

Wind farm construction is safer, simpler, lower cost, with Dyneema®

The world's largest offshore wind farm is under construction in the North Sea, 23 km off the coast of England. Scheduled for completion in 2012, the Greater Gabbard wind farm's 140 turbines will generate 500 megawatts of electricity for the people of London. Use of Dyneema® Ultra High Molecular Weight PolyEthylene (UHMWPE) fiber is helping ensure that the construction project moves ahead as efficiently and safely as possible.

To provide peak performance in 35 meter seas, the turbines are mounted on top of 65 meter, 650 tons steel "monopiles" that are transferred by barges from the Verbrugge Zeeland Terminal in Vlissingen, Netherlands to the construction site.

For lifting the long and heavy monopiles, the operating company's safety department wanted an alternative to steel wire and chain lifting slings that would have better ergonomics and be safer to use. The new slings would need to be as strong as (or stronger than) those made from traditional materials, but lighter and easier to handle, and so less likely to cause operator injury to hand, arm, shoulder, and back. Additional safety concerns over steel wire rope slings, such as the tendency for wire strands to

snap over time and create "fishhooks", prompted the search for a safer solution.

ULTRALIFT™ round slings made with Dyneema® provided all the answers. They are made by Technotex, located in Coevorden, Netherlands. They have quickly won the full approval of the terminal operator. According to Mattheo Rozemond, responsible for handling the Greater Gabbard monopiles at Verbrugge Zeeland Terminal, "Initial skepticism among our employees has turned into admiration. The new slings help our team optimize safety and provide damage-free cargo handling." Costs associated with corrective maintenance have been virtually eliminated.

ULTRALIFT™ slings are just as strong as slings made with steel wire, but are seven times lighter, yielding considerable operational efficiencies. For example four men handle each sling, instead of eight for traditional steel wire rope slings. Auxiliary equipment such as forklift trucks, previously required to move the steel slings, has gone too. Easier sling handling is quickly converted into much higher productivity. The unloading time of a full shipload of monopiles has been reduced by one full day, with a saving in barge rental fee of over €60,000.



Rozemond summarises: “Using these new slings, we save costs in manpower, auxiliary equipment and rental fees. And we create more capacity for dealing with unforeseen circumstances. Furthermore, after intensively using the new slings to unload 56 monopiles, the slings show no signs of damage.” Technotex ULTRALIFT™ round slings comprise a loadbearing core covered with a heavy duty sleeve – both with Dyneema® fiber. The abrasion and cut resistant sleeves protect the load-bearing core and prolong its useful life. Slings are

CE-marked according to the European Machinery Directive 98/37/EG. The 180 tons slings supplied to Verbrugge Zeeland Terminal have an effective work length of 20 meters yet can still be manually handled. In brief: slings made with Dyneema® are as strong as steel wire rope slings at equal cross section, but are much lighter, they are easier to use, they present less risk of injury to riggers, they are extremely durable and highly resistant to chemicals and abrasion; they offer enhanced cost-effectiveness and operational flexibility.

About Verbrugge Zeeland Terminals

Verbrugge Zeeland Terminal is located in the port of Vlissingen at the mouth of the Western Schelde estuary and is one of the few open seaports in North-West Europe. An extensive rail network provides excellent freight connections to the rest of Europe. This ISPS (International Ship and Port facility Security code) certified company provides logistical services in the areas of: bulk products, paper and wood pulp, timber, steel and metal products, cars and roll-on/roll-off. For more information about Verbrugge Zeeland Terminal, visit www.verbrugge.nl.

About Technotex

Technotex is a division of the Unitex Group, the international trading name for a group of companies creating and distributing industrial webbing and finished products through a global network of sales and manufacturing centers in Asia, Europe and the United States of America. Unitex, is a leading manufacturer and supplier of narrow fabrics, web slings, round slings, lashing systems and height safety products. With a wide variety of products, innovation and continuous improvement Unitex fulfils the market demands and creates value for its partners in a dynamic industry. For more information about Technotex and their products, visit www.technotex.nl.



Ultralift™ is a trademark (application) owned by Unitex Group.

Disclaimer

All information, data, recommendations, etc. relating to DSM Dyneema products (the Information) is supported by research. DSM Dyneema assumes no liability arising from (i) the application, processing or use made of the Information or products; (ii) infringement of the intellectual or industrial property rights of third parties by reason of the application, processing or use of the Information or products by the Buyer. Buyer shall (i) assume such liability; and (ii) verify the information and the products.

Dyneema® and Dyneema®, the world's strongest fiber™ are trademarks of DSM. Use of these trademarks is prohibited unless strictly authorized.

DSM Dyneema B.V., Mauritslaan 49, 6129 EL Urmond,
The Netherlands. Tel. +31 (46)4 76 79 99

DSM Dyneema LLC, 1101 Highway 27 South,
Stanley, NC 28164, USA. Tel. +1 800 883 7404

DSM Dyneema, 476 Li Bing Road,
Zhang Jiang, Shanghai 201203, China.
Tel. +86 (21)61 41 80 58

www.dyneema.com