



BLUE LASERS ARE ADVANCING MATERIALS PROCESSING



Image courtesy of Nuburu Inc.

Blue lasers bring significant advantages over traditional infrared lasers, especially for materials processing. “Yellow” metals, for example, absorb only a few percent of incident infrared radiation, so infrared laser welding is possible, but only in an operating regime that requires time-consuming wobbling or spiraling patterns. Even then, infrared welding must be done in keyhole mode, leading to porosity in the weld, reducing both the mechanical strength and the electrical conductivity. Metals absorb ten times (or more) as much energy from blue light. That leads directly to higher quality welds and faster processing speeds.

NUBURU (Centennial, CO) has introduced a new class of high-power, high performance blue lasers ideal for demanding applications. The first product of the new line, the 150 watt, 450 nm AO-150 high-power blue laser is already making its mark with improved performance in a variety of materials processing applications. The AO-150 modular design efficiently combines individual diode beams to produce blue laser output with unprecedented quality and power.

Those qualitative and quantitative advantages are already bringing disruptive capabilities to bear on fabrication challenges for lithium batteries, and also cellphone fabrication, where the blue laser’s ability to weld copper and dissimilar metals is essential. In fact, NUBURU’s technology is appropriate for almost any application where thin to moderate-thickness copper must be welded. The blue laser is more flexible than ultrasonic welding and faster than infrared laser welding, and the weld quality is unsurpassed by any alternative technological approach. NUBURU is continuing to develop the technology, with higher power lasers coming to market in the near future. In addition, the company continues to expand the application space. For example, the higher absorption of blue wavelengths offers a 3X to 10X improvement in speed for selective laser sintering, a process where laser energy fuses metal powder into arbitrary shapes. Blue light offers a similar advantage for laser metal deposition, an alternate additive manufacturing process.

For more information, visit www.nuburu.net

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