

STÅL & RÖRMONTAGE

We build sustainable stainless bridges

Sustainable

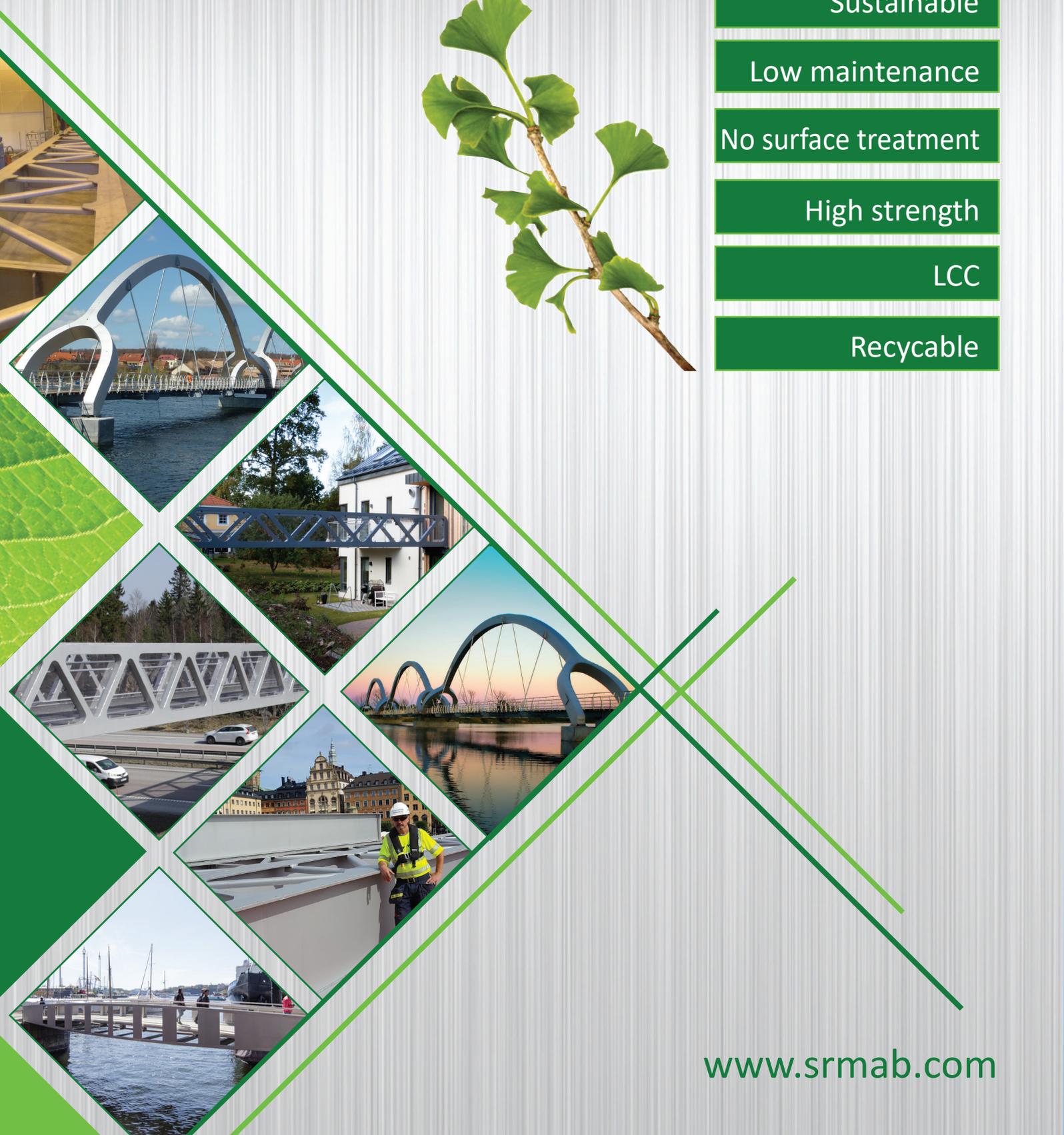
Low maintenance

No surface treatment

High strength

LCC

Recyclable



www.srmab.com

About us

Stability is what characterizes Stål & Rörmontage in several respects. We work with steel, a material which allows stable and high strength structures in for example buildings, bridges and applications for the industry.

