

# Formability of selective laser melted AlSi10Mg

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**Abstract.** In this study the formability of selective laser melted (SLM) AlSi10Mg aluminum alloy was studied by Erichsen and bending tests, using an instrumented hydraulic loading machine. Test materials were 2 mm thick flat specimens and similar commercial sheet material was used as a reference. Deep drawability was tested using a punch-die setup. For bending, a three-point bending tools and varying bending radii were used, and force and displacement were recorded. Test specimen were printed in various printing directions using three different layer thicknesses, and then subsequently post-treated in oven. Heat treatment parameters, i.e. soaking temperature and holding time were optimized. Formability was tested on both untreated and heat-treated conditions. Results indicated, that all studied parameters influenced the formability, i.e. printing directions and post-treatment parameters. the most profound difference was recorded between the untreated and post-treated specimen, as the untreated had almost brittle behavior during plastic deformation, and the post-treated specimen depicted a more ductile behavior due to stress relieve, softening and microstructural changes