

SENFENG



SF-HWM 1500-3000

4-in-1 Handheld Laser
Welding Machine

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Laser Welding Machine

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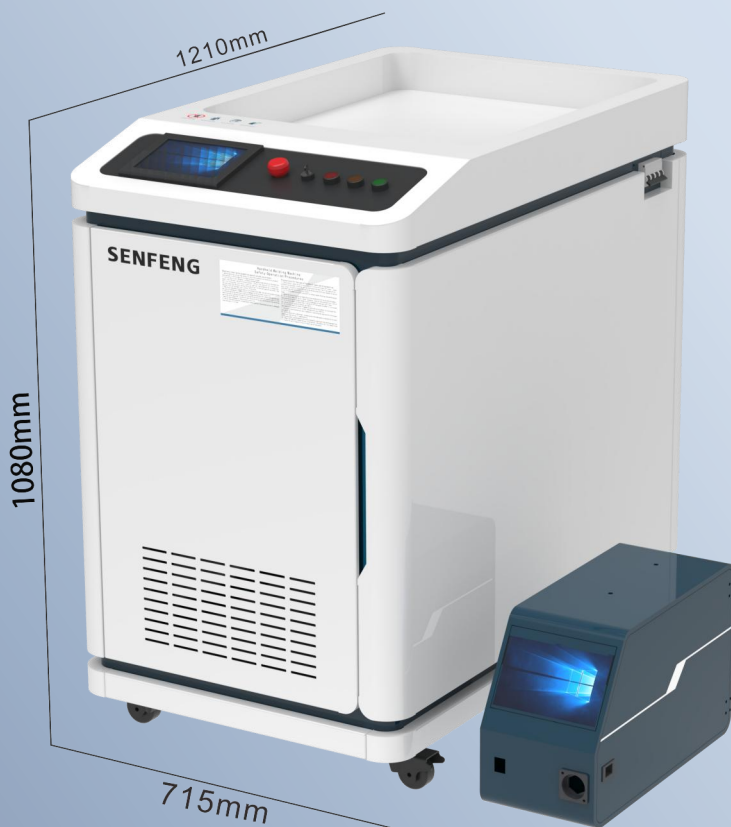
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Handheld Laser Welding Machine

SF-HWM



1

Welding, cleaning, cutting and weld seam cleaning

2

Temperature monitoring, air pressure alarm and phase sequence protection

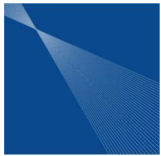
3

IO connection enables automated welding

4

Optional single or dual wire feeder

※ This picture is for reference only. Product appearance and size are subject to actual factory delivery.



ADVANTAGES OF LASER WELDING

ADVANTAGES OF LASER WELDING

Welds prone to deformation



Heavy smoke



MIG/MAG

Big splash



High radiation



Smooth welds with minimal deformation

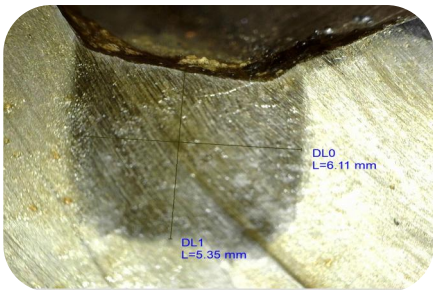


Low spatter, smoke, and radiation



LASER

Deep penetration



High strength



TECHNICAL PARAMETERS

SF-HWM

Laser power	1500W	2000W	3000W
Wire diameter	Standard 0.8–1.6mm		Standard 0.8–2mm
Weld splicing	Self-fusion welding: $\leq 15\%$ of the plate thickness and $\leq 0.5\text{mm}$ Single-wire welding: $\leq 1.2\text{mm}$ Double-wire welding: $\leq 2\text{mm}$		
Net weight	220KG		265KG
Gross weight	270KG		350KG
Dimensions	954X715X980mm		1210X715X1080mm
Packing size	1400X870X1265mm		1656X870X1265mm
Welding thickness	$\leq 4\text{mm}$	$\leq 5\text{mm}$	$\leq 7\text{mm}$
Total length of welding gun wire	10m (wire tube length is 5 meters)		
Welding gun weight	0.75KG		
Total power	9KW	12KW	15KW
Scan width - welding	0–8mm		
Scan width - cleaning	F150-0~30mm		
	F400-0~60mm		
	F800-0~120mm		
Language	Chinese, English, Korean, Russian, Japanese, German, French, etc.		
Voltage/frequency	Standard three-phase 380V 50/60HZ Under 2000W, single-phase 220V 50/60HZ is optional		

