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**ABSTRACT:**

# Non-Destructive Evaluation of Artificial Defects in an Additively Manufactured AlSi10Mg Rocker Arm Using Industrial Computed Tomography

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This study investigates the detectability of defects in a topology-optimised rocker arm manufactured for the DR25E race car of the Delta Racing Team Mannheim. The rocker arm transmits forces from the pushrod/pullrod system to the damper and spring. It was optimised using Altair Inspire and produced by laser powder bed fusion on an Eplus3D EP-P400 system using the aluminium alloy AlSi10Mg. To evaluate the effectiveness of non-destructive testing for quality control purposes, artificial defects in the form of drillings with predefined diameters were introduced in a cylindrical section of the component. The part was scanned in two different positions using an industrial computed tomography system (ZEISS METROTOM 1500 G2), resulting in different voxel resolutions. The study analyses which defect sizes can be reliably detected depending on the voxel resolution. Aluminium was chosen due to its low X-ray attenuation and minimal artefact formation, enabling a focused investigation of the influence of CT resolution on defect detectability. The results provide insights into the limits of CT-based inspection for additively manufactured aluminium components.