The company was founded in 1987 and has experienced stable economic growth ever since. We are currently 50 employees and staff turnover are low, which has allowed us to build a great body of knowledge within several application segments. Thus, our foundation is strong and less affected by market fluctuations.



We value long-term relationships. We always do our utmost for our existing customers in order to make them want to comeback with new orders. A good reputation and track record cannot be overestimated. At Stål & Rörmontage we always strive to be the best.

Our philosophy is simple - every commitment, project and order must be well executed so that Stål & Rörmontage is the natural first choice for all clients within our business areas.

For us it is natural to take responsibility and nurture the environment for future generations. Therefore we work systematically with both environment and quality.

We are certified according to EN 1090 EXC1-4, ISO 9001 and ISO 3834.



Company of the year
in Sölvesborg

1996 & 2012



Best company in
Blekinge

2016 & 2017



Company of the year
in Blekinge

2013

Sustainable stainless bridges

3.

Stål & Rörmontage sees an increased interest in stainless bridges, in comparison with ordinary carbon steel the big advantage is life expectancy. It amounts to major economic and environmental benefits. Another example is the great impact of stainless steel reinforcement in the projects of infrastructure. Here, life expectancy can be extended up to ten times longer than for traditional reinforcement.

We design, manufacture and assemble stainless steel bridges in environmentally friendly duplex stainless steel. This type of steel is **fully recyclable, has high strength and resilience**, making it ideal for tough environments. It has low nickel content which results in a lower and more stable price.

The steel is suitable for structures located near the sea as well as in the traffic environment, where other steel is subjected to discoloration and pitting and needs to be painted every 25-30 years. The steel has almost **non-existent maintenance requirement**. Duplex stainless steel, unlike ordinary steel, do not require any surface treatment, which also entails closing off bridges, scaffolds, blasting and paint residues in the environment - not to mention the actual painting process. Duplex stainless steel, unlike ordinary steel, release very small amounts of metal ions in the environment and requires no environmentally hazardous surface treatment.

Additionally, duplex stainless steel has very high strength. This makes it possible to use thinner materials which reduces the weight. Thereby reducing ecological footprint and energy consumption during manufacturing and transport. The lower weight also makes assembly and erection easier and less time consuming.

All duplex stainless steel we use in our projects comes mainly from the Outokumpu mills in Sweden a world leading manufacturer of stainless steel.

Sustainability is of great importance for our future. We must ensure that: We minimize material usage in every structure, that the structure lasts as long as its intended to be used, that minimal maintenance is required and that the material can be recycled.

We do what we can to protect the environment, we use stainless steel.

Want to know more? Do not hesitate to contact us at **+46 456-31205**, or visit our website for more information; **www.srmab.com**.

In the following pages we describe some of our projects that have been made in duplex stainless steel.

**We focus on the environment, the future and LCC
(Life Cycle Cost).**

*Think of the environment, think about the economy,
think stainless steel!*



Stainless bridges are better for both the economy as well as the environment 4.

Using high-strength stainless steel in bridges always pays off, as can be seen in the comparison on the next page. One should consider how the bridge should be designed to be as cost-effective as possible over its lifetime, LCC (Life Cycle Cost).

For the comparison, we use what we know today about epoxy-painted carbon steel bridges and wooden bridges: After about 30 years, a carbon steel bridge needs to be painted and the rule of thumb is that the cost of dismantling, cranes, transport, blasting and repainting at the painting station and reinstallation is at least equivalent to the cost of the original investment (depending on location, as well as traffic interruption and road user costs).

For wooden bridges, we do not have as many concrete cases. However, one can estimate that life expectancy is 30 years on average. This is based on the bridge in Södertälje, where there was previously a wooden bridge which had a much shorter lifespan than what was originally calculated. After only 20 years, it has now been replaced with a bridge in high-strength duplex steel. In Avesta, Sweden there are two wooden bridges which face extensive repairs or needs to be replaced by new bridges, after just 20-25 years.

Below you will find some images of our new environmentally friendly bridge concept showing assembly, erection and the completed bridge in Södertälje.



Material, LCC, Social Costs and Environment

5.

Interest in stainless steel bridges increases. The reasons for this are higher requirements for sustainability, increased environmental awareness among customers and end-users, as well as many ongoing infrastructure projects with increased corrosion resistance requirements.

