

**MAX**  
PHOTONICS



# Handheld **Laser** Welding

[en.maxphotonics.com](http://en.maxphotonics.com)

# Simple to use, Easy to Weld, Excellent Performance!



**MA1-65**



**MA1-45**



**MA1-35**

Compared with traditional welding methods, Maxphotonics' Latest Generation of lightweight, compact, handheld laser welding products! Versatile, portable, simple to operate, and easy to use, with a wide range of materials, such as; stainless steel, carbon steel, aluminum, galvanized steel sheet, copper, and many other materials. Achieving significantly better quality, uniform welding results, excellent welding performance, 4X faster welding speed (MS), higher weld strength, reduced porosity, and minimal heat-affected zones. MA1 series removes weld deformation, burn-through, and the need for post process grinding or polishing of the surface. Significantly improving efficiency and productivity, reducing consumable waste and cutting the cost per part while improving profitability.

Product Model		MA1-65	MA1-45	MA1-35
Weld Thickness* (mm)	Stainless steel	6.5	4.5	3.5
	Carbon steel/Iron	6.5	4.5	3.5
	Aluminum	5.5	4	3
	Galvanized sheet	6.5	4.5	3.5
	Brass	4.5	3.5	2.5
	Copper	3	1.5	--
Wobble (mm)		0-4	0-4	0-6
Operating Temperature (°C)		0~40	0~40	0~40
Operating Temperature (°F)		0~104	0~104	0~104
Weight (kg)		39	38	25
Weight (pounds)		86	84	55
Dimensions (mm*mm*mm)		667*276*542	667*276*542	576*265*425
Dimensions (in*in*in)		26.3*10.9*21.3	26.3*10.9*21.3	22.7*10.4*16.7
Volume (m³)		< 0.1	< 0.1	0.06
Volume (cubic feet)		< 3.5	< 3.5	2.1

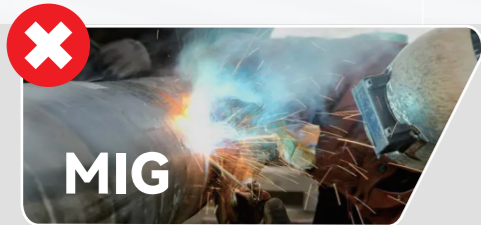
\*Remarks: The data is extreme penetration depth base on lab test result, the penetration depth performance will be varied according to different setup and application.



With 5 different copper nozzles

- **Smaller**
- **Lighter**
- **Truly Portable**

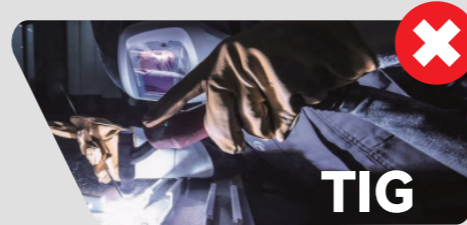
# Wave Goodbye to Traditional Welding



Highly trained welders, technically difficult welding processes, poor working environment, low efficiency, not a suitable process for special metals and thin sheet metal, high consumption of welding wire, weld material requires pre-cleaning and a joint preparation grooves to ensure full penetration is achieved. Vertical welding is extremely challenging due to the limited welding direction and operating angle.

**Large heat affected zone.** Due to the heat produced during a traditional weld, the work piece often becomes distorted and discolored, this in turn can affect the weld quality, introducing porosity, reducing joint strength, changing grain structure and creates a surface finish that will need further post processing. It is also very difficult to weld materials such as copper and aluminum with limitations on material thickness

**Risks to Health and Safety at Work.** The ultraviolet and infrared radiation caused by the arc can cause damage to the eye and skin of the welder, care also needs to be taken when inhaling fumes at the weld location, strong extractors are often used.



## Handheld Laser Welding

Compared with traditional welding methods, Maxphotonic's new MA1 generation of handheld laser welding products can significantly improve the welding speed (X4 faster MS), it's simple to learn and operate, designed to meet European safety standards, save energy, and is environmentally friendly.

Maxphotonic's new MA1 generation of handheld laser welding products, with high accuracy laser control system, stable beam quality, and laser powers available from 1000 to 1500watts; even a novice can easily produce welds at depths from 1.5mm to 6.5mm, with minimal or no consumption of welding wire, to produce excellent quality, high strength welds every time!

