

LightWELD[®]

Handheld Laser Welding & Cleaning



LightWELD[®]

MADE IN
USA ★

FOR SALES IN NORTH AMERICA

LIGHTWELD.COM

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PHOTONICS[®]

LightWELD® Handheld Laser Welding & Cleaning

LightWELD® handheld laser welding and cleaning devices are fast, easy to learn and operate, and produce high quality, consistent results across a wide range of materials and thicknesses. Pre-weld and post-weld laser cleaning functionality optimizes weld quality while increasing productivity.

A Family of Productive Laser Processing Tools

LightWELD handheld laser welding and cleaning devices are ideal for virtually any shop or operation. Explore the range of these highly productive solutions and discover the right LightWELD for your application.

LightWELD 1500 XR

LightWELD 1500 XR delivers a higher-brightness beam for welding an extended range of materials and thicknesses up to 0.234", including reflective materials. Welding and cleaning materials such as titanium and copper are easy with LightWELD 1500 XR

LightWELD 1500 XC

LightWELD 1500 XC provides additional functionality for pre- and post-weld cleaning with the same high-quality welding capabilities of the LightWELD 1500

LightWELD 1500

The most cost-effective solution for laser welding steel, stainless steel, and aluminum up to 0.162" thick. LightWELD 1500 can be paired with a wire feeder, but does not have any cleaning capability

LightWELD 2000 XR

LightWELD 2000 XR offers laser power output up to 2000 W to further extend welding capabilities. Choose LightWELD 2000 XR to weld materials up to 0 gauge (0.313") and maximize welding and cleaning productivity



	LightWELD 2000 XR	LightWELD 1500 XR	LightWELD 1500 XC	LightWELD 1500
Steels (Stainless Steel, Mild Steel, Galvanized Steel)	up to 0 gauge (0.313")	up to 4 gauge (0.234")	up to 9 gauge (0.156")	up to 9 gauge (0.156")
Aluminum 3 & 5 Series	up to 0 gauge (0.325")	up to 3 gauge (0.229")	up to 6 gauge (0.162")	up to 6 gauge (0.162")
Aluminum 6 Series	up to 3 gauge (0.229")	up to 4 gauge (0.204")	---	---
Nickel Alloy	up to 1 gauge (0.281")	up to 6 gauge (0.203")	---	---
Titanium	up to 4 gauge (0.234")	up to 6 gauge (0.203")	---	---
Copper	up to 8 gauge (0.129")	up to 12 gauge (0.081")	---	---
Wobble Welding (width)	up to 0.200"	up to 0.200"	up to 0.200"	up to 0.200"
Cleaning Width (Pre- & Post-weld)	up to 0.600"	up to 0.600"	up to 0.600"	---
High Frequency Peak Power for Cleaning	3000 W	2500 W	2500 W	---
Laser Power	up to 2000 W	up to 1500 W	up to 1500 W	up to 1500 W



LASER WELDING

High speed, low heat input, and a small HAZ make laser welding thick, thin, reflective materials, and materials with dissimilar thicknesses far less challenging for all skill levels.



LASER PRE-CLEANING

Pre-weld cleaning removes rust and other contaminants from materials and increases weld quality. This is much faster than manual cleaning and uses no chemicals or abrasives.



LASER POST-CLEANING

Post-weld cleaning removes heat discoloration and improves visual finishes without post-weld grinding.

LightWELD ADVANTAGES & BENEFITS

LightWELD enables dramatically faster welding and is easier to learn and operate than MIG or TIG. LightWELD provides higher-quality, consistent results with minimal distortion or part deformation.