Using high-strength stainless steel in bridges always pays off, as can be seen in the comparison below. One should consider how the bridge should be constructed to be as cost-effective as possible over its lifetime, i.e. how to obtain the lowest LCC (Life Cycle Cost).

Using a carbon steel bridge as basis for comparison a wooden bridge costs 85% and a duplex stainless steel bridge costs 120% of the price for a carbon steel bridge

However, this is just the basic investment.

After about 30 years, the steel bridge needs to be painted and the wooden bridge replaced. The diagram includes: Disassembly, cranes, transport, blasting, repainting and reinstallation.

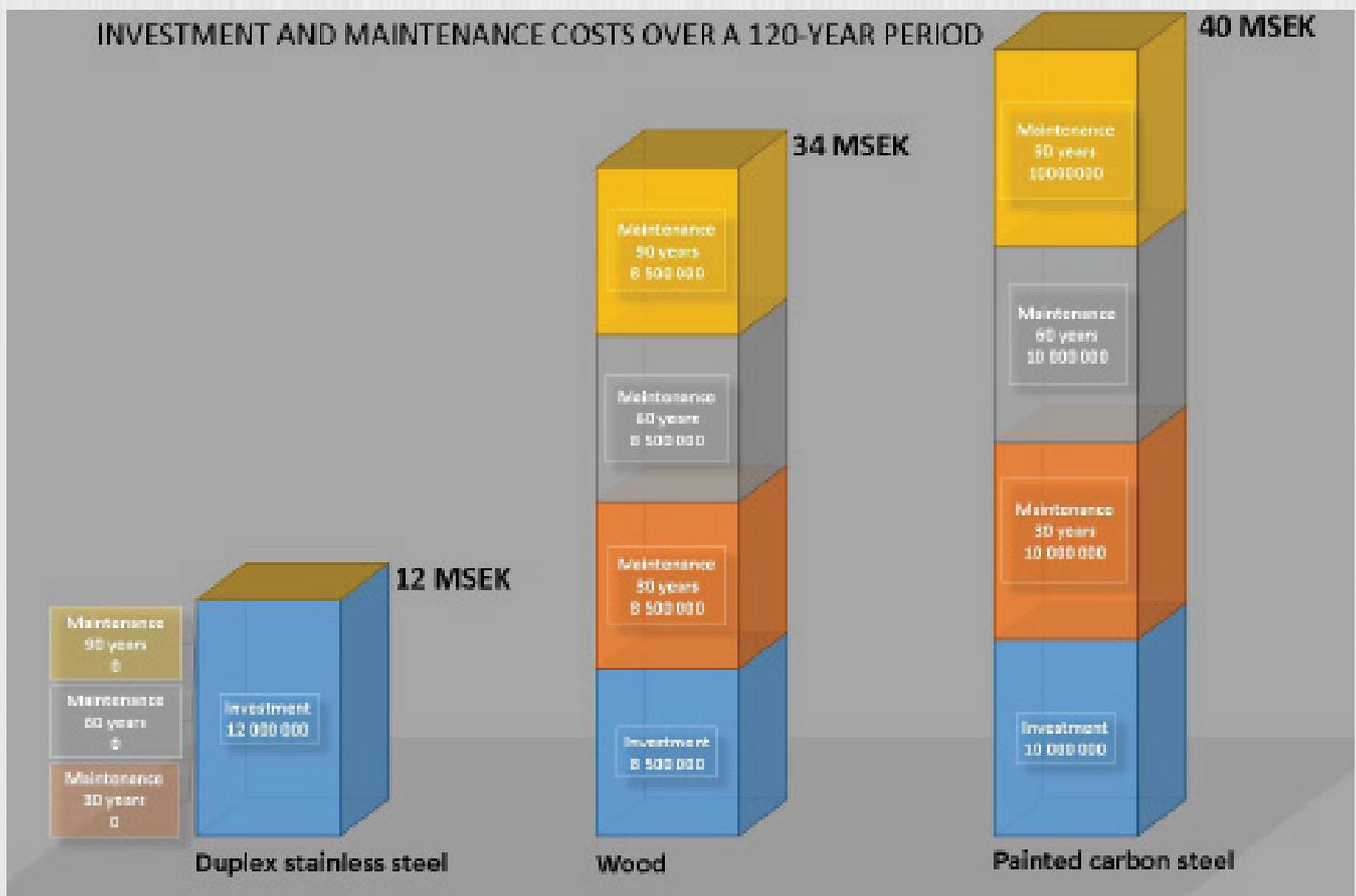
We see that for a service life of 120 years the wooden bridge cost is 283% and the carbon steel bridge is 333% compared to that of the duplex stainless steel bridge. Traffic interruption costs, road user costs are not included.

