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TRM[®] 特尔玛

Handheld Laser Welding System

MODEL LWH2000



The LWH1500 laser welding system developed by TRM is faster and easier to operate than conventional welding and semiconductor laser welding. The fiber laser generator is equipped with a portable welding torch, which is easy to operate and perfectly replaces traditional argon arc welding, electric welding and other thin plate welding.

The system supports one machine for two purposes: it can be used for hand-held welding, or it can be applied to robots for automatic welding

www.trm-welding.com

Handheld Laser Welding Torch



Parameters:

- Power range: $\leq 2000W$
- Collimated focal length: 50mm
- Focusing focal length: 150mm
- Maximum air pressure: 15Bar
- Spot adjustment range: Line0–5mm
- Vertical focus range: $\pm 10mm$
- Applicable wavelength: 1080nm

The handheld laser welding torch provides high-quality welding process solutions for customers in the metal processing industry, which can meet the production needs of a variety of small batch products, and achieve perfect self-fusion welding and wire filling welding.

Features:

- FAST** : Up to 4 times faster than TIG;
- PRODUCTIVE**: Minimal post-processing polishing;
- EASY**: Optimized presets make operation simple;
- VERSATILE**: Wide range of materials without distortion;
- CONSISTENT**: High-quality, repeatable results;
- FLEXIBLE**: Simple and challenging applications;
- LESS HEAT**: The heat affected zone is dramatically minimized.



Handheld Laser Welding Torch



Wire Feeder



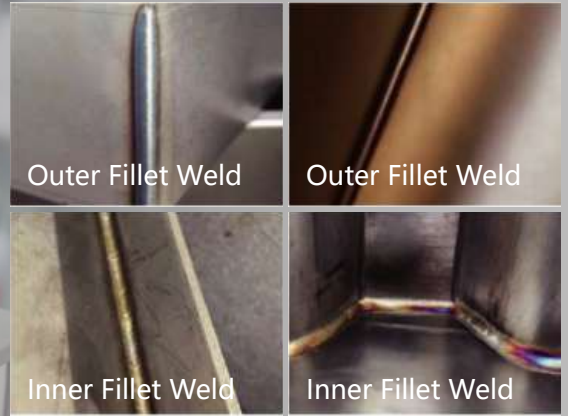
Main Control Board



Human-Machine Interface

The hand-held laser welding torch needs to be equipped with a wire feeder and a main control board, please consult the sales staff for details.

Handheld Laser Welding Torch



Wide range of applications

Metal plate welding - stainless steel, carbon steel, Aluminum, Galvanized sheet, various kinds of alloy, grinding tools, chassis, water tank, kitchen and bathroom products, hardware lighting, advertising signs, door and window frame laser welding.

Continuous laser mode brings good welding results:

- weld gap is very smooth and tight;
- small welding heat affected zone;
- small yellowing and black area on both sides of the weld gap;
- small deformation of the workpiece;
- small stack height on the weld surface;
- no need to carry out secondary grinding treatment;
- reduce labor and time costs.



Wobble Width: 0-5mm

Comparative analysis of welding

Item		Traditional welding	Solid Yag	Laser Welding
Welding quality	Heat input	high	low	low
	Deformation of workpiece, undercut	big	small	small
	Welding appearance	fish scales lines	fish scales lines	can choose
	Subsequent processing	grinding	grinding	Done, no need any more
Operation	welding speed	slow	medium	fast
	Operate difficulty	difficult	easy	easy
	Operator safety	not safe	safe	safe
Environmental protection safety	Impact on the environment	environmental pollution	environmental pollution	no pollution
Cost	Consumables	electrode	laser crystal	shielding gas
	Energy consumption	low	high	low
	Requirement to worker	high	normal	low
	Occupied space	small	large	small