4-IN-1 – WELDING MODE

SF-HWM



Model	Material	Thickness (mm)	Welding speed (mm/s)	Air pressure (Mpa)
SF1500HWM	Stainless steel	4	10-50	0.1-0.2
SF2000HWM		5		
SF3000HWM		7		
SF1500HWM	Carbon steel	4	10-40	
SF2000HWM		5		
SF3000HWM		7		
SF1500HWM	Aluminum	4	10-30	
SF2000HWM		5		
SF3000HWM		6		

- The 4-in-1 system defaults to welding mode with a 0-8mm scanning width.
- The process library enables process retrieval, and the display screen allows remote wire feeding control.
- The gradual light switching function effectively reduces weld craters at the start and end points.
- Phase sequence protection prevents equipment failure due to incorrect live and neutral wire connections.
- Gas alarm stops operation when shielding gas is insufficient.
- Intelligent robot connectivity enables automated welding.

4-IN-1 - CLEANING MODE

SF-HWM



Model	Material	Thickness	Speed(m ² /h)	Width
SF1500HWM	Surface rust	≤50um	3.5-10	120mm
SF2000HWM			5-13.5	
SF3000HWM			8-16	
SF1500HWM	Coating	≤120um	4-6.5	
SF2000HWM			5-8	
SF3000HWM			6.5-10	
SF1500HWM	Oxide layer	≤100um	2.5-4	
SF2000HWM			3.5-5	
SF3000HWM			4.5-8	

- The scanning width in cleaning mode is 0-30mm (focal length F800, maximum width 120mm).
- Adjust the cleaning speed according to the material, including floating rust, coatings, and oxidation layers.
- The gas delay function extends the protective lens lifespan
- Optional accessories: Cleaning dust cover DC34 and focusing lens group F800.
- Compressed air: 0.5MPa, oil-free and water-free, dried by a refrigerant dryer.
- Intelligent robot interconnection for automated cleaning.