	MIG & TIG	LightWELD
Speed	Average	Fast - Over 4X Faster than TIG
Quality	Depends on user experience	Consistent high-quality results
Learning curve	Steep	Quick and easy
Part Setup	Critical and time consuming	Minimal and fast
Material flexibility	Limited with consumables changes	Wide range with no set up
Heat affected zone	Large	Small
Distortion & Deformation	High	Very Low
Wobble welding	No	Yes - up to 5 mm
Pre-Weld Cleaning	No	Yes - Removes rust, oxides, oil & grease
Post-weld Polishing	No	Yes - Removes soot, debris & discoloration



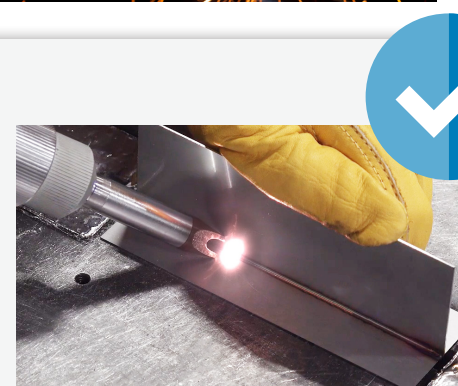
TIG Welding

TIG welding can generate extreme heat that deforms thin materials and produces poor visual finishes. Welding copper is difficult and welding metals of dissimilar thicknesses is limited. TIG welding is a highly skilled process, and experienced TIG welders are a scarce resource.



MIG Welding

MIG welding requires consumable wire, material pre-cleaning, and beveled joints for full penetration of thick metals. Travel and work angles are limited, and vertical positions are extremely challenging. MIG is a high-heat process that can cause part deformation.



LightWELD is easier to learn and operate, and is **4X** faster than TIG welding. The low heat input and extensive material and thickness capabilities increase productivity, repeatability, and improve weld quality for operators of all skill levels.

For LightWELD devices that offer laser cleaning capability in addition to welding, pre-weld cleaning remove oxides, rust, paint, oil, or grease from surfaces to be welded. Post-weld cleaning removes soot and weld-related debris.

LightWELD LASER WELDING & CLEANING CAPABILITY

LightWELD built-in optimized presets provide high-quality, consistent welds for any skill level. Except for the original LightWELD 1500, all other devices offer the added functionality of pre- and post-weld cleaning. Pre-weld cleaning removes oil, grease, paint, or any potential contaminants that can affect weld quality. Post-weld cleaning creates visually appealing welds while eliminating need for post processing.



LightWELD easily welds steels and aluminum 3 & 5 series, plus LightWELD XR devices increase the welding capability for aluminum 6 series, titanium, copper, and nickel alloys without part deformation. Preset modes ensure proper laser settings for consistent high-quality welds. Built-in wobble function accommodates wider seams, while wire welding capability extends welding application to poorly fit up parts.



Pre-Weld Cleaning for Improved Weld Quality

To improve weld quality and reduce porosity, best results are attained by pre-cleaning to remove any oil, grease, or any debris that could enter the weld pool and create a defect.



Post-Weld Cleaning for Improved Visual Appearance

Even the best welders can leave soot, debris, and visual signs of localized heating. A quick, final cleaning pass leaves a beautiful, clean weld without the need for manual post-finishing.



Welding & Cleaning In a Single System

Switching between welding and cleaning is fast and easy. Simply loosen the collet, insert the welding or cleaning nozzle, select a preset from the front panel, and LightWELD is ready to clean or weld.

LightWELD FEATURES

Laser welding power up to 2000 W is easily adjusted with intuitive controls to quickly dial in optimum weld settings for various materials and thicknesses. With up to 100 stored preset and user-defined process parameters, novice welders can be trained and welding in a matter of hours.

Lightweight Handheld Welding & Cleaning Gun

The handheld welding & cleaning gun is compact, ergonomic, and comfortable. Specially designed nozzle tips for welding and cleaning applications, plus built in wobble functionality enable operators to produce high quality welds consistently. Nozzle tips switch out quickly and easily to accommodate fusion welding, wire welding, and cleaning, further optimizing and increasing productivity.

