

BMS 2020

YOUR CONNECTION TO CRANES, LIFTS AND MORE

EXCITING NEWS FROM
BMS GROUP OPERATIONS
AROUND THE WORLD

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SAFETY IS EVERYTHING

Safety is close to our heart – safety in all things we do. Every day, we perform a wide range of highly specialised tasks, each requiring precautions to minimise the risk of incidents and accidents. Therefore, the individual employees are continuously trained, and they are regularly monitored to ensure that everyone complies with our safety rules and regulations.

Over the last couple of years, we have trained more than 40 of our approximately 850 employees as Appointed Persons, a recognised crane industry training. This is done both to prepare them for specific tasks as well as to be ready to meet customer requirements.

Indeed, if you want highly qualified employees, it is necessary to contribute to their continuous education. Everywhere in the group, there is a considerable need for well-qualified employees. Thus, it is only natural that each company in the BMS Group chooses to be involved in the on-going training of employees who have insight into the very diverse areas of work found in the companies of the BMS Group.

Once more in our annual magazine, we look back at a busy year with a significant number of projects in still more countries around the globe. You will find a selection of our jobs in this magazine – among others:

- // Helping a 100-year-old lighthouse to its new location in Denmark
- // Installing the first off shore wind park in Taiwan
- // Cleaning windows on tall buildings in Sweden
- // Erecting 175 wind turbines in Australia
- // Inspecting an iconic landmark in Scotland
- // Installing the world's largest wind turbine in the Netherlands

I hope that you will enjoy reading about these and the other BMS Group assignments we have selected for this magazine.

We look forward to doing business with you.



Best regards,

Jens Enggaard
Jens Enggaard
CEO

The BMS Group in numbers:

Employees:	850
Depots:	20+
Wheeled mobile cranes:	350+
Lattice cranes:	40+
Largest crane:	Liebherr LR11350



INSPECTING AN ICONIC LANDMARK

// TRUCK-MOUNTED LIFT
// BUILDING REPAIR WORK
// SCOTLAND

For over 100 years a building designed by the Scottish architect Charles Rennie Mackintosh stood as an iconic landmark in Glasgow, Scotland's largest city. It was home to the world-renowned Glasgow School of Art and was repeatedly voted one of the most important buildings in the United Kingdom.

Tragically, the building was severely damaged by fire in 2014 – and then again in 2018. While the first fire only destroyed part of the building, the latter completely devastated the newly renovated building and left only the stone facade standing. The Glasgow School of Art has since pledged to rebuild the structure, a project that is set to cost over 120 million EUR and take years to complete.

Directly after the fire in 2018, BMS Lifting Ltd provided two platforms and a highly experienced team of operators to help deal with the emergency. The BMS team played a crucial role in helping to assess the extent of the damage to the building and the structural integrity of what remained. The Palfinger P900 – a large articulated machine with up to 32 metres of lateral outreach – provided assessors and safety inspectors with a perfect way to reach up and over the disaster site,

accessing areas of the structure that were unsafe and even inaccessible in any other way. The nimble Palfinger P640 also proved a vital tool for the demolition contractor tasked with removing loose and hazardous debris from the remains of the building.

Both machines from BMS Lifting Ltd worked on the structure from July 2018 to the start of 2019 until the site was declared safe.

The Glasgow School of Art is internationally recognised as one of Europe's leading university-level institutions for the visual creative disciplines. The school was founded in 1845 – and the Rennie Mackintosh building was designed in two phases between 1896 and 1909.



THE ARMADILLO BUILDS WOODEN HOUSE

// CRAWLER CRANE & MOBILE TOWER CRANE
// CONSTRUCTION
// DENMARK

The new wooden house in Skodsborg is provided by WN Huse IVT, the Swedish company Willa Nordic's representative in Denmark. Since 1989, Willa Nordic has completed some 3,500 construction projects in Sweden, Norway, Denmark, Finland, Iceland, Germany and the Netherlands.

The small coastal town Skodsborg some 20 kilometres north of the centre of the Danish capital has historically had little development potential. To the east, it is restricted by the Sound (Øresund) and to the west by a large forest area. Skodsborg is thus a narrow belt along the coast – and the houses are typically built right down to the water.

This applies, for example, to a new villa in wood. At first, it sounded like a pretty simple task for BMS Copenhagen to hoist elements for the two-story house in place. However, it turned out that it had to be built on an area that is difficult to access: On one side there is a 15 metres deep slope with a significant drop,

while on the other there is no roadway as it faces directly to the water. BMS Copenhagen chose to solve the assignment with a small crawler crane – popularly called the Armadillo. This crane was sailed to the ground by a coastal protection company, while a 60 metres mobile tower crane was erected in the driveway. While the tower crane hoisted packages of up to three tonnes each to the Armadillo, the small crawler crane took care of the hoisting on the actual building site.

