

STÅL & RÖRMONTAGE

Sustainable, stainless steel bridges

Sustainable

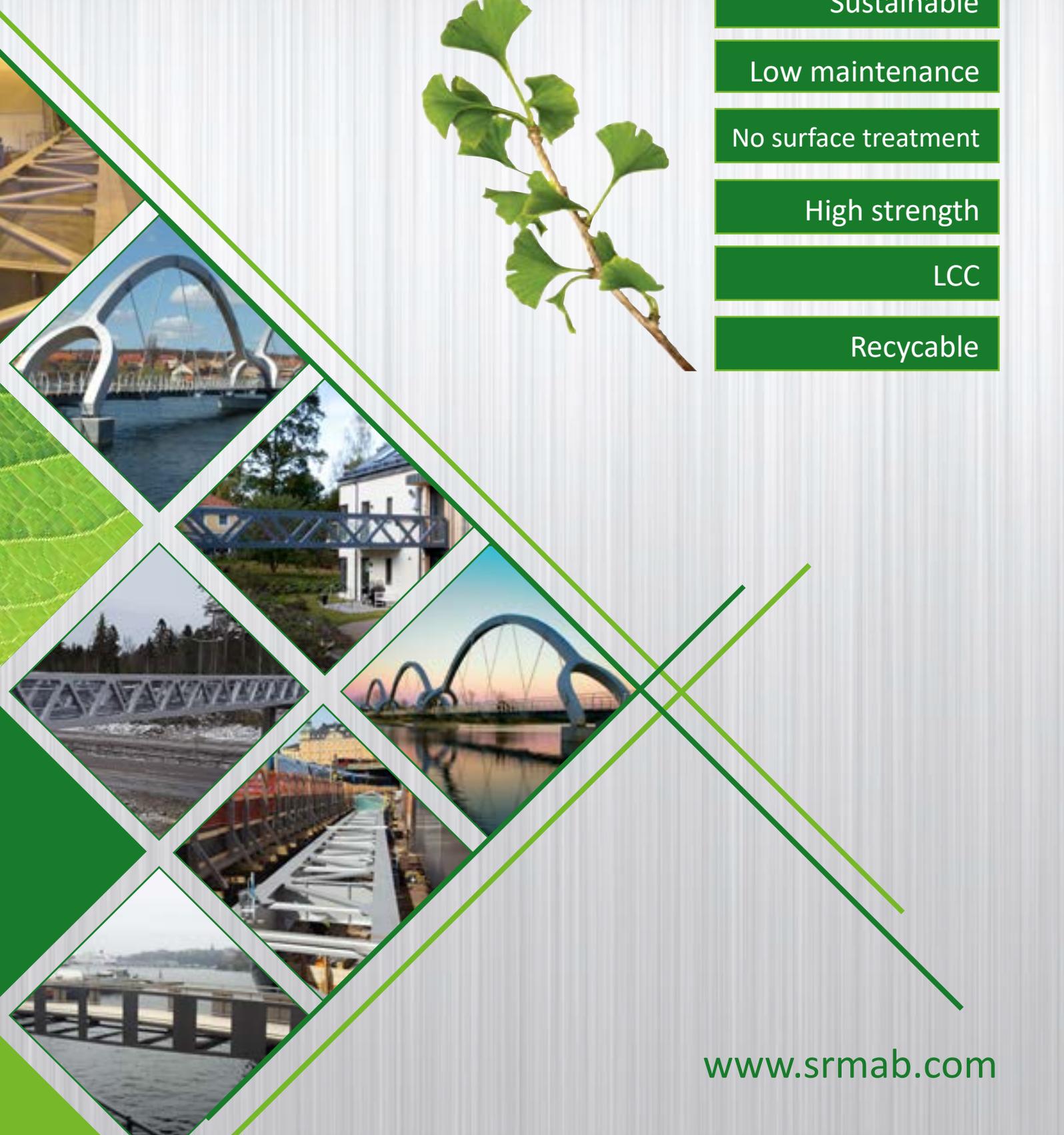
Low maintenance

No surface treatment

High strength

LCC

Recyclable



About us

2.

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

The company was founded in 1987 and has experiences stable economic growth ever since.

We are currently 50 employees and staff turnover is low, which has allowed us to build a great body of knowledge within several separate segments. Thus, our foundation is strong and less affected by market fluctuations.



We value long-term relationships. We always do our utmost in order for our existing customers to want to return with new orders. A good reputation cannot be overestimated. We at Stål & Rörmontage always strive to be the best.

