Joining Sub-Platform

FlexHyJoin

Flexible Production Cell for Hybrid Joining

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Challenge

Multi-material systems combining metals with thermoplastic fiber reinforced polymer composites (**TP-FRPC**) for lightweight design in automotive industry.

3 core requirements:

- Weight reduction
- Cost and time efficiency and
- Bonding strength



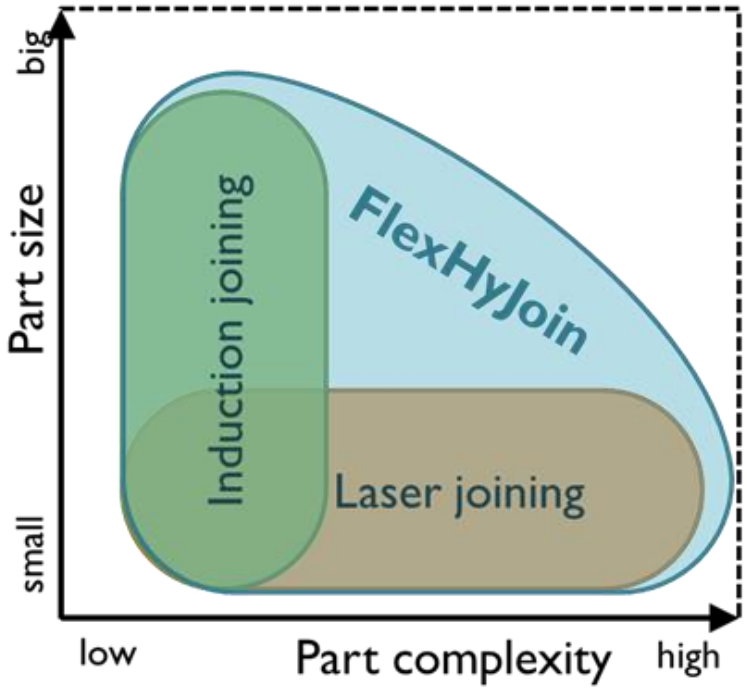
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Objectives

- Joining **metal** parts with **TP-FRPC**
- **Weight-neutral** bond with good strength
- Cost and time **efficient** process
- **Integration** of surface treatment, online monitoring, and Non-Destructive Testing
- **Automated pilot cell** at TRL 6-7

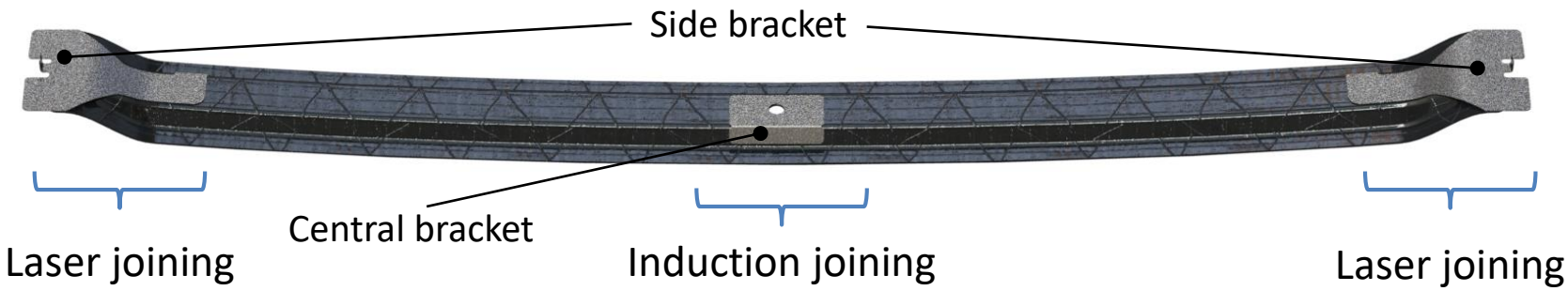


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Demonstrator Part

- Roof stiffener of Fiat Panda
- Consisting of a fiber reinforced polymer composite (FRPC) part and metal brackets



