



Cost Effective Forming of Lightweight Complex Structures

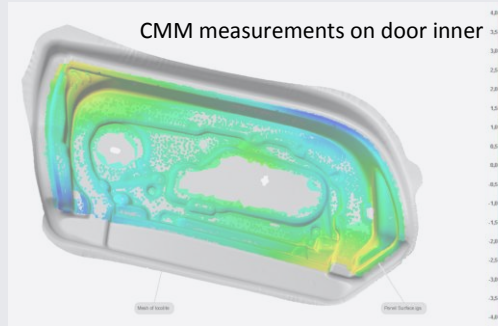
The Project

The **LoCoLite** project's aim is to establish production lines in Europe that manufacture components for lightweight complex-shaped body structures of automobiles, trains and aircrafts, which are significantly lighter and of comparable strength and stiffness to those currently available.

Technological Highlights

HFQ forming trials of a door inner component have been performed using AA6082 aluminium alloy, demonstrating improved dimensional accuracy and overall quality of the part. The trials are part of the continued work of the LoCoLite project to produce aluminium components that are of high strength yet can be formed into complex shapes. The trials implemented several improvements developed from data and know-how generated during preliminary trials that took place in October 2014, in particular in relation to the accurate and repeatable blank location and minimisation of heat loss during handling. It has been demonstrated through these improvements that the complex shaped component can be successfully and repeatedly formed.

For the trials, CMM measurements have been performed on the formed components, in order to compare to the requirements of the CAD part



model. The figure shows that the central features of the component present generally good accuracy to the CAD requirements (within 0.6mm) with the edges of the component showing greater deviation. Moreover, mechanical tests have shown that the component can be aged and the strength brought to within 95% of the original strength of the T6 condition.

Dissemination activities

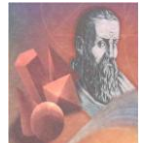
The Consortium has disseminated the project's results and activities at various international events. During 2015 a special session at the ICNFT2015 - 4th International Conference on New Forming Technology that will be held in Glasgow in August 2015 www.icnft2015.com;

- Engineering materials at the beginning of the 21st century; Exhibition and possibilities of surface treatments for the automotive industry – March 20th 2015 – Bucharest (Romania);
- Nafems World Congress – June 21st – 24th 2015 - San Diego (USA);
- Articles on Blechnet (DE) and Maschinenmarkt (DE) during 2015

Consortium

The **LoCoLite** consortium involves 16 companies and research institutes from eight European countries.

Imperial College
London



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TECHNOLOGIES



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