4-IN-1 – CUTTING MODE

SF-HWM

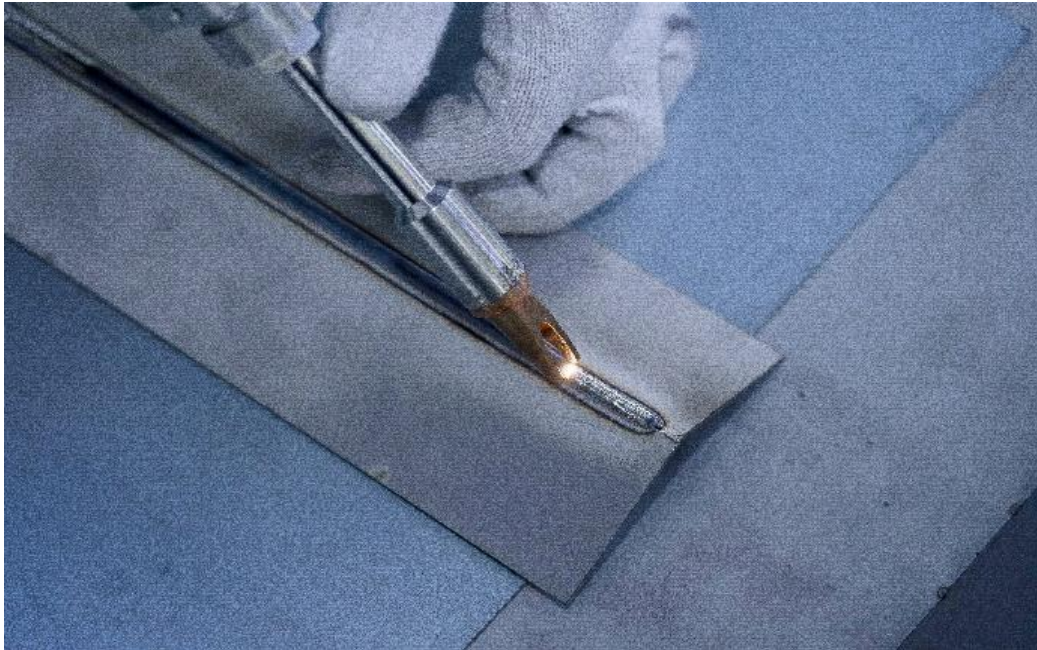


Model	Material	Thickness	Speed (mm/s)	Cutting focus
SF1500HWM	Stainless steel	1	80	0
SF2000HWM		2	60	-1
SF3000HWM		3	40	-1.5
SF1500HWM	Carbon steel	1	80	0
SF2000HWM		2	60	-1
SF3000HWM		3	40	-1.5
SF1500HWM	Aluminum	1	80	0
SF2000HWM		2	60	-1
SF3000HWM		3	40	-1.5

- In cutting mode, a point light spot is used, with scanning speed and width set to 0.
- The cutting nozzle allows for focus adjustment based on the material.
- Before cutting, adjust the spot to be centered on the cutting nozzle.
- Nitrogen is used as the cutting protection gas, with a pressure of less than 1 MPa.
- Robot intelligent interconnection enables automated cutting.

4-IN-1 – CLEANING MODE

SF-HWM



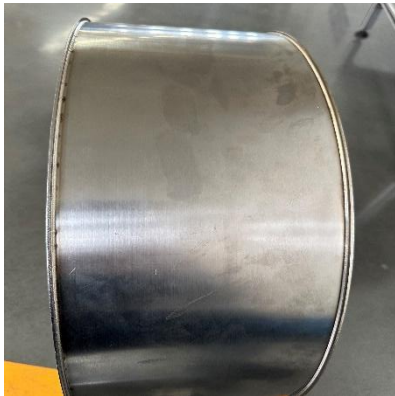
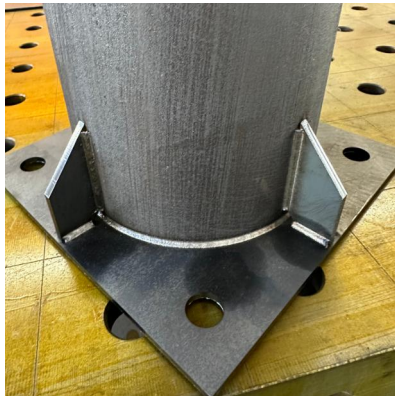
Model	Material	Thickness	Speed(mm/s)	Width
SF1500HWM	Weld	$\leq 50\mu\text{m}$	10-30	0-8mm
SF2000HWM			10-40	
SF3000HWM			10-50	

- Scan width 8mm.
- AS-20D dual-wire feeding nozzle.
- Adjust the laser spot to be centered on the nozzle.
- Robot intelligent interconnection for automated weld seam cleaning.

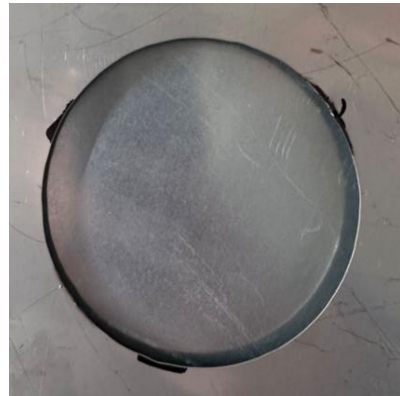
4-IN-1 – SAMPLES

SF-HWM

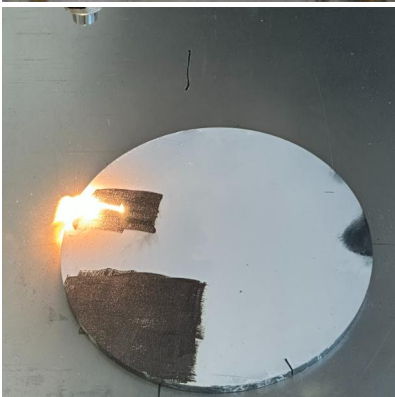
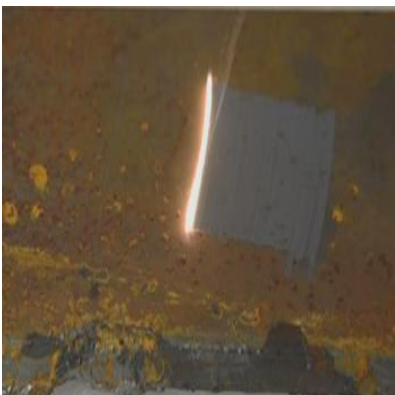
Welding



