

## **New sheet hydroforming technologies for small batch production**

**Project manager: Prof. Viorel Paunoiu, viorel.paunoiu@ugal.ro**

---

Sheet hydroforming is largely used in automotive and aeronautical industry due to its advantages. In the same time in this field different technologies for small batch production were developed.

In this research are presented two new sheet hydroforming technologies with real potential for industrial applications. The multipoint sheet hydroforming due to its great flexibility gives the possibility to full control the process of deformation. The multichannel sheet hydroforming, increase the potential of obtaining to a single punch stroke a number of parts, not necessarily identical. At the base of these new technologies are the designed equipment's which are in the experimental stage. For multipoint hydroforming a scheme of reconfigurability and a numerical model developed in Ansys are developed. For multichannel hydroforming the experimental and the numerical results are compared and their convergence provides the prospect of applying the two new technologies for small batch production.

This issue was one of the main objectives of the Project PN-III-P1-1.2-PCCDI-2017-0446, Intelligent manufacturing technologies for advanced parts manufacturing in the automotive and aeronautical industries, 2017-2020, Coordinator: "Vasile Alecsandri" University of Bacău, Project manager UDJG: Prof. dr. eng. Viorel Păunoiu.

The project proposes the achievement of a unitary vision on the new tendencies from the automotive and aerospace industries by researching the production chains and the afferent intelligent technologies. The researches take in view the new tendencies applied in the fabrication of the automotive and aeronautics industries. The researches have also in view the development of new materials, the application of new digital technologies for the manufacturing of prototypes of parts made from new materials, the development of control and inspection algorithms for the carosery parts, the use of efficient technologies for the cutting procedures of parts made from special materials and not in the last case the minimization of manufacturing costs by using the design of simulation models of the manufacturing fluxes.