



Crane boom



Special I-Beam

Profile:	<i>Heavy I-beam</i>
Material grade:	<i>S32304</i>
Execution:	<i>laser fused / laser hybrid welded</i>
Industry served:	<i>Automotive & Transportation</i>
Destination:	<i>Sweden</i>

For the tender of a luxury yacht a special beam was needed. It had to be used as boom for heaving the tender and putting it to water and back onboard.

The section was designed taking into account the possibilities and advantages of a laser fused tailored beam, optimizing overall dimensions and material thickness.

The matter of the material selection was quickly solved; the planned austenitic stainless steel 1.4404 (316L), was rapidly rejected and substituted by the lean duplex steel 1.4362 (S32304), when adding to the structural calculation the higher yield of lean duplex.

The result was an overall smaller beam, enabling a reduction of the section size and of material thickness, thus granting significant savings, both as far as weight and material costs is concerned!

Optimized beam dimensions:

425x190x15x20mm (Height x Width x Tw x Tf).

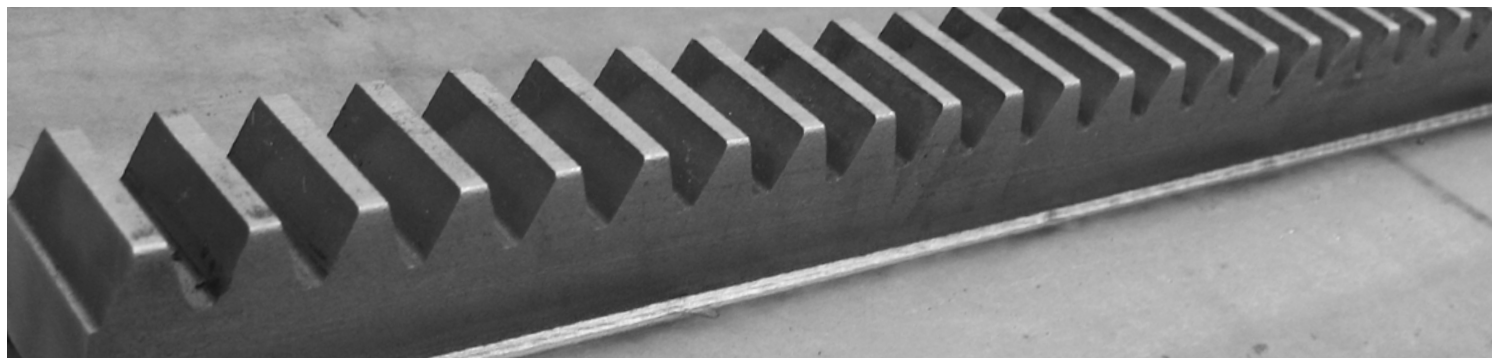
The supplied length was 5200mm.

The beam is fused with full penetration welds.

The minimum amount of distortion, that is achievable with the laser fusion technology, made it possible to machine the upper flange on both ends prior to assembly and laser fusion. Granting high precision with reduced costs, compared to the machining of the finished beam.

For moving the lifting structure at which the tender is hanging, the upper flange of the beam is equipped with a toothed bar that is laser fused on top of it.

As no load is carried here the fusion penetration was designed at 5mm per side.



Detail of the dental rail