Cutting



Cleaning



Weld cleaning



CONFIGURATION LIST

SF-HWM

Item	Qty	Brand
Laser source	1	Max
Welding head	1	Super Weiye
Wire feeder	1	SENFENG
Water chiller	1	Hanli
Chassis and cabinet	1	SENFENG
Welding system	1	SENFENG
Electrical system	1	Schneider/AirTac
Maintenance tools and instruction manual	1	SENFENG
Certificate	1	SENFENG

Note: 1. This is the most optimized configuration verified by our company. Please be aware that irreversible effects may occur if the brand and configuration are changed.

2. The warranty period for the complete equipment (excluding consumables, wear parts, force majeure, war, illegal operations, and human damage) is 1 year.

LASER SOURCE

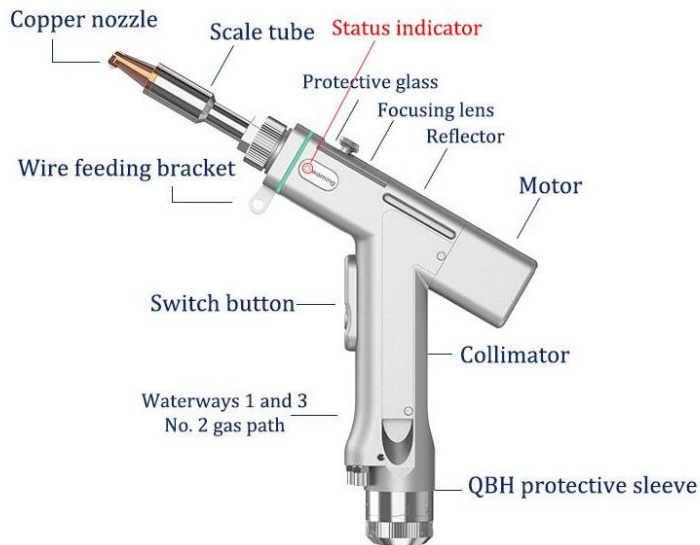
SF-HWM



Model	MFSC-1500C	MFSC-2000C	MFSC-3000C
Average output power(W)	1500	2000	3000
Center wavelength (nm)	1080±10		
Operation mode	Continuous/Modulated		
Maximum modulation frequency (kHz)	20		
Power instability (typical)	±1		
Output connector	QBH		
Core diameter(um)	20	30	50
Output fiber length (m)	10		20
Input power (V AC)	Single phase 220±10%V AC		Three-phase four-wire 380±10%V AC
Power adjustment range (%)	10-100		
Beam quality BPP	≤0.6	≤0.7	≤1.8
Cooling method	Water cooling		
Max laser source (with CE certificate)	1. The international version of the laser source enjoys domestic/international multiple warranty services 2. Machine parts are optimized without cost reduction to ensure universal maintenance parts for future products. 3. The laser source fluctuation deviation is 5% and the light decay is 0 for 2 years. (Not less than nominal power)		

