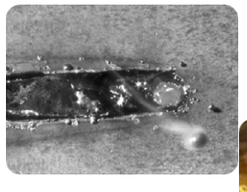
Industry Pain Points

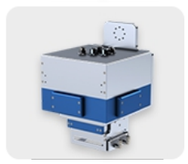
Welding of non-ferrous metals is a process bottleneck for batteries, motors and electronic packaging



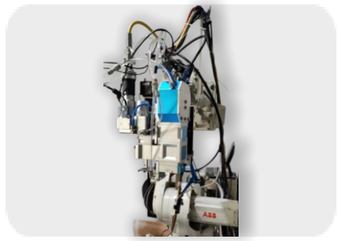
- Copper and gold laser welding common technical problems;
- Conventional welding (arc welding, plasma welding), brazing and other welding processes; low speed, abrasive, unstable, unable to be automated and intelligent;
- Red laser, low absorption, high thermal conductivity of the material, changes in the absorption rate at different temperatures: the need for high laser power spattering, serious porosity; the process is not stable, high defective rate;
- The low output power and high cost of the blue laser and the slow welding speed result in a large and wide molten pool, which causes the centre of the weld to collapse.

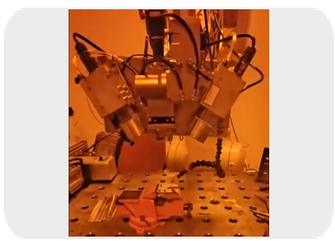
Technical Data

Item	Parameters	Remarks
Laser power	Red laser waveband 3000w	Max. Supported 15000W
	Blue laser waveband 600W	Max. Supported 3600W
Beam quality	Red laser waveband ≤1.8m²	@25μm core diameter laser fiber
	Blue laser waveband focal spot size 1mmX1mm	@FF=200mm
Beam quality	±2%	@24H
Optical platform Scanning range	Max:12mm	
Optical platform Scanning frecuency	Max:500Hz	
Max.welding capacity	Copper:6mm	Effective welding quality
Max.welding capacity	Max:8kW	



Equipment Pictures





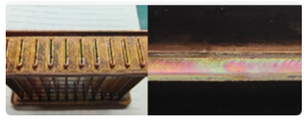
Applications

Ultrasonic Pre-welding Of Aluminium (copper) Lugsto Lug Connecting Tabs

No cracks in copper/aluminium foil around the weld seam

Electronic Control, Electronic Related Welding Applications

IGBT Soldering

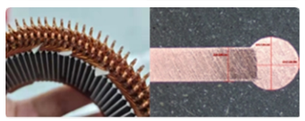


Welding Applications In Thermal Management

Copper heat exchanger welding

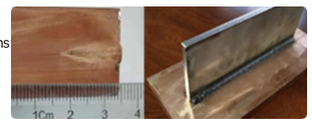
Dissimilar Metal Welding

Galvanised sheet metal-purple copper welding
Stainless steel-purple copper welding



Flat Wire Winding Welding Applications For Permanent Magnet Motors

Small solder joint formation and small heat affected zone



Thick Copper Welding

Stainless steel - thick copper welding dissimilar metal welding

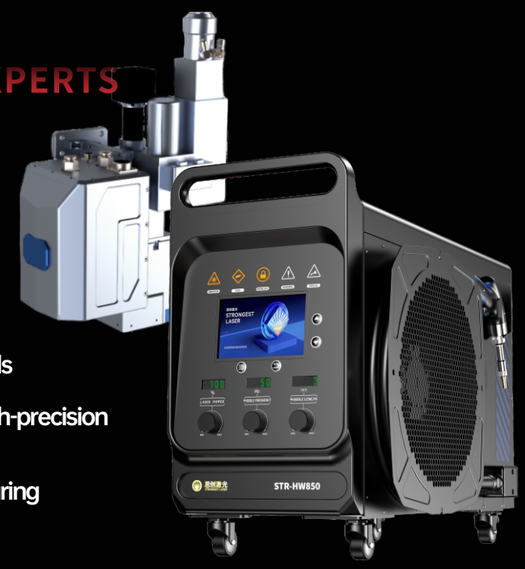
400-885-1889 302, Zone11, HaoLang Science Park, the 4th Konggang Rd.Shuangliu District, Chengdu, Sichuan Province, China.

STRONGEST LASER NPLT

Redefine the Performance of Laser Welding

Red and Blue Laser Hybrid Welding

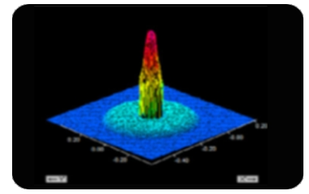
NON-FERROUS METAL WELDING EXPERTS

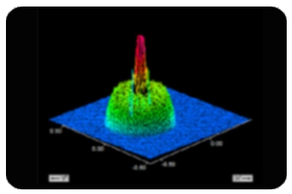


- Combining The Advantages Of Red And Blue Lasers For Wider Material Applications.
- Greatly Increase The Absorption Rate Of Non-ferrous Metals To Improve The Utilization Rate Of Laser Energy
- Normal Temperature Welding, Effectively Saving Materials
- Greatly Reduce The Welding Heat Effect To Meet The High-precision Welding Needs Of High-end Manufacturing
- High Melt Pool Stability, eliminating Spatter And Voids During Welding, resulting In Smooth And Even Welds.

Technical Principles

Red and blue laser hybrid welding reduces spatter, porosity and improves weld seam forming

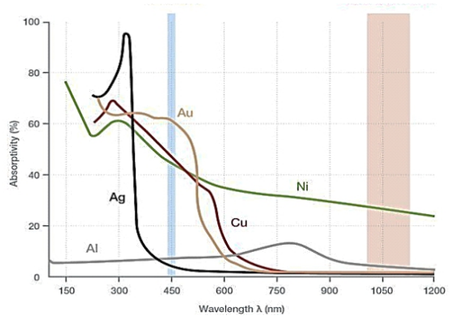




- Low brightness, high absorption blue light substrate heating, surface melt pool formation;
- Red and blue laser hybrid light field with enhanced infrared absorption (3X);
- Improvement of welding temperature field, enhancement of melt pool stability, basic elimination of welding process's spatter and cavities, smooth and flat weld seam.

Blue laser absorption enhancement for solving non-ferrous solderability problems

Absorption of blue laser by common metals comparison of multiplicity of absorption by near-infrared laser light					
Material	Aluminium	Copper	Gold	Tin	304 SS
Multiple	2.5	11.9	60.2	1.2	1.4



- Blue laser (455nm) has a significantly higher absorption rate for non-ferrous metals than conventional 1064nm NIR lasers (copper: X12, gold: X20) ;
- Dramatically increased laser energy utilisation;
- The high absorption of accumulated heat overcomes the energy dissipation of the material's high thermal conductivity to achieve a molten pool;
- High absorption, low brightness + wide range of absorption coefficient consistency, stable soldering process.

86-18080421321 302, Zone11, HaoLang Science Park, the 4th Konggang Rd.Shuangliu District, Chengdu, Sichuan Province, China. str@strlaser.com