For the mobile tower crane space was also limited, partly because there is a 15 metres high tree in the driveway, which of course had to be taken into account.

Fourteen days before the assignment was to be carried out, BMS Copenhagen was given an additional job. The customer wanted to have soil grabbed up, so that the gardeners could use it when planting on the slope. The Armadillo was therefore brought home from a task elsewhere in the country, and a grab was adapted. Thus, the job of the Armadillo started with the grabbing before it could begin the actual construction of the house.

The Armadillo was on the construction site for ten days, while the mobile tower crane visited the location a total of eight times.



BRINGING THE HEART IN PLACE

// MOBILE CRANE
// AMUSEMENT PARK
// DENMARK

To appeal to the public, many amusement parks have to present new attractions regularly. That goes for the park Tivoli Friheden in Denmark's second-largest city Aarhus as well, and that is why it invested in a new major attraction in 2019.

With its 65 metres "Hjertekig" – that is Danish for something similar to "Heart's look" – is the highest free-fall experience in Denmark.

Swiss Ride Services – a company located in Vaduz in the Principality of Liechtenstein and specialized in the assembly and dismantling of amusement rides such as roller coasters, water systems, giant wheels and towers – delivered all parts of "Hjertekig" to the facilities of BMS Aarhus. Here, a team of three specialists from Swiss Ride Services took care of the assembly work while BMS Aarhus assisted with handling of the different parts. When finished, BMS Aarhus

transported "Hjertekig" to Tivoli Friheden, and here about a week was used to make sure that the new attraction was put in place correctly.

The transport and lifting was carried out with a Liebherr LTM 1095-5.1 mobile crane, a Scania Palfinger PK110002-SH lorry crane with an extendable trailer and a Volvo HMF 9520 OK-RCS lorry crane.

Being hoisted up in "Hjertekig", the visitors have a spectacular view of Tivoli Friheden as well as the surrounding city before they decide if they want to take the rapid fall to the ground or descend slowly while enjoying the sight. If indeed they are daredevils, they will do the 65 metres fall with the speed of some 80 kilometres per hour putting them under g-force 5.



Be it summer, autumn holidays or Christmas, Tivoli Friheden offers four roller coasters, 40 other amusements, stalls, games and playgrounds – all in the middle of a beautiful forest.



ENSURING A SUSTAINABLE FOOTPRINT

// STEEL PLATES
// HIGH-VOLTAGE INTERCONNECTION
// GERMANY

The BMS Group is particularly careful with footprints, especially when it comes to the support legs on cranes and lifts. That is why large amounts of steel plates are used for the group companies' own assignments – and why they are rented out to entrepreneurs, developers, and others who

also appreciate a sustainable footprint.

Most recently, a Dutch customer specialised in safe and cost-efficient accessibility solutions has been using approximately 10,000 steel plates from BMS Esbjerg, thus ensuring a safe foundation for

the upgrading of high voltage masts and cables in northern Germany. This job is part of the expansion of the German-Danish high-voltage interconnection included on the European Union's list of important infrastructure projects.

The green transition of

the electricity systems has resulted in the construction of a large number of wind turbines in Northern Germany and Western Denmark, as both areas have favourable wind conditions. Consequently, a large share of the total electricity production is generated far away from

major electricity consumers. Therefore, there is a need to expand the electricity transmission grid to ensure that power generated by wind turbines can reach areas with large consumption of electricity.

The trading capacity of the German-Danish electric-

ity market is limited by the current infrastructure. The expansion of the interconnection – covering an area from south of Hamburg, Germany to the southern part of Denmark – will increase transmission capacity across the border from 1,500-1,780 MW to 2,500 MW.

BMS steel plates serve three purposes: Safety, efficiency and the ability to restore an area:

- // Safety is taken care of when trucks, lifts, and cranes are solidly based on the ground
- // Efficiency is ensured when trucks and construction equipment do not get stuck on a soft surface
- // Restoring of an area is easier and cheaper when large machines do not compress the surface, which makes it practically impossible to get bushes, trees and grass to grow

GENTLE TREATMENT MADE POSSIBLE



// MOBILE CRANE
// HOSPITAL
// DENMARK

You might not think it would have anything to do with hazardous goods when solving a task for the merger between two somatic university hospitals in Denmark's second-largest city Aarhus. Nevertheless, this was indeed the case when BMS Aarhus handled a couple of PET scanners for Aarhus University Hospital.

