STRENX™
PERFORMANCE STEEL

A stronger, lighter and more sustainable world.

S-Läss is more

15 April 2021

SSAB


SSAB is a global steel company with a leading position in high-strength steels and related services.

STRENX™
PERFORMANCE STEEL

SSAB in brief

76 BILLION SEK
annual net sales in 2019

Annual steel production capacity:
8.8 MILLION TONNES

Steel making since
1878

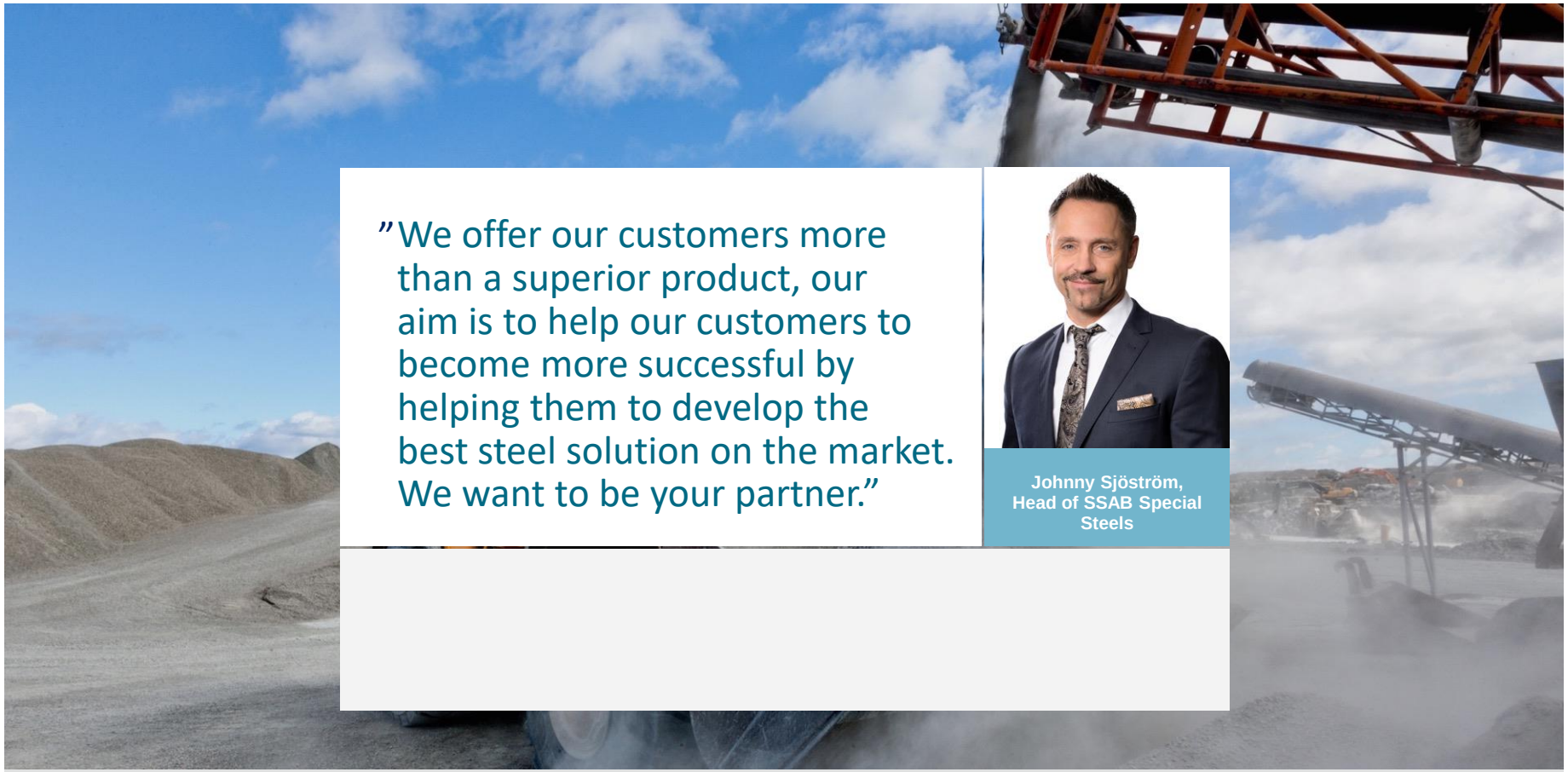
14,500
professionals
in 50 countries

OUR BUSINESSES:
SSAB Special Steels,
SSAB Europe,
SSAB Americas, Tibnor,
Ruukki Construction

SSAB

SSAB Special Steels

STRENX™
PERFORMANCE STEEL



”We offer our customers more than a superior product, our aim is to help our customers to become more successful by helping them to develop the best steel solution on the market. We want to be your partner.”

