINERS

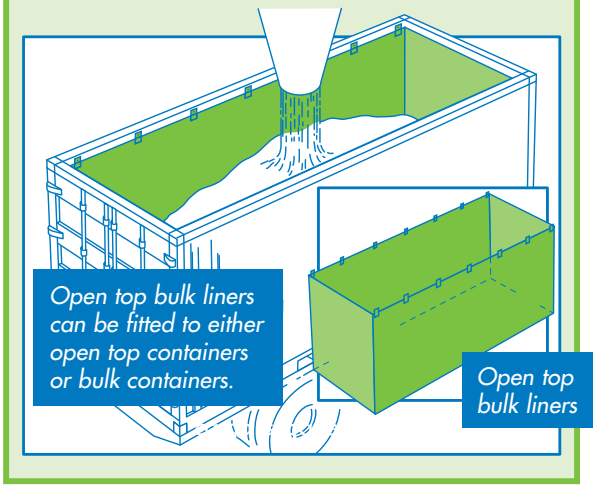


Top Fill bulk liner fitted to a top fill bulk container.

Top Fill bulk liner with optional tube sleeve discharges. Various liner retention systems are available.

Top Fill bulk liner with letterbox discharge sleeve.

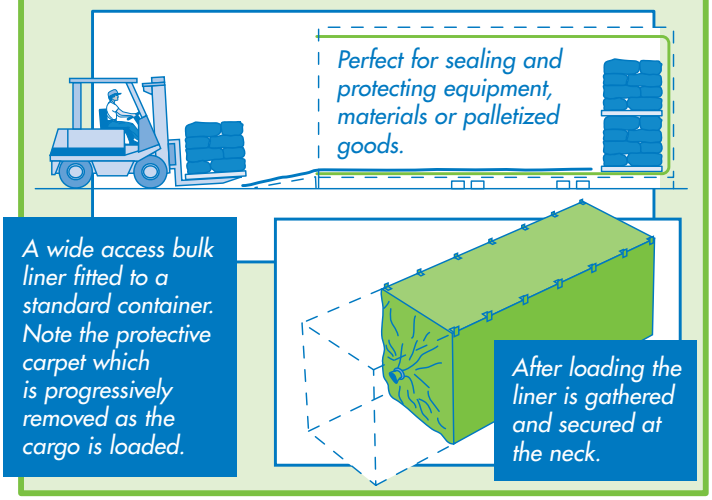
OPEN TOP BULK LINERS



Open top bulk liners can be fitted to either open top containers or bulk containers.

Open top bulk liners

WIDE ACCESS BULK LINERS



Perfect for sealing and protecting equipment, materials or palletized goods.

A wide access bulk liner fitted to a standard container. Note the protective carpet which is progressively removed as the cargo is loaded.

After loading the liner is gathered and secured at the neck.

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Optimized filling technology with the BEUMER fillpac R: fills all types of bags

The BEUMER fillpac R, including the BEUMER bag discharge line SA 4000.

The intralogistics professional BEUMER has expanded its product portfolio with the rotating filling machine BEUMER fillpac R. This machine, designed for capacities of 300 to 6,000 bags per hour, can fill all types of valve bags. The complementary bag placing technology for all common bag types rounds out the product portfolio. The weight accuracy of the bags is guaranteed by a calibratable weighing unit.

Together with a special bag placer, the BEUMER fillpac R can fill even woven polypropylene bags. The three-position cylinder that regulates the coarse and fine flow is protected from dust, because it is positioned vertically and outside of the dirty area. The cylinder for bag discharging is also located in the dust-free zone above the filling spout. This solution minimizes wear and tear on both cylinders and therefore ensures longer service life. BEUMER has also equipped the optimized filling machine with an automatic bag weight correcting device. This device automatically adjusts the weight of subsequent bags.

Almost all built-in components of the BEUMER fillpac R are freely available commercially. This reduces delivery times for spare parts and lowers capital costs for the user. Also, the system is designed so that it is easily accessible for maintenance. The generously dimensioned filling impeller reduces fill times and therefore increases throughput without impairing weight accuracy. The BEUMER system is also equipped with an ergonomic control panel. The improved human-machine interface concept makes work simple and intuitive.

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

BEUMER Group has added the rotating filling machine BEUMER fillpac R to its product portfolio and equipped it with extensive features.

