

THEO



Handheld Laser Welding

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Effortless Operation, Seamless Welding, Superior Results!



Compared to traditional welding methods, Theos' latest generation of MA1 handheld laser welders offers a lightweight, compact, and versatile solution. These units are easy to operate across a wide range of materials, including stainless steel, carbon steel, aluminum, galvanized steel, and copper. They deliver four times faster welding speeds, higher weld strength, and reduced porosity. The MA1 series minimizes heat-affected zones, eliminating weld deformation and burn-through. This results in a cleaner weld that requires little to no post-processing, such as grinding or polishing. Overall, our MA1 series enhances efficiency and productivity, reduces waste, and lowers costs, ultimately boosting your profitability.

Product Model		MA1-65	MA1-45	MA1-35
Weld Thickness* (inch / mm)	Stainless steel	1/4" / 6.5mm	0.18" / 4.5mm	0.14" / 3.5mm
	Carbon steel/ Iron	1/4" / 6.5mm	0.18" / 4.5mm	0.14" / 3.5mm
	Aluminium	0.18" / 4.5mm	0.16" / 4mm	1/8" / 3mm
	Galvanized sheet	1/4" / 6.5mm	0.18" / 4.5mm	0.14" / 3.5mm
	Brass	0.18" / 4.5mm	0.14" / 3.5mm	0.1" / 2.5mm
	Copper	0.12" / 3mm	1/16" / 1.5mm	--
Wobble (inch / mm)		0-0.16" / 0-4mm	0-0.16" / 0-4mm	0-0.16" / 0-4mm
Operating Temperature (°F)		0~104	0~104	0~104
Operating Temperature (°C)		0~40	0~40	0~40
Weight (pounds)		86 lbs	84 lbs	62 lbs
Weight (kg)		39kg	38kg	28kg
Dimensions (in*in*in)		26.3*10.9*21.3	26.3*10.9*21.3	22.7*10.4*16.7
Dimensions (mm*mm*mm)		667*276*542	667*276*542	576*265*425
Volume (cubic feet)		< 3.5	< 3.5	2.1
Volume (m³)		< 0.1	< 0.1	0.06

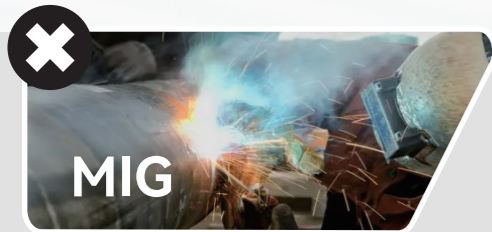
*Remarks: The data is extreme penetration depth base on lab test result, the penetration depth performance will be varied according to dierent setup and application.



With 5 different copper nozzles

- **Compact**
- **Light**
- **Portable**

Wave Goodbye to Traditional Welding

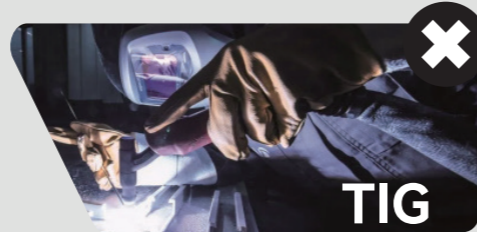


MIG

Highly trained welders, technically complex welding processes, poor work environments, low efficiency, unsuitability for special metals and thin sheets, high welding wire consumption, and the need for pre-cleaning and joint preparation grooves for full penetration. Vertical welding is notably challenging due to limited direction and operating angles.

Large heat-affected zone: Traditional welding often distorts and discolors the workpiece due to heat, affecting weld quality by introducing porosity, reducing joint strength, altering grain structure, and necessitating further post-processing. Welding materials like copper and aluminum also face thickness limitations.

Health and Safety Risks: The arc's ultraviolet and infrared radiation can harm the welder's eyes and skin. Additionally, inhalation of fumes at the weld site is a concern, often requiring strong extractors.



TIG



Handheld Laser Welding

Compared to traditional welding methods, Theos' new MA1 series of handheld laser welding products significantly boosts welding speed (four times faster for mild steel). They are easy to learn and operate, comply with European safety standards, save energy, and are eco-friendly.

Theos' MA1 series features a high-precision laser control system, stable beam quality, and laser powers ranging from 1000 to 1500 watts. Even novices can effortlessly achieve weld depths from 1.5mm to 6.5mm, with little to no welding wire consumption, ensuring high-quality, strong welds every time!

