

SIMORAIL HL3 – Exceptional safety and functionality combined with a multitude of design options



Left: seat base (white) made of SIMORAIL HL3, as featured in Stadler's TINA tram in Darmstadt; right: SIMORAIL sheets in various colours and textures

As a manufacturer of rail vehicles, Swiss-based Stadler is aware of its social responsibilities when it comes to sustainable mobility. With this in mind, the company is committed to supplying innovative, sustainable and long-lasting products of the highest quality. This was also reflected in the choice of materials for the interior design of Stadler's latest tram – TINA. Those involved in the engineering project opted for SIMORAIL HL3 sheets. Thanks to their special properties, these sheets boast a particularly long service life and can be fully recycled at the end of their product life cycle.

The project at a glance

Project

Manufacture of thermoformed components for the interior of trams (e.g. seat bases, side wall panels, covers, skirting boards) made of SIMORAIL HL3

Requirements

- Exceptional passenger comfort
- Modern and attractive appearance
- Durability
- Sustainability
- Superior mechanical properties
- Certification according to EN 45545-2

Client

Stadler Bussnang AG, Bussnang, Switzerland

Contractor

- DUROtherm Kunststoffverarbeitung GmbH, Haiterbach, Germany
- LAKOWA Gesellschaft für Kunststoffbe- & -verarbeitung mbH, Wilthen, Germany
- swissplast Rail AG, Sargans, Switzerland

Technical support

SIMONA AG, Mobility Business Line, Kirn, Germany

Products used

SIMORAIL HL3 sheets in customised sizes (length 350 - 3,000 mm, width 100 - 1,250 mm and thickness 2.5 - 4 mm), signal white (RAL 9003) and graphite grey (RAL 7024)

Duration of project

2 years



Photo: Stadler Busssnang AG



From left to right: exterior view of Stadler's TINA tram; SIMORAIL HL3 sheets; close-up of a deep-drawn component made of SIMORAIL HL3

SIMORAIL HL3 – Sustainability meets durability

Initial situation

More and more cities have set themselves the target of further expanding and strengthening local public transport in support of environmentally sustainable mobility. With a view to offering a solution that covers all tram concepts, Stadler was keen to combine maximum flexibility with a high degree of standardisation when developing its new generation of trams, TINA ("total integrierter Niederflur-Antrieb", i.e. fully integrated low-floor drive). In designing a new bogie (patent pending) that can be used for a wide range of vehicle types and requirements (e.g. different track gauges or vehicle widths), the company achieved what it had set out to do.

Task

For the transport companies operating the trams, however, the focus is not only on safety and functionality but also on contemporary styling and overall visual appeal. Therefore, Stadler also placed special emphasis on passenger comfort when designing the interiors of the new trams. When it came to the completely step- and barrier-free vehicles with spacious interiors, wide aisles and comfortable seats, the task was to find a material that combined superior mechanical properties with low weight and a high degree of design flexibility. In addition, it had to be sustainable, durable, easy to clean and certified according to EN 45545-2.

Solution

Meeting Stadler's expectations in all of the above-mentioned points, our SIMORAIL HL3 sheets proved to be a compelling proposition. The TINA project team also includes DUROtherm, LAKOWA and swissplast – three experienced thermoformers who are equally impressed by our material.

Thanks to its high impact strength and dimensional stability, coupled with best-in-class thermoforming properties, SIMORAIL is the perfect choice when it comes to engineering durable components such as seat bases, side wall panels, covers and skirting boards. In comparison to materials such as HPL or GRP, SIMORAIL HL3 is fully recyclable and excels above all in its visual appeal. The sheets can be produced in almost any colour and in various textures. What is more, as a solid-coloured material, SIMORAIL HL3 offers significant advantages as regards the visibility of scratches – without the need for time-consuming painting and coating.

Launched in 2020, the newly developed tram has already won several tenders. It will now provide countless passengers with safe, fast and comfortable local transport in Darmstadt, Basel, Rostock and Halle, among other cities.

SIMORAIL HL3

Properties

- Efficient handling
- High impact strength
- High rigidity and dimensional stability
- Superior thermoforming properties
- Wide range of design options with regard to colour and texture
- 100% recyclable
- Low flammability
- Certified according to current fire protection standards (EN 45545-2, NFPA 130)

Fields of application

Components for the interior of passenger carriages, e.g.

- Seats
- Armrests
- Wall coverings
- Window panels
- Partitions
- Ceiling elements
- Shelves

Product range

Extruded sheets in customised lengths; width up to 2,000 mm; thicknesses 1-6 mm

Further Information

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