Laser Welding System - Handheld Application

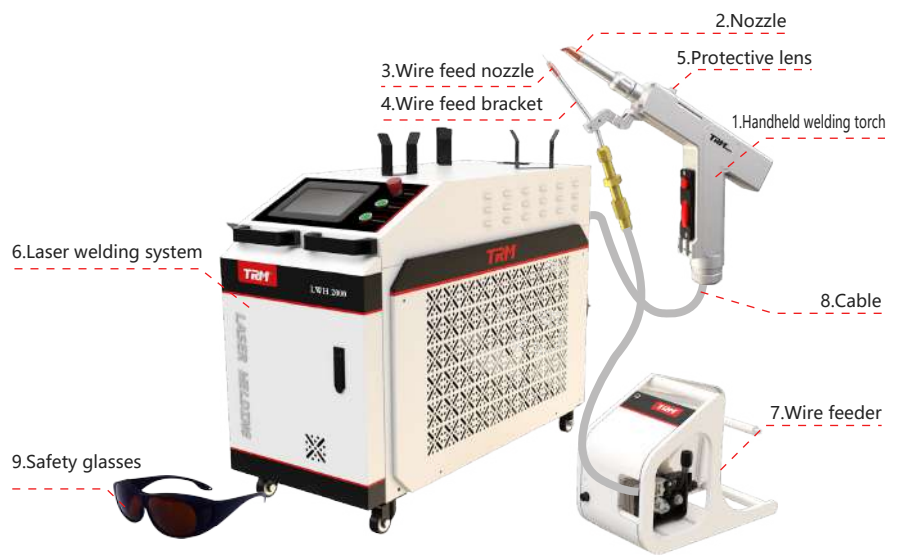
The laser welding system mainly consists of three parts:

handheld laser welding torch system + water cooling box + laser generator



Main technical parameters of integrated handheld laser welding system:

Item	PARAMETER
ITEM NO.	LWH2000
The conduction types	Optical fiber
Power supply	380±15% V AC 50/60HZ
Laser center wavelength	1080±5nm
Laser power	2000W
Frequency	2-4000HZ
Laser output focal length	150mm
Laser cooling	Water cooling
Fiber length	5m or 10m
Protective gas type	Argon, nitrogen
Power consumption of the whole machine	8.5kw
Air pressure requirements	Hand-held laser welding 4-6Bar
Welding cabinet size (mm)	700*120*800mm (welding torch and bracket are included)
Wire feeder size (mm)	490*980*775mm
Machine weight	about 130kg
Operating ambient temperature range	10 to 40 °C
Welding thickness (suggestion)	0.2-6mm
Welding gap requirement	below 0.5mm
Wire diameter	0.8mm, 1mm, 1.2mm, 1.6mm
Refrigerant model	R32



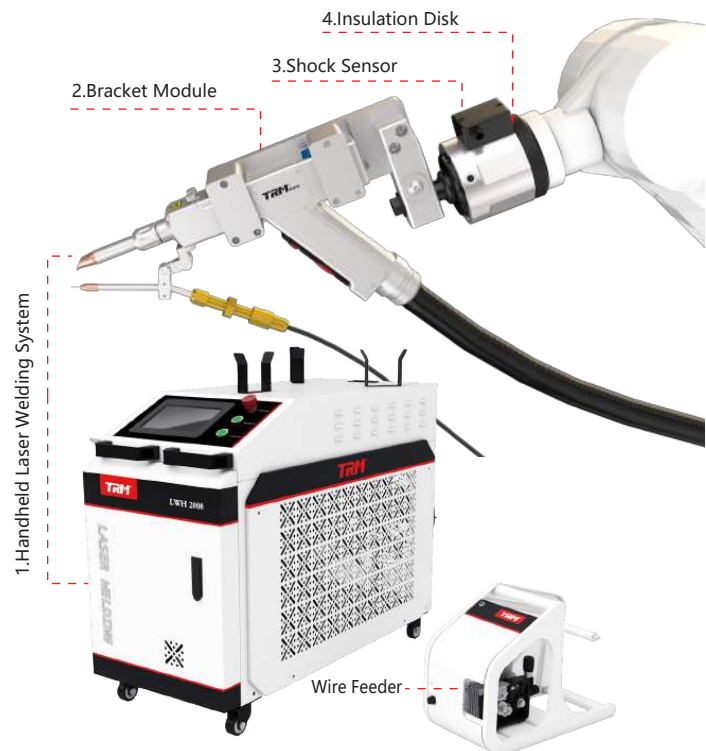
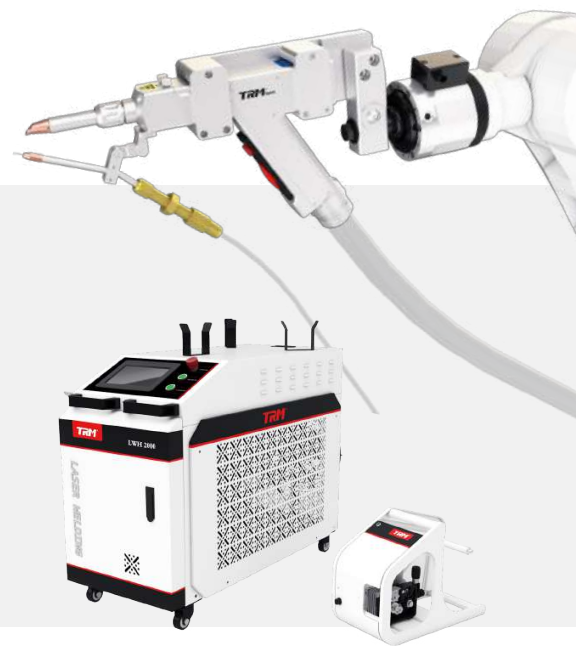
ORDER GUIDE