First of all, both scanners – also known as cyclotrons – had to be lifted out of a cellar at the old facilities and one by one transported to the new location. To do this as swiftly as possible,

two teams and cranes were ready at the same time. Team one took care of the hoist from the cellar while the second waited at the new Aarhus University Hospital. Each team consisted of a crane, a crane operator and a supervisor. The equipment used at the first location was a 220 tonnes Liebherr 1220-5.2 mobile crane while a 180 tonnes Liebherr 1160-5.2 mobile crane was used at the second.

During the two days that the job lasted, BMS Aarhus also took care of the transport from A to B. As the cyclotrons are radioactive, the transport had to be carried out as hazardous goods – and before transporting the items the project had to

be approved by the Danish Health Authority who also had a radiation expert in place to follow the transport.

Particle therapy is the newest and most gentle form of radiation therapy for cancer. So far, the treatment has not been possible in Denmark because the expensive equipment was not available. Instead, a limited number of patients were sent to Germany or the United States of America. With the centre for particle therapy in Aarhus, the number of patients receiving this kind of treatment will over five years grow from 100 to 1,200 patients annually.



The centre for particle therapy is located next to the Cancer Department at Aarhus University Hospital. The 9,500 square metre building contains a proton accelerator, treatment rooms, research facilities and facilities for patients, relatives and clinical staff.

ERECTING 175 WIND TURBINES IN AUSTRALIA

Over more than 40 years, Vestas has together with its customers installed 105 GW of wind power capacity. This unmatched track record is the backbone of the Danish company's expertise and unrivalled experience powering continuous product improvement and performance optimisation. Vestas turbines have been installed in 80 countries around the world, operating on every kind of site, from high altitude to extreme weather conditions.

// HEAVY CRANES
// ONSHORE WIND
// AUSTRALIA



BMS Heavy Cranes Australia PTY Ltd. has signed contracts with Vestas Australia Wind Technology PTY Ltd. regarding the erection of 175 wind turbines. Therefore, you will until fall 2020 be able to meet crews and equipment from the Australian part of the BMS Group on four locations in the states Victoria, Western Australia, and New South Wales.

For the significant assignment, BMS Heavy Cranes Australia is using a number of cranes such as Liebherr LG-1750 SX, Liebherr LTM-1750, Liebherr LTR-1300, Liebherr LR-1220, Liebherr LTM-1250, and Grove GMK-6300. These cranes unload components, pre-install tower bottoms, and perform full installation of complete wind turbines.

In the most positive sense, it has been a challenging task to get BMS Heavy Cranes Australia in place – from the physical establishment of an office and the organisational setup to the recruitment of employees. One of the key factors has been to ensure that the organisation in Australia is built with the same set of values as the BMS Group as a whole. As the customers are global, it is crucial in the globalisation of the BMS Group that the values are consistent and implemented across countries, so that customers experience the same uniform and high level of service, perfor-

mance as well as flexibility and focus on solutions that create value for the customer.

The establishment in Australia – with the Vestas contract as the living proof of success – has been fruitful with excellent help from the BMS Group, including Legal, IT, Finance and Human Resources. In addition, there has been considerable cooperation with the BMS corporation in the United States of America in areas such as contract negotiation and management.

MIND THE GAP

// SPMT & HYDRAULIC TOWERS
// INFRASTRUCTURE
// DENMARK

Over four consecutive days in late 2018, Banedanmark – a governmental body keeping the Danish trains on track – had to renew a railway bridge over one of the main roads in Copenhagen. The installation of a new steel bridge is part of the new railway line between the Danish capital and Ringsted some 60 kilometres southwest of Copenhagen.

Banedanmark contacted the BMS Group to find a solution with a minimum of disruption of the public traffic on both road and rail.

As is the case with all complex tasks, BMS Engineering was involved. The engineers chose to combine the transport and installation of the bridge in one solution using four hydraulic towers and two self-propelled modular transporters (SPMTs) side-by-side equipped with four metres high steel supports. This solution reduced the cost by 50 per cent compared to a conventional lifting and transport solution.

As the bridge weighed 265 tonnes and had a length of 36 metres, a width of 12 me-

tres and was 1.5 metres high, its overall stability had to be secured by placing the support towers very close to the edge of the SPMT deck. This resulted in high utilisation of the SPMT bearing capacity.

Transporting a large steel structure six metres above terrain through an urban housing area with the surface varying from soft ground to paved public road – and with many obstacles such as traffic lights and overhead power lines – presented BMS with several challenges. Also,

level jumps, two-way slopes and wind loads had to be taken into account.

As this project would test the equipment to the limit both design and field work were excessive. However, once more it was proved that using BMS Group as transportation, installation and lifting specialist gives the customer access to highly skilled and experienced specialised riggers, operators, supervisors and engineers combined with the best in equipment.

