

## Technology Partners



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### HIGH-TECH ROPE FOR GREEN SHIPPING

*Key technology partnership brings sustainable solutions to the maritime market*

**URMOND (NL) / BREMEN / HAMBURG (D), 13 September 2010** - SkySails, DSM Dyneema and Gleistein have formed a unique technology partnership to bring sustainable solutions to the maritime market. Through combining their expertise in synthetic fibers and rope construction, DSM Dyneema and Gleistein enabled SkySails to develop the SkySails towing kite technology. As the world's most powerful and effective wind propulsion system, the SkySails-System reduces fuel consumption and emissions of ships by up to 35%.

One of the essential technology solutions for the SkySails-System is Dyneema<sup>®</sup>, the world's strongest fiber<sup>™</sup>. SkySails propulsion uses a rope made with Dyneema<sup>®</sup> fiber specifically developed by the three technology partners to deliver the high strength, light weight and excellent durability required for heavy duty rope applications. The towing rope transmits the tractive forces of the towing kite to the ship. With the help of the wind, a 160 square meter SkySails System generates up to 8 metric tons of tractive force – this approximately corresponds to the thrust of an Airbus A318 turbine engine.

*“Starting from the vision of a wind propulsion system for ships and developing it to a tried and tested technology ready for the market would not be possible for SkySails without strong and experienced partners,”* says Stephan Wrage, Managing Director of SkySails. *“In DSM Dyneema and Gleistein Ropes we found two most valuable partners who have supported us with their great experience and expertise in the solution development process from the very beginning. By combining our know-how, this technology partnership will bring us forward and enable us to jointly meet the (technological) challenges of the future. Together we will push the boundaries of existing technologies to further optimize and scale the SkySails-System.”*

At a time when shipping companies need to significantly reduce their vessels' fuel consumption to cut costs and lower emissions to safeguard the environment, the SkySails-System offers a sustainable solution. Niels Stolberg, President and CEO of the Bremen-based project- and heavy lift shipping company Beluga Shipping was the first pioneer to have one of his new multipurpose heavy-lift project carriers fitted with SkySails propulsion back in 2008.

After over two years of operating the system on board the MV “Beluga SkySails” he is clearly convinced of the benefits and great potential of the innovative technology: *“The MV “Beluga SkySails” is living proof that sustainability and climate protection do not conflict with, but rather even enable business success in maritime shipping. Beluga Shipping actively promotes green shipping and will continue to rely on wind power and innovative solutions in the future.”*

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### About DSM Dyneema

DSM Dyneema is the inventor and manufacturer of Dyneema<sup>®</sup>, the world's strongest fiber<sup>™</sup>. Dyneema<sup>®</sup> is an ultra strong polyethylene fiber that offers maximum strength combined with minimum weight. It is up to 15 times stronger than quality steel and up to 40% stronger than aramid fibers, both on weight for weight basis. Dyneema<sup>®</sup> floats on water and is extremely durable and resistant to moisture, UV light and chemicals. The applications are therefore more or less unlimited. Dyneema<sup>®</sup> is an important component in ropes, cables and nets in the fishing, shipping and offshore industries. Dyneema<sup>®</sup> is also used in safety gloves for the metalworking industry and in fine yarns for applications in sporting goods and the medical sector. In addition, Dyneema<sup>®</sup> is also used in bullet resistant armor and clothing for police and military personnel. Dyneema<sup>®</sup> is produced in Heerlen (The Netherlands), Flaach (Switzerland) and in Greenville, North Carolina (U.S.A.). DSM Dyneema is also a partner in a high modulus polyethylene (HMPE) manufacturing joint venture in Japan. Further information on DSM Dyneema is available at [www.dyneema.com](http://www.dyneema.com)

### About Gleistein Ropes

Gleistein has been manufacturing ropes since 1824 and is the oldest industrial family company in Bremen (Germany). Together with its Trencin (Slovakia) plant, the company boasts two of the most modern rope manufacturing facilities in the world with a total production area of more than 17,000m<sup>2</sup>.

Modern chemical fibers, sophisticated designs and future-oriented rope finishing equipment and procedures offer a definite quality "plus" that directly benefits the consumer.

Gleistein offers a complete service, provides its customers with industry-leading know-how and assists in selecting the perfect rope, whatever the need. Ready-to-use finishing of products, execution of contracted tests and the development of tailor -made solutions round out the comprehensive range of services.

### About SkySails

SkySails develops, manufactures and markets an internationally patented wind propulsion system for ships based on large towing kites. Depending on wind conditions, a ship's annual average fuel costs can be reduced by 10% to 35% using the SkySails System. Under optimal wind conditions, fuel consumption can be reduced, at times, by up to 50%. The SkySails System can be installed as an auxiliary wind propulsion system on virtually all existing and new build ships. Even fishing trawlers and superyachts of over 30 meters in length can be fitted with SkySails propulsion.

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SkySails was founded in 2001 and currently has about 80 employees. Lead investors are the renowned ship financing company Jan Luiken Oltmann Gruppe GmbH & Co. KG based in Leer and the highly respected marine engine supplier Zeppelin Power Systems GmbH & Co. KG. Furthermore and besides private investors, the group of SkySails investors also includes numerous notable shipping companies such as Triton Seatrade, Reederei Wessels, Reederei Jüngerhans, Briese Schifffahrt, and Reederei Opielok.

SkySails and the venerable Zeppelin Group established a joint venture called “Zeppelin SkySails Sales & Service” at the beginning of 2009, which began operations in March and handles the worldwide sales and service of SkySails propulsion. All SkySails-Systems can be maintained and rapidly supplied with replacement parts across the globe using the existing service network of Zeppelin Power Systems.

If you have any questions or requests, please contact:

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Alternatively for very high resolution pictures please contact Anouk Luykx

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The SkySails-System in operation aboard the MV "Beluga SkySails".



SkySails high performance towing rope made with Dyneema<sup>®</sup> and manufactured by Gleistein.

(Photos SkySails, DYNPR174)