Our philosophy is simple - every commitment needs to be well executed in order for Stål & Rörmontage to be the natural first choice for all clients within our business areas.

For us it is a matter of course 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.

Contact us by phone 0456-312 05 or visit our website www.srmab.com



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, how much exactly is unknown for us today. 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 the environmentally friendly stainless steel duplex. This steel is **fully recyclable, high strength and resilient**. It is also more corrosion-resistant than most common stainless steel, making it ideal for tough outdoor environments. It has low nickel content which results in a cheaper and more stable price..

The steel is suitable for salty atmospheres and in structures located near the sea as well as in the traffic environment, where other steel is subjected to discoloration and spot milling and needs to be painted every 25-30 years. The steel has almost **non-existent maintenance requirement**. Duplex stainless steels, 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 steel, unlike ordinary steel, release very small amounts of metal ions in the environment and requires no environmentally hazardous coatings.

Additionally, duplex stainless steel has very **high strength**. This makes it possible to use thinner materials which reduces the weight. You reduce energy consumption and the ecological footprint, downtime, transport, manufacturing, disassembly and assembly, as well as repainting.

All stainless steel duplexes we use in our projects come from Outokumpu Stainless AB in Avesta / Degerfors. They are a leading manufacturers of stainless steel and the world's largest supplier of stainless duplex steel.

Sustainability is of great importance for our future. We must ensure that: We minimize material usage in constructions, that the construction lasts as long as it is used, that minimal maintenance is required and that the construction 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 0456-31205, you can also visit our website for more information; www.srmab.com.

On the following pages, you will find some of our projects which have been made in duplex steel.

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

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



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

Interest for stainless steel bridges increases. Reasons for this are higher requirements for sustainability, increased environmental awareness among customers and end customers, as well as many ongoing infrastructure projects that increase corrosion resistance requirements.

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 constructed to be as cost-effective as possible over its lifetime, LCC (Life Cycle Cost).

In comparison, we take 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 must be at least equivalent to the cost of investment when manufactured. (depending on location, as well as TA and road user costs).

When it comes to 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 GC bridge in Södertälje, where there was previously a wooden bridge which had a much shorter span than what was originally calculated. After only 20 years, it has now been replaced with a stainless steel bridge in high-strength duplex steel.

In Avesta, there are two wooden bridges which face extensive repairs or needs to be replaced by brand new bridges, after just 20-25 years.

Below you will find some montage images and the completed bridge in Södertälje made in our new environmental concept.



Material, LCC, Social Costs and Environment

5.

Using a carbon steel bridge as a comparison object in pricing, one wooden bridge costs 85% and a Duplex bridge 120%. 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 here that the costs for the wooden bridge over 120 years is 283% and the steel bridge is 333% in comparison with the stainless steel duplex bridge. TA, road user costs and CO2 emissions are not included, but illustrated in the example below.

Example. The E4, Södertälje:

TA costs / opportunity (30-year interval) approx. 300,000 sek.

