

Designing additively manufactured parts via topology optimization - a space industry case study

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ABSTRACT

Additive Manufacturing (AM) allows unprecedented design freedom, which can be explored by the Topology Optimization (TO) algorithm. Their interplay allows a new engineering cycle with the potential to design and manufacture disruptive concepts. Thus, a systematic methodology for designing AM parts is presented, being the main goal of this study. The methodology is subdivided into several phases, each phase contains several tasks. Moreover, the data flow between phases is considered and solutions are provided. Finally, the methodology is applied to a space case study and preliminary results of the AM engineering cycle (TO, part design and structural analysis) are depicted.

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