LDW News

Information and news from Lloyd Dynamowerke

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LDW Lloyd Dynamowerke

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The power of the perpetual ice: Electricity from the water of glaciers

LDW installs special generators in Greenland. They are located in underground tunnel systems and produce energy for research stations.

Disco Bay near Ilulissat (Greenland) is largely ice-free for three months of the year. The LDW machines must be delivered and installed during this period.

There are still questions to which even Google has no answer. For example, anyone wanting to compute the route between the two Greenland locations of Ilulissat and Sisimiut receives the helpless answer of "We were unable to calculate the route".

This may well be due to the fact that Ilulissat and Sisimiut are two of the most remote places in the world where there is a mentionable amount of economic activity. If visitors come, then it is usually to watch the icebergs which break off from the glaciers here and drift into the ocean.

Another group of visitors travels to the West coast of Greenland to explore the land – and especially to look into the natural resources hidden there. These scientists require considerable amounts of energy in order to run their stations and penetrate into the soil layers beneath the permafrost.

The power supply is now being ensured by means of special solutions from LDW: two hydro-electric generators have already been installed at Sisimiut and three further generators will be delivered to Ilulissat in the summer of 2012. The first of the three turbines, supplied by Kössler, LDW's Austrian partner, will come into operation during the year 2012. Contracting entity is the Icelandic Verkis enterprise.

Extremely high demands are made on the LDW team with this project. The machines must give top performance under difficult conditions, they must be able to start up without

Article continues on page 3

Editorial

Dear Reader,

this edition of LDW News is all about renewable sources of energy. The focus this time is on hydro-electric power. This is gaining worldwide significance because it is a technology that is environmentally very sound. It is at the same time flexible: it can be applied in the most remote regions of the world as long as there is flowing water.

The operators of hydro-electric plants like to use LDW generators because we can adapt our machines optimally to individual requirements. Several generations can enjoy these advantages, for each machine is designed to last at least 50 to 60 years.

The fact that we are also among those at the forefront of wind energy is shown by EU funding and the visit by the State of Bremen's Senator of the Environment (page 4).

Do not hesitate to contact us if you would like to learn more about these topics!

Berthold Groeneveld
Managing director

Visit LDW at the following fairs in 2011:

8 - 10 February 2011
Middle East Electricity, Dubai (UAE)

28 - 30 March 2011
Russia Power, Moscow (Russia)

4 - 8 April 2011
Hannover WIND 2011, Hannover (Germany)

17 - 19 October 2011
HYDRO 2011, Prague (Czech Republic)

More information about the LDW stands and the various trade fairs is available on the Internet at www.LDW.de (click on „English“, then „News“ and „Fairs / Events“).

LDW delivers 61 motors for drilling rigs to the Far East

Lloyd Dynamowerke GmbH & Co. KG (LDW) have delivered the last of a total of 61 direct current (DC) motors for use in seven deep-sea drilling rigs to Flowserve Hamburg GmbH. The assembly of the oil platforms occurs at a shipyard in the Far East. Three of seven rigs have already been put into operation.

Each drilling rig is equipped with eight positioning drives with an output of 2610 kW during continuous operation or 2870 kW for two hours. Four of these drives are in operation while the remaining four are redundant and held ready for safety reasons. Additional machines have been requested by the operator as spares. The LDW motors with a frame size of 900 mm are assembled to azimuth gear boxes to drive the rigs' propellers. All together, the order comprises a volume of 15 million Euro.

LDW produces special machines for areas of application that have particularly high demands for efficiency and reliability. These include, for example, shipbuilding, the energy sector, the petrochemical industry and mining. In this case, the drives were delivered in a vertical construction design with cooling by a radial fan. In addition, each motor is equipped with an air-water heat exchanger which cools the air in the thruster room. This is necessary to offset the heating effects of hydraulic aggregates in those rooms.

Awards from Areva and Electrolux

Business partners praise high quality of LDW machines

The high quality of LDW machines received two awards in recent months. On 15th June the Bremen-based enterprise received the "Top Areva Supplier" seal of approval from the French energy technology corporation Areva. Prior to this, LDW – as one of two companies – had received the "3D Award" from the Electrolux consortium for outstanding partnership.

This year Areva presented an award to the best of approximately 8,800 German suppliers to the group for the second time. The seal of approval is awarded to partners who combine success factors such as know-how, innovative strength, reliability and quality. "The Areva award shows that LDW machines can be relied on even when the highest level of safety is demanded," manager Berthold Groeneveld emphasised.

Electrolux as the right holder of the AEG brand regularly accredits companies who continue to offer their products under this name. LDW achieved such a good position in this accrediting process that the enterprise, as one of two companies, was presented with the "3D Award for Company Collaboration" at the licencees' symposium. The prize was awarded by "Electrolux Global Brand Licensing".

"Top Areva Suppliers" must pass an audit and demonstrate permanent top performance.

Berthold Groeneveld is delighted at the recognition shown to LDW by important partners like Areva and Electrolux: "Our machines are used when particularly high quality is expected or unusual demands are made. Awards such as these are a welcome confirmation that our customers are extremely satisfied with our products."

Hydro-electric projects between the Black Sea and the Arctic Circle

Plants for the production of renewable energy are being developed worldwide – LDW supplies the appropriate generators

More than 15 per cent of the energy produced worldwide in the year 2008 came from hydro-electric power – and the trend continues to rise. In Austria and Switzerland approximately half of the electricity comes from this source. The percentage will also continue to rise in the rest of Europe because the EU has set a goal of developing renewable energy sources to a huge extent by the year 2020.

