

## Press Release

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### **Voith Refurbishment of 22000 Class Vehicle Front Ends**

Voith has provided new aluminum fairing for the front ends of 62 trains of the 22000 class for Irish Rail. This is not just a facelift for these diesel railcars - that can comprise up to six units - but rather a redesign with many operational advantages and a substantial enhancement in the visual appearance of the cars.

The Hyundai Rotem cars have been in use on the Emerald Isle as inter-city trains since 2007. With top speeds of up to 160 km/h, the lower vehicle range, which can be made up of three, four, five or six units, is constantly subjected to damage by bottles, stones or other foreign bodies that are swirled up. Up until now, a glass fibre reinforced plastic (GFRP) element from the manufacturer protected the lower vehicle range, however this did not provide sufficient robustness or ease of repair. Irish Rail therefore searched for potential improvements.

Voith developed this easy to repair and robust multi-part aluminum fairing for Irish Rail. This aluminum fairing is 2.5 mm thick. It is pressed like an automobile fender and is attached to the car using a steel auxiliary frame in compliance with the car tolerances. The design was prepared in 3-D CAD taking into account the weight specifications and then optimized using the finite element method. Both Irish Rail and an independent Irish institute made a positive assessment of all results.

The Voith fairing is easy to repair due to its multi-part design and the aluminum material. In future, slight damage can be removed, welding is also an option or parts of the fairing can be easily replaced. Additional advantages are a lock for the service door that uses a standard key and a replaceable dirt grid for the signal horns.

Differing car tolerances presented a particular challenge for Voith. This was met by the designers with the use of shims, slots and rubber elements. A detailed measurement of the car also preceded the design for this reason.

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The Voith aluminum design, assessed as aesthetically pleasing by the customer, underwent extensive testing in two prototype series on various trains in the depot in Ireland. It was also possible to train the first Irish Rail service technicians during these tests.

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The first 70 sets of aluminum fairing will be delivered by Voith to Ireland this year. The entire contract runs until Spring of 2016.



Irish Rail 22000 class diesel railcars, equipped with turbo transmission, cooling system and Scharfenberg coupler.



Voith aluminum fairing for 22000 class vehicle front ends.

Voith Turbo, a Group Division of Voith GmbH, is a specialist for intelligent drive solutions and systems. Customers from highly diverse industries such as oil and gas, energy, mining and metal processing, mechanical

engineering, ship technology, rail and commercial vehicles rely on advanced technologies from Voith Turbo.

Voith sets standards in the markets energy, oil & gas, paper, raw materials and transportation & automotive. Founded in 1867, Voith employs almost 39 000 people, generates € 5.3 billion in sales, operates in about 50 countries around the world and is today one of the biggest family-owned companies in Europe.

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