

RAMM

Rapid, cost effective manufacturing of **multi-material** components in one pressing operation



smart

advanced manufacturing

ORGANISATION PROFILE

RISE – Research Institutes of Sweden – Division of Material and Production – Polymer Materials and Composites

- High volume of composite production
- Composites for high temperatures, especially for the aerospace
- Bio based composites (fibre, thermosets & thermoplastics)
- Nano based composite materials
- Recycling of composite materials

Testbed for sustainable composite manufacturing

- Industrial scale manufacturing equipment
- 2000 m² manufacturing and testing laboratory
- Processing and materials science
- Testing and analysis

Part of RISE

- 2,300 employees, 30 % with a PhD.
- Turnover approx. SEK 2.7 billion (2017).
- Support SME clients: 30 % industry turnover.
- RISE owns and partners 60 % of all Sweden's T&D facilities.

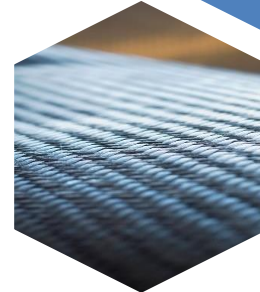


Material
sciences

Manufacturing
& processing
sciences



Structural
design



PROPOSAL INTRODUCTION (I)

Vision: Efficient and sustainable manufacturing of multi-material components using existing industrial press equipment

Motivation:

- Increased use of reinforcement material (carbon, glass) from scrap in existing composite manufacturing or from component recycling
- Reduced cost for multi-material components by having a low cycle time and by joining multiple parts in one operation.
- Reduced weight on vehicles, the right material on the right place. 50% weight reduction on metal structures that are exchanged to a composite solution

Content:

- A rapid, cost effective manufacturing process to produce complex metal-composite parts in one pressing operation
- Metal combined with reused spread tows of carbon or glass fiber
- Multi-material joining together in a simultaneous metal forming and Sheet Moulding Compound (SMC) process creating an overlap patch

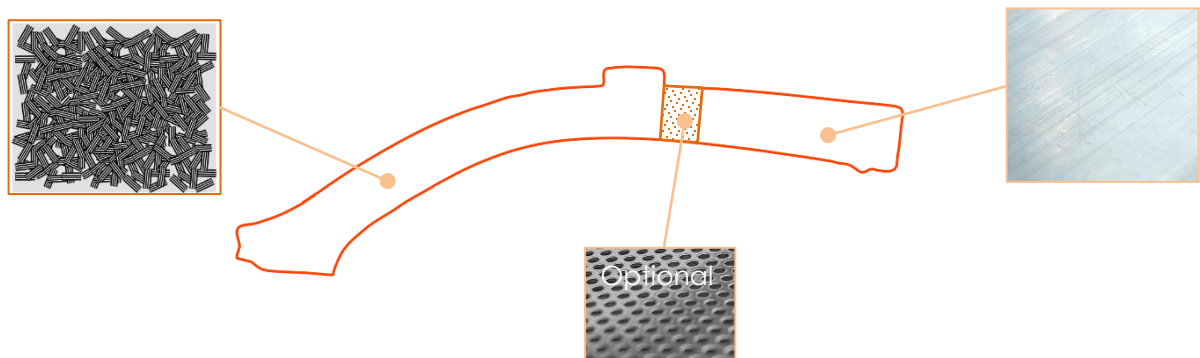
PROPOSAL INTRODUCTION (II)

Expected outcome: A rapid, cost effective manufacturing process to produce complex metal-composite parts in one pressing operation

- Metal combined with reused spread tows of carbon or glass
- Joined together in a simultaneous metal forming and Sheet Moulding Compound (SMC) process creating an overlap patch

Impacts: Reduce cycle time for manufacturing of composite structures, lower material cost than using continuous fibers and low degree of scrap.

Schedule: Suggested start date: 2021-06-01. Duration: 2 years



PARTNERS

Current Consortium: RISE (Sweden), Eurecat (Spain)

Partner search: OEM or supplier for the automotive, truck, or train industry, material supplier, tool designer/tool supplier.



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