

# SIGMASHIELD™ 1200

Delivering exceptional protection for vessels engaged in harsh ice-going operations

## Case study



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### The Customer

Wagenborg Shipping B.V., Delfzijl, The Netherlands

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### The Location

Tallinn Shipyard BRLT Grupp Estonia

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### The Challenge

To provide a reliable, efficient coating system for two vessels operating in heavy ice-going conditions and to a very tight time schedule in the Baltic Sea. Also, to provide a heavy-duty, ice-breaking coating suitable for application during limited time in dry dock

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### The Solution

SIGMASHIELD 1200 solvent-free phenolic epoxy coating

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### The Benefits

Long-lasting durability of the underwater hull protection despite heavy ice-going conditions. Very easy-to-handle, fast-curing coating with film thickness layers up to 1,000 microns applied with conventional airless equipment

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### The Result

Improved vessel speed with lower fuel consumption, greater cost savings through reduced time in dry dock and enhanced ice protection for heavy ice-going conditions

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### The Customer

Wagenborg Shipping in The Netherlands has more than 100 years' experience in Northwest Europe, the Mediterranean, trans-Atlantic routes and beyond. Its modern and environmentally friendly fleet of around 180 vessels has an average age of only 6.7 years with a capacity of 2,000–23,000 tonnes.

Tallinn Shipyard is a subsidiary of the industrial holding BLRT Grupp. Located at the mouth of the Gulf of Finland, the shipyard services vessels using ports in the Baltic States, Russia, Finland and on the east coast of Sweden.

### The Challenge

The B-Class vessels Balticborg and Bothniaborg operate between The Netherlands, Germany, Sweden and the UK to a tight schedule with very limited maintenance time. They also face severe ice conditions in winter, so the hulls need excellent, long-lasting protection to ensure reliable, economical performance levels.

Therefore, to ensure that the owners achieved maximum ROI on the vessels, the key requirements were that the coating chosen would need to minimize damage, reduce subsequent repair costs and improve operational efficiency.



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### The Solution

PPG offers two abrasion- and ice-resistant coatings, the SIGMASHIELD 460 and SIGMASHIELD 1200 products, based on the anticipated ice conditions during service life. For these B-Class vessels, the Balticborg and Bothniaborg, regularly sailing in heavy ice conditions during the harsh Baltic winters, the highly resilient SIGMASHIELD 1200 coating was recommended to provide the optimal underwater hull protection.

The SIGMASHIELD 1200 coating is based on a very hard filler composition, providing excellent anti-abrasion properties, and on a highly cross-linked phenolic epoxy technology, further extending the service life of the coating by greatly increasing the creep resistance.

### The Benefits

Ice is indisputably the major source of danger for a hull's outer shell coating. PPG's SIGMASHIELD 1200 coating addresses this potentially destructive situation by combining these key attributes:

#### SIGMASHIELD 1200 benefits:

- Outstanding impact- and abrasion resistance; smooth surfaces promote fuel savings
- Excellent cathodic protection and creep resistance
- Standard- and low-temperature version for enhanced curing performances
- Excellent application properties; also possible in winter conditions
- Single-coat application using standard equipment
- Easy maintenance and repair
- Excellent creep resistance, reducing size (and hence cost) of repair areas
- Recognized by Lloyd's Register as an abrasion resistant ice coating
- Recognized by Aker as a low-friction surface coating for ice-breaking ships

### The Results

The SIGMASHIELD 1200 coating was tested on Wagenborg's offshore vessels Antarticaborg and Articaborg, which operate in the Black Sea during the most heavy ice conditions. The results convinced Wagenborg to apply the coating on two of their RoRo vessels Balticborg and Bothniaborg.

After reviewing PPG's product specification and guarantee, Wagenborg was confident that the SIGMASHIELD 1200 coating would give the optimal protection for their vessels. Following detailed examination of the Balticborg project, the customer was delighted by the coating's performance and ease of application. Tallin Shipyards also reported that, following the advice from PPG's Technical Surveyor, few adjustments in working procedures were needed to make the coating application process particularly easy.

Hindrik van der Laan, Captain of the Wagenborg's Balticborg said, "The speed is better and the fuel consumption is less."

Izak van Rhijn, Technical Superintendent of Wagenborg Shipping B.V. commented, "In the wintertime they face severe ice conditions and thus need excellent protection for the hull. After reviewing the specification of the product and the guarantee given by PPG we were convinced that this product would give the optimal protection to our vessels. Another big benefit of this product is the single-layer application. No undercoat or second layer is required, which saves valuable time (thus saving money) during the dry dock period."

**Maxim Scherbakov, Director Project Management Tallinn BRLT Grupp Estonia added, "Through the good advice by PPG's Technical Surveyor and the easy handling of the product, we can decrease our time in applying a heavy ice coating, so we are able to focus on our other maintenance and repair jobs during the dry docking."**



Image: The SIGMASHIELD 1200 coating after application on the Bothniaborg

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