Johnny Sjöström,
Head of SSAB Special Steels

SSAB

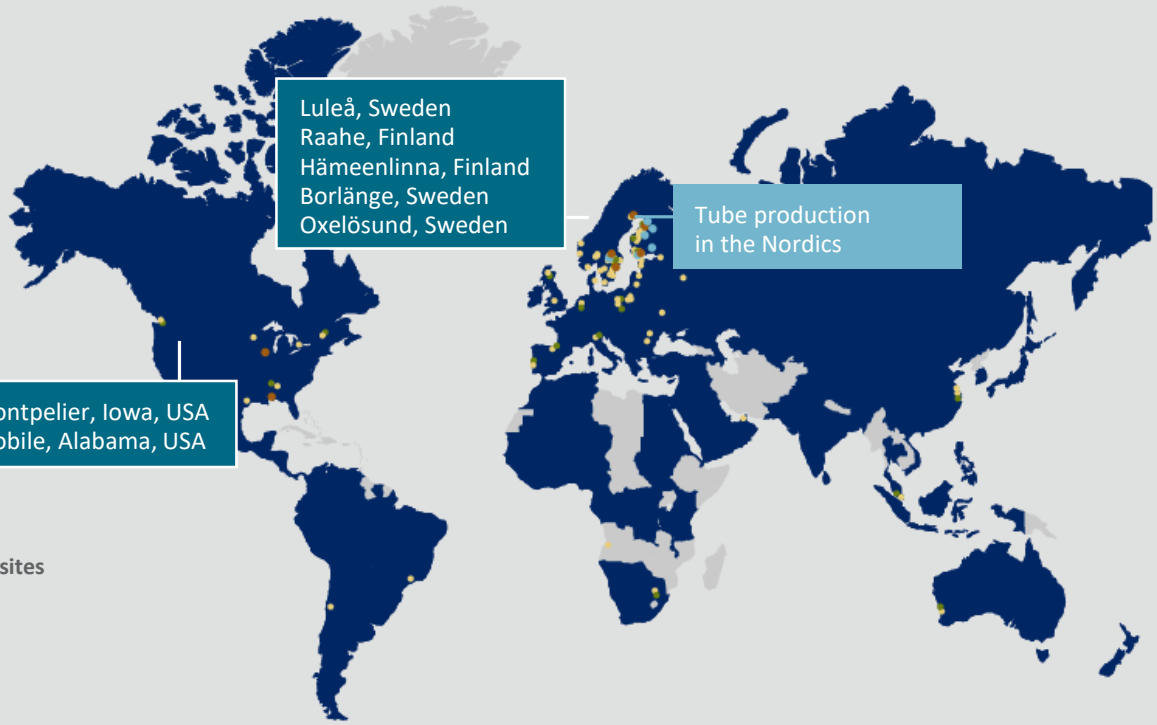
Strong globally and locally

STRENX™
PERFORMANCE STEEL

MORE THAN

150

COUNTRIES OF SALES COVERAGE



SSAB

STRENX™
PERFORMANCE STEEL

SSAB support innovation

Premium steel

Availability though stocks all over the world

Technical support for SSAB customers

Knowledge Service Center providing expert advice

- Parts & Kits
- Possibilities to outsource your steel processing

SSAB SHAPE™
TAILORED SOLUTIONS

Engineering Services
From conceptual design to manufacturing

SSAB

SSAB Shape - tailored solutions for equipment manufacturers

STRENX™ PERFORMANCE STEEL

SERVICES

Design for manufacturing

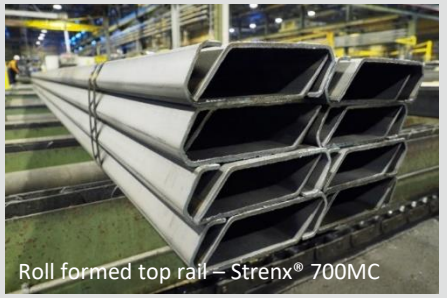
Advanced Prefabricati on services

Logistic solutions

ENGINEERED KITS & PARTS


Hook lift frame kit

Hook lift frame kit – Strenx® 700 tubes


Roll formed top rail – Strenx® 700MC

PREMIUM STEEL PRODUCTS

SSAB

The potential lies in the use phase

CO_2 savings when upgrading to HSS

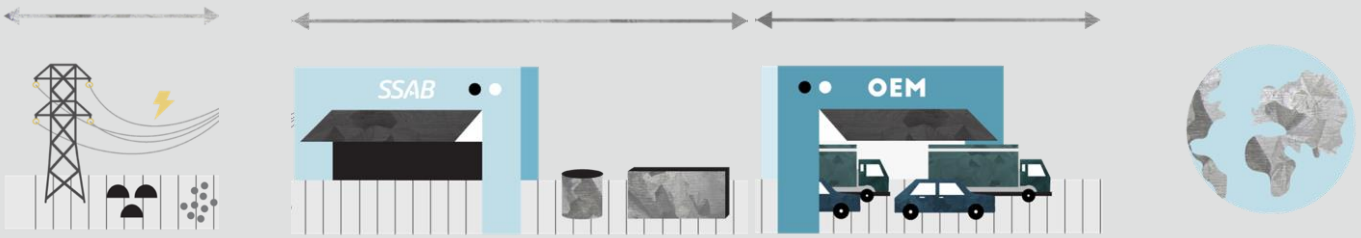
The following Life Cycle Assessment illustrates a hypothetical scenario when 1 Mtonne high-strength steels (HSS) replaces 1.3 Mtonne standard steel, used in vehicles

-200 000
tonne reduced CO_2 emissions from upstream suppliers

-500 000
tonne reduced CO_2 emissions from steel production

-7 300 000
tonne reduced CO_2 emissions during use-phase

-8 000 000
tonne total reduced CO_2 emissions



Source: Jernkontoret, the environmental research program ”the steel eco-cycle”, calculated out of the average life span among European vehicle fleet.

Hybrit & CO_2-emission free ironmaking

2018 - 2024

Feasability study pilot plant trials

Feb 2018
Decision for pilot phase

2019 - 2021
Fossil-free pellets trial

2020-2024