Example. The E4, Södertälje:

Traffic interruption costs / opportunity (30-year interval) approx. 300 000 SEK.

Traffic cost / opportunity (30-year interval) 2 days * with 32 000 vehicles / day with 1 minute longer travel time. With 300 SEK / h this gives us a cost of 320 000 SEK ($2 \times 32\,000 \times 1 \times 300 / 60$). CO2 emissions / opportunity (30-year interval) Based on the above, a speed of 60 km / h and 1.9 kg CO2 / mile (average car), it becomes 12 tons ($2 \times 32\,000 \times (1 \times 60 / 60) \times 1.9 / 10$)!

In addition to the huge difference due to maintenance costs assigned to the wood and carbon steel bridges (as shown in the diagram), an additional 1.85 million SEK and 36 tonnes of CO2 is included in the life cycle cost.



Environmental bridge, a bridge across the E4 in Södertälje

6.

In 2018 we manufactured the new pedestrian and cycle bridge over the E4 in Södertälje municipality. The bridge was built in our new patterned design and was of course made of duplex stainless steel. We also stood for disassembly of the old bridge and assembly of the new.



"stainless bridges are better for both economy and the environment"



Environmental bridge, a bridge across the E4 in Södertälje

For the municipality of Södertälje, the total costs of the bridge during its full life was of great importance, it turns out that the stainless bridge was in fact the low-cost alternative seen over the full life of the bridge and the absolute best option. By using this material, the municipality saves much by avoiding expensive maintenance and disturbing rerouting of transportation due to closing of the bridge for maintenance and/or repairs, and minimizes environmental impact. The bridge also has 10 mm unbreakable hammer glass sections, recessed into the frames for maximum view and recessed led lighting on both sides, the longest span is 36 meters.



Söderström bridges

When Stockholm's City transportation decided to replace the 60-year-old bridges between Slussen and Old town, they choose Stål & Rörmontage and Outokumpu in Degerfors for the project. In 2017 - 2019 all four bridges will be replaced, each bridge being 192 meters long and consisting of twelve bridge sections.

After 60 years, the old bridges were in great need of refurbishment and Stockholm City Transportation decided to use the duplex stainless steel in order to make the new bridges more corrosion-resistant, minimize maintenance and minimize future traffic disturbances. Since The Söderström bridges are crucial for public transport in Stockholm, with 330 000 passengers/day, the choice of steel was very easy to make. The old bridges were made of carbon steel and heavily corroded and required a lot of maintenance. As soon as the bridges are replaced, unnecessary shutdowns, maintenance needs, environmental impact and traffic change are minimized. Over time, this will be very cost saving.

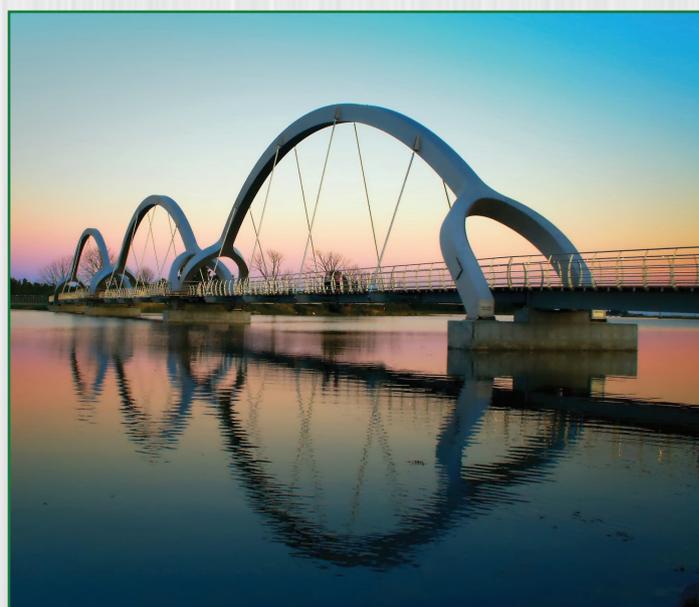


Sölvesborg's walk and bike bridge

The Sölvesborg bridge is Europe's longest walking and cycling bridge and extends over the Ljungaviken bay. It is 760 meters long, 3.5 meters wide and was built of about 600 tons of steel, of which 190 tonnes are duplex stainless steel.

