

POST-DOC POSITION FOR NECKING AND DUCTILE FRACTURE CRITERION DEVELOPMENT

DESCRIPTION

Accurate modelling of sheet metal necking and ductile fracture is a key factor for the reliable numerical analysis of the stamping process feasibility of lightweight metals, such as ultra high strength steels and aluminium alloys.

Mondragon University offers a post-doctoral position for further improvement of existing state of the art criteria for the evaluation of non-linear strain path necking and the ductile fracture evaluation methods considering the stress state of the material.

The focus will be to develop/adjust necking and fracture criteria at laboratory level and to implement these criteria in a tool-shop stamping different skin and reinforcement components.

The post-doc position is supported by industrial partners and a global industrial project for stamping tooling optimization.

AVAILABLE EQUIPMENT

Material testing

- Universal testing machines (INSTRON and servo-hydraulic MTS)
- Biaxial testing machine (yield criteria, 250 Kn each axis)
- Pure shear and tension-compression tester (kinematic hardening)
- Stack compression tester (4 LVDTs to monitor lateral displacement)
- Bulge tester (4000 bar, diameter 250 mm)
- Torsion tester (bulk, room and high temperature)
- ISO standard Marciniak and Nakajima tester (nonlinear paths possible combining both testers and D45 cylindrical Nakajima tester)
- ISO standard Hole expansion tester (in-situ monitoring technique implemented)
- GOM ARAMIS 5M hardware

Tribological testing

- Strip drawing tester
- Duncal Shabel tester
- ForgeFix hammer peening head
- SENSO FAR PLμ optical 3D surface profiler + ALICONA Infinite Focus IG4

Metal forming facilities

- 4000 kN FAGOR servo-mechanical press
- 2000 kN GAMEI Hidraulic Press
- 1500 kN GAMEI Mechanical Press

CONDITIONS

The position is opened for one year (2nd year contract extension possible)

Gross salary of 39.862 €/year

CANDIDATE SKILLS

- Proven experience in sheet metal forming simulation software and subroutines coding
- Fracture and necking related knowledge (proven by scientific papers or supporting letters)

CONTACT

Dr. Lander Galdos (lgaldos@mondragon.edu)