# Stalatube Oy

## The Most Lightweight and Sustainable Bus Body

### Over 50 Years of Stainless Expertise

Stalatube is the leading supplier of stainless steel in the bus and coach building industry globally. The company provides high-strength stainless steel solutions with over 50 years of experience. With a global presence, in-depth material expertise, and the world's widest product portfolio in stainless square and rectangular hollow sections and components, Stalatube helps customers connect the most suitable product with their application or project – in even the most complex of cases. Environmentally conscious solutions are here to build a better future. With co-operation with customers and investing in R&D, innovations can be achieved.

In the transportation sector, our ultimate goal is clear – lighter vehicles with lower CO2 emissions paired with the very highest passenger safety. Stalatube's innovative high-strength stainless steel materials and optimal vehicle structure design help achieve the weight reduction necessary as well as meet CO2 goals.

### Benefits of Stainless Steel in Bus Building

Stainless steel stands out as a superior material for bus structures including safety, durability and environmental matters. It is crash- and fire-resistant, eliminating the need for extra protection. Furthermore, stainless steel is less prone to corrosion, resulting in lower maintenance costs compared to carbon steel.

The life-cycle costs of stainless steel solutions are significantly less than those of carbon steel, making it a cost-effective and sustainable choice. Notably, stainless steel is 100% recyclable, reducing the environmental impact of the transportation sector.

### Stronger Stainless, Lighter Structures

Stalatube high-strength hollow sections have excellent yield strength, elongation and energy absorption properties. In addition, they offer not only lighter structures but also better corrosion resistance and lower life-cycle costs. Tailored products reduce material waste and keep the cost level stable. Compared to a traditional carbon steel bus, life-cycle costs remain low. Additional benefits come from reduced CO2 emissions, fuel costs and improved passenger capacity. High strength stainless steel is an optimal material for roof arcs, side pillars, chassis and collision elements.

### How Do You Make a Lightweight, Safe and Sustainable Bus Body?

Ferritic EN 1.4003 (S40977) square and rectangular hollow sections, components and sheets are an affordable solution providing good structural corrosion resistance and relatively high strength. The strength can be further enhanced with Stalatube's strength class STALA400F and several thicknesses are offered to further optimise the weight.

High-strength Lean Duplex steel EN 1.4162 leads to considerable weight savings and provide superior elongation and corrosion resistance. Fortifying them with STALA strength class STALA630D will ramp up their yield strength to 630 MPa along with excellent elongation and energy absorption properties.


Combining Ferritic and Lean Duplex leads to the most lightweight bus or coach body that is both cost-effective and durable. A 1000-kilogram decrease in the weight of the bus body is possible by combining both high-strength material selection and professional bus body engineering. Life-cycle costs remain low – and the difference is quite remarkable compared to a traditional carbon steel bus. Additional benefits come from reduced CO2 emissions and fuel costs as well as improved passenger capacity.

Stalatube's newest high-strength stainless steel hollow section called STALA800 (EN 1.4678) has an exceptional combination of high strength and elongation. The material can absorb a huge amount of energy in case of an accident, making it ideal for roll-over structures and collision guards.

STALA800 is an excellent choice for bus body structures made mainly from carbon steel. It can be combined with carbon steel to strengthen the critical parts of the structure. E-coating is recommended for better corrosion resistance.

## STALA Opti – Optimised Strength Where the Strength Is Needed

Stalatube's newest invention is STALA Opti. It offers excellent flexural strength for customers looking for strength and durability without weight increase and stronger joints. Heavier wall thickness at the end of the tubes allows better weld penetration that improves fatigue resistance in joints. This is a unique solution for strengthening the needed area and eliminating the weight increase at the same time. It is available in all Stalatube's stainless steel grades.

### Value-Added Services

Stalatube product portfolio for the transport industry contains standard and fully custom-made square and rectangular tubes, tube components, sheets and welded structures. Laser cutting, bending and creating ready-to-assemble component kits are at the core of customer services. Lead time is reduced through flexible stocking and delivery options. The technical team of Stalatube Transport has a lot of experience in bus body design. With their help, bus manufacturers can choose the materials and products to maximise the benefits by choosing stainless steel.