Hydrogen-based reduction and smelting trials

2021/22 - 2024
Hydrogen storage

2025 - 2045

Commercial volume plant trials and transformation

2025

- Transformation - BF* to EAF** at SSAB Oxelösund
- HYBRIT demo plant

2026
SSAB fossil-free steel on market

2030 - 2040
Transformation - BFs to EAFs at SSAB Raahe & SSAB Luleå

2045
SSAB fossil-free

** BF = Blast furnace. **EAF = Electric arc frunace*

STRENX™ PERFORMANCE STEEL

Hybrit & CO_2-emission free ironmaking

APR 8 2021

Volvo Group and SSAB to collaborate on the world's first vehicles of fossil-free steel

Volvo Group and SSAB have signed a collaboration agreement on research, development, serial production and commercialization of the world's first vehicles to be made of fossil-free steel. Volvo plans ...

READ THE FULL STORY

APR 7 2021

HYBRIT: SSAB, LKAB and Vattenfall building unique pilot project in Luleå for large-scale hydrogen storage investing a quarter of a billion Swedish kronor

SSAB, LKAB and Vattenfall have commenced building a rock cavern storage facility for fossil-free hydrogen gas on a pilot scale next to HYBRIT's pilot facility for direct reduction in Luleå, North of S...

READ THE FULL STORY

MAR 24 2021

HYBRIT: SSAB, LKAB and Vattenfall to begin industrialization of future fossil-free steelmaking by establishing the world's first production plant for fossil-free sponge iron in Gällivare

SSAB, LKAB and Vattenfall are now taking a new, decisive leap forward in their work to make fossil-free steel for the global market. Industrialization of the technology being developed through HYBRIT ...

READ THE FULL STORY

SSAB

In line with the S-Lass idea –

Extra and Ultra High Strength steels are a very cost efficient and low weight/MPa material and shall not be forgotten in the race of weight reduction !