Weld Safety Detection

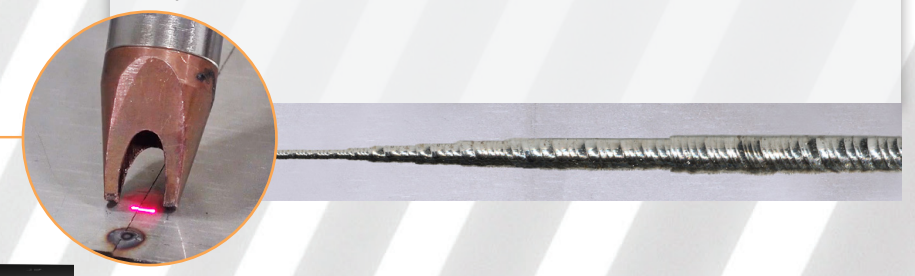
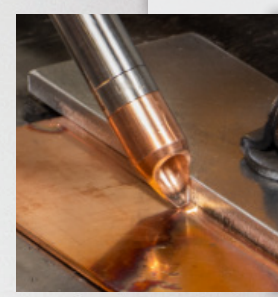
1. Laser only fires while the nozzle is in contact with the part
2. Laser power shuts off if no welding plume is detected

Optimized Factory Presets and Laser Power Control

- Built-in parameters ensure high-quality results and can be customized for later use
- Switch Instantly between presets to accommodate many material combinations
- Simple controls allow new welders to be productive immediately

Built-in Wobble Welding for Increased Productivity

- Create highly aesthetic seams and weld parts with poor fit up
- Adjustable frequency and weld width up to 5 mm optimizes results
- Use preprogrammed parameters or create custom parameter sets



Simple Installation and Operation



220 V Power



Standard Gas



Workpiece Clamp



Ethernet

Power

I/O Controls & Safety Interlock

Gun In/Out

Workpiece Connection

Gas In/Out

Laser Output

Clearly labeled rear connections make getting started fast and easy. Just plug in the power cord and gas connection, attach the workpiece clamp, and LightWELD is ready to go. Laser power, gas and gun control is delivered through a single cable. An ethernet computer connection provides access to advanced settings to fine tune and save process parameters.

OPTIONAL

Pressure Regulator Kit

Single Stage Gas Regulator for LightWELD.



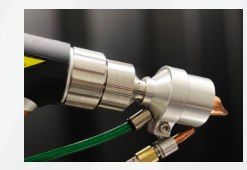
Dual Wire Feeder Adapter

Increase fillet dimensions. Increase tolerance for poor part fit up. Faster material build up.



Gas Lens Nozzle

Improves gas shielding welding materials sensitive to oxygen, moisture, or other contaminants.



Door Interlock Switch

Door interlock system with 32ft of cable connection for the LightWELD.



ACCESSORIES

LIGHTWELD WIRE FEEDER PACKAGE

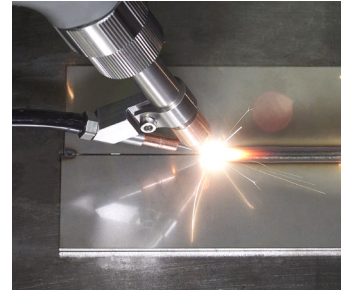
CEU00006612XXXXU



This optional wire feeder package includes all necessary hardware and software to add a wire welding capability to the LightWELD XR.

Included with Wire Feeder Kit:

- Wire Feed Unit
- Proprietary Weld Head Nozzle Attachment
- System Trigger Cable
- 4 Tips: 0.8mm, 0.9mm, 1.2mm, 1.6mm
- 4 Rollers (2 U-Rollers, 2 V-Rollers)
- 4 Liners (2 Teflon liners, 2 Steel liners)
- LightWELD Wire Welding Presets



Used for manual laser wire welding of low carbon steel, stainless steel, aluminum, non-ferrous metals & other alloys. Wire feed settings adjusted on the wire feed unit and LightWELD XR provides synchronization trigger signal to wire feed unit. Wire feeder nozzle attachment guides wire precisely to the weld pool. LightWELD XR Process Modes provide standard parameter settings for typical materials and wire types.

