

Kilowatt Blue Laser Sources for processing solutions in eMobility

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The laser based processing of batteries gained significance in the last years due to advantageous control of energy deposition and low heat impact on the active material. Currently established IR lasers however are restricted in the process efficiency and suffer from a spatter-risk. By using newly available diode lasers with the lower blue 450nm wavelength, sources emitting at 450nm can increase the process efficiency by a factor of up to 20 times, for the melting of copper. The high absorption level allows new process approaches, which were formerly however restricted by the conventionally low power level of blue laser systems. With the availability of a kilowatt laser system with 450 nm wavelength, a major step has been achieved to reach industrial relevant power levels. In this contribution we will review the latest application results regarding blue laser welding for the battery cell manufacturing and the battery module interconnection. This consists of welding results of copper to copper connections and also dissimilar material combinations.