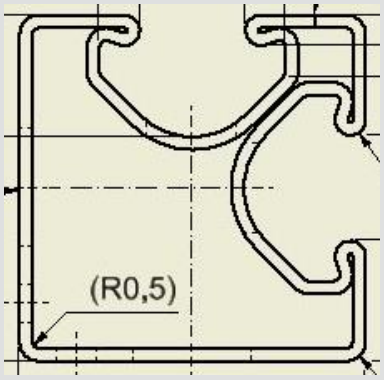
In line with the S-Lass idea –

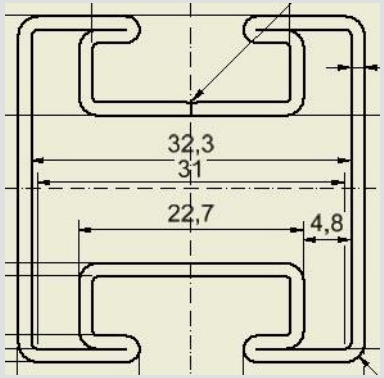
Here two cost efficient ideas where we can use extra high strength steels in electric ships where the weight is very important.

- Frames for composite sandwich panels
- Larger structural profiles

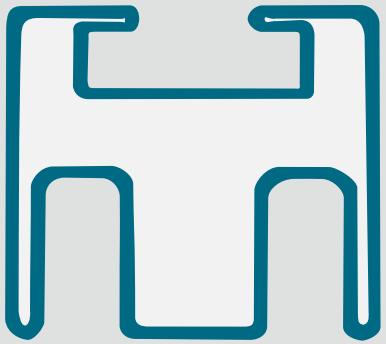
Frames for composite panels

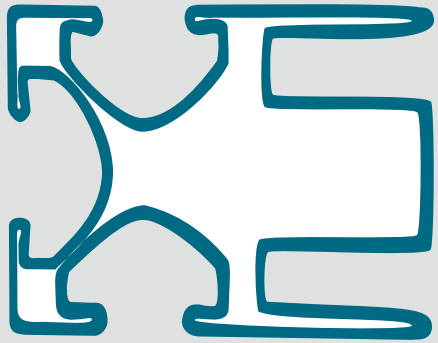
Here two examples that exist today and are made with Strenx 700 CR steel having min. 700 Mpa Yield strength.

