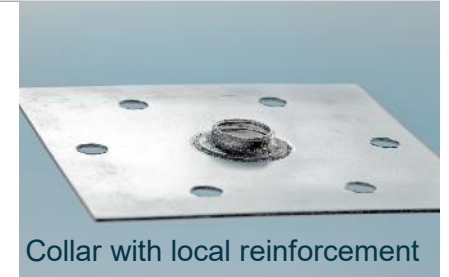


# Project idea: Weight-efficient Local Reinforcement of Sheet Metal Components via Laser Material Deposition

## Call area 5: Sustainable and smart mobility

### Contact

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### Project Description

The production of sheet metal components with load-adapted sheet thickness is an effective way to reduce weight. Laser Material Deposition (LMD) offers local reinforcement, maximum geometric flexibility, metallurgical bonding and material diversity (similar and dissimilar). The reinforcement patches can be applied before or after forming. An appropriate patch design is simulated prior to patching.

### Project Objectives

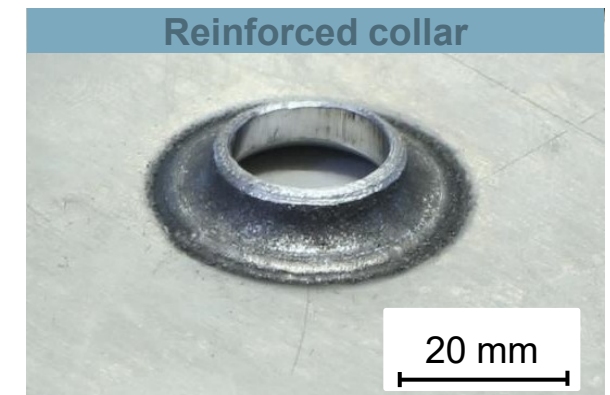
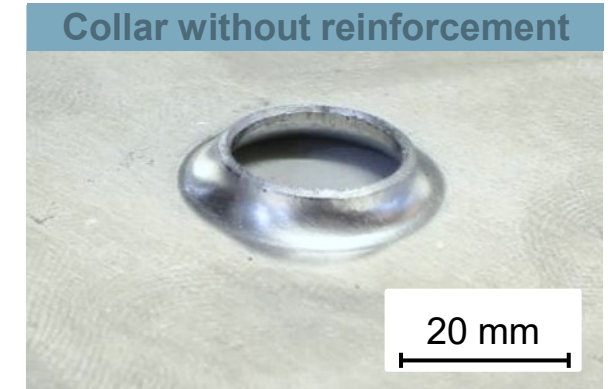
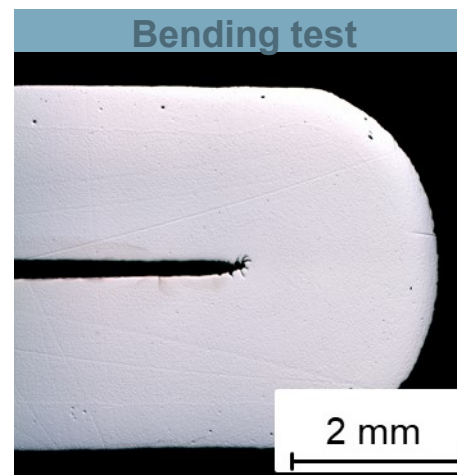
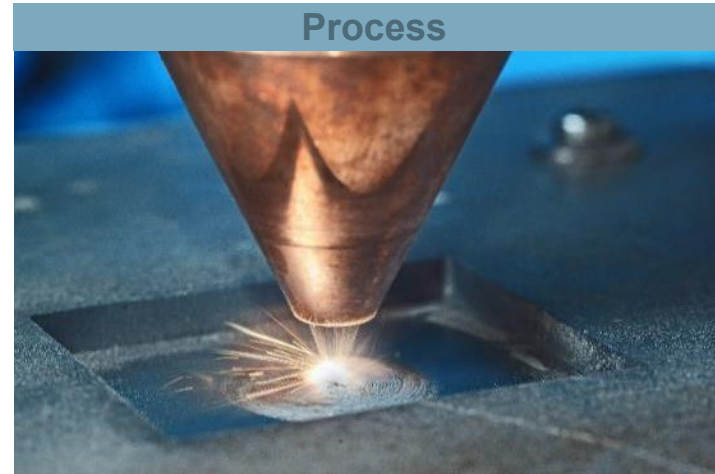
- Weight-efficient local reinforcement via Laser Material Deposition of parts before and after forming
- Simulation of operating behavior to identify reinforcement zones and required thickness
- Integration into existing process chains

# Project idea: Weight-efficient Local Reinforcement of Sheet Metal Components via Laser Material Deposition

## Call area 5: Sustainable and smart mobility

### Case study: Reinforcement of a collar

- Material: Micro alloyed cold forming steel
- LMD with similar material
- No post-processing before forming
- No cracks after forming
- Increased collar height and constant collar wall thickness after forming
- Increased load capacity by 264 %
- Weight gain only about 4.3 %



# Project idea: Weight-efficient Local Reinforcement of Semi-finished Parts via Additive Manufacturing

## Call area 5: Sustainable and smart mobility

### Our know-how...

- Over 25 years experience in Laser Material Deposition (LMD)
- Various laser and handling systems for LMD
- Materials expertise for LMD
- Feasibility of local reinforcement has already been demonstrated (proof of concept)

### We are looking for...

- Industrial partners:
  - OEM and suppliers with potential applications
  - Sheet metal forming
  - Simulation of sheet metal forming
  - Simulation of component behavior
  - Manufacturer of lasers and handling system
  - Process monitoring