JASIC®

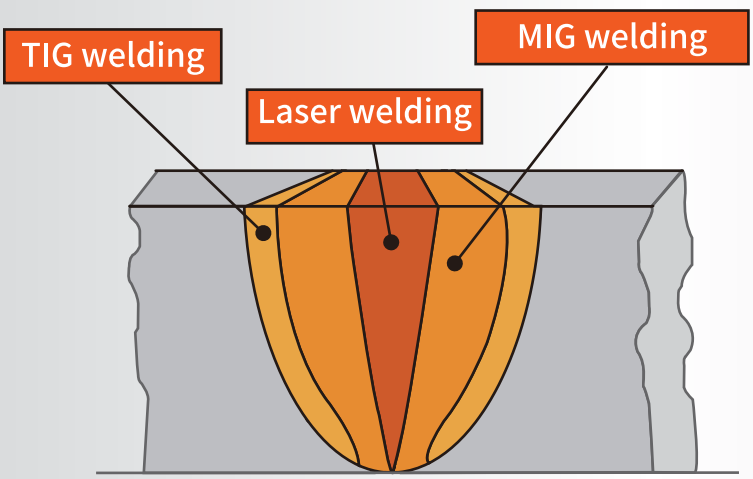
Jasic 3 in 1 Handheld Fiber Laser Welding Machine

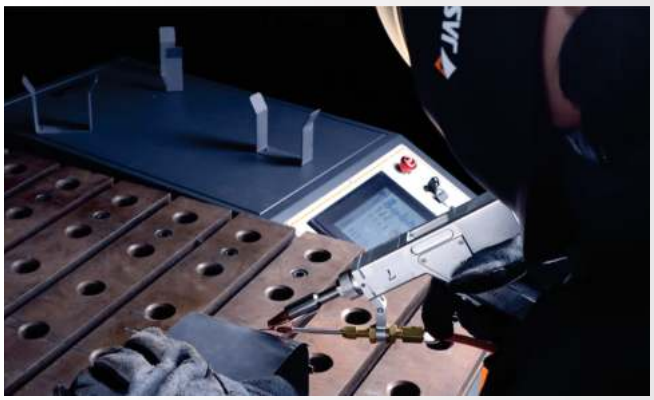
www.jasicindia.com

A brief introduction to handheld fiber laser welding

Using laser beam to melt and join metals, this is an emerging manual welding technology that is much more efficient and precise than MIG/TIG with minimal distortion, undercut or burn-though thanks to very limited heat affected zone (HAZ).
It delivers excellent welding results with much less costs compared to manual MIG/TIG welding. As the challenges of metal fabrication industry grow, this new technology can significantly improve fabricators' efficiency and profitability in a competitive landscape where fast project delivery and effective cost control are vital.

Comparison of HAZ





In comparison to other types of welding technologies…

Welding Technology		Arc Welding	Solid YAG Laser	CW Handheld Fiber Laser
Welding experience	Heat input	High	Low	Low
	Distortion	High	Low	Low
	Weld seam formation	Fillet	Fillet	Variable
	Post weld processing	Yes	Yes	No
	Welding speed	Low	Medium	High
	Ease of use	Low	High	High
Sustainability	Hazard to people	High	Low	Low
	Pollution to environment	High	High	Low
Cost	Consumables	Electrode/welding wire/shielding gas	Crystal, Xenon gas	Shielding gas
	Energy efficiency	High	Low	High
	Skill requirement	High	Moderate	Low
	Footprint	Small	Large	Small

Why JASIC handheld fiber laser welding?

High Welding Efficiency

- Up to 10x faster than manual TIG welding
- Very limited spatter thus little post-weld cleaning needed
- Little need for rework thanks to minimal porosity, undercut, or distortion

High Energy Efficiency

- CW(continuous wave) laser with 40+% electro-optical conversion efficiency, 10x that of a solid YAG laser

Cost Efficient

- Low welding skill requirement, save on labor cost for experienced arc welder
- Almost 0 maintenance needed for key component, pump source has over 100k hours life span

High Usability

- New industrial design featuring better ergonomics, flexibility and reliability
- Color touch screen control panel with intuitive user interface
- Comprehensive job parameter settings
- Small foot print, great mobility and flexibility

1-Year Warranty

- Comprehensive quality assurance

New industrial design featuring better ergonomics, flexibility and reliability

Improved overall reliability thanks to reinforced housing and redefined internal wiring. Easy to use with smaller size, lighter weight, larger casters and thoughtful handle design.