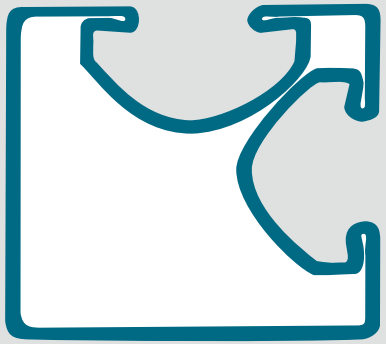


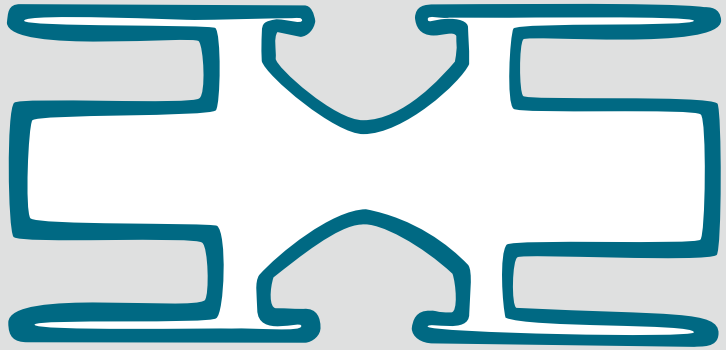


Here some profile ideas

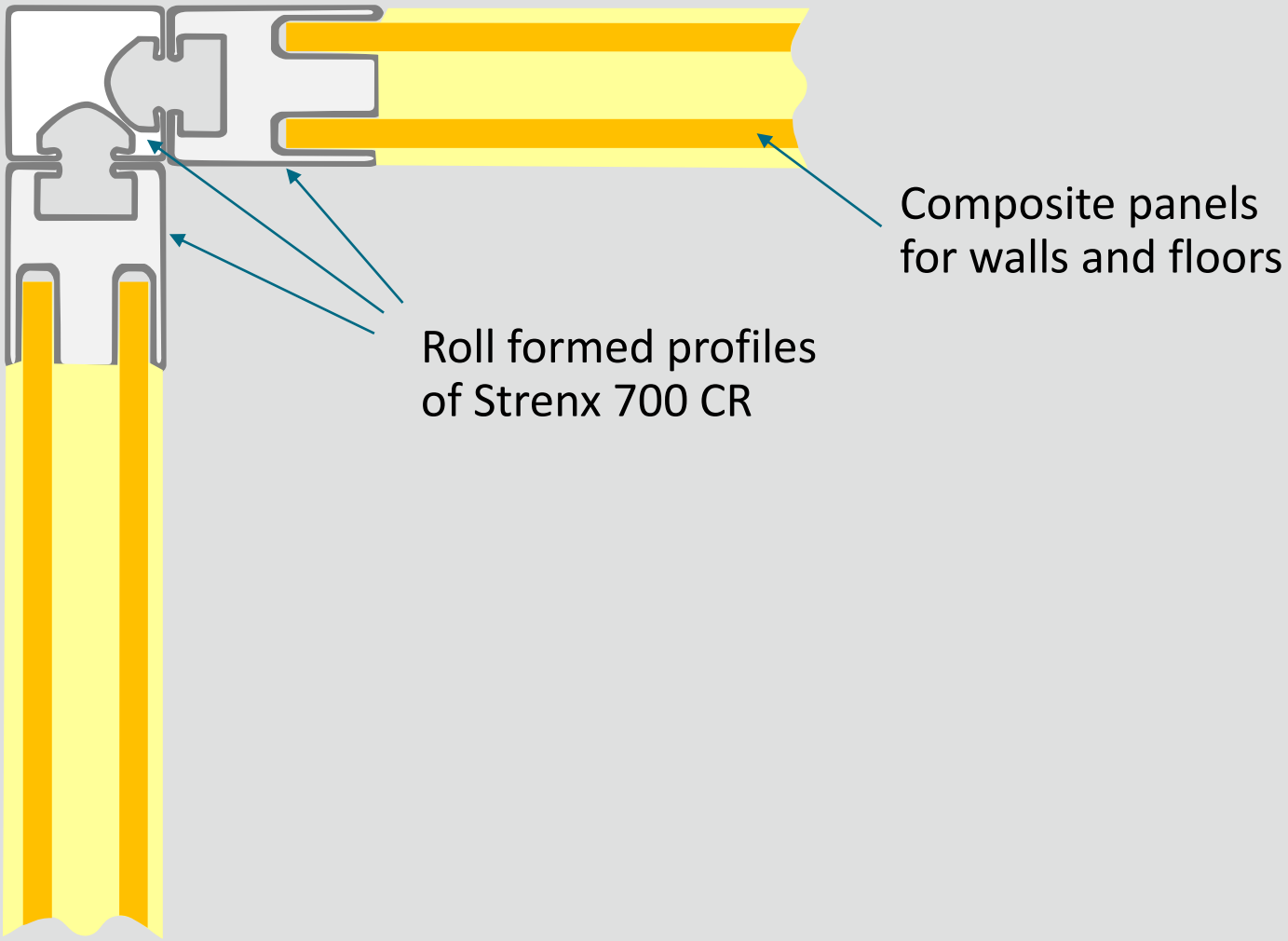




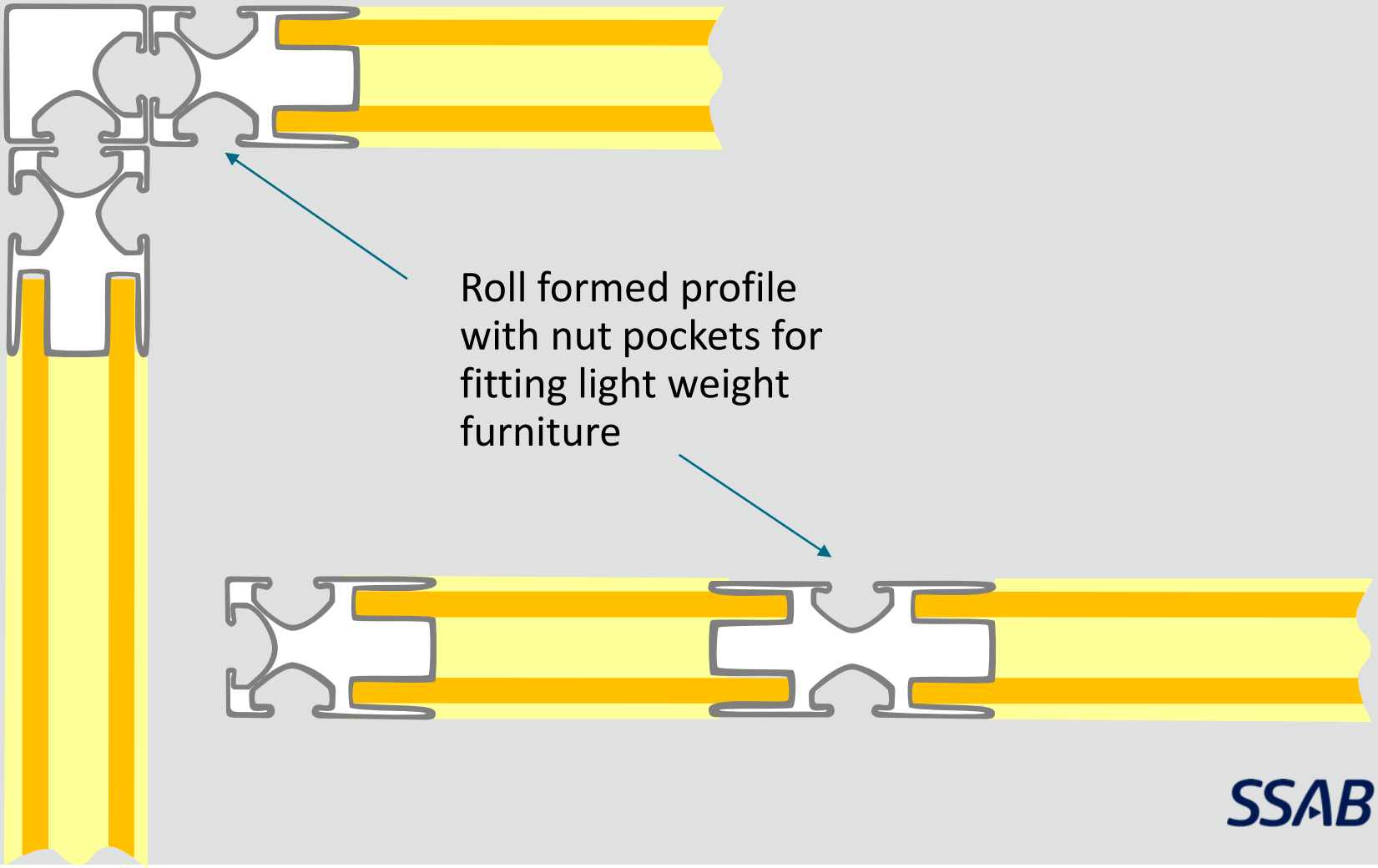




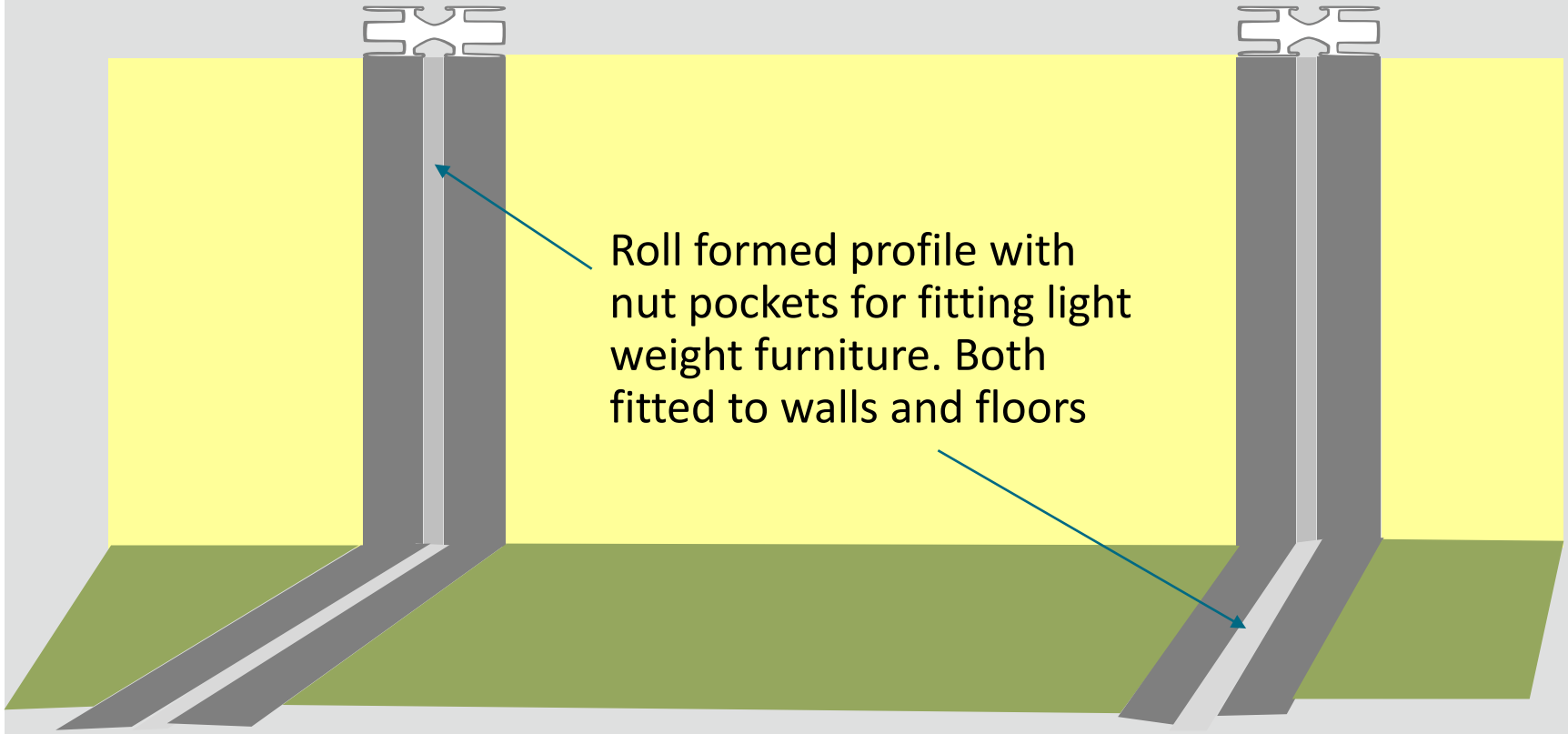
A corner solution



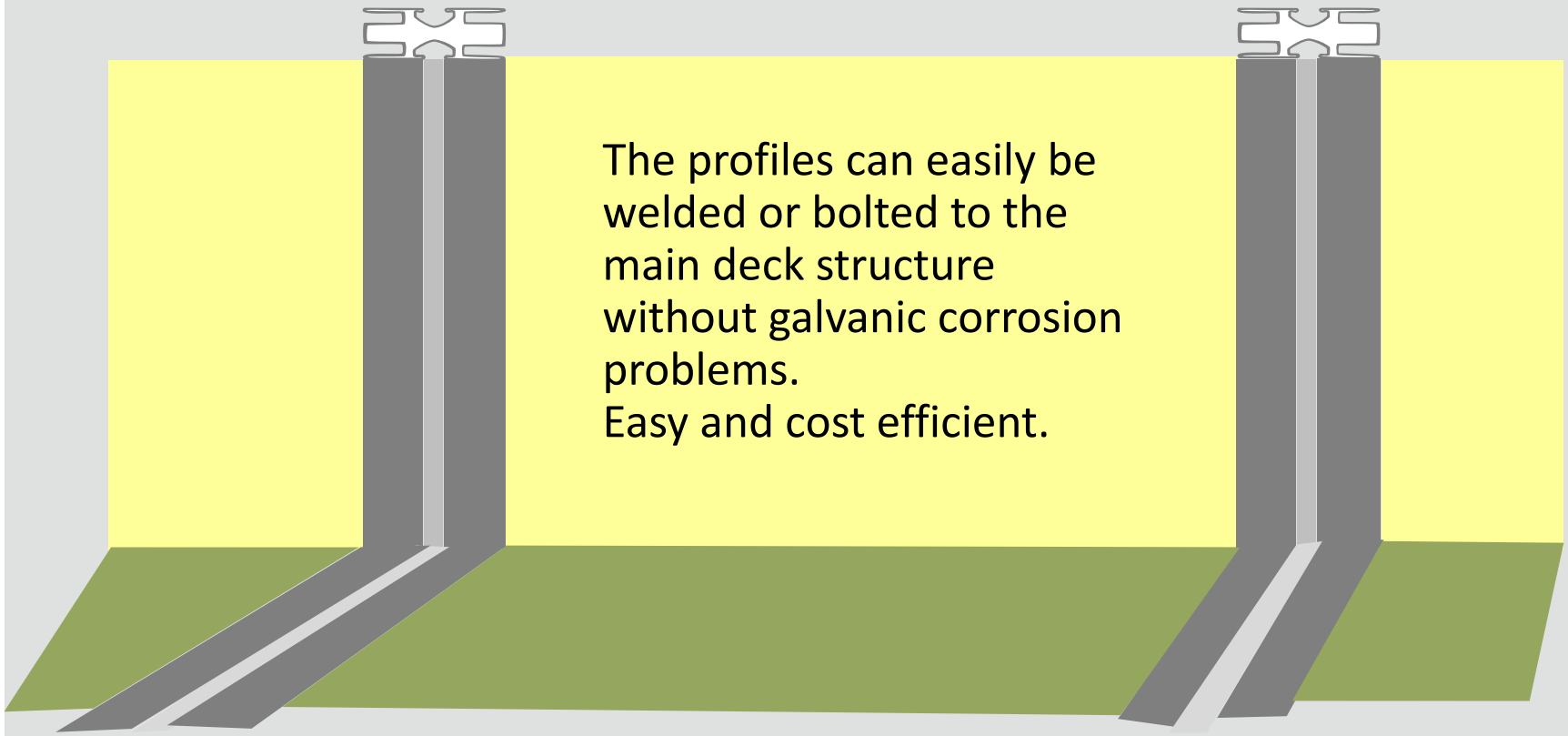
Solution with nut pockets



Fitting solution for furniture