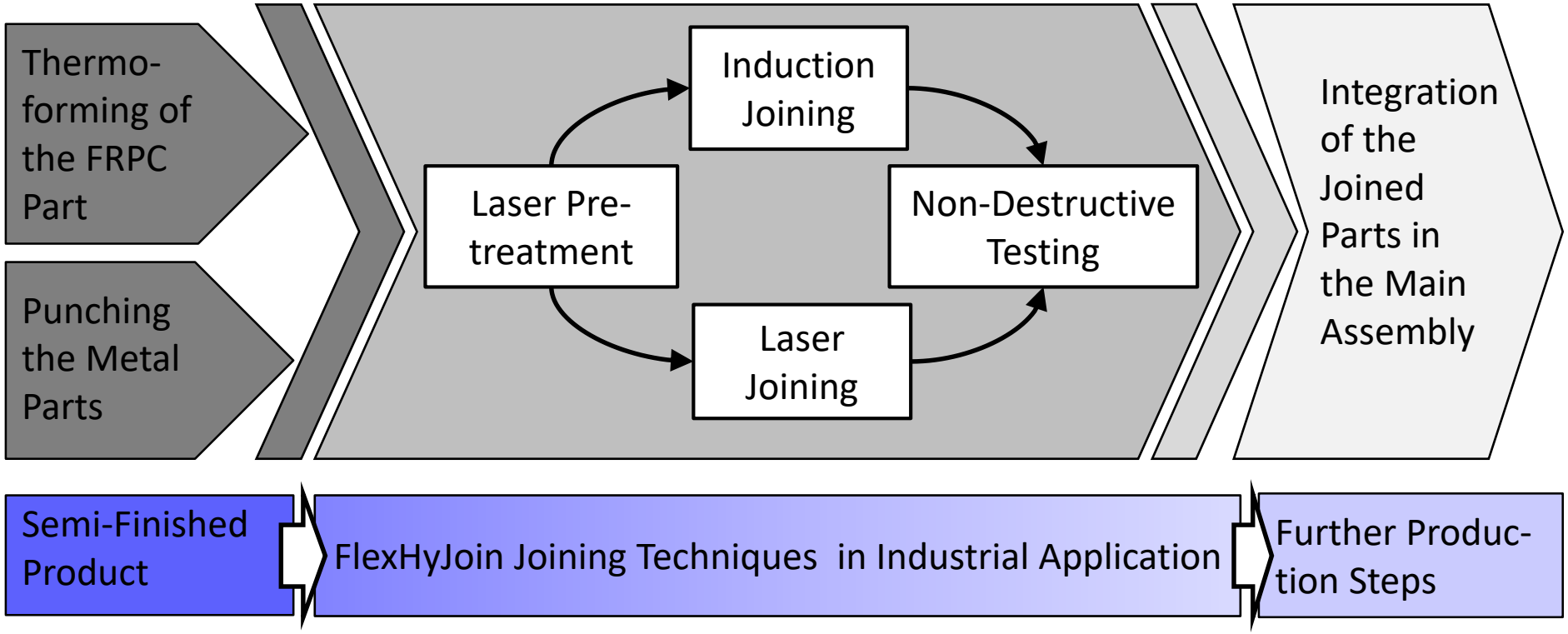


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FlexHyJoin Concept

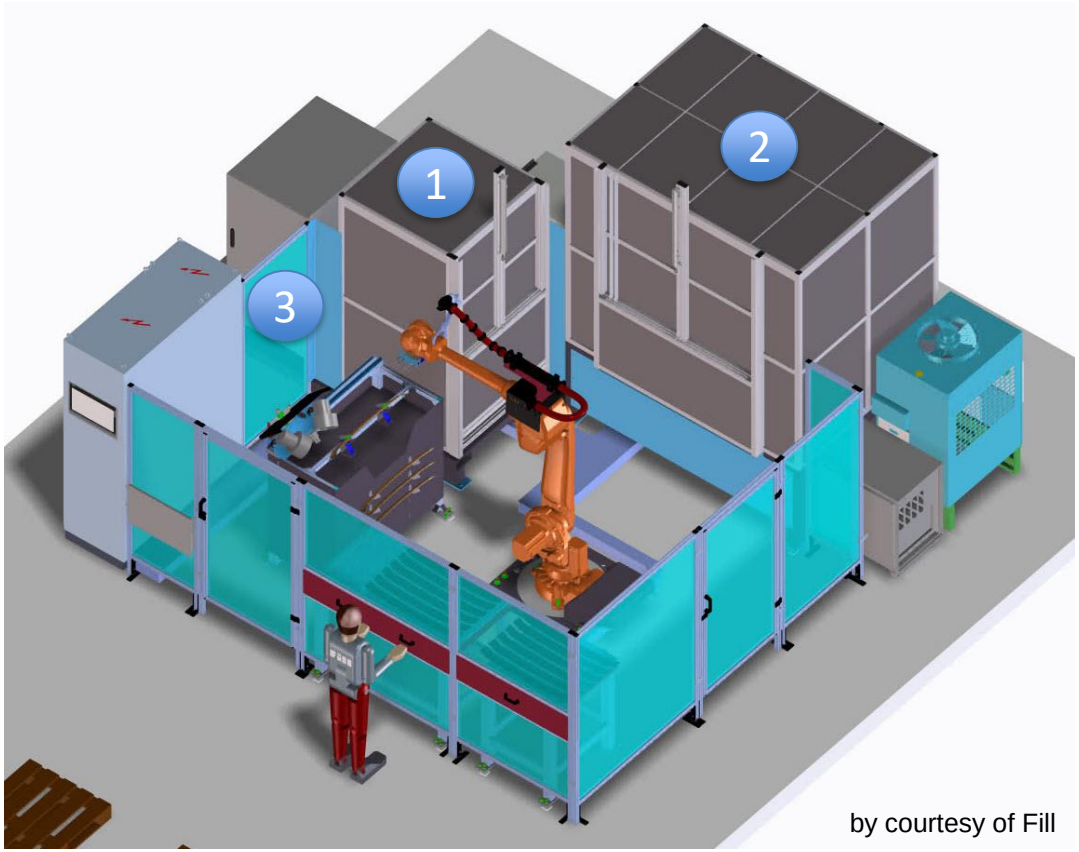
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Automated Pilot Cell

1. Laser structuring
2. Laser joining
2. Induction joining
2. Online monitoring
3. Non-Destructive Testing
   - Finite-Element simulations
   - Simple recycling



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FlexHyJoin Consortium

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NIT New Infrared Technologies

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LEISTER LASER PLASTIC WELDING

EDAG

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Thank you very much for your attention

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