Investigation of digital light processing using fibre-reinforced polymers

Literature research shows multiple applications of fibre-reinforced polymers (FRP) respectively in fused deposition modelling and gypsum printing influencing the quality of the products in terms of stress and strain resistance as well as flexibility. So far, applications of fibre-reinforced polymers in digital light processing (DLP) are limited. Fibre-reinforced polymer composites were manufactured into test objects using digital light processing. Short fibres were used in an unordered manner. An anisotropic property due to fibre orientation within the material was observed. The importance of fibre length and shape compared to layer thickness has been investigated including concepts to circumvent clustering of the fibres.This research contributes to the implementation of fibre-reinforced polymers in additive manufacturing technologies. Digital light processing allows generation of miniaturized objects with relatively high surface quality compared to other additive manufacturing technologies. This paper aim to move fibre reinforced resin parts one step closer towards mechanically strong production-quality components.

General information

State: Published
Organisations: Department of Mechanical Engineering, Manufacturing Engineering
Authors: Hofstätter, T. (Intern), Pedersen, D. B. (Intern), Nielsen, J. S. (Intern), Mischkot, M. (Intern), Hansen, H. N. (Intern)
Number of pages: 2
Publication date: 2016

Host publication information

Title of host publication: Proceedings of euspen's 16th International Conference & Exhibition
Main Research Area: Technical/natural sciences
Conference: euspen's 16th International Conference & Exhibition, Nottingham, United Kingdom, 30/05/2016 - 30/05/2016
Additive Manufacturing Technologies, Digital Light Processing, Fibre-reinforced Polymers, Surface Quality
Electronic versions:

201605_ExtendedAbstract_v3_5_DLP.pdf
Publication: Research - peer-review › Article in proceedings – Annual report year: 2016