Banedanmark makes sure the tracks, signals and safety systems are properly maintained, renovates the rail network and builds new lines. Furthermore, the governmental body monitors rail traffic and steers trains in and out of stations and across the entire network. Banedanmark is responsible for 3,102 kilometres of railway tracks. Over 3,000 trains run on the network every day, transporting more than 196 million passengers and 8 million tonnes of freight annually.



FIRST MOVER IN TAIWAN

// HEAVY CRANES & SPMT
// OFFSHORE WIND ENERGY
// TAIWAN

Some six kilometres off the west coast of the Miaoli district in the Taiwan Strait with water depths between 15 to 30 metres you will find Formosa 1, the first offshore wind park in Taiwan.

At this point, phase 2 of the park consists of 20 wind turbines (6 MW each) delivered by Siemens Gamesa Renewable Energy Taiwan. From April to October 2019 specialists from BMS Heavy Cranes took care of the installation of the wind turbines cooperating with local partners such as 7 Star International Co. Ltd. and I-Cheong Machinery Inc.

The partners supplied gear like Liebherr LR1750 and Liebherr LR1550 crawler cranes as well as 18 axle self-propelled modular transporters (SPMT's).

The job consisted of transport of towers, nacelles and blades to storage, transportation to the pre-assembly site, assembly of towers and preparation of wind turbine components for offshore installation.

The next major Taiwan job for the BMS Group will be for Siemens Gamesa Renewable Energy Taiwan at a project called Yunlin.

Here, the German-Spanish wind power company will install 80 wind turbines with a total capacity of 640 MW.

Due to the assignments in Taiwan, the BMS Group has founded the company BMS Heavy Cranes Taiwan.



Siemens Gamesa is a global leader in the wind power industry, with a strong presence in all facets of the wind business: offshore, onshore and services. In 2017 Siemens Gamesa was the number-one company in the sector, with a 17 per cent share of new capacity installed. The company has installed 85 GW worldwide.

Siemens Gamesa is presently building a factory for the production of offshore nacelles in the Taiwan harbour city of Taichung. This is the first Siemens Gamesa offshore nacelle production facility outside Europe where the company has similar factories in Denmark and Germany.

IN THE COUNTRY OF GIANTS

// MOBILE CRANES & SKIDDING
// DATA CENTRES
// DENMARK

A data centre is a building, a dedicated space within a building, or even a group of buildings used to house computer systems and associated components such as telecommunications and storage systems. A data centre stores data from telephones, tablets and computers – and it is an industrial-scale operation using as much electricity as a medium-sized town.

Data centres can be found around the globe – with Denmark as an example. Here Facebook, as well as Google and Apple, have chosen to locate data centres. And the BMS Group has been involved in data centre installation work in Denmark.

With exceptional knowledge on projects with extreme requirements regarding documentation and safety, the BMS Group is a significant player in the establishment of data centres. For example, the BMS Group has extensive knowledge and experience when it comes to crane lifting, unloading, and skidding of particularly sensitive equipment – no matter the conditions.

As a complete supplier for data centres, the BMS Group handles:

- // Organization of the overall assignment taking into account all risks before execution
- // Mobile cranes of all sizes
- // Truck-mounted cranes of all sizes
- // Lifts of all sizes
- // Skidding of up to 3,000 tonnes
- // Extreme degree of documentation
- // Full discretion

Solving these types of tasks includes a lifting supervisor (Appointed Person) who ensures that lifting and handling are carried out in accordance with lifting plans as well as Risk and Method Statement (RAMS). In lifting operations, an Appointed Person is the person responsible for the execution and safety of a lifting operation. Although duties may be delegated to others, it is the Appointed Person who retains the responsibility of the process.



In general, data centres are surrounded by a lot of secrecy. If you want to get an impression of their size, you have to put data together: For example, one data center in Denmark is more than 160,000 square metres, while another has a power consumption of 40 MW and a third costs 600 million EUR to build.

188-YEAR-OLD WINDMILL WILL SOON GRIND AGAIN

// MOBILE CRANE
// BUILDING REPAIR WORK
// DENMARK

When a hurricane swept over Denmark in December 1999, it damaged one of the most significant buildings in The Funen Village, an open-air museum featuring some 25 structures.

The building – an octagonal windmill with a straw-thatched top – was constructed in 1832 and operated as a grain mill until the mid-1930s. It was then dismantled, and in 1942 it became one of the first buildings in The Funen Village, a public works project established during the German occupation of Denmark. The windmill was fully functioning up until the storm hit it.

After securing funding from a large Danish foundation, it was decided to bring the windmill back into function. The broken top was taken off, restored and put back in place. The latter part of



that process was taken care of by people and gear from the BMS Group. The restored hat with a weight of around 10 tonnes was lifted back in place using a 100 tonnes mobile crane. The equipment was delivered by BMS Kolding while the job was calculated and planned by BMS Odense.