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New Flexicon Bag dumping system with glove box, compactor, conveyor

Dust generated from bag opening, dumping and compaction is isolated from the operator and plant environment by means of a glove box, dust collector and integral bag compactor with sealed infeed chute. An enclosed Flexicon flexible screw conveyor transfers material downstream at any angle, dust-free.

A new Flexicon Bag Dumping System with glove box, bag compactor and flexible screw conveyor, isolates bulk material from the operator and plant environment throughout opening, dumping and compaction of bags, and the conveying of material downstream.

Bags are staged on a stainless steel tabletop and then transferred through a plastic strip curtain into a dumping enclosure comprised of a glove box, empty-bag chute and dust collector atop a receiving hopper.

The dust collector maintains negative pressure within the enclosure, preventing the escape of dust through the curtain, while containing dust generated during bag opening and dumping activities.

A bag infeed chute through the sidewall of the enclosure allows the operator to pass empty bags directly into the bag compactor, causing dust generated from compaction as well as dumping activities to be drawn onto the system's two filter cartridges.

An automatic reverse-pulse filter cleaning system releases short blasts of compressed air inside the filters at timed intervals causing dust build-up on the outer surfaces to fall into the hopper, conserving useable product. Filters are readily accessed by removing the interior baffle, and replaced rapidly using quick-disconnect fittings.

The compactor employs a large pneumatic air cylinder to compress bags into a removable bin that accommodates 50 to 80 bags. The main waste access door, and a flapper door within the bag infeed chute, are equipped with safety interlocks that prevent operation of the compactor unless both doors are closed.

The hopper discharges into an enclosed Flexicon flexible screw conveyor for dust-free transfer of a broad variety of products including free- and non-free-flowing materials from large pellets to sub-micron powders, including products that pack, cake, seize, smear, fluidize, break apart or separate, with no separation of blended products.

The company also manufactures pneumatic conveying systems, bulk bag dischargers, bulk bag conditioners, bulk bag fillers, drum/box/container tippers, drum fillers, weigh batching and blending systems, and engineered plant-wide bulk handling systems with automated controls.

The operator is isolated from dust by means of a dumping hood comprised of a plastic strip curtain, glove box, empty-bag infeed chute, and dust collector atop a receiving hopper feeding an enclosed flexible screw conveyor.

An operator transfers empty bags from the glove box side of the enclosure through a bag infeed chute in the enclosure sidewall, drawing dust generated from bag compaction as well as dumping activities into the integral dust collection system.

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Mondi's industrial bags plants FSC™ and PEFC™ certified

Seventeen of Mondi's industrial bags plants have successfully been chain of custody certified according to FSC and PEFC standards as of February 2013. This multi-site certification was chosen to answer the growing market demand for paper bags certified for sustainable forestry.

This certification is in line with the market demand for sustainable packaging. Mondi's FSC and PEFC certified bags present clear, informative labelling, and have already built a loyal customer base since their launch in 2008. Customers can now ensure their packaging is certified and issued from sustainable sources and gain increased flexibility if delivered from these plants.

"The chain-of-custody certification for FSC and PEFC is an excellent additional benefit for our customers," explains Claudio Fedalto, Sales & Marketing Director, Mondi Industrial Bags. "It is important for us to offer our clients a large range of certifications from process management and hygiene to sustainability aspects — that's why we continuously invest in these areas," he says.

All in all, 17 plants located in Austria, Belgium, the Czech Republic, France, Germany, Hungary, Italy, the Netherlands and Spain are now certified to FSC and PEFC standards

About FSC and PEFC certifications

Both, the FSC (Forest Stewardship Council) and the PEFC (Programme for the Endorsement of Forest Certification) promote sustainably managed forests through independent third party certification. This offers customers and consumers the option to choose products from environmentally and socially responsible and economically viable forestry.

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

About Mondi

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

Mondi opens industrial bags plant in Iraq

Mondi recently started full production at its new industrial bags plant in Sulaimaniyah, northern Iraq. Together with local partner, Kaso Group, this greenfield project is set to strengthen Mondi's industrial bags business in the expanding Middle East and North Africa region (MENA). This is the first industrial bags plant in Iraq, and will serve the growing cement industry which is rebuilding the country.

