



OITBs for Characterization

FormPlanet: sheet metal forming testing hub

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FormPlanet

Sheet Metal Forming Testing Hub

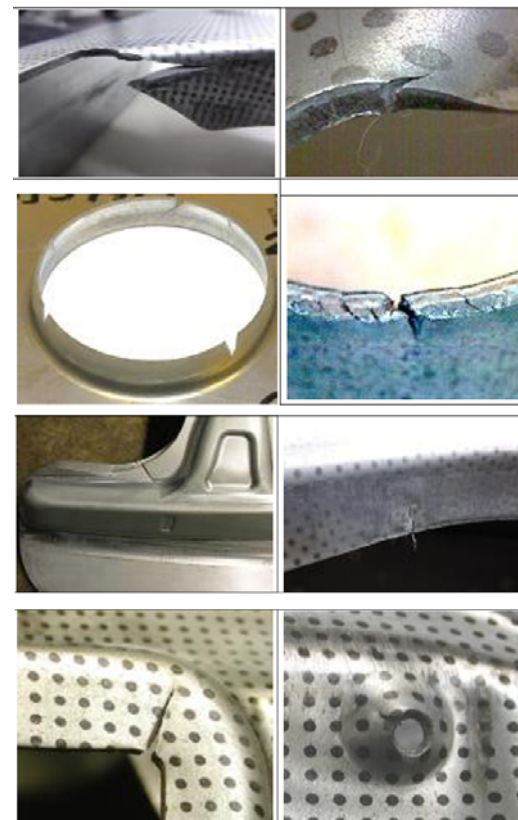


Facts and figures

- **3 years** duration, from January 2019 to December 2021
- **Budget:** 7,7 M€, of which 6,9 M€ funded by the EC
- **17 participants** from **9 different countries**
- **8 industrial companies** in the **sheet metal forming industry** value chain as early users and validators
- **Coordinated by Eurecat, RTO, ES**

eurecat!

- **Grant agreement ID:** 814517





FormPlanet Overview



Objectives

To develop and demonstrate an integrated ecosystem (Test Bed) offering novel testing methodologies to:

- **characterize** sheet material properties,
- **predict** part performance and
- **prevent** production losses,

to the **sheet metal forming** industries to tackle the upcoming challenges in formability and part quality assessment.

It includes the development of:

- **New testing methodologies** and **FE approaches** to predict formability and part performance
- **monitoring** and **inspecting NDT**.

The potential of the novel approach will be proven in several industrial demonstrators.





Competitive Advantage

The **UNIQUENESS** of
the test services
offered



LIMITATION

Productivity losses due to crack defects, limited formability and inaccurate quality assessment.

NEED

NEED for accurate **MATERIALS CHARACTERIZATION** and new **MODELLING APPROACHES** to assess **SHEET FORMABILITY** (predict & solve sheet cracking) and **PART PERFORMANCE**.

OFFER

User-driven driven **INTEGRATED TEST BED ECOSYSTEM** offering **UNIQUE Testing Methodologies** to assure zero-defects production and optimize sheet material development, production and performance.





FormPlanet Services Offer

Test Sites Technology Offer



- Crash resistance tests
- Crashworthiness modelling
- SMM to characterize post necking behavior and fracture strain
- Smart material data characterization
- Efficient simulation methodologies for light-weight sandwich solutions
- Micromechanical characterization (Microtomography)



- High temperature FLC-characterization
- Quality inspection by 3MA system
- In-process monitoring by HFIM and laser tracking



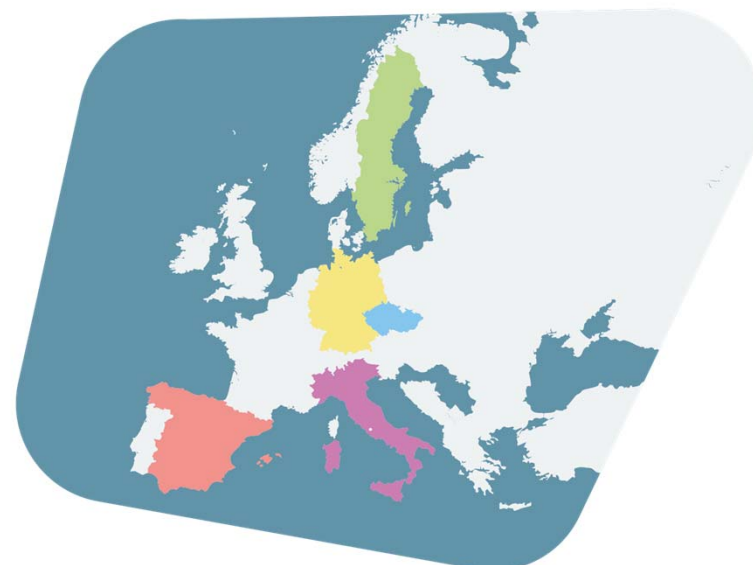
- Micro-tensile tests
- Crash resistance tests
- Improved FLC with non-linear strain path



- H-embrittlement tests
- FEM H embrittlement behavior
- Industrial on-line diffusible H measurement



- Edge fracture resistance tests
- Micromechanical characterization (nanoindentation)
- Fracture toughness tests in thin and thick plates
- Fatigue tests (durability)
- Implementation of fracture mechanics based properties in FE modelling
- In-process failure detection by thermography
- Prototyping by incremental sheet forming





FormPlanet Services Offer



Cross Cutting Service Providers



Industrial on-line diffusible H measurement



Materials Informatics (full traceability of data/information management of physical and virtual characterization for design, simulation, legal and regulatory compliance related to materials and products)



Material traceability for product certification compliance



Standardization





FormPlanet Consortium



5 technology providers



4 service providers



8 industrial companies





Thank you!

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A project coordinated by:

eurecat



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