LASER WELDING HEAD

SF-HWM



Welding



Cleaning



Cutting



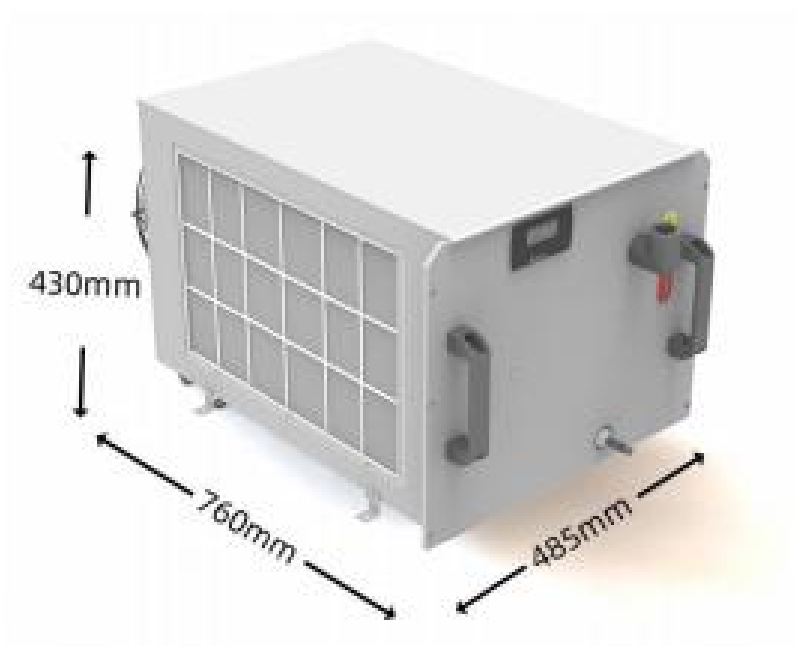
**Weld
cleaning**



Parameter	
Work environment humidity (%)	<70
Cooling method	Water cooling
Wavelength	1080nm (±10nm)
Power	≤3000W
Collimator	D16*4.5/F60
Focusing lens	D20*4.5/F150
Reflective lens	30x14xT2
Protective lens	D18*T2
Maximum air pressure	15Bar
Focus vertical adjustment range	±10mm
Scan Width - Welding	0~8mm
Scan Width - Cleaning	F150-0~30mm
	F400-0~60mm
	F800-0~120mm
Net weight	0.75kg

WATER CHILLER

SF-HWM



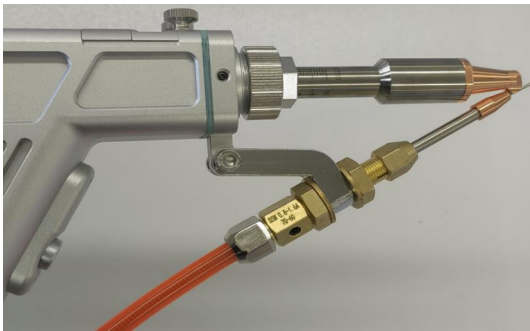
SCH-2000

- The dual-temperature dual-control water chiller uses segmented control to ensure stable welding beam output, thereby ensuring the life of the laser source and welding gun.
- The one-button intelligent control system is easy to operate, including the ISO9001 quality management system and fault code query system.
- The integrated design makes maintenance and repair convenient.

Model	Power supply	Power (kW)	Cooling capacity (kW)	Refrigerant	Lift (m)	Flow rate (m ³ /h)	Weight (kg)	Dimensions (mm)	Water volume (l)
SCH-1500	Single phase 220V	1.6	4.5	R32	30	0.9	27	760×485×430	13
SCH-2000	Single phase 220V	2.5	5.6	R32	40	1.2	29	760×485×430	13
SCH-3000	Single phase 220V	3.9	7.3	R32	45	3	48	860×485×430	13

AUTOMATIC WIRE FEEDER

SF-HWM



- The single/double automatic wire feeder features a high-power four-wheel dual-drive system, adjustable feeding speed (25-600 cm/min) for smooth and stable feeding.
- The single feeder supports 0.8-1.6mm wire diameter; the double feeder supports 1.2mm, 1.6mm, and 2.0mm. Optional U-wheel with graphite tube for aluminum wire feeding.
- LCD display for intelligent control of feeding speed and wire retraction.

