

# Certified Copper Laser Welding Machine Supplier: Friends Laser Displays CE & FDA Standards at CIOE



**Suzhou, Jiangsu May 18, 2026 (Issuewire.com)** - The global optoelectronics landscape is currently witnessing a transformative shift toward ultra-precision manufacturing. As the China International Optoelectronic Exposition (CIOE) convenes in Shenzhen, it remains a premier benchmark for the industry. This event serves as a critical junction where cutting-edge laser research meets practical industrial application. Among the innovators, [Suzhou Friends Laser Technology Co., Ltd.](#) has emerged as a key technical leader. By focusing on high-reflectivity metal solutions, the company reinforces its position as a [Certified Copper Laser Welding Machine](#) supplier. In an era where performance is the baseline, international market entry requires more than just speed. Global compliance acts as the essential passport for any enterprise aiming for a worldwide presence.

## Overcoming Technical Barriers in High-Reflectivity Metal Processing

Copper remains one of the most challenging materials to process in modern manufacturing. Its high thermal conductivity and extreme reflectivity often baffle traditional welding methods. Conventional techniques frequently result in unstable melt pools, excessive spatter, or "cold welding" defects. These issues are particularly problematic in the production of new energy vehicle components and micro-electronics. Failure to control the energy input leads to structural weaknesses that can compromise the safety of high-voltage systems.

To address these pain points, Friends laser team can solve these higher reflectivity materials by the following 4 solutions according to customers' various applications and requirements. The process ensures a clean, consistent bond that maintains the electrical and structural integrity of the workpiece. Such precision is vital for the stability required in medical device assembly and battery module fabrication.

- **Green laser welding machine**

Higher reflectivity material's absorption rate for green laser light (515nm-532 nm) can be improved much more. Such as copper's absorption rate for blue light can surge from 5% in the infrared range to 40%;

- **Blue laser welding machine**

Higher reflectivity material's absorption rate for blue laser light (450 nm) can be improved much more. Such as copper's absorption rate for blue light can surge from 5% in the infrared range to 40% or even over 60%;

- **Blue laser and infrared laser beam composite welding machine**

Blue laser and infrared laser beam are combined by the tailor-made laser head. Blue light can effectively overcome surface reflection of materials, quickly and stably melt metals, and form keyholes, playing a pioneering role and stabilizing the melt pool. Infrared laser utilizes its high-power advantage to provide the main deep penetration welding energy based on the effective coupling of blue light energy, achieving efficient and deep penetration. Two types of lasers are usually focused coaxially or paraxial onto the same welding point.

- **Annular spot infrared laser welding machine**

The special fiber of the annular spot laser consists of two parts: the inner fiber and the outer fiber. The inner fiber is responsible for transmitting high-power-density central Gaussian laser, while the outer fiber transmits low-power-density outer-ring multimode laser. Both the central Gaussian laser and the outer-ring laser can independently adjust their power. During welding, the central Gaussian laser primarily performs deep penetration welding, whereas the outer-ring laser is mainly used to reduce the kinetic energy of emitted vapor, stabilize the keyhole and molten pool, and lower the temperature gradient.

The annular spot laser offers advantages such as high welding efficiency and quality, uniform and consistent weld appearance, low spatter, adjustable window power, strong compatibility, and high flexibility, among which low spatter is one of the primary benefits of the annular spot laser.

## **International Benchmarks: The Importance of CE and FDA Certification**

For a manufacturer to operate on the global stage, adherence to international safety protocols is non-negotiable. Friends Laser emphasizes this through a rigorous commitment to quality standards that facilitate seamless cross-border trade.

- **The Legal Guarantee of CE Certification:**The CE marking serves as a mandatory legal declaration for the European market. It confirms that the Friends Laser welding equipment meets stringent health, safety, and environmental protection requirements. For industrial lasers, this certification covers critical aspects of mechanical safety and electromagnetic compatibility. It ensures that the machinery can operate within complex European production lines without interfering with other sensitive electronics.
- **The Safety Standard of FDA Certification:**Simultaneously, the FDA certification holds immense weight for the North American market. Laser products entering the United States must comply with the Center for Devices and Radiological Health (CDRH) classifications. This oversight dictates the necessary safety interlocks, warning labels, and protective housings. By adhering to these rules, Friends Laser prevents accidental radiation exposure for operators.

Holding both certifications signifies that a production facility maintains a world-class quality control system. By meeting these international criteria, Friends Laser effectively removes technical barriers to trade. This dual-layer of protection offers global buyers peace of mind regarding operational safety and regulatory liability. It transforms the hardware from a simple tool into a globally compliant industrial

asset.

## Technical Excellence on Display at CIOE

- At the CIOE exhibition, the Friends Laser booth serves as a hub of practical innovation. The layout prioritizes live demonstrations, allowing visitors to observe the machinery in a simulated production environment. The blue laser and infrared laser beam composite welding equipment operates with remarkable stability and minimal noise, even when handling complex tasks. Such higher quality, quiet and efficient operation reflects the refined internal optics and robust structural design of the units. This reliability attracts professional visitors from sectors ranging from aerospace to consumer electronics.

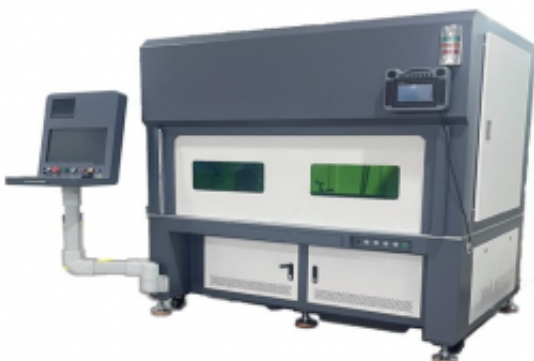
The live copper welding demonstrations provide a transparent look at the machine's capabilities. Visitors can inspect samples of copper and aluminum alloys, noting the uniform weld beads and the absence of surface discoloration. These results demonstrate a mastery over high-reflectivity materials that traditional lasers struggle to achieve. Furthermore, the presence of an experienced engineering team from Friends Laser facilitates deep technical consultations. These experts provide insights into customized process parameters for specific applications like TPAK power module, BDU, CCS, High voltage relay, sensor housing or power battery terminals. This interaction highlights a deep understanding of the delicate balance between hardware capability and material science.

## Future Visions for Precision Manufacturing

The observations at CIOE reveal a clear trajectory for the laser industry. Under the "Industry 4.0" framework, welding technology is evolving toward higher precision and greener operation. Sustainability is becoming a core requirement, alongside the need for automated, high-speed production. Modern equipment must now integrate seamlessly into smart factories while maintaining a low carbon footprint. Precision welding reduces material waste and energy consumption, aligning with global environmental goals.

As the exhibition concludes, the focus remains on the marriage of technical beauty and regulatory strength. The ability to produce microscopic, high-strength welds on difficult materials represents the "precision beauty" of modern manufacturing. Meanwhile, international certifications provide the "shield of compliance" necessary for global expansion. By consistently delivering certified solutions, Friends Laser ensures it remains at the forefront of the global supply chain.

For more information regarding precision laser solutions and technical specifications, please visit the official website: <https://www.friendslaser.com/>



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