LDW is involved on this market with machines that are specially designed for hydro-electric plants. An important factor here is the high degree of efficiency.

Meanwhile, know-how in this field is under increasing demand. Hydro-electric generators from Bremen are performing their duties in many countries between the Black Sea and Greenland, but they are also in demand outside of Europe. After LDW undertook the first targeted initiative in this branch in 2007, as early as 2009 the business field contributed approximately 7 million euro to the company's turnover.

In addition to the project in Greenland (see page 1), several further machines have been or are being delivered at present. LDW has already installed two generators in Turkey for the Kulp I power plant. Two more have been ordered for Kulp IV and Aksu respectively.

In Sweden three machines have been connected to the grid, one in Ludvika and two in Lernbo. They are used during peak load times and at the same time guarantee the supply to facilities important for the infrastructure in the event of a regional power failure.

On the left the new generator for the Alstom power plant in Rheinfelden before delivery, on the right the two machines for Kulp IV (Turkey) during installation.

One of the largest vertical machines that LDW has ever supplied will in future be in use in Rheinfelden (Switzerland). The generator supplies power to three large plants at times when the Rhine has insufficient water for normal power plant operation. Corresponding to customer specifications the assembly ring has a very large diameter, which made transport very difficult. Due to its weight, transport by road or rail was not permitted. It was brought to Rheinfelden by inland waterway vessels and is now in operation in a power plant at an Alstom power plant.

From 2011 a further LDW machine will also come into operation in Austria. The customer for this project is Kelag, a large energy service provider.

Power for research stations – power plant construction in Greenland

Continued from page 1

an external power supply, and they must be transported through the narrow tunnel system before LDW workers can assemble and commission them at the site of operation.

There may be no delays in time here. Disco Bay near Ilulissat is only ice-free for three months in the year – all important plant components must be delivered within this period of time.

The tunnel system in which the Ilulissat hydro-electric plant is constructed has been specially dimensioned according to the size of the machines. Any protruding parts have to be dismantled before the generator components are brought to their sites of operation on trolleys. Because of the limited space, machines of a relatively compact size have to generate a large output. A particular feature here is the degree of efficiency: at cos phi 1 it is 98.26 per cent.

A further highlight is the use of generators with permanent magnet excitation. These machines are largely independent of the power supply from the grid – they have their own excitation system.

The so-called black start is guaranteed through the aid of a digital control: all aggregates can start up again on their own.

Also important: LDW machines are constructed to last for at least 50-60 years of operation. The power supply to the Ilulissat research station is thus guaranteed for the foreseeable future.

A special colour for special machines: the first hydro-electric generators that LDW supplied to Greenland are in Sisimiut.

LDW Donates Generator to Research

Official Introduction by Bremen's Environmental Senator Loske – EU supports further development

Lloyd Dynamowerke together with the University of Bremen have developed a state-of-the-art Maximum Moment Generator that will facilitate a distinctly higher performance in the wind force industry. The first prototype was officially put into operation for the first time on the 26th of February, 2010, by Bremen's Senator for Environment, Construction, Traffic and Europe, Dr. Reinhard Loske.

LDW has donated the generator to the University of Bremen so that the on-site Institute for Electrical Drives, Power Electronics and Devices (IALB) can conduct further research on the the so-called transverse flux technology in the future.

The machine was developed and manufactured in recent years with the support of the environmental senator. Now the prototype serves as a basis for the next stage of development, which is being advanced within the framework of the EU project „WINGY-PRO" by LDW and the Bremen Center of Mechatronics (BCM) together with other international partners. Brussels contributes about 2.5 million Euros to the project.

Transverse flux machines with a significantly lower weight and volume can produce a greater performance than conventional electrical machines. Up to now, they have not been used in practice due to some unsolved technical problems, for example, the strong vibration. The BCM and LDW have corroborated to work out solutions for these obstacles. Now within the framework of the EU project, the technology is being further developed so that it is able to be applied to more powerful machines.

The partners are very confident that nothing is standing in the way of a market launch at the end of the three-year project run time.

Bremen's Environmental Senator Reinhard Loske starts the prototype in front of cameras.

Driving forces behind the development: Holger Raffel (BCM), left, and Norbert Götschmann (LDW). Photos: Klockgether

New head of the sales department

Head of sales: Jens Kastens

Jens Kastens is the new head of the sales department at Lloyd Dynamowerke. On 1 November 2010, he took over these responsibilities from managing director Berthold Groeneveld, who wants to focus more on other business developments.

Kastens has been with LDW for more than 25 years and knows the company very well. Born in Bremen, Germany, he acquired a university degree in electrical engineering and started his career at LDW's sales department soon thereafter. Jens Kastens, who previously led the AC-machines division, now serves customers across all business areas.

500 people participated in the „Long Night of Industry"

Jobs in industry are often very interesting and modern – that is the message ten local businesses conveyed during the "2nd Long Night of Industry" in Bremen on 18 November 2010. More than 500 participants joined guided tours and asked questions about innovations, products an environmental protection. LDW's visitors were once again surprised by the impressive size and power of the motors and generators. More information about the event can be found on the Internet (in German language):
www.langenachtderindustrie.de

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