Compared to most other lifting assignments within

building repair, the one at The Funen Village was particularly challenging as the area as well as all buildings are protected under the Act of Conservation.

The windmill will be fully operational by 2020 when the grinders are installed and adjusted – and volunteers have been trained in the classic milling profession.



The windmill is known as Maderup Mølle as it originates from the Funen village Maderup. The open-air museum also contains buildings such as a parsonage (1692), a watermill, an inn, a school, and several residential structures. In addition to the buildings, The Funen Village features ornamental gardens with fruit trees of old Funen varieties as well as livestock of Danish breeds.

Combining onshore and offshore wind, blades, hydro, storage, utility-scale solar, and grid solutions as well as hybrid renewables and digital services offerings, GE Renewable Energy has installed more than 400 GW of clean, renewable energy and equipped more than 90 per cent of utilities worldwide with its grid solutions. GE Renewable Energy has nearly 40,000 employees in more than 80 countries.

THE BEST SOLUTION FOR THE MIGHTIEST WIND TURBINE

// ENGINEERING & CRAWLER CRANE
// ONSHORE WIND POWER
// THE NETHERLANDS



In connection the installation of the world's largest wind turbine at a test site in the port of Rotterdam, the BMS Group was given the assignment because BMS Heavy Cranes had just the right equipment at the right time. The alternative solution of having two Liebherr LR11350 crawler cranes carrying out the lift in tandem also played a positive role.

It was decided that the lifting of a 725 tonnes nacelle simultaneously with two of the largest crawler cranes in the world should take place with a lifting beam for tandem lift. The BMS Group did not have this equipment at the time the solution was agreed upon with the customer – but in a preliminary study, BMS Engineering had prepared

tion hours were used before the beam was ready for the test. A 7-tonnes hook with a capacity of 1,250 tonnes was custom-made with rounded horns to meet sling bending radius requirements.

The overall dimensions of the beam for the tandem lift were 9 metres long, 2.5 metres wide and only 3.3 metres high. In order to obtain enough lifting height, both crawler cranes had to be located on a pad constructed by a local company but thanks to the relatively small height of the beam the pads could be kept at just 2.5 metres.

All in all, the task in Rotterdam consisted of lifting four tower sections, a complete nacelle and three blades.

length be the largest and most powerful offshore wind turbine to date. Thus, it is only fitting that the BMS Group solved the task using gear of considerable dimensions.

The Haliade-X from GE Renewable Energy features the world's first 12 MW capacity, 220-metres rotor, a 107-metres blade designed by LM Wind Power, and digital capabilities. The Haliade-X will also be the most efficient of wind turbines in the ocean as it is capable of transforming more wind into power than any other offshore wind turbine today.

The Haliade-X 12 MW ocean wind turbine can generate 67 GWh, that is enough power to supply 16,000 European house-



the concept as a basis for decision.

After acceptance of the concept, it was agreed that BMS Engineering should have five months to design, produce and test lift the beam. During this period, in round numbers, 400 design hours and 1,500 produc-

And in total, BMS Heavy Cranes transported approximately 4,000 tonnes of crane equipment to the site at the Sif Netherlands B.V. terminal in Maasvlakte Rotterdam.

The wind turbine in Rotterdam is a land-based prototype of what will at

holds according to wind conditions on a typical German North Sea site. A 750 MW Haliade-X 12 MW windfarm based on an estimated annual energy production could produce enough power for up to 1 million households.

STRATEGIC CREATIVE THINKING GOT THE JOB DONE

// MOBILE CRANE &
TRANSPORTATION
// CONSTRUCTION
// DENMARK

The new Comfort Hotel is part of Nordic Choice Hotels, which among many other hotels includes the neighbouring Clarion Hotel at Copenhagen Airport. 'The Hangar', whose 2,500-square-metres conference room can be divided into smaller units, has a capacity of 2,150 people.

When building the Nordic region's largest airport hotel and congress centre directly linked to Copenhagen Airport, special attention must be paid to approach zones for runways. Consequently, it is not necessarily possible to put cranes where it from a construction perspective is most appropriate. This was indeed true for BMS Copenhagen when working on the new Comfort Hotel just off the busy terminal 3 of the airport.

A central part of the task for the BMS Group was the establishment of the approximately 2,500 square metres conference room 'The Hangar'. This central part of the hotel was to be constructed without pillars and able to carry the weight of a hotel building including 605 rooms, a restaurant, a sky bar, a fitness centre and meeting facilities.