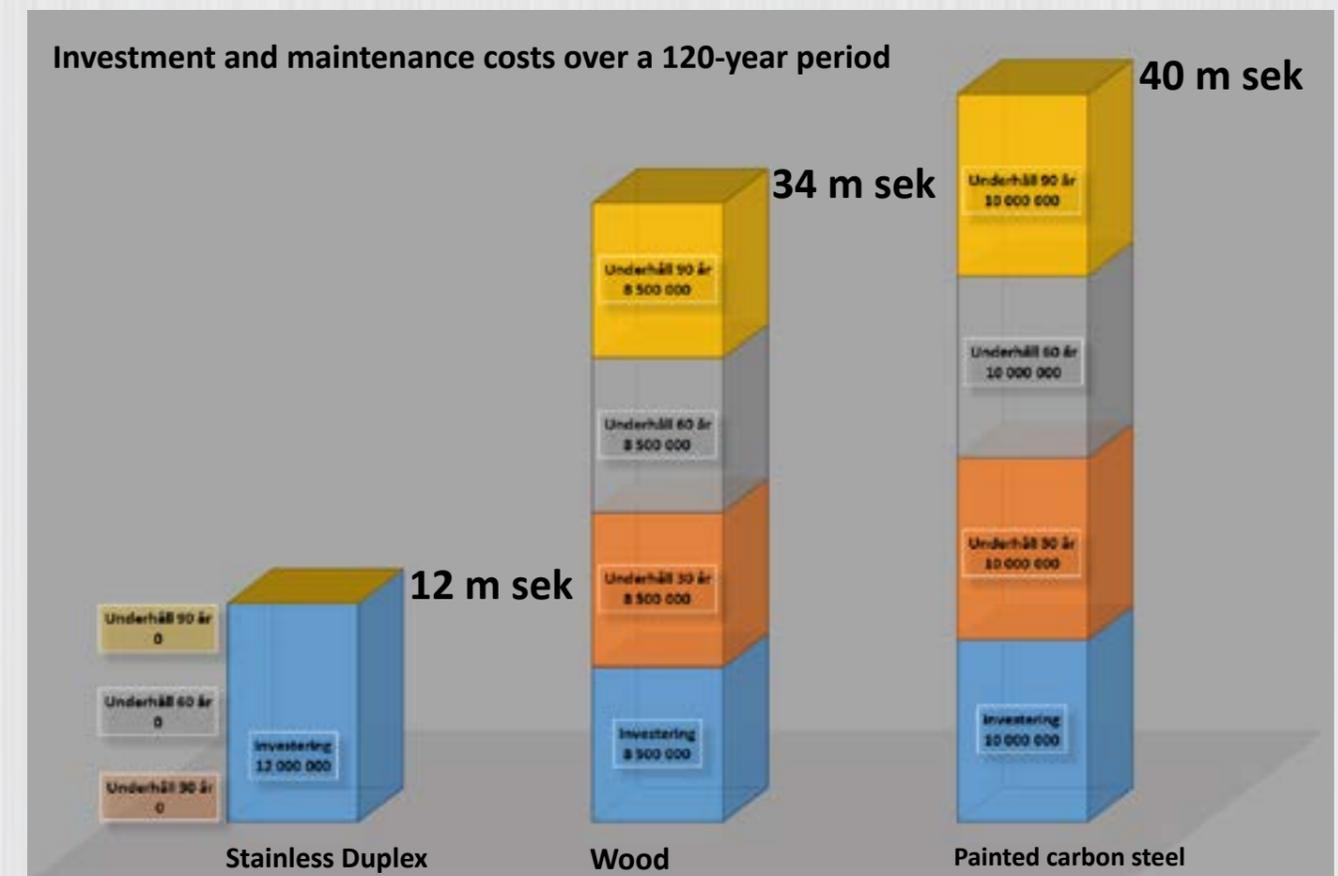
Traffic cost / opportunity (30-year interval)

2 days * with 32000 vehicles / day with 1 minute longer travel time. With 300: - / h this gives us a cost of 320,000 kr ($2 \times 32000 \times 1 \times 300 / 60$).

CO2 emissions / opportunity (30-year interval)

Based on the above, a speed of 60 km / h and 1.9 kg CO2 / mile (average car TRV 2013), it becomes 12 tons ($2 \times 32000 \times (1 \times 60 / 60) \times 1.9 / 10$)!

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



*Estimated reasonable time that can be divided into several days / nights.

Walking and cycling bridge across the E4 in Södertälje⁶.

In 2018 we manufactured the new GC bridge over the E4 in Södertälje municipality. The bridge was constructed in our new patterned design and was of course made of stainless duplex 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"



Walking and cycling bridge across the E4 in Södertälje⁷.

For the municipality of Södertälje, the life of the bridge was of great importance and given that stainless steel duplex steel is the absolute best option. By using this material, the municipality saves much by avoiding expensive maintenance and traffic costs and minimizes environmental impact. The bridge has 10 mm polycarbonate discs and recessed led lighting on both sides, the longest span is 36 meters.



Söderströms bridges

8.