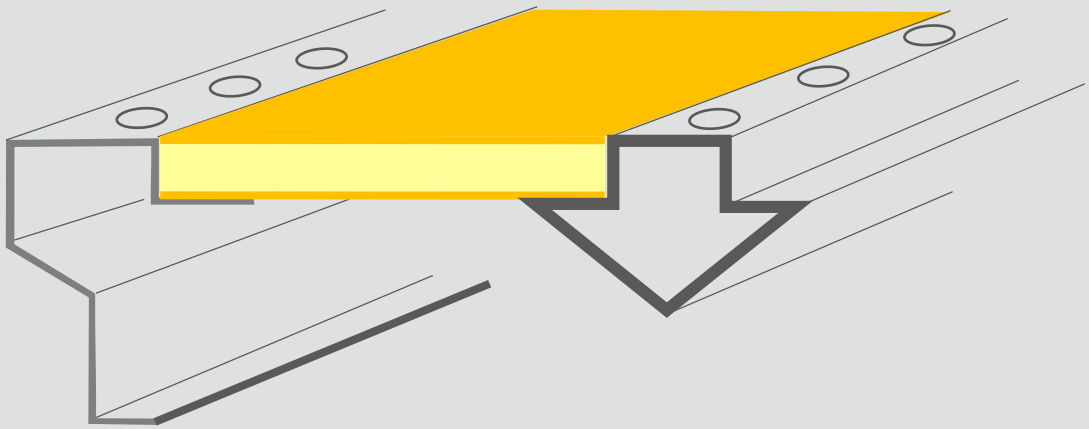
High strength steel profiles with same weight as ALU



Larger structural Profiles

Strenx 700 (VLE 690) in combination with Composite Panels or Steel sandwich solutions

- In Deck Structures
- In Structural Frameworks
- A ship is big enough to carry the cost of the roll forming tools
- Open your mind and create super strong designs.



Challenges when it comes to fatigue in joints and fittings

- Welded steel joints are fatigue sensitive with Fat values of 70 – 90 MPa
- Parent steel material in high strength steel such as Strenx 700 is around 300 – 400 MPa
- In order to enable weight reduction we need to move the welds from the most critical positions.
  - Bending
  - Bolting
  - 3D forming
- Another solution is to create the joints in Composites and fit in the steel profiles into the composite joints.

Thank you for your attention !

If you want to discuss possibilities to use high strength steels in order to reduce weight in any structure, do not hesitate to contact me.

Joakim Nyström, SSAB Special Steels

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