In connection with the construction, BMS Copenhagen erected a 750

tonnes Liebherr LTM 1750-9.1 mobile crane with 134 tonnes ballast and 28 metres luffing jib. The crane was used, among other things, for mounting five large steel beams, the heaviest of which weighed 74 tonnes. The beams each had a length of 29 metres and a height of 6.5 metres.

The most economically advantageous solution was to place the hydraulic crane on the northern part of the construction site, where there was, however, only a 10 metres wide and inclined area to work with. Furthermore, it should be taken into account that on one side there was an approximately six metres deep excavation for the hotel's basement, while the area on the other side sloped directly down towards the electrified railway line between Copenhagen and western Sweden.

Since 750 tonnes of mobile crane has a width of 12 metres from the centre of one

support leg to the centre of the other, it was necessary to think creatively. Based on calculations performed by BMS Engineering, it was concluded that the crane's support legs on one side could be placed on six metres high steel towers placed on the bottom of the excavated area.

To solve the task at Comfort Hotel, low loaders consisting of eight THP axles with space units were used by the BMS Group's transport company Torben Rafn A/S. This part of the Group was responsible for the transport from Give Steel A/S' plant on the Danish mainland to the construction site – a journey of almost 300 km.

The client of the BMS Group is the Nordic contracting company HENT AS, which develops and executes all types of construction projects. HENT has its headquarters in Norway.

24 CRANES AT WORK IN SPAIN

// HEAVY CRANE
// ONSHORE WIND
// SPAIN

In Zaragoza between Madrid and Barcelona, the BMS Group has had an assignment for General Electric Renewable Energy lasting from March until December 2019.

The local entity, BMS Heavy Cranes Iberica, has been unloading and reloading wind turbine elements in the storage areas, unloading to the platforms, pre-installation of towers – with the use of two sets of cranes – and main erection of the full wind power turbines, this with four sets of cranes.

All in all, BMS Heavy Cranes Iberica has been using 24 cranes from 130 to 750 tonnes capacity. The four main cranes have been Liebherr LG1550, Liebherr LG1750 and Liebherr LR1600/2W.

An essential part of the task has been site management to ensure efficient use of all the cranes involved as well as the fulfilment of the

Spanish working requirements. Even though the BMS Group set up a company in Spain beginning 2019 and has been operating on several projects since then, there are still vital things to consider. These include not least language barriers and training of the local workforce.

Forestalia, the developer of these under construction clusters in the Zaragoza region where BMS Heavy Cranes Iberica has been successful involved, is part of a 1.5GW cluster planned to be developed in the region under Spain's renewable energy plan. Goya, Monlora, Artigas, Jiloca, Valdejálon and Moncayo clusters are some of nine subsidy and incentive-free wind farms covering an area of 24 square kilometres.



The wind farm is equipped with General Electric Renewable Energy's GE3.4-130 and GE 3.8-130 wind turbines. Both the turbine models have a 63.7 metres rotor with a diameter of 130 metres and three blades. The height ranges between 85 and 131 metres, while the tip heights are from 150 to 233 metres.

CRAWLER CRANES HELP CITIES DEVELOP

// CRAWLER CRANE
// CONSTRUCTION
// DENMARK

Many cities around the world are experiencing a genuine construction boom these years – both in residential and commercial buildings. The Danish city of Horsens is no exception. Here the crawler cranes from the BMS Group have been busy at a number of building sites.

At a central square in Horsens, two Liebherr LR 1130 crawler cranes with main boom, luffing jib and two winches have been hoisting elements for OM Montage A/S. And at the same place, the Liebherr LR 1130 was assisted by a Liebherr LR 1200 with main boom, luffing jib and two winches for an as-

ignment for the company PH-Montage A/S.

In both cases, the crawler cranes were chosen due to their high flexibility and their ability to drive alongside the building being constructed.

At another central location in Horsens, CRH Concrete

A/S required a Liebherr LR 1130 – also with main boom, luffing jib and two winches – for the hoisting of building elements. The same customer asked for the same two crawler cranes for a similar job at yet another building site in Horsens.

Horsens – the 8th largest city in Denmark – is well-known for its ability to draw major names such as Madonna, Metallica, Joe Cocker, Elton John, Bob Dylan, Tom Jones, Bryan Adams, David Bowie, Paul McCartney, Robbie Williams, The Rolling Stones, U2, and Rammstein.

FROM RUSSIA WITH LOVE

// BMS PEOPLE // RUSSIA

Over the last decade the BMS Group has set up subsidiaries in a number of countries on three continents – and most recently BMS Heavy Cranes has entered the vast Russian market.

