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# Simulation-driven mold compensation strategy for composites: experimental validation on a doubly-curved part

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## Abstract

Thermoset-based composites exhibit irreversible distortions during manufacturing, which are detrimental to the assembly and then to the mechanical integrity. The optimal mold geometry can be determined by numerical simulation such that the produced composite component matches the target design. A simple mold compensation methodology as well as an all-around experimental validation are proposed for a doubly-curved part made of a carbon fiber reinforced composite. Non-compensated and compensated parts are processed in order to quantify the gain obtained by the compensation procedure and to validate the method. The spring-in is reduced by more than 90 % and the overall distortions are reduced by about 70 %.

## Keywords

Mold compensation, C. Finite element analysis (FEA), E. Cure, E. Tooling.

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