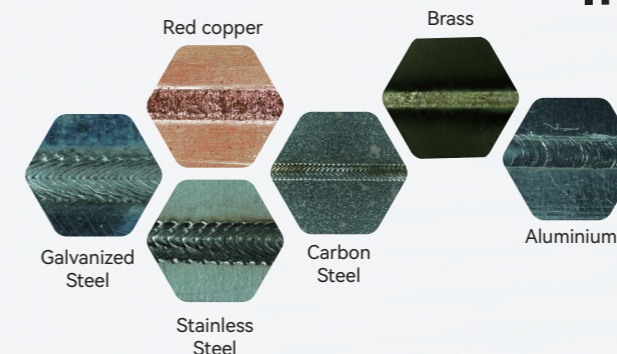
Item	Traditional Welding	THEO Handheld Laser Welding
Welding Speed	Average	Up to 4 times faster than TIG
Welding Quality	Highly dependent on user experience. Welding seams can be rough, irregular and require rework and polishing.	Consistent high-quality results. Beautiful and neat welding seams, deep molten pool, and high strength. No cleaning necessary.
Training & Learning Curve	Difficult to learn	Easy – Train in hours. Proficiency in 1-2 weeks.
Heat affected zone	Large	Small
Material Distortion & Deformation	High	Very Low
Welding Seam Damage	Potential for Porosity, lack of consistency	Uniform melt pool and great consistency
Energy Consumption	High	Low – up to 80% reduction in electricity costs
Consumables	High welding wire consumption	Precise wire consumptions supported by wired feeding system.

Six Robust Safety Measures for Unmatched Protection

The MA1 Series Handheld Welder is a Class IV laser product. To guarantee safe operation, appropriate PPE (Personal Protective Equipment) is essential. At a minimum, laser-safe eyewear should always be worn. Theo includes a pair of goggles with every laser for added safety.



Including Wire Feeder Unit – Integrated Wobble Welding



The laser control system ensures consistent wobble frequency control, allowing for weld widths of up to **4.0mm (approximately 0.16")**. This results in high-quality, symmetrical weld seams that are smooth to the touch and require no further processing.

The MA1 series includes a wire feeder module for instances where deeper weld penetration is necessary, such as filling gaps or achieving smooth, flush weld profiles. The module supports welding wire diameters of 1.0mm (approximately 1/25"), 1.2mm (approximately 3/64"), and 1.6mm (approximately 1/16"). It is compatible with a variety of materials including carbon steel, stainless steel, aluminum, non-ferrous metals, and other alloys.

Theo Handheld Laser Welder Features

Stable Performance and Reliable Quality

Theos' new MA1 series handheld laser welder is engineered with **Maxphotonics' world-class laser technology**, ensuring precise laser control and stable beam quality. Each unit undergoes rigorous testing before leaving the factory, including a 500-hour high and low temperature (-10°C-45°C or -14°F-113°F) cycling power test and a 12-hour continuous welding test with 99% power stability. With a laser power source lifespan of approximately 100,000 hours, all our products meet SGS industry standards to guarantee stable and durable beam output.

Compact Handheld Welding Torch

Equipped with a collimated QCS interface, our welding torch is impressively lightweight at just **680g (1.5 pounds)**. Its optical design and QCS output head are seamlessly integrated, providing high transmission efficiency and heat output. Ergonomically crafted for user comfort, the torch is easy to operate. We've also included a built-in wobble function with a double safety laser-on button, allowing operators to work safely all day while consistently delivering high-quality welds.



Welding torch with wire feeder



Handheld welding torch

1.5 lbs
680g



Compact and Mobile

Theos' new generation of handheld laser welders is engineered for portability, making it ideal for mobile welding projects.

With options ranging from **28kg to 39kg (62-86 pounds)**, you can choose the product that best suits your welding needs and performance criteria. The compact design, occupying less than 0.1m³ (3.5 cubic feet), enhances its portability, allowing for easy transport and setup.

Simple Operating System, Intelligent Processing Mode

Theos' new MA1 generation of handheld laser welding products features a 7" LED touchscreen and an intelligent, multi-language operating system. With simple operation modes, it's easy to learn and quick to operate.

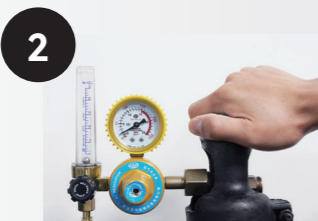
Even beginners can master the welding operation with just **1-2 hours of training**, significantly reducing both training and production costs.

The device comes pre-loaded with **32 sets of process parameters** and allows for user customization. This enables operators to swiftly select welding parameters based on various materials and thicknesses, allowing even novice welders to produce welds of the same high quality and consistency as experienced welders.

Easy Installation and Operation



1
200-240Vac power supply



2
Gas: Argon/Nitrogen



3
Ground clamp safety loop



The product's rear panel is clearly labeled for effortless setup, making it especially convenient for beginners. Installation is further simplified with our user guide videos. All you need is a standard 220Vac power plug, a connection to industrial shielding gas like argon or nitrogen, and a ground clamp attached to your workpiece to start using the equipment. The 7-inch LED touchscreen features an intelligent, multi-language operating system. Here, you can easily select from preset welding parameters or input your own user-defined settings.

Lightweight, Portable, and Engineered for 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 Theo's 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.



THEO

BY **MAX** PHOTONICS

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