



railProduct

Problem:

Rails are, maybe, the highest quality long products made of carbon steels. The requirements in terms of constant geometrical profiles over hundreds meters and strength/toughness ratio are really impressive. Consistent metallurgical know how is the heart of this utmost steel product.

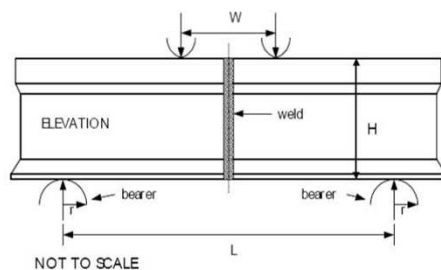
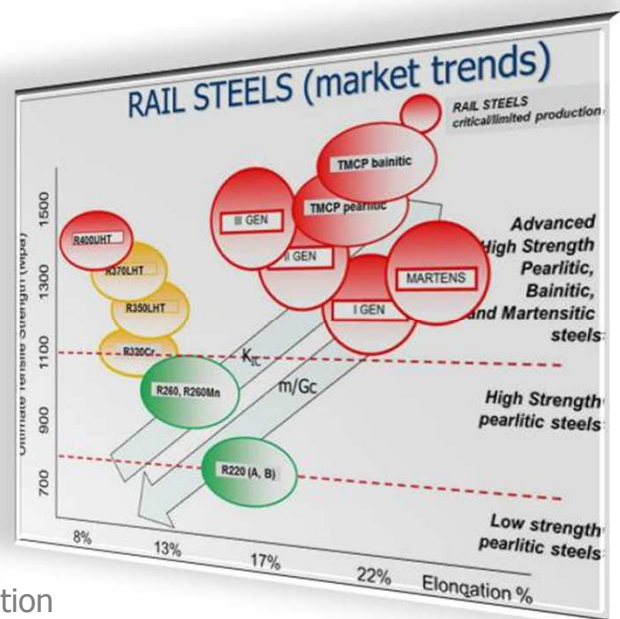
Solution:

CSM innovative approach finalises alloy design and relevant processes, in order to obtain target microstructure rather than targeting mechanical properties.

railProduct is based on proprietary thermo-mechanical 3D Finite Element Models, coupled with several microstructure evolution models (austenite, phase, precipitation). Finally, a mechanical properties prediction tool (mechView) allows reaching the targets.

On site survey and assistance for the implementation of results revising pass design and operating practices, pilot rolling mill, welding and full hot and cold mechanical testing labs complete railProduct.

Available also full qualifying tests to fulfill EU and non-EU Standards (e.g. Arema, Gost), including full-scale welding tests and Structural Integrity.

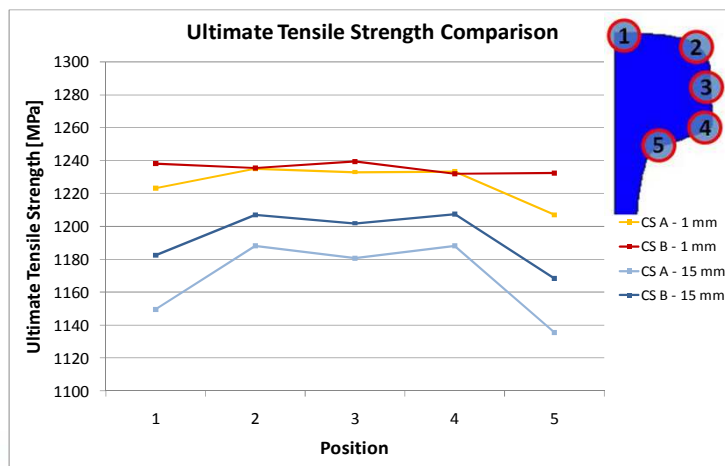
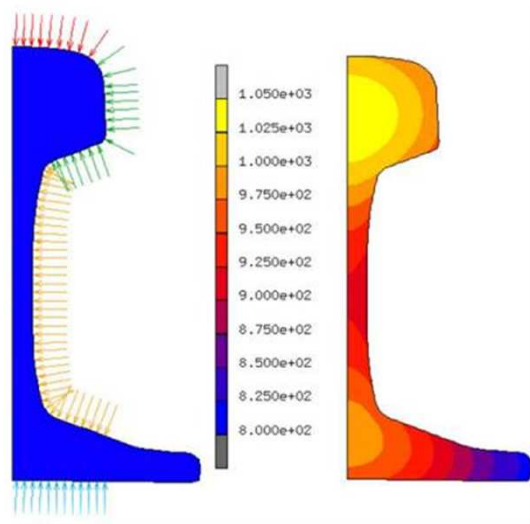
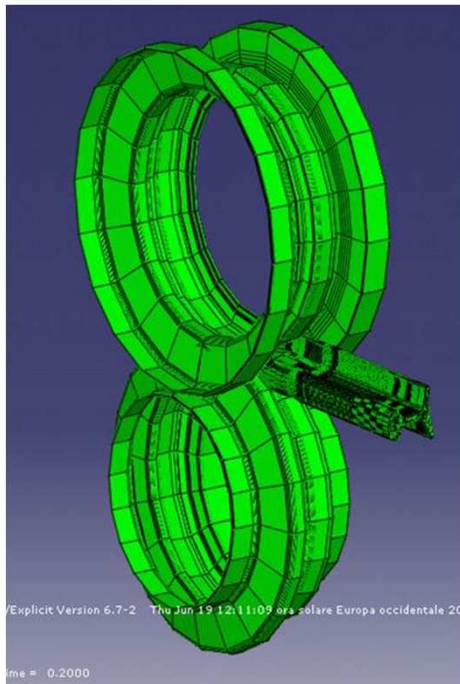


Benefits:

- To identify the suitable operating practices in order to obtain target product performances
- To minimize residual stresses, and fulfill stringent geometrical requirements (fundamental for high speed lines)
- To improve production yield

Input & Output:

- Rail mill plant layout (including potential limits and constraints), desired product performances.
- Suitable process parameters, layout improvements, mechanical characteristic of rail product (including RCF and wear modeling).



railProduct makes use of mechView tool, available also for rail mill on-line installation.

The surface quality of the bar entering finishing stands can be on-line monitored with barCheck.

contact:
 Centro Sviluppo Materiali SpA
www.c-s-m.it
marketing.steel@c-s-m.it