Supply voltage (v)	220±10%V AC 50/60HZ
Installation environment	Smooth, vibration-free and shock-free
Temperature (°C)	-10~40
Working environment humidity (%)	<70
Maximum welding wire weight	20KG
Maximum wire diameter	2.0mm

PACKING LIST

SF-HWM

Item	Specifications	Qty
Model	HWM	1
Argon meter adapter	5m 6mm air hose, 300mm 12mm air hose, 12-to-6 reducer	1
Protective lens	18*2	5
Fiber optic protective glasses	/	1
Maintenance tools	Hexagonal wrench, cross screwdriver, etc.	1
Power cable	5m	1
I/O automatic control cable	6m	1
QBH fiber protection sleeve	/	1
Stainless steel welding wire	ER304 1mm 1KG	1
Daily maintenance checklist	Documents	1
Welding copper nozzle	AS-12/BS-16/CS-12/ES-12/FS-16/C/AS-20D/cutting nozzle	8 (one of each model)
Wire feeding tube 1.6	Fe0816-5 7060	1
Wire feeding V wheel	V0.8/1.0	2
	V1.2/1.6	2 (4 for double wire feeder)
Power cable	/	1

PACKING LIST

SF-HWM

Item	Specifications	Qty
Single wire feeder		
Blue and white wire feeder (single)	SENFENG	1
Wire guide tube	Single wire feed (short)	1
Wire feeding tube	Single wire feed 1.6	1
Wire feeding fixture	Single wire feed	1
Wire feeding hose clamp	Wire feed hose end	1
Scale tube	FT80 (23T 150 for focusing)	1
Single wire guide nozzle	0.8/1.0/1.2/1.6	1
Double wire feeding copper nozzle	AS-20D (weld cleaning)	1
Double wire feed (including single wire feed accessories)		
Blue and white wire feeder (double)	SENFENG	1
Wire guide straight tube	100mm	1
Fixture mounting block	Double wire feed (short)	1
Double wire feed connection block	Double wire feed (long)	1
Double wire feed connection block (20S)	Double wire feed (spare)	1
Wire feed hose clamp	Wire feed hose end	1
Black wire feed tube	Fe0820-5	1
Double wire guide nozzle	1.2/1.6/2	6 (two of each)
Wire feeding V wheel	V2.0/2.5	4
Double wire feeding copper nozzle	AS-12D/AS-16D/AS-20D	6 (two of each)
Scale tube	FT125(23T 200 focus)	1

DELIVERY

SF-HWM



COST OF USE

SF-HWM

Item	1500W Nitrogen welding	2000W Nitrogen welding	3000W Nitrogen welding
Consumable parts(Yuan/H)	0.5	0.5	0.5
Gas consumption (continuous welding) (m³/H)	0.01	0.01	0.01
Total power (kW)	9	12	15
Total power consumption (assuming 60% welding efficiency) (kW/H)	5.4	7.2	9
Total operating cost (continuous welding) (Yuan/H)	11.9	13.7	15.5

Wearing parts list

Consumables



Protective lens

- Specifications: D18*2
- Qty: 10

Collimating lens

- Specifications: D16*5/F60
- Qty: 1

Focusing lens

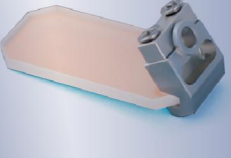
- Specifications: D20*4.5/F150
- Qty: 1

Focusing lens

- Specifications: D20*4.5/F200
- Qty: 1

Focusing lens

- Specifications: D20*4.5/F800
- Qty: 1



Reflector with bracket

- Specifications: M30*14 T2
- Qty: 1



Wire feeding copper nozzle

- Specifications: Full set
- Qty: 1

Wearing parts



Single wire guide nozzle

- Specifications: 0.8/1.0/1.2/1.6
- Qty: 1/1/1/1



Double wire guide nozzle

- Specifications: 1.2/1.6/2.0
- Qty: 1/1/1



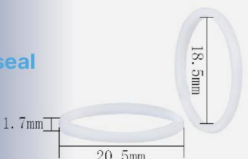
Bolt

- Specifications: M23*1
- Qty: 1



Graduated tube

- FT125/FT80



Spring energized seal

- Specifications: VS15*21*2.7



Seal

- Specifications: S18.5*20.5*1.7



1.6 wire feed tube

- Specifications: Fe0816-5 7060



Graphite wire feed tube

- Specifications: A10816-3 Graphite spring 3m



Wire feeder U-wheel

- Specifications: U1.2/1.6

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SENFENG

Provide Global Customers
with Metal Forming
Automation Solutions

Welding

Cutting Bending
Cladding Cleaning
Automation New Energy

Protective Kit

Laser-resistant protective clothing

Wear-resistant, heat-resistant,
and splash-proof, made from
high-quality cowhide and
stitched with Kevlar fire-resis-
tant thread.