One of the people working in Russia is René Madsen. He was among the first employees of BMS Heavy Cranes as he started with the company in June 2011

– in fact as the first crane operator. However, he had his first job as a crane operator with the Danish crane company Kranløft back in 1997, operating a TC1200 crane with 250 tonnes capacity and produced some ten years earlier.

Based on his experience from working in the Scandinavian countries, the United States of America,

Australia, South Africa, and numerous countries in Western Europe René Madsen describes the Russian job:

“The thing that impressed me the most at first was the language barrier combined with a somewhat different culture when it comes to crane work. Also, I have been overwhelmed by the huge distances in a country that is, by a

considerable margin, the largest in the world by area.”

René Madsen says that what keeps him happy being with BMS Heavy Cranes is meeting new people, travelling, working with heavy equipment, handling wind turbines, and sharing experiences and values within the BMS Group culture.



The Danish crane company Kranløft was founded by the entrepreneur Asger Enggaard in 1971. Later the company developed into Kran Ringen – and by 2004 the Enggaard family took over 50 per cent of the company BMS founded in 1953. The remaining half of BMS was taken over by the Enggaard family in 2007. Over the following decade, subsidiaries have been set up in Sweden, Norway, Germany, Poland, the United Kingdom, South Africa, the United States of America, Australia, and Spain. Furthermore, the BMS Groups has grown through the acquisition of companies specialised in transport and truck-mounted lifts.

WHEN I'M CLEANING WINDOWS

// TRUCK-MOUNTED LIFT
// BUILDING MAINTENANCE
// SWEDEN

People may think that cleaning windows is not something that requires special skills. However, the Swedish company Cleanmaker AB, which specializes in high-pressure window cleaning and facade washing, strongly disagrees with this.

Often Cleanmaker's tasks take place on tall buildings. That is why they partner with BMS Manlift, who with

truck-mounted Palfinger lifts can assist in getting up high enough.

The BMS maintenance lift is mounted with rotating brushes. Standing on the ground, a Cleanmaker employee ensures that there is sufficient water for the brushes, while the operator from BMS Manlifts controls the lift moving up and down the facade of the building. The brushes are fitted with

springs, so that it is possible to maintain a correct and constant distance to the building.

A few current examples of tasks that Cleanmaker and BMS Manlift have jointly solved are cleaning a Vattenfall building in Solna as well as several Stockholm buildings owned by the same real estate corporation. Here, the companies that benefit from clean

windows include Nordea, Skanska, SEB and ICA.

Regardless of the location and height of the building, these are tasks that require extremely high precision on the part of the lift operator, as there must always be the same distance to the facade. Indeed, this is not a task for inexperienced people.



"When I'm Cleaning Windows" is a comedy song performed by the English actor, singer-songwriter and comedian George Formby, OBE (1904-1961), who became known to a worldwide audience through his films of the 1930s and 1940s. On stage, screen and record he sang light, comical songs, usually playing the ukulele, and became the highest-paid entertainer in the United Kingdom. The song first appeared in the 1936 film "Keep Your Seats, Please" starring George Formby, Florence Desmond and Alastair Sim.

BMS HELPS LIGHTHOUSE TO NEW LOCATION

// JACKING AND SKIDDING
// CONSTRUCTION
// DENMARK

WHEN THE DANISH NATURE AGENCY UNDER THE MINISTRY OF ENVIRONMENT AND FOOD CONTACTED MASTER MASON KJELD PEDERSEN TO HEAR IF HE COULD MOVE A MORE THAN 100-YEAR-OLD LIGHTHOUSE, HE GOOGLED "HEAVY LIFTING".

And then he called BMS Krangården. This company, like other parts of the BMS Group, has extensive experience with many different types of heavy lifting. Still, it was nevertheless an unusual task as they were to bring the Rubjerg Knude Light-

house to safety. When the Rubjerg Knude Lighthouse was built in 1899, it stood 68 metres above sea level – and just as importantly at a safe distance from the roaring North Sea. Over the decades, however, the ocean has eroded the coast signifi-

cantly, and in recent years the lighthouse has been dangerously close to the slope down to the beach.

Every year the sea takes several metres off the Danish west coast, and it is inevitable that without a relocation the lighthouse

would lie crushed on the beach in just a few years. But then the master mason and the BMS Group got involved in the story.

Rubjerg Knude Lighthouse was in active operation from 1900 to 1968. After that, it was for a period a museum until sand-drift made this use impossible as well. The area around the lighthouse has about 250,000 visitors each year – and that is not expected to decrease since the lighthouse has moved to a safer location. Rubjerg Knude Lighthouse can likely stay in its current location for 20 to 40 years. Then it may need to be moved again – and now the BMS Group knows how to do just that.

