



Authorized National Distributor
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LIGHTWELD XR

**Handheld Laser
Welding & Cleaning System**

LightWELD XR

Handheld Laser Welding with Pre and Post Weld Laser Cleaning



Introduction: March 21, 2022

Product announcement, cleaning demonstrations

Equipment: LightWELD-XR

- All functions of LightWELD XC

+

- ***Extended Range*** for thickness and material types

Pricing:

-XR 5M-16 ft \$32,200, -XR 10M-32 ft \$33,000

Availability:

- Taking orders now. Initial leadtime ~ 4 weeks

LightWELD XR Technical Overview



LightWELD XR - 1500W single-mode laser

- More focusable, smaller beam diameter
- Different Welding Head Optical Configuration
 - Collimator Lens: 50 mm, Focus Lens 120 mm
- **Spot Size on Part: ~60 microns**

For Reference

LightWELD 1500 - Spot Size on Part: 150 micron

LightWELD XR has $> 6 \times$ Energy Density

LightWELD XR

Extended Range Laser Welding and Cleaning

LightWELD XR

All the welding functionality of the LightWELD 1500

PLUS

All the cleaning functionality of the LightWELD XC

PLUS

- IPG Preset Welding Conditions for
- Welding capability up to 6.3 mm (1/4 inch) on SS
- Welding up to 6.3 mm (1/4 inch) Aluminum
- Welding up to 6.3 mm (1/4 inch) Steel
- Welding up to 5 mm on titanium and nickel alloys
- Welding up to 2 mm on copper
- Even lower heat input and HAZ
- Wider process window for even easier perfect results



LightWELD XR

Pre and Post Weld Cleaning



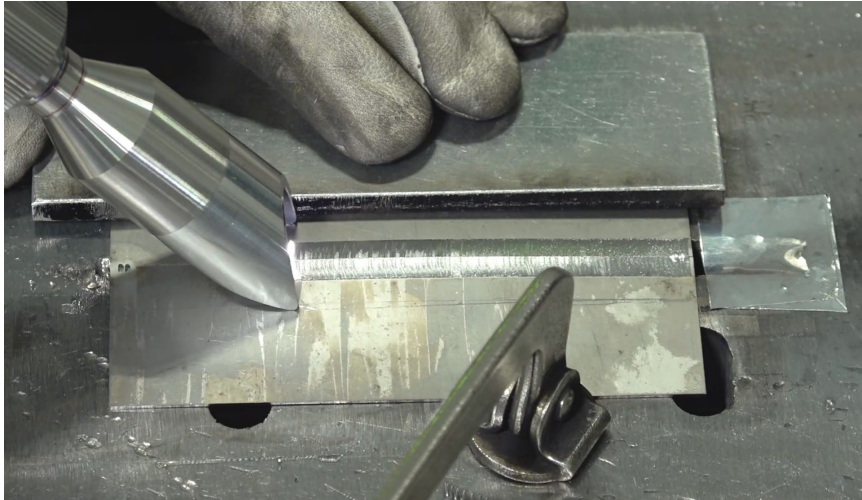
Aluminum I Beam (Clean & Weld)
0.25" (6 mm) Aluminum 6061

Laser cleaning pass followed by butt weld

LightWELD XR Laser Cleaning:

- ❑ High-energy, high frequency laser pulses evaporate lighter elements and/or melt underlying metal
 - Precise parameter control allows fine-tuning of surface effect
- ❑ Evaporated materials swept away by process gas stream
 - Fume extraction collects all debris - not included
- ❑ Cleaned area can be tightly defined
 - Adjustable scan width maximizes throughput while limiting affected area
- ❑ Very low heat input – **NO** distortion effects
- ❑ Parts immediately available for next process step