4 roller wire feeders

Single wire feeder

- Robust and durable frame structure
- Digital display panel with high visibility
- 4 roller wire feeder delivers smooth and stable feeding

Dual wire feeder

- Color LCD touch screen control panel
- 4 roller wire feeder delivers smooth and stable feeding
- Dual wire feeding for higher deposition rate

3-in-1 handheld fiber laser machine

Being a turnkey solution for fast sheet metal fabrication, this system combines laser welding, cutting and cleaning into one system. On top of its versatility, this 3-in-1 system also possesses the same characteristics in efficiency and in ease-of-use as the other 2 types of machines.

Welding

Rapid and consistent weld seam formation, limited training and little post-weld cleaning needed

Cutting

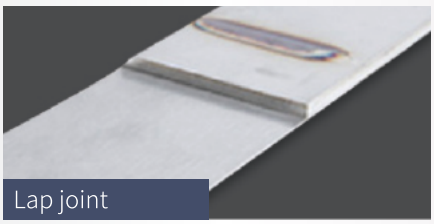
Switch to cutting mode by simply changing nozzle tip; fast and clean cutting of sheet metal, straight or cursive

Cleaning

Switch to cleaning mode by changing lens and operation mode; rapid and thorough removal of rust/paint/grease, etc., easily cleans hard-to-reach spots

Fast and quality welding of different weld joint types


Butt joint


Lap joint


Tee joint


Fillet weld


Round joint


Spot joint

Exceptional welding results

Continuous wave laser beam delivers high quality weld seams with minimal distortion, undercut or burn-though thanks to very limited heat affected zone (HAZ). As a result, very little post weld processing is needed - less labor, shorter delivery time.

Cutting performance
Precise laser cutting with smooth cut surface

Refined heat input results in cut surface with limited striation, great cutting results in both straight and cursive cutting

- Easy operation with high cutting efficiency
- Precise cutting, tiny kerf width
- Wide range of applicable sheet metal

Cleaning - different models for different job situation

• Focal length 800mm, max cleaning width 120mm

• Ideal for precise cleaning. e.g. pre-cleaning of weld bead & small parts clearning

• Good for operating in sitting or squatting position

Unrestricted by work piece type, efficient cleaning with high precision and uniformity

Narrow space cleaning

Sheet metal cleaning

Interior cleaning

Complex-shaped cleaning

Commonly used in…

Sheet metal processing

Moulding industry

Door & windows frame fabrication

Hardware manufacturing industry

Outdoor advertising signage

Water tank fabrication

Kitchenware & bathroom accessories fabrication

Decorative lighting fabrication

Product Specifications

Model		LS-15000F (G4J8)	LS-20000F (G4J9)
Input power supply		1P AC220V (-10%~+15%) 50Hz	1P AC220V (-10%~+15%) 50Hz
Input power		5.8 kW	7.8 kW
Center wave length		1080±10 nm	1080±10 nm
Electro-optical conversion efficiency		⩾40%	⩾40%
Laser power		1500 W	2000 W
Fiber cable length		12 m	12 m
Cooling method		Water cool	Water cool
Single wire welding and self fusion welding	Scan width	0~6 mm	0~6 mm
	Welding wire diameter	0.8/1.0/1.2/1.6 mm	0.8/1.0/1.2/1.6 mm
	Shielding gas	Argon/nitrogen (⩾3 bar)	Argon/nitrogen (⩾3 bar)
	Welding thickness	0.5~5 mm	0.5~6 mm
	Penetration	0.5~3 mm	0.5~4.5 mm
	Welding gap range	⩽Welding wire diameter	
Double wire welding	Scan width	Not recommended	5~8 mm
	Welding wire diameter		1.2/1.6 mm
	Shielding gas		Argon/nitrogen (⩾3 bar)
	Welding thickness		3~6 mm
	Penetration		3~5 mm
	Welding gap range		⩽Welding wire diameter
Cutting	Recommended cutting thickness	⩽3mm	⩽5mm
	Max cutting thickness	5 mm	6 mm
	Shielding gas	Argon, nitrogen (4bar⩽gas pressure⩽7bar)	Argon, nitrogen (4bar⩽gas pressure⩽7bar)
Cleaning	Cleaning speed	50 mm/s	50 mm/s
	Standoff distance	15 cm (F150 focusing lens) 40 cm (F400 focusing lens) 80 cm (F800 focusing lens)	15 cm (F150 focusing lens) 40 cm (F400 focusing lens) 80 cm (F800 focusing lens)
	Max. cleaning width	0~30 mm (F150 focusing lens) 0~60 mm (F400 focusing lens) 0~120 mm (F800 focusing lens)	0~30 mm (F150 focusing lens) 0~60 mm (F400 focusing lens) 0~120 mm (F800 focusing lens)
	Shielding gas	Use oil-free and moisture-free gas; gas pressu	re ⩾3 bar; other inert gases
Water tank capacity		8 L	
Operating temperature		-10°C~40°C; antifreeze needed when ⩽5°C	
Operating humidity		⩽70% at 40°C; ⩽90% at 20°C	
Power source weight		85 kg	92 kg
Packed weight		103 kg	110 kg
Package weight of wire feeder and accessories		17.5 kg	17.5 kg
Power source dimensions		773 x 410 x 737 mm	773 x 410 x 737 mm
Package dimensions		865 x 475 x 1035 mm	865 x 475 x 1035 mm
Package dimensions of wire feeder and accessories		890 x 320 x 430mm	890 x 320 x 430mm