The 750-tonnes lighthouse was moved by reinforcing its foundations with iron and concrete, putting roller skates under specially installed cross beams, lifting jacks and pushing the construction with hydraulic pistons along a 70-metres long track of steel plates and rails.

While BMS Engineering did the calculations, BMS Aalborg provided cranes and BMS Krangården took care of jacking and skidding. Not surprisingly, the operation attracted consider-

able interest – partly from around 25,000 spectators and partly from both national and international press. The news of the successful relocation of the lighthouse on the Danish northwest coast reached the world. And so did the BMS name.

It was expected that the lighthouse could be moved at eight metres per hour, but the process was considerably faster than predicted, so the speed reached 12 m/h and the work could be completed long before calculated.



THE STORY ABOUT THE RELOCATION OF RUBJERG KNUDE LIGHTHOUSE HAS GONE AROUND THE WORLD. THE LARGE-SCALE PROJECT HAS BEEN MENTIONED MORE THAN 1,000 TIMES IN NATIONAL AND INTERNATIONAL MEDIA - AND IT HAS GENERATED CONTACTS WITH AS DIVERSE NEWS CHANNELS AS THE BRITISH PUBLIC SERVICE BROADCASTER BBC, THE AMERICAN NEWS AGENCY ASSOCIATED PRESS AND THE GERMAN NEWSPAPER PUBLISHER BILD.



300- TONNER PUTS A LID ON

The raw material for AGA's new air separation plant is air that has been purified and cooled to about minus 200 degrees Celsius. At this temperature, the gases oxygen and nitrogen are liquefied and can be separated from one another. They then constitute part of AGA's many industrial gases and speciality gases. These gases are used for freezing and cooling food, oxygen for patients in hospitals, drug production, electronics production, oxygen for the steel industry, purification of wastewater and polluted grounds as well as, and not least, welding and cutting in the industry.

// MOBILE CRANE
// INDUSTRY
// DENMARK

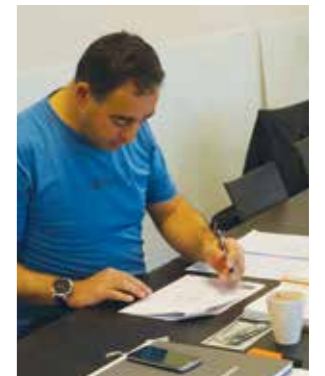
AGA – a leading gas company in the Nordic and Baltic countries and part of the world's largest gas group Linde – is presently building an air separation plant at Vejle, Denmark. The new 45 million EUR facilities will meet the demand from AGA's steadily increasing number of customers, while at the same time strengthening the security of supply. Furthermore, the Vejle branch will relieve – over time – the AGA's existing Copenhagen facilities, dating from the 1970s.

BMS Aarhus and BMS Kolding have been helping AGA put a lid on one of the tanks at the new Vejle plant. The lid – with a diameter of 20 metres and a total weight of 23 tonnes including hook and lifting gear – had to be handled with a special lifting beam with a large number of wires. The task was carried out with a 300-tonnes mobile crane with 96 tons counterweight.

The AGA assignment is an excellent example of the close collaboration between the different parts of the BMS Group, as the crane was provided by BMS Aarhus, while BMS Kolding was responsible for the planning of the lifting as well as packing and delivery of equipment. Finally, both BMS departments supplied the ballast trucks.



SPECIALIZED TRAINING AS APPOINTED PERSONS LIFTING OPERATIONS



Some of the BMS Group's customers have also participated in courses together with the employees - and there is inquiry from several sides to attend future Appointed Person courses.

In lifting operations, an Appointed Person is the person responsible for the execution and safety of a lifting operation. Although duties may be delegated to others, it is the Appointed Person who retains the responsibility of the process.



// TRAINING // BMS GROUP // WORLD WIDE

Over the last couple of years, the BMS Group has trained more than 40 employees as Appointed Persons, a recognized crane industry training.

It all started when, in connection with assignments in the United Kingdom, the BMS Group was required to provide employees with

specialized training as Appointed Persons.

Subsequently, it was decided that it would be excellent basic training, which is now being given to a number of technical employees. This is done both to prepare them for specific tasks as well as to be ready to meet customer requirements. In fact, this is already true outside the United Kingdom. For example, in connection

with projects in Denmark, British contractors require that the BMS employees planning and executing the lifts are trained as Appointed Persons.

Under the British Lifting Operations and Lifting Equipment Regulations 1998, an employer must ensure that each lifting operation is planned by a "competent person". The British Standard 7121 Code of Practice for Safe Use of Cranes states that "the competent person for planning lifting operations is referred to as the appointed person". When properly trained, the course participant acquires the title Appointed Person Lifting Operations.

YOUR CONNECTION TO CRANES, LIFTS AND MORE

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