

Project idea: HSS tubes and sections for advanced applications produced on EAF route

Call area: Life Cycle Assessment / Circular Economy

### Contact

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### Project Description

Driven by the requirements of the automotive industry for weight reduction, pipe and profile solutions made of ultra-high-strength steels have been developed in recent decades, which have a very advantageous manufacturing process in terms of sustainability thanks to cold profiling. Within this project the sustainability of these products will be further increased by the use of steel strip, that has not been produced according to the conventional blast furnace route.

### Project Objectives

- Manufacturing of demonstrators of high strength tubes and sections made of new EAF steels
- Adaption of rollforming and tubewelding process parameters to the use of new materials
- Testing of the produced demonstrators according to the requirements of demanding industry sectors, especially regarding dynamical loads

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### Problem, State of the Art, and Envisioned Solution

Driven by the requirements of the automotive industry for weight reduction, tube and section solutions made of ultra-high-strength steels have been developed in recent decades, which have a very advantageous manufacturing process in terms of sustainability thanks to cold rollforming. The application of these tubes and sections is not restricted to the automotive sector, but is now transformed also to other demanding industries like cranes, agricultural machines, construction etc.

The use of such high-strength profiles in dynamically loaded areas of application requires the highest demands on the input material used, e.g. in terms of purity, formability, weldability. Until now, these requirements could only be met by using steels produced according to the conventional blast furnace route. In the electric arc furnace route the main input material is scrap. As a consequence these steels usually have much higher levels of accompanying elements than was previously accepted for high-strength profiles. The aim of the project is therefore to develop improved or alternative manufacturing processes for high-strength tubes and profiles that can tolerate high levels of by-elements in the starting material.

The products produced in this way will be tested according to the requirements of the most demanding industries in terms of mechanical properties and dynamic loading.

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#### Our Partners, Our Know-How...

- voestalpine Metal Forming (Austria)
- voestalpine Krems GmbH (Austria)
- voestalpine SadeF (Belgium)

#### We are looking for...

- Project partner, that can supply high strength steel strip, produced on the electric arc furnace route
- Partner for project coordination
- Testing facilities for fatigue