LightWELD XR Reflective Metal Welding

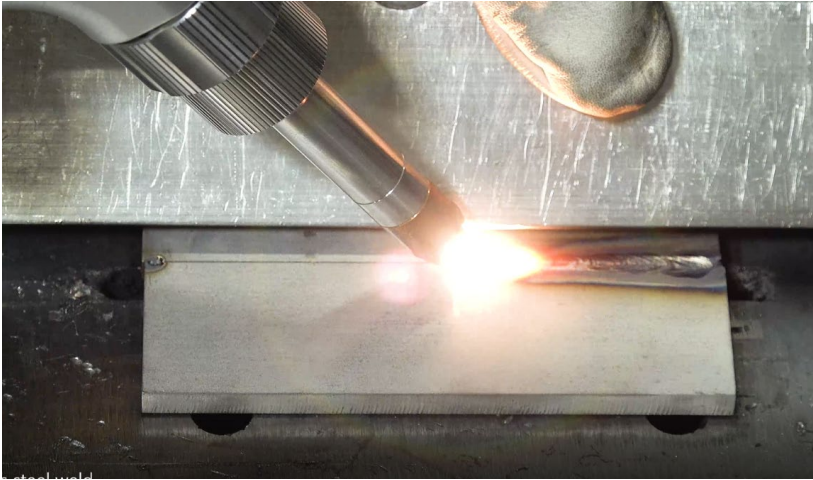


Titanium - Oxide Removal and Weld

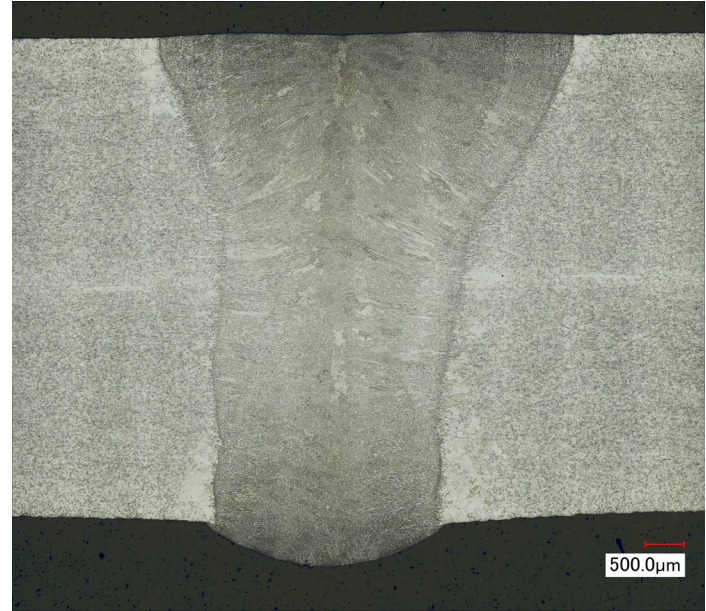


Welding 3 mm copper pipe to 2 mm flange

LightWELD XR Thick Metal Welding



6.3 mm (0.250 in) Stainless Steel



Butt Weld Cross-Section

LIGHTWELD Product Family

Capability	Traditional Welding Methods	LightWELD 1500	LightWELD XC	LightWELD XR
Speed	Average	Up to 10X Faster than TIG	Up to 10X Faster than TIG	Up to 10X Faster than TIG
Quality	Depends on user experience	Consistent high-quality results	Better Quality with Pre-Clean	Better Quality with Pre-Clean
Distortion & Deformation	High	Very Low	Very Low	Very Very Low
Heat Affected Zone	Large	Small	Small	Even Smaller
Learning Curve	Years	Hours	Hours	Hour
Material Flexibility	Limited with consumables changes	Wide range with no set up	Wide range with no set up	Extended range including Reflective metals
Cleaning	No	Limited	Yes w/IPG Presets	Yes w/IPG Presets
Process Window	Narrow/Difficult	Wide range	Wide range	Wider range with simplified setup
Wobble Welding	No	Yes - up to 5 mm weld width	Yes - up to 5 mm weld width	Yes - up to 5 mm weld width

LIGHTWELD Product Family

	LightWELD 1500	LightWELD XC	LightWELD XR
Welding Power	1500 W		
Wobble Width	5 mm		
Wire Feed compatible	Yes		
High Frequency Pulsed Cleaning Peak Power	User Made	2500 W	2500 W
Cleaning path max width	5 mm (0.2")	15 mm (0.6")	15 mm (0.6")
Number of Materials with Stored Process Modes	5	5	9
Spot size on target	150 um (0.006")	150 um (0.006")	60 um (0.0024")
Ease of Aluminum Weld	Moderate	Moderate	Easy
Typical Max Single Pass Weld Thickness SS, Steel and Aluminum 3XXX, 5XXX	4 mm (0.160")	4 mm (0.160")	6.35 mm (0.250")
Typical Max Single Pass Weld Thickness Aluminum 6XXX - fusion Weld			3.0 mm (0.120")
Typical Max Single Pass Weld Thickness Titanium an Nickel Alloys	3.0 mm (0.120")	3.0 mm (0.120")	5.0 mm (0.200")
Fiber Cable Length Options	5m (16 ft) or 10 m (32 ft)		
Facilities Requirements	Electrical: 220 V, 1 Ph, 50/60 Hz, < 24 Amp		
Weld Base Unit (W x D x H)	316 x 641 x 534 mm (12.4 x 25.2 x 21 in)		
Weld Module Weight	53 kg, (118 lbs)		
Accessories	Welding Helmet, Safety Glasses, Welding Nozzles, Cover Glass, Power Connecting Plug, Ethernet cable		

LightWELD Pricing

Pricing

Model	Price
LightWELD 1500 XR 10m	\$ 33,000
LightWELD 1500 XR 5m	\$ 32,200
LightWELD 1500 XC 10m	\$ 27,750
LightWELD 1500 XC 5m	\$ 26,950
LightWELD 1500 10m	\$ 22,500
LightWELD 1500 5m	\$ 21,700



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THANK YOU