LightWELD XR Wire Feeder Specifications	
Wire feed delivery length	9 ft (2.7 m)
LightWELD XR Interface	Low Voltage enable signal cable
Wire Feed Speed Range	12 - 230 ipm (30 - 600 cm/min)
Compatible Wire Diameters	0.030" - 0.063" (0.8 mm - 1.6 mm)
Wire Reel Capacity	2 lb (1 kg), 10 lb (5 kg) or 25 lb (10 kg)
Compatible Wire Materials	Steel, Stainless Steel, Aluminum
Power Requirements	115 - 230V 50/60 Hz
Weight and Dimensions	28.7 lb (13 kg) 20.5" (520 mm) L x 9.7" (245 mm) W x 16.5" (420 mm) H

DUAL WIRE FEED ADAPTER

CEU00005612XXXXU



The optional Dual Wire Feeder Adapter allows simultaneous feeding of two wires into the weld pool to create larger welds. Parallel feeding of the wires at the nozzle tip with the laser centered between allows simultaneous welding of both wires during feeding.

Features

- Dual Wire Feed
- Wire diameter up to 0.063"
- Twin Groove Weld Tip

Benefits

- Increase fillet dimensions
- Increase tolerance for poor part fit up
- Faster material build up

ACCESSORIES

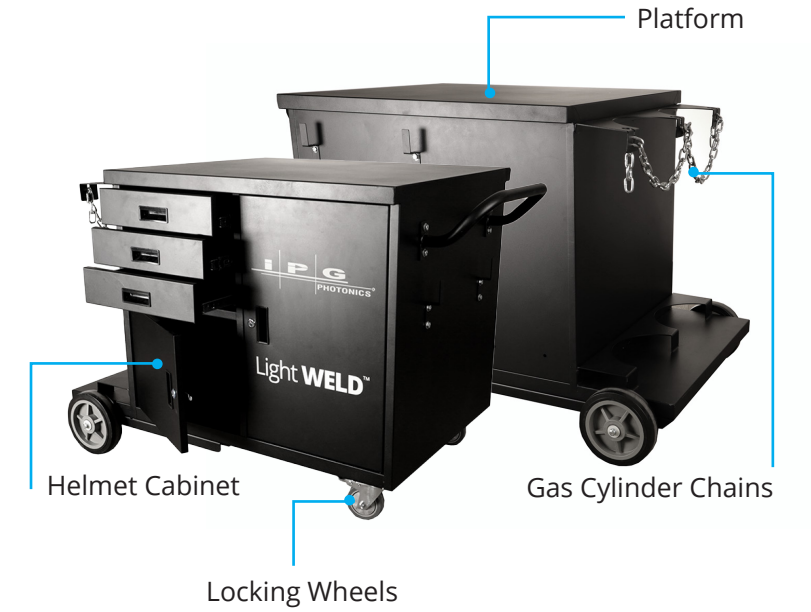
LIGHTWELD WELDING CABINET

CMMIXX0004362PX

This heavy duty welding cabinet provides mobility for your LightWELD XR system and accessories.

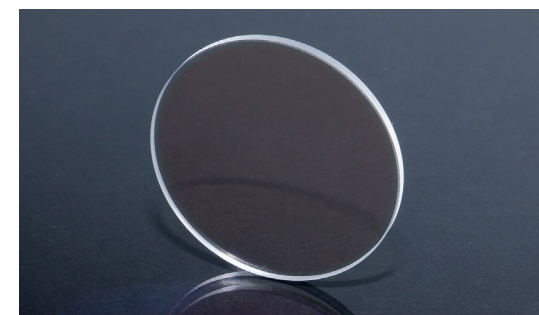
KEY FEATURES INCLUDE:

- Top platform sized for LightWELD XR system and optional wire feeder
- Three storage drawers with ball bearing slides
- Cabinet for helmet storage
- Locking cabinet with adjustable shelves
- Platform & tether chains for two 9 in. gas cylinders
- Cable hooks for LightWELD XR gun cable
- Lockable swivel castors



LightWELD XR Welding Cabinet Size		Weight Capacity
Cart (L x W x H)	48.75" (1238 mm) x 25.5" (648 mm) x 33.5" (850 mm)	
Weight	161.3 lb (73.2 kg)	
Top Surface (L x W)	34.5" (875 mm) x 20.3" (515 mm)	160 lb (72.6 kg)
Drawer 1 (L X W X H)	16.3" (410 mm) x 12.7" (320 mm) x 1.3" (32 mm)	40 lb (18.1 kg)
Drawers 2 & 3 (L X W X H)	16.3" (410 mm) x 12.7" (320 mm) x 4.5" (115 mm)	80 lb (36.2 kg) each
Helmet Cabinet (L X W)	19.5" (495 mm) x 14" (355 mm)	40 lb (18.1 kg)
Cylinder Platform	Up to two 9" gas cylinders	