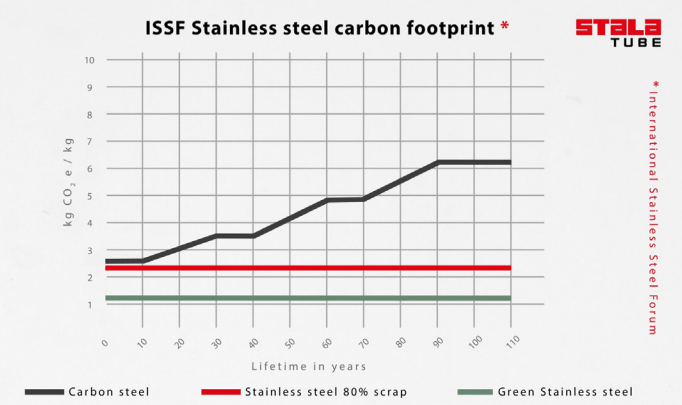
### Sustainability Is Achieved with Stainless Steel

Sustainability goals can be achieved by choosing stainless steel. The sustainability of stainless steel is evident in its recyclability. As the transportation industry strives to set strong standards for zero-emission vehicles, stainless steel emerges as a key player in achieving these goals. Using stainless steel in buses decreases your own as well as your customer's carbon footprint. Furthermore, the carbon footprint

of a stainless steel product's life cycle is lower than for carbon steel products.

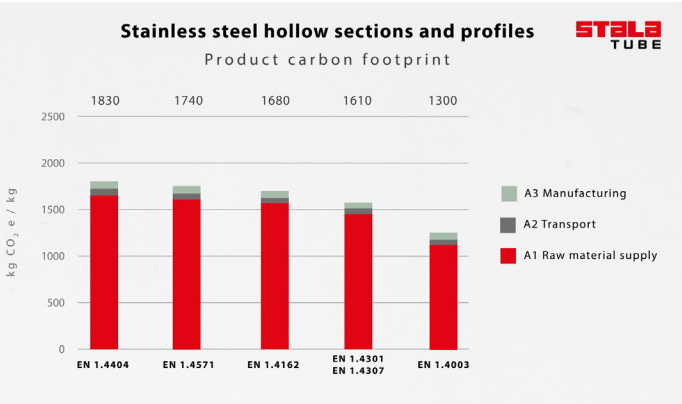
The carbon footprint of stainless steel compared to carbon steel is illustrated in the chart below.

**Image 1: The Carbon Footprint of Stainless Steel Compared to Carbon Steel**




Recently Stalatube has also published the Environmental Product Declarations (EPDs) of different materials. EPDs are documents that declare the environmental performance or impact of products or materials throughout their lifetime.

**Image 2: EPD Calculations of Materials Used by Stalatube (2023)**




Stalatube's goal is to be the cleanest producer of stainless steel structural sections. The share of raw material emissions in the company's carbon footprint is about 90 %. That's why Stalatube only cooperates with responsible raw material suppliers, who through their manufacturing process, are reducing the carbon footprint of the entire value chain. In addition, Stalatube continuously develops its manufacturing process to be more efficient – as proof, Stalatube has reduced the amount of scrap generated from production by 42% during the past four years.

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Stalatube is the leading supplier of stainless steel in the bus and coach building industry globally offering a unique combination of high-strength stainless steel materials to optimise weight savings. The company combines high-strength materials with years of experience and knowledge offering engineering support solutions with experts from the transport industry. Stalatube can assist you with experienced engineering to utilise the mechanical properties of STALA products and maximise weight savings with smart bus body design.

Stainless steel advantages for the transport industry:

- High-strength, lighter structures – up to 1000kg off the weight of the bus body
- Maintenance-free, low life-cycle costs
- Superior corrosion resistance
- Tailored products reduce material waste
- 100% recyclable, low environmental impact
- Price stability over time due to low nickel content
- Ready-to-assemble component kits
- Flexible stocking and delivery options
- Technical consultation service

**Want to learn more? Please contact**

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