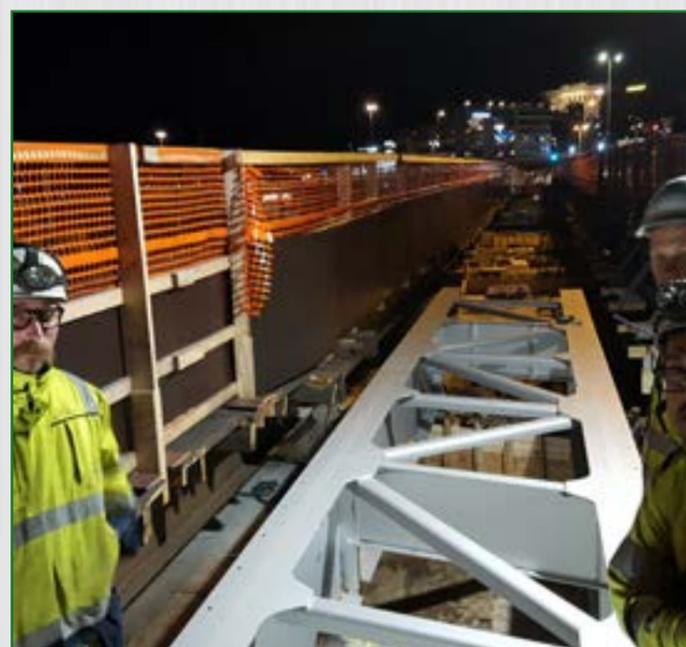
When Stockholm's City transportation decided to replace the 60-year-old bridges that pass between Slussen and Old town, the choice fell on Stål & Rörmontage and Outokumpu in Degerfors.

In 2017 - 2019 all four bridges will be replaced, each bridge is 192 meters long and consists of twelve pieces of bridge sections.

After 60 years, the bridge was in great need of refurbishment and Stockholm City Transportation decided to use the stainless steel duplex to make it more corrosion-resistant, minimize maintenance and future traffic disturbances.

Since Söderströmsbridge is crucial for public transport in Stockholm, with 330,000 passenger / day and is Sweden's most traffic-intensive area, the choice of steel was very easy. The old bridges were made of carbon steel and demanded a lot of maintenance.

As soon as the bridges are replaced, you minimize unnecessary shutdowns, maintenance needs, environmental impact and traffic change. Over time, this will be very cost saving.



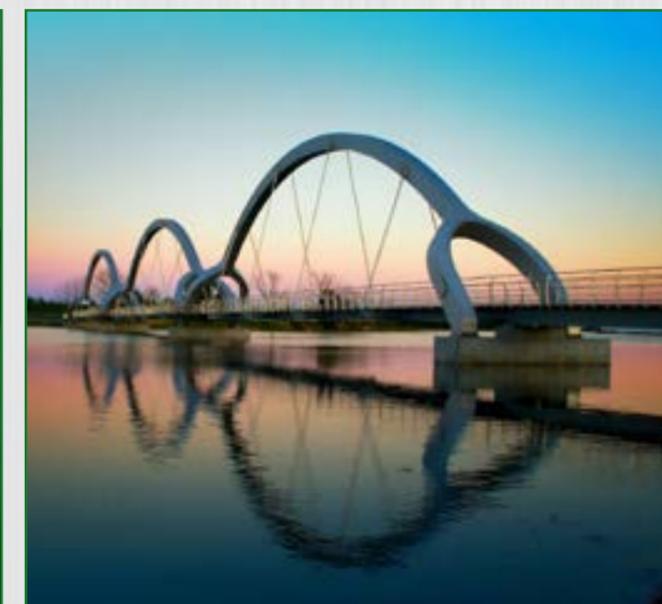
Sölvesborg's bridge

9.

Sölvesborgsbron is Europe's longest walking and cycling bridge. It is 760 meters long, 3.5 meters wide and was built of about 600 tons of steel, of which 190 tonnes is stainless duplex steel.

The bridge connects Sölvesborg city center with Ljungaviken, a new district on the other side of the bay. The municipality of Sölvesborg chose to use the duplex steel on the most weather-prone constructions and the users. One major reason for the choice of material was the minimal environmental impact and the almost non-existent maintenance.

The arches are built in stainless duplex steel.



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

During the summer of 2017, a sun deck was built next to the bridge where we made 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 party at Villa Gränslös. In 2016, it was nominated for this years construction price in Växjö. The bridge is a model of the environmental bridge of the same design but is made of painted carbon steel. The length of the bridge is 12 meters. The compartment contains 8 mm unbreakable hammer glass sections, recessed for maximum transparency.

This bridge weighs only 2 450 kg. This is the first bridge in our new pattern-protected design, which allows steel where the steel is needed (flexible thickness in the frame bars).



The bridge at the Vasa museum

11.

On behalf of the Royal Djurgård Administration, we have constructed, manufactured and installed a 19 meter long and 3.5 meter wide walkway and bicycle bridge which opened a new, requested walkway along the Djurgårds quay outside the Vasa museum in Stockholm.

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



Our vision is to build bridges which have the environment and the future in focus

- 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 black coal steel bridges?
 - How long will we waste resources?

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



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Do not hesitate to contact us, we promise to do our utmost to solve your problem!



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1996 & 2012



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