Item	Order No.	Product Description
1. Handheld welding torch	LWH2K-A	Handheld welding torch
2. Nozzle	LWH2K-WJPZ-A-003	Outer Fillet Weld Nozzle D1.2
	LWH2K-WJPZ-A-004	Outer Fillet Weld Nozzle D1.6
	LWH2K-NJPZ-A-003	Inner fillet welding nozzle D1.2
	LWH2K-NJPZ-A-004	Inner fillet welding nozzle D1.6
	LWH2K-PJPZ-A-003	Flat fillet welding nozzle D1.2
	LWH2K-PJPZ-A-004	Flat fillet welding nozzle D1.6
3. Wire feed nozzle	LWH2K-SSPZ-A-001	Wire feed nozzle D0.8
	LWH2K-SSPZ-A-002	Wire feed nozzle D1.0
	LWH2K-SSPZ-A-003	Wire feed nozzle D1.2
	LWH2K-SSPZ-A-004	Wire feed nozzle D1.6
4. Wire feed bracket	LWH2K-SSZJ-A	Wire feed bracket
5. Protective lens	D18*2 2KW	Protective lens
6. Laser welding system	LWH-2000	Integrated handheld laser welding system (not including wire feeder)
7. Wire feeder	WF-007A	Wire feeder
8. Cable	LWH-1500-CA-5M/LWH-1500-CA-10M	5m/10m TRM Laser welding torch cable
	LWH-1500-SL-5M/LWH-1500-SL-10M	5m/10m TRM Workpiece fixture
9. Safety glasses	SD-4 OD6	Laser safety glasses OD6+

Laser Welding System - Robot Application

The robot laser welding system mainly consists of five parts:

Handheld Laser Welding Torch System + Water Cooling Box + Laser Generator
+ Anti-Collision Unit + Bracket Module



The advantages of laser welding applied to robots:

- ✓ To help with batch welding and improve production efficiency;
- ✓ Smooth and consistent welded seams;
- ✓ No need for secondary grinding;
- ✓ Small heat-affected zone of the weld bead ,small deformation of the workpiece, and small yellow and black areas on both sides of the welded seams;
- ✓ Capable of welding more complex lines, such as circles and intersecting lines;
- ✓ To avoid the instability of human operation and reduce labor and time costs.

After programming and debugging, the handheld laser welding system LWH1500 can communicate with robots in depth and be applied to automatic robot welding. Each welded seam can be welded with different power. During the welding process, the power and speed can change, which solves the technical difficulties of hand-held laser + robot matching.

ORDER GUIDE

Item	Order No.	Product Description	
1.Handheld Laser Welding System	LWH-2000	Integrated handheld laser welding system	
2.Bracket Module	LWH2K-A-RW	Integrated handheld laser welding system	
3.Shock Sensor	TRM313-01-N10	Standard	
	3.5.11.0012	Cable accessories, connecting shock sensor to cables	
4.Insulation Disk <small>Note: Mounting screws are included.</small>	TRM233-A31402	Fanuc R-0iB、 200iD	
		kuka KR5 R1400、 KR10 R1420、 KR8 R1620 xinshida SA1400SA1800; Yaskawa RA05L; xijie ect.	
	TRM233-A40252	kuka KR5 arc、 KR6 arc、 KR16 L6 arc GSK RH06、 RH08; TRM231-A40252 Yaskawa MH6 Nazhi MC20-01;qianjiang QJR6-3 ABB IRB 1410、 ABB IRB 1600 ect.	
		TRM233-A56625	Fanuc 100ic、 M10iA; Yaskawa MA1440、 MH12、 MA2010
		TRM233-A64572	Fanuc M10iD



catalogue down load

TRM Technology, Inc.

Add: #9, Huanbaosanlu, Xinbei District,
Changzhou, Jiangsu 213034, China.

Tel: +86 519 8577 7780

Fax: +86 519 8577 7786

Web: www.trm-welding.com

E-mail: info@trm-welding.com