CE full face helmet

**950-1100nm OD8+
DIN4 950-1100nm D LB7+
IR LB8 LP S CE**

CE certified, it effectively filters
1064nm pulse and 1080nm
continuous laser wavelengths,
with an adjustable headband for
comfort.

CE protective full-face shield

- 190-400nm OD6+ CE
- 800-1100nm OD6+ CE

Heat-resistant, wear-resistant, and insulated protective gloves

High-quality cowhide gloves,
laser-resistant, heat-resistant,
spatter-proof, with ergonomic design
and 3D tailoring for comfort.

CE protective glasses

- 900-1100nm OD6+ CE



SITE REQUIREMENTS

SF-HWM

No.	Item	Detail	Requirement	Note
1	Power supply	Three-phase five-wire voltage	380V $\pm$ 5%/50Hz/60A Ground resistance $\leq 4\Omega$	Optional 15KVA or 20KVA regulated power supply
2	Water	Used for water chiller	Distilled water/purified water	80L with conductivity of 30-50, pH neutral
3	Gas	Nitrogen or Argon	Air pressure output 0.2MPa Purity above 99.9%	Customer-prepared argon meter
4	Working environment	Temperature	-10-40°C	Antifreeze is needed in winter when the temperature is below freezing
		Humidity	Less than 70%	Pay attention to protection when replacing protective lenses
		Foundation	The ground is flat, without strong vibration and large amount of dust	
5	Plate	The surface is clean and rust-free to meet the national standard		Or in accordance with the Baosteel's factory standards
6	Welding wire	Stainless steel, carbon steel, aluminum welding wire	Welding wire weight $\leq 20\text{KG}$ Welding wire diameter $\leq 2\text{mm}$	For aluminum welding wire, it is recommended to use 5 series welding wire, such as 5356

Handheld Laser Welding Machines

SF-HWM Series Intelligent Water-cooling Handheld Laser Welding Machine

► Make Traditional Welding A Thing of Past



Laser Generator

- Adopt international famous brand
- Laser beam at high quality
- Quality control at high standards

Laser Welding Head

- AL alloy structure with the lighter weight
- Temperature sensing alarm available
- Take into account of welding, cutting, rust removal and weld seam cleaning

Water Cooling System

- Dual temperature and control
- Smart one-touch control
- Super-high heat transfer efficiency

I/O Autorun Interface

- One-touch interconnection with robot
- Make welding automation possible

Further Upgraded Structure

- 1.5-2mm thick metal plate
- Design in line with international standards
- Two-channel active heat dissipation

All-around Safety Protection

- Gas and lens monitoring
- Electricity and water separated, low voltage alarm
- All electric elements are imported from internationally renowned brands and featured by high quality and stability.

Handheld Laser Welding Machines

SF-HW Series Water-cooling Handheld Laser Welding Machine

► Weld at Express Speed



Laser Generator

- Adopt international famous brand
- Laser beam at high quality
- Quality control at high standards

Laser Welding Head

- Ergonomically plastic welding head
- Temperature sensing alarm
- 4 functions incl. welding, cutting, rust removal and weld seam cleaning

Water Cooling System

- Dual temperature and control
- Smart one-touch control
- Super-high heat transfer efficiency

Unique Structure

- 1-1.5mm thick metal plate
- Design in line with international standards
- Single-channel heat dissipation

3 Safety Protection Measures

- Lens monitoring
- Electricity and water separated
- All electric elements are imported from internationally renowned brands and featured by high quality and stability.

Handheld Laser Welding Machines

SF-S Series Intelligent Air-cooling Handheld Laser Welding Machine

► Small in Size but Rich in Functions



Air-cooling Laser Generator

- Self-developed product, even exposed to high temperature
- Fast to cool off pumping source

Laser Welding Head

- Temperature sensing alarm
- Handheld integrated single-swing welding gun
- 4 functions incl. welding, cutting, rust removal and weld seam cleaning

Air Cooling System

- Forced air cooling, much smarter
- Multi-channel heat dissipation, practical-oriented

I/O Autorun Interface

- One-touch interconnection with robot
- Make welding automation possible

Further Upgraded Structure