CONSUMABLES



Cover Slides

CDSBOM00023703XU

Pack of 5



Gas Lens Nozzle

CEU00005459XXXXU

Ideal for materials sensitive to oxygen, moisture, or other atmospheric gases, this nozzle features a precision laser-drilled diffuser in a showerhead configuration.

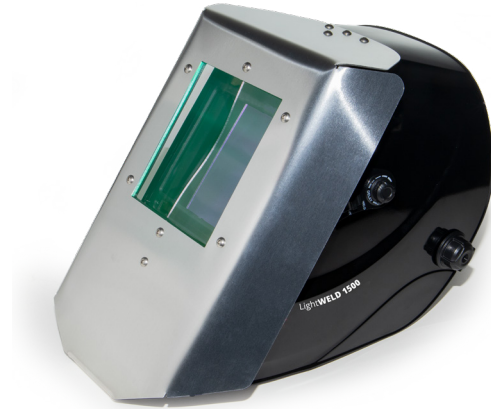
ACCESSORIES

LIGHTWELD PPE



Carbon Fiber Laser Welding Helmet
CEU00004522XXXXU

The helmet features a lightweight carbon fiber shell incorporating both UV and IR filters appropriate for use with LightWELD systems. Designed to be compliant with EN207 DLB8 + ILB9 @ 1070nm & ANSI+W16 rated for superior protection.



Laser Welding Helmet with Shield
CEU00002506XXXXU

Auto-Darkening Laser Welding Helmet with IR Shield & IR coated lens provides protection from specular reflections.



Laser Safety Glasses Wrap Around
CMMIXXX0005981PX
Adjustable nose pads
1070 nm OD 7



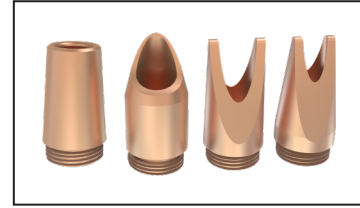
Laser Safety Glasses Universal Fit
CMMIXXX0005982PX
Small fit over
1070 nm OD 7



Laser Safety Glasses Fit Over Style
CMMIXXX0005983PX
Adjustable temple bar
1070 nm OD 7

CONSUMABLES

STANDARD COPPER NOZZLES FOR MOST WELDING APPLICATIONS



Copper Nozzle Set
CDSBME000089XXXXU



1 point
CMUS0008398002XU



2 point 6 mm
CMUS0008411XXXXU



2 point 9 mm
CMUS0008719XXXXU

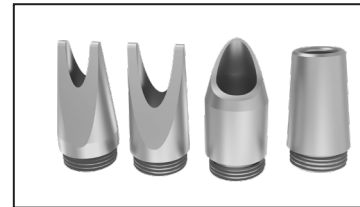


Cone
CMUS0008794100XU

Purchase Online:



SOFT ALUMINUM NOZZLES FOR WELDING MATERIALS WITH DELICATE SURFACE FINISHES



Al 1100 Nozzle Set
CDSBME00008901XU



1 point
CMUS0009402XXXXU



2 point 6 mm
CMUS0009401XXXXU



2 point 9 mm
CMUS0009400XXXXU



Cone
CMUS0009399XXXXU

CLEANING NOZZLES



LightWELD XR Cleaning Nozzle Set
CEU00004105XXXXU



LightWELD XC Cleaning Nozzle Set
CEU00003724XXXXU



At the heart of every LightWELD is the laser source, which is **proudly Made in the USA** at our state of the art production facilities located in **Oxford MA**. Final assembly, testing and calibration is performed at our **Marlborough MA** facility. If service is ever needed, repair depots are distributed regionally for rapid response.



FOR SALES IN NORTH AMERICA



LEARN MORE



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