



PRESS RELEASE

December 7, 2010

Energy-saving, cost effective and safer sea transportation in sight *- Swedish double hull innovation receives class approval for commercial use*

At a ceremony at the Fagerdala Group's headquarters in Gustavsberg Harbour, Sweden, on Friday 3 December at 4 pm, the classification company Germanischer Lloyd handed over its approval to Fagerdala Marine Systems AB for its double hull system. The system was devised in the 1980s by Sven Jönsson from Dalarö, who also took part in the ceremony. Fagerdala Marine Systems AB was represented by its managing director, Anders Tunbjer, and Fagerdala Group owner, Dag Landvik.

The certification is the result of a 28 year long project leading to the commercialisation of Sven Jönsson's revolutionary double hull system for yachts and vessels. So much time was needed for this maritime technology innovation to be developed and to prove its durability before it could finally be approved for commercial use. It is a fascinating story.

In 1982, Sven Jönsson had the opportunity to acquire the old luxury yacht belonging to the late Swedish financier, Torsten Kreuger, called at the time the Edi II. Constructed in 1939 at Götaverken from German aircraft grade aluminium and fitted with three Rolls Royce Merlin V12 petrol engines, this 34 m long beauty was the fastest displacement yacht in the world at the time. Today, with new engines, she is surpassed only by the Aga Khan's "Shergar". However, when Sven acquired the Edi II, she was in a pitiful state. His first thought was to fit her out as a veteran yacht, but in view of the buckled state of the hull, Sven soon realised that this would be far too expensive. Instead, he came up with the idea of applying a new hull on top of the old one by using a specially developed glue, implemented in 30 mm expanded plastic, followed by levelling and then another layer of fibre glass laminate. Thus, the Edi II was given an innovative new hull with a partially modified shape, but that was not all: the hull now had structural reinforcement as well as thermal insulation, sound insulation, vibration-damping and crash resistant properties, besides being virtually maintenance free. Thirty million kronor later, renovation work was almost complete on the Edi II when the financial crisis of 1992 struck and the project foundered. The King of Sweden was on the point of buying the yacht when Dagens Industri newspaper of Sweden noted: "Torsten Kreuger's old luxury yacht goes bust" – and that the sharks were circling in the water. The Edi II was instead sold to a foreign buyer and Antibes on the French Riviera became her home port, where she was renamed United Spirit and came to be known as "the fast Swede" – frequently with the King and Queen on board as guests.

In the mid-1990s, Dag Landvik of Fagerdala World Foams and Sven Jönsson were in contact with a view to commercialising the invention.

The idea was then also to make oil-tankers unsinkable through a double hull having approximately 1 meter thick foam layer. The problem was that there was simply no longer a demonstration vessel available with the hull system. Also, classification approval would be required in order for the system to be exploited commercially. Many years of perseverance were thus needed. It was not until Fagerdala sold its main product at the time, in 2002, the Tempur mattress (based on space technology

and introduced into the NASA's Hall of Fame in 1998) for flotation on the Stock Exchange, that Dag Landvik and Sven Jönsson were in a position to revisit the project concept. Moreover, it emerged that the United Spirit was now for sale. Fagerdala Marine Systems AB succeeded in acquiring United Spirit and took over the rights to launch the hull system worldwide on vessels of all types. Today, after 18 years of practical testing, Sven Jönsson's revolutionary innovation can finally benefit shipping all over the world, in both newbuilds and renovations.

Initially sceptical of the hull system, Karl-Axel Olsson, a former professor at The Royal Institute of Technology in Stockholm (KTH), is now one of its most enthusiastic proponents, and comments: *“On October 6th 2005, I had the opportunity to participate in sea trials aboard United Spirit. It was interesting to see the remarkable state she was in after 13 years' service, most of the time in the Mediterranean. The noise level was excellent, there was no internal condensation and, most important, there were no signs of cracking in her laminate. During the bitterly cold winter of 2005-06 she had no problems in maintaining a comfortable interior temperature of 18-20 oC with a mere 6 kW heating element.....Looking ahead, I can see the method being applied not only to the restoration of older vessels, but as a means of improving new designs.”*

Now that the classification company Germanischer Lloyd is officially certifying the system, many maritime technology applications are opening up with a view to not only improved maintenance costs and opportunities for more advanced design of vessel and boat hulls but also for reduced energy consumption and environmental impact. This is made possible by the hydrodynamic design of the hull and hence the reduced costs of propulsion, as well as by the thermal insulation effect. Air conditioning of the vessel in hot and cold climates alike is demanding in terms of energy consumption, and the Fagerdala hull system can reduce this significantly. The naval segment too, has expressed a great deal of interest, as the hull system offers acoustic damping as well as reduced thermal radiation and reduced detectability by radar.

Hexicon floating wind farms are a spin-off from Fagerdala Marine Systems and are based on the exploitation of the hull system to guarantee at least 50 years of surface protection for the structure.

Using the Fagerdala hull system, it is also possible to build very large floating structures for permanent offshore anchoring which both thermally insulate the interior and offer protection from the destructive forces of the elements over long periods, rendering it virtually maintenance free. The Hexicon structure, developed for floating wind farms, can be approximately 400 m or more in diameter; and is anchored at its center and adjusts automatically to the wind direction. Hexicon is expected to become a relevant alternative for eco-friendly power generation along the world's coastlines.

See links to Fagerdala Marine Systems AB (hull system): www.fagerdalamarine.com and Hexicon AB (floating wind farms): www.hexicon.eu

For further information, please contact anders.tunbjer@fagerdalamarine.com (Managing Director of Fagerdala Marine Systems AB) or dag.landvik@fagerdala.se (CEO of Fagerdala World Foams AB)

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