On the use of antifreeze

It is important to use antifreeze for our handheld fiber laser machines as using the machines without proper antifreeze measures under ＜7°C working temperature can cause malfunction or even damage*.
*: damage of JASIC handheld fiber laser machines caused by the absence of or the improper use of antifreeze agent is not covered by JASIC' s 3-year warranty

Tips on using antifreeze

- Keep working temperature above 7°C;
- Keep water cooler running, set the low and normal temperatures of cooling water to around 7°C to make sure the temperature of the coolant is above freezing point;
- Drain* cooling water out of the machine after use and add antifreeze coolant to ensure liquid circulation;
- Use antifreeze with freezing point slightly lower than the lowest local working temperature

*: Location of the drain valve

Choosing the right antifreeze

It is recommended to choose antifreeze with lowest freezing point slightly lower than lower than the lowest local working temperature. Recommended brand for antifreezes: Clariant.

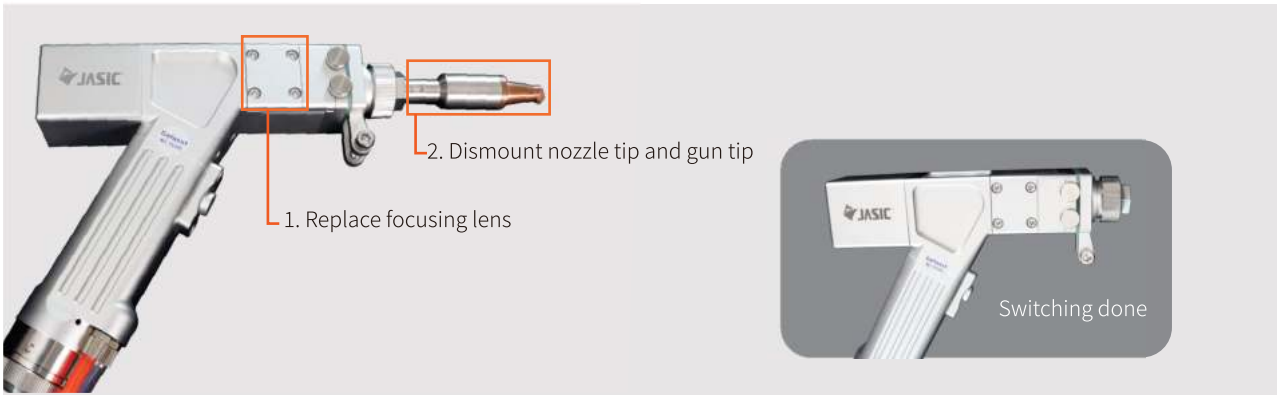
Antifreeze & distilled water proportion table	
Proportion ratio（antifreeze: distilled water)	Effective temperature range
6:4	-42°C~-45°C
5:5	-32°C~-35°C
4:6	-22°C~-25°C
3:7	-12°C~-15°C
2:8	-2°C~-5°C

Simple lens change method

The handheld laser gun is by default delivered in welding mode.

Switching from welding to cutting

Switching from welding to cleaning



*: component is subject to change.

General Aftersales Policies

As a welding manufacturer with comprehensive quality assurance, we provide the following warranties for our handheld fiber laser welding machines:

- 12 months warranty on the whole machine
- 12 months warranty on the laser generator
- 12 months warranty on the water cooler
- 12 months warranty on the laser welding gun

Please note: the following items/situations are not covered by the warranty.

- Wearing parts and optical lenses are excluded from the warranty
- Product damage or quality issues caused by improper operation or mishandling are excluded from the warranty
- Product damage or quality issues caused by unauthorized repairs using third party parts are excluded from the warranty
- Damage caused by operation outside the scope of the product's technical requirements
- Damage to the laser caused indirectly by faults due to the customer's software or interface
- Damage caused by incorrect installation, maintenance/repair or operational use not specified in the user manual
- Damage caused by human factors during use, especially due to failure to take the necessary antifreeze measures when needed
- Damage caused by failure to comply with relevant requirements on water cooler's maintenance specified in the user manual

- Standard Scope of Supply Equipment
  1.Power Source 2. Wirefeeder 3. Torch Fiber cable 12-20m cable Length.

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