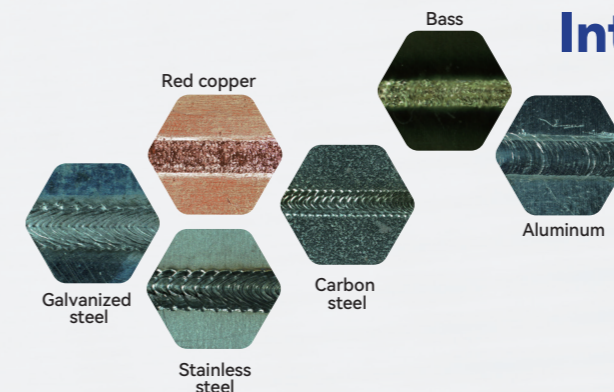
Item	Traditional Welding	MAX Handheld Laser Welding
Health risk	Occupational hazard, skin or eye damage .	<b>Small indirect radiation</b>
Welding speed	Slow and inefficient	<b>Approximately 4 times faster than TIG</b>
Steel Heat affected zone	Large	<b>Small</b>
Steel Deformation	Highly deformable	<b>Almost no deformation</b>
Welding quality	steel Rough and irregular, need to be polished.	<b>Perfect welding seam, Welding quality</b>
Weld damage	With pores and easily to weld through	<b>Molten pool uniformity, good consistency</b>
Welding materials	Limited by consumable change	<b>Wide range of materials</b>
Learning difficulty	Professional welders are required, and the technical requirement is high	<b>Novice can master in short time</b>

## Six key safety protection features, Maxphotonic is Worthy of your trust!

MA1 Series Handheld Welder is a class IV laser product To ensure safe operation appropriate PPE (personal protective equipment) must be used (as a minimum laser safe eye ware should always be used, Maxphotonic provides a pair for goggles with every laser).



## Including Wire Feeder unit, Integrated Wobble Welding



Laser control system provides consistent control of wobble frequency and weld width can up to **4.0mm (0.16")** weld width, providing high quality weld seams that are symmetric but also smooth to the touch, no further processing needed.

MA1 series has the wire feeder module included, when deeper penetration welding is needed, to fill gaps and to provide smooth and flush weld profiles. supports welding wire diameter **1.0/1.2/1.6mm**, suitable for carbon steel, stainless steel, aluminum, non-ferrous metal, and other alloys.

# Maxphotonics Handheld Laser Welder Features

## Stable Performance and Reliable Quality

Maxphotonics' new MA1 series handheld laser welder has been designed and manufactured with Maxphotonics world class laser technology. The laser control system is precise and beam quality is very stable. Before leaving the factory each handheld laser product has passes 500 hours of **high and low temperature (-10°C~45°C or -14°F~113°F)** cycling power test, and 12-hour continuous welding with 99% power stability test. The lifetime of the laser power source is approximately 100,000 hours, all products pass the industry standard test on SGS, to ensure stable and durable beam output.

## Compact Handheld Welding Torch

With a collimated QCS interface, it greatly reduced the volume and weight of the welding torch to only **680g (1.5pounds)**. The optical design and QCS output head match perfectly, with high transmission efficiency and a calorific value. The welding torch has been ergonomically designed for user comfort and ease of operational use. We also provide a built-in wobble function with a double safety laser on the button, that allows the operator to safely work throughout the day continually producing high quality welds.



Welding torch with wire feeder



Handheld welding torch

680g



## Portable Appearance

Maxphotonics' new generation handheld laser welder is designed to be lightweight and provides the needed portability for mobile welding projects. Depending on your welding needs and performance, **25kg~39kg(55-86-pounds)** of different products can be selected. The overall product volume is **less than 0.1m' (3.5 cubic feet)**, making it very portable.

## Simple Operating System, Intelligent Processing Mode

Maxphotonics' new generation of MA1 handheld laser welding products, has a 7" LED touch screen, intelligent operating system with multilanguage, simple operation modes, easy to learn, simple and quick to operate.

Even a novice with **only 30 minutes of training** they can master the welding the operation, thus saving expensive training and production costs.

It comes loaded with **32 sets of preset process parameters** and supports user customisation. Operators can quickly select welding parameters based on different materials and thicknesses. Novice welders can quickly produce high-quality and consistent welds as experienced welder.

## Easy Installation and Operation



1. 220V power supply



2. Gas: Argon/Nitrogen



3. Grounding clamp-safety loop



The rear panel of the product is clearly marked, allowing a quick and simple product installation with the user guide videos, which is convenient for beginners. Only a standard plug with 220V AC power is required with connection to the industrial shielding gas (argon/nitrogen) and connect the ground clamp to the work piece, then you can start using the equipment. Through the 7" LED touch screen, intelligent operating system with multilanguage, you will access the operator interface where you can select preset welding parameters, or your own user-defined parameters.

## Lightweight, Portable and High-performance

With traditional welding methods it is difficult to teach complex welding processes, efficiency is low, and critically the weld quality depends to a greater extent on the welder's experience only. The new generation of Maxphotonics' MA1 handheld laser welding products brings with it high welding efficiency, simple and convenient operation, easy to learn technology, anybody can be trained to achieve consistent high-quality welding results, in a range of different materials and thicknesses very quickly.

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