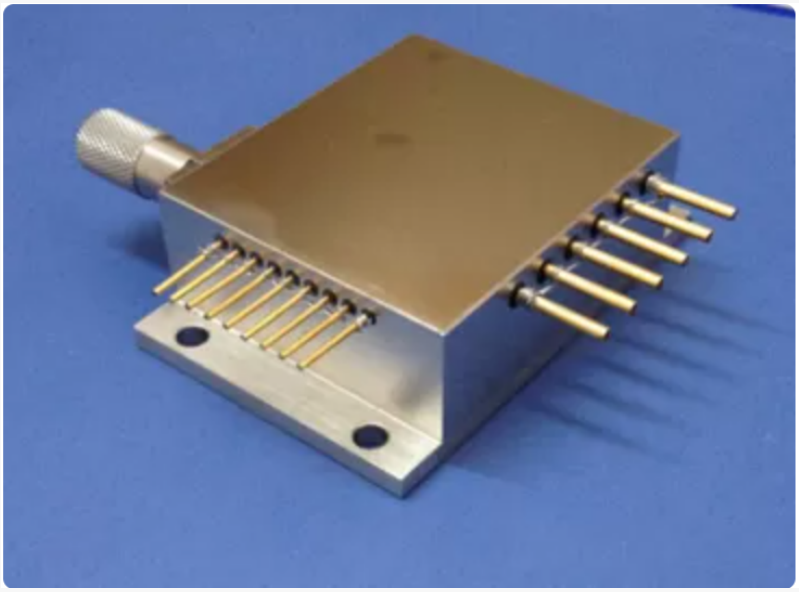
BWT: Blue Laser Technology Eliminates Defects and Boosts Efficiency in New Energy Vehicle Component Welding

BEIJING, BEIJING, CHINA, November 12, 2025 /EINPresswire.com/ -- BWT Beijing Ltd., a leader in semiconductor lasers, has introduced its advanced Blue Laser and Blue-Light Infrared Hybrid Welding Technology to solve critical manufacturing challenges within the booming New Energy Vehicle (NEV) industry. Addressing the difficulty of welding highly-reflective materials like pure copper, BWT's solutions offer unparalleled precision, near-zero porosity and spatter, and high efficiency, ensuring the stability and durability required for NEV battery, motor, and electric control systems.



0.13N.A Numerical Aperture 808nm Diode Laser Module for Laser Spectroscopy and Sensing

Blue Laser Technology Addresses Industry Pain Points in NEV Manufacturing

The rapid expansion of the global NEV market has driven a sharp increase in demand for welding high-reflective materials, particularly pure copper. Traditional high-power infrared (IR) laser welding struggles with these materials, frequently resulting in quality defects such as blowholes and spatter. These issues compromise weld integrity, appearance, and can even contaminate sensitive laser optics.

BWT's blue laser technology, which operates at a wavelength of 450nm, offers a decisive advantage. Copper absorbs blue light significantly more efficiently than infrared light, leading to a much cleaner and more stable welding process. Compared to traditional methods, blue lasers generate almost no porosity or spatter during welding, ensuring a smooth weld appearance and eliminating the need for costly secondary processing. This stability even allows for the reliable welding of pure copper using low-power lasers, promoting a more energy-efficient and environmentally friendly operation.

Hybrid Welding: Combining Penetration and Precision

For complex applications, BWT offers Blue-Light Infrared Hybrid Welding Technology. This innovative approach combines the high absorption rate and low thermal impact of the blue laser with the deep penetration and high-speed advantages of the infrared laser. This synergy provides a comprehensive and high-quality processing solution for precision welding of high-reflective and dissimilar materials.

Cladding 6000w Ytterbium Doped Laser Combined Beam

Advanced 755nm 808nm 1064nm Diode Laser with Circular Laser Shape and 0.13N.A Numerical Aperture

This hybrid approach is particularly critical for the core 'three-electric' system of NEVs:

Battery Systems: The technology effectively prevents spatter and minimizes the heat-affected zone (HAZ) during welding, leading to improved welding efficiency, higher yield, and enhanced long-term stability and durability of battery modules.

Flat-Wire Motors: It enables ultra-low spatter welding of copper flat wires, crucial for motor production. The resulting welds feature aesthetic appeal, minimal HAZ, low porosity, and high electrical conductivity and strength, essential for boosting motor efficiency and enhancing operational stability.

Electric Control Systems (Inverters): For components like the inverter, which involves welding materials such as silicon carbide transistors (SiC MOSFETs) and copper busbars, the hybrid solution ensures weld joints with large fusion areas, low defect rates, and minimal spatter, providing a highly reliable method for securing IGBT (Insulated Gate Bipolar Transistor) products.

Product Portfolio and Unwavering Reliability

BWT's blue laser products, including laser components and systems, are available in a power range from 10W to 2000W, meeting diverse application needs. The high-end 2000W blue laser features a 600μm core diameter and is equipped with a 250W 105μm single module for demanding industrial applications.

BWT ensures the reliability of its offerings through rigorous testing, with accelerated aging test data exceeding 7,000 hours, which is equivalent to a lifespan of over 100,000 hours.

Beyond NEVs, BWT's blue light technology is expanding its influence across fields such as communications, healthcare, industrial manufacturing, scientific research, optical storage, and display technology.

About BWT Beijing Ltd.
BWT, founded in 2003, is committed to the mission of "Let the dream drive the light", the vision of becoming the "Global leader in laser solutions, and the value of "outstanding innovation", providing diode laser, fiber laser, ultra-fast laser products and solutions to global customers.

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