The bridge connects Sölvesborg town with Ljungaviken, a new town district on the other side of the bay. The municipality of Sölvesborg chose duplex stainless steel on the most weather exposed parts of the structure. One major reason for the choice of material was the minimal environmental impact and the almost non-existent maintenance.

The 3 arches 60m span, carrying the higher deck section, railings and deck support structure are all made in duplex stainless steel.



With its stunning design and eye-catching lighting, The Sölvesborg Bridge has become a great landmark. However, the bridge is much more than this; it connects Listerlandet with Sölvesborgs town center and it is a key element for housing growth and development in Sölvesborg.

During the summer of 2017, a sun deck was built next to the bridge where we manufactured and assembled the steel frame and the associated railing. The bridge has been frequently featured in the media, it was visited by H.M King Carl XVI Gustaf of Sweden and H.M Queen Silvia. The bridge has also become a motif on Swedish postage stamps.

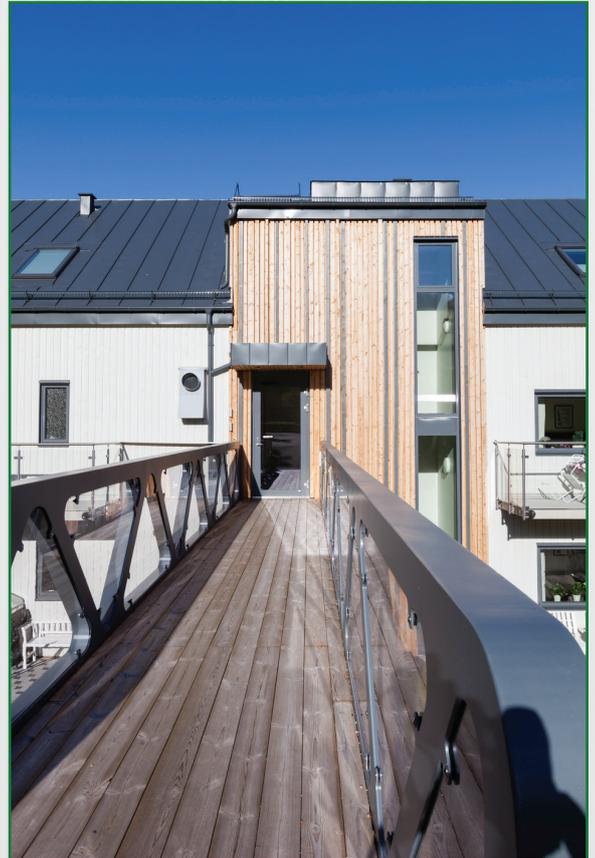


Walkway to Villa Gränslös

10.

We have manufactured and installed the bridge which leads to the entrance at Villa Gränslös. In 2016, it was nominated for the 2016 Construction Price Award in Växjö. The bridge has the same design as the **Environmental bridge** but is made of painted carbon steel. The length of the bridge is 12 meters. The bridge contains 8 mm unbreakable hammer glass sections, recessed into the frames for maximum view.

This bridge weighs only 2 450 kg. This is the first bridge using our new pattern-protected design, which uses steel where steel is needed (variable thickness of the frame girders).



Bridge at Vasamuseet

On behalf of the Royal Administration for the Djurgården Island in Stockholm, we have designed, manufactured and installed a 19 meter long and 3,5 meter wide walkway and bicycle bridge which opened a new, much needed walkway along the quay outside the Vasa museum in Stockholm.

The bridge weighs about 6 tons and is built in duplex stainless steel. With LCC in focus, this is a particularly suitable material for bridges that otherwise require expensive maintenance work.



Our vision is to build bridges with minimal environmental impact!

- How long will we use surface treatments that harm the environment?
- How long will we use materials that cause unnecessary downtime?
 - How long can we afford to build painted carbon steel bridges?
 - How long will we waste resources?

The technology exists, now we need to stop, think and act.
High-grade duplex stainless steel form a better future!



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