"We are proud to announce the opening of our new greenfield plant in Sulaymaniah," says Issa Azar, Regional Manager MENA Mondi Industrial Bags. This project coincides with Mondi's strategy to support our customers' expansion in emerging markets. "Having Mondi's industrial bags plant close to our cement factories strengthens our long-term business relationship and is important for good logistics and supply management," states Rozhgar Barzan, Procurement Sourcing Manager, United Cement Company – Lafarge Iraq.

"Iraq is now one of the Middle East's growing countries and the construction industry is helping to rebuild the rebuild the nation", explains Abdel Hafez Abki, Managing Director of Mondi Kaso Iraq.

"The new plant further strengthens Mondi as a reliable industrial bags partner in the region", he adds. As Omar Ismail, Managing Director of Mass Iraq Co. for industrial investment illustrates: "We are pleased with the startup of Mondi's bags factory in Iraq and are looking forward to further constructive cooperation between both companies."

Woven polypropylene sacks: Changing the face of cement packaging

Process technology for the production of AD*STAR block bottom valve sacks and the advantages of this type of packaging for the cement industry

The AD*STAR block bottom valve sack concept, developed and patented by Starlinger & Co. GmbH of Austria and on the market since the mid-1990's, still stands as one of the major breakthroughs of recent times in the packaging and handling of free-flowing goods. The brick-shaped woven polypropylene sacks are ideally suited for the high degree of automation that is characteristic for plants for filling dry bulk goods.

Combining the best of three worlds

A paper sack is brick shaped and perfectly suited for automatic handling and storage, a PE film sack is perfectly tight and flexible, and a woven PP sack has unmatched strength and resistance. The idea behind the development of the AD*STAR sack was to take the best feature of each sack and combine them to create the perfect packaging for dry bulk goods. The result: a one-layer block bottom valve sack made of stretched and woven polypropylene tapes, brick-shaped and flexible, tight and strong. Being entirely made of polypropylene, AD*STAR sacks are produced without one drop of glue and are a desired mono-material solution. The coated surface allows perfect allover printing and gives the filled AD*STAR sack a sharp image.

AD*STAR production technology

The material characteristics are one obvious key to AD*STAR strength and robustness. The second one is the special production process. It starts with the extrusion of polypropylene tapes that are stretched and annealed to obtain the required strength and elongation characteristics. The tapes are then woven into tubular fabric and covered on the outside with a PP coating. On a specially developed conversion line the coated tubular polypropylene tape fabric is bonded together — without the use of adhesives. Instead, hot air and pressure are applied to the fabric. The hot air first softens the polypropylene coating, then the valve, top and bottom patches are pressed onto the folded sack bottoms and cooled.

Possible sack shapes include block bottom sacks with an open mouth, a normal valve or a pocket valve, and can be geared to the special requirements of each application. The conversion line is equipped with a magnetic transport system to avoid pin holes in the fabric for packaging products that need to be hermetically sealed. For filling highly aerated goods, on the other hand, an optional microperforation unit can be used to produce sacks with high air permeability and, at the same time, virtually zero product emission from the sacks.

Multi-functional use

AD*STAR sacks are used for packaging all kinds of free-flowing goods, such as cement, building materials, fertilizer, chemicals, or resin, as well as flour, sugar, or animal feed. The advantages of AD*STAR sacks compared to other means of packaging:

- ❖ they do not rip open when exposed to moisture or handled with hooks;
- ❖ they are resistant to dropping, bending and pressing, and strong enough to be stacked up to the ceiling;
- ❖ they weigh much less than paper or polyethylene film sacks;
- ❖ they are air-permeable yet virtually dust-free due to optional microperforation; and
- ❖ they are recyclable and reusable for various purposes.

For ecology and economy

The economical use of raw material, an extremely low breakage rate, as well as reusability and recyclability of the sacks: each one of these ecological advantages also turns into an economical advantage.

Low weight — less raw material, smaller carbon footprint

As a result of the material characteristics and the special production process, the empty weight of an average AD*STAR sack holding 50kg can be as low as 75g. A comparable three-layer paper sack, in turn, weighs about 180g, and a PE-film sack 150g. The special characteristics of tape fabric ensure high strength and durability while significantly less raw material is used in the production process. The equation goes: the lighter the sack (while offering equal strength and protection), the less raw material input is required — and the higher is the profit for the sack producer.

The economical use of raw material not only helps to reduce the costs, it is also a valuable contribution to the preservation of our environment. Also, the CO_2 emissions generated in the life cycle of an AD*STAR sack are significantly lower compared to paper or PE bags, which accounts for a much smaller carbon footprint.

Reduction of the breakage rate

Compared to conventionally used paper sacks, a low breakage rate has both environmental and economic effects: first, the risk of contaminating earth and water with the filling material is nearly zero. In addition, the savings potential is enormous when assuming that realistic breakage rates in the life cycle of paper sacks (filling, conveying, palletizing, stacking, loading, transporting, unloading) are about 5 %. A practical example: by switching over from paper sacks to AD*STAR, a cement producer was able to reduce the in-house breakage rate from 5% to 0.25%. Given an annual production of around 160 million sacks and an average price of US$5.54 per 50kg sack of cement[1], changing over to AD*STAR sacks could save US$42.1 million a year — the equivalent of 7.6 million sacks and around 380,000 tonnes of cement — in addition to the losses avoided during transport and handling outside the production plant.

Resource instead of waste:

Even after emptying, AD*STAR sacks are a resource. Recycling is one option because polypropylene is fully recyclable into resin, and no foreign materials (e.g. glue) have been used in the production process. Another possibility is waste-to-energy incineration — recovering the very high calorific value (which is almost as high as the energy value of fuel oil) by burning the sacks. Many production plants all over the world supplement oil and coal with secondary fuels to achieve savings of up to 30% of primary fuels.

Furthermore, there is the option of intrusion — a recycling process by which household-grade plastic waste is turned into quality moulded products.

AD*STAR® is a registered trademark and produced exclusively on Starlinger machines.

About Starlinger:

Starlinger, a Viennese family business with production sites in Weissenbach, Lower Austria, and Taicang, China, has been in the mechanical engineering industry since 1835 and has been exporting products worldwide for over 45 years. Being the world market leader in the field of machinery and complete lines for woven plastic bag production and PET recycling and refinement with an export quota of more than 99.5%, Starlinger & Co. Ges.m.b.H. is a synonym for leadership in quality and technology in over 130 countries. The establishment of branches in Brazil, China, India, Indonesia, Russia, South Africa, USA and Uzbekistan clearly underlines Starlinger's emphasis on customer-oriented service and support.

[1] *Source: global cement Magazine, March 2013 Issue*

Starlinger RX 8.0 — the new loom for FIBC fabric

For a long while it was rather quiet around looms for FIBC fabric. Now it is time for something new in this area: with the eight-shuttle circular loom RX 8.0 Starlinger & Co. GmbH is setting new standards.

The next generation of heavy duty fabric looms

An operator-friendly loom that produces high-quality tape fabric for heavy-duty applications, has low maintenance and spare part requirements and is cost-efficient – these were the set targets in the development of the RX 8.0 loom. Based on the well- proven Starlinger SL and alpha loom concepts, the new eight-shuttle loom ensures high-quality output, easy handling and smooth operation due to electronically controlled settings and well-engineered technical features. The use of new materials reduces strain and friction on the tapes and increases the lifetime of wear and tear parts, keeping maintenance and spare part expenses down.

Fields of application

The RX 8.0 is primarily designed for the production of PP and HDPE tape fabric for heavy-duty applications such as FIBCs, tarpaulins, as well as geo- and agrotextiles, and meets the specific machine requirements on the target markets. Nevertheless, also the production of lighter fabrics — down to 55g/m² — is possible. With its excellent price/performance ratio the RX 8.0 makes high-tech weaving possible at a competitive price.

Starlinger is showing the new loom to the public for the first time during this year's Chinaplas in Guangzhou, taking place from 20–23 May.

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The Nectar Group – return to Mogadishu

Ever since Nectar Group loaded its first train carriage on board a vessel destined for Tanzania in 1975, the company has had a growing desire to tackle extra-ordinary cargo handling projects. Delivery of 1,000 train carriages to Africa was just the beginning. Amongst the milestones that mark the 40 years of growth for the company was the development of the first generation of mobile bagging machine. Today, the most recent generation of Nectar's mobile bagging machine, the Compac M140, has won multiple awards and has revolutionized port activities around the world. Since the inception of Nectar's first generation bagging machine, there have been many attempts to mimic the advanced technology and superior craftsmanship but there is still no alternative that is comparable.

In recent years the global recession has reduced the global aid contributions destined for the Horn of Africa and other similar areas giving extra importance to economic efficiency. Ultimately, every Dollar saved during the discharge process results in another Dollar of aid cargo reaching the hungry. This only extends the importance of some of the poorer nations shifting the emphasis to port efficiency and onward inland logistics. Ultimately, some of the current difficulties in reaching inland locations in many countries in Africa, Asia, South America etc. is

the result of a lack of aid deliveries but also, and more importantly in the battle to encourage self-sufficiency, domestic and international trade.

In recent years there has been a marked shift in attitudes in the emerging nations. The importance of ports and their relative significance in promoting a growing economy has led to many nations investing in improved infrastructure and efficiency on top of improved management styles. This emphasis on a more efficient method of handling incoming cargoes has been a major influence on the recent success of the Nectar Group's mobile equipment. An example of such a situation is the seaport of Mogadishu in Somalia. This is a location that has been in the grasp of war for many years. The country itself has been stifled by famine and disease as a result of the infighting between militant groups and security forces. Whilst the city of Mogadishu is returning to a relative state of peace, there is still a sense of danger hanging in the air.

Mogadishu's port has seen a relative boom in the number of cargo vessels calling in the last year. Of late the increased stability of the country and the relative decline in piracy in the Indian Ocean has encouraged the importation of both aid cargo and private trade. It can certainly be said that there is a demand for technology such as Nectar's 'Compac M140' mobile bagging machines which improve the port's dry cargo handling ability and further promote trade and development. The benefit of such equipment is not just seen in increased handling efficiencies but also the resulting savings that are made. By shipping in bulk, as opposed to pre-bagged, the shipper saves a substantial amount in both the time saved and the losses incurred as each bag is delivered on the trucks in pristine condition when bagged alongside the vessel in the port of discharge. In addition, members of the local community are being trained to a high standard with many transferable skills. Although the task of training inexperienced staff for the first time was a challenge, there is now a dedicated team of highly trained locals with improved work prospects. It is hoped that these workers will benefit from further training as Nectar's involvement in Mogadishu increases.

There must, however, be an onward momentum of similar personnel, equipment and logistical expertise. Nectar's operations in Somalia certainly increase the speed of discharge and the quality of product loaded on the trucks but the lack of good quality roads, railways, trucks and trains means that there is a considerable amount of cargo still lost or damaged before reaching the point of destination. Within the dry cargo industry the importance of storage facilities, port conveyance, experienced and efficient management as well as regular improvements of standards cannot be underestimated but if the onward transport and infrastructure cannot meet these efficiencies back to back then bottlenecks will still be met. It is clear that more investment and development is still needed in these regions. However, with Somalia opening its doors to new opportunities, Nectar will continue to provide efficient bulk cargo handling and promoting development of bulk shipping to Mogadishu. DCi

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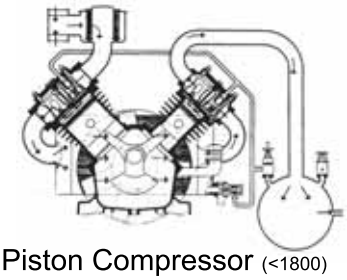
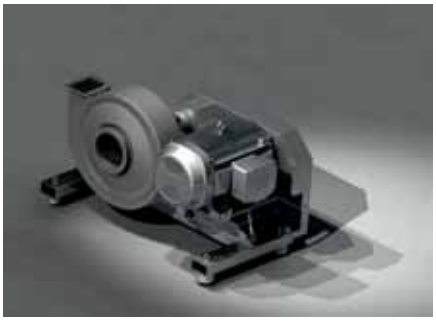


Piston Compressor (<1800)

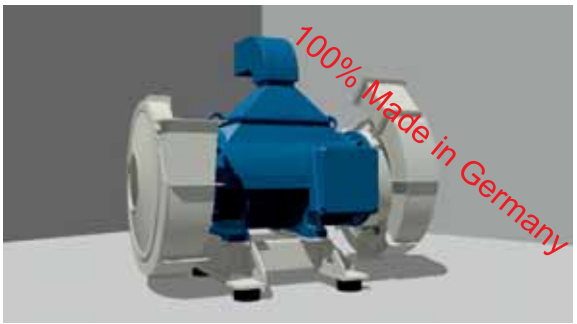
Roots Blower (1900)

Fan with Air Flow Regulator (1960)



Fan with frequency inverter and automatic belt tension (2000)

TURBO POWER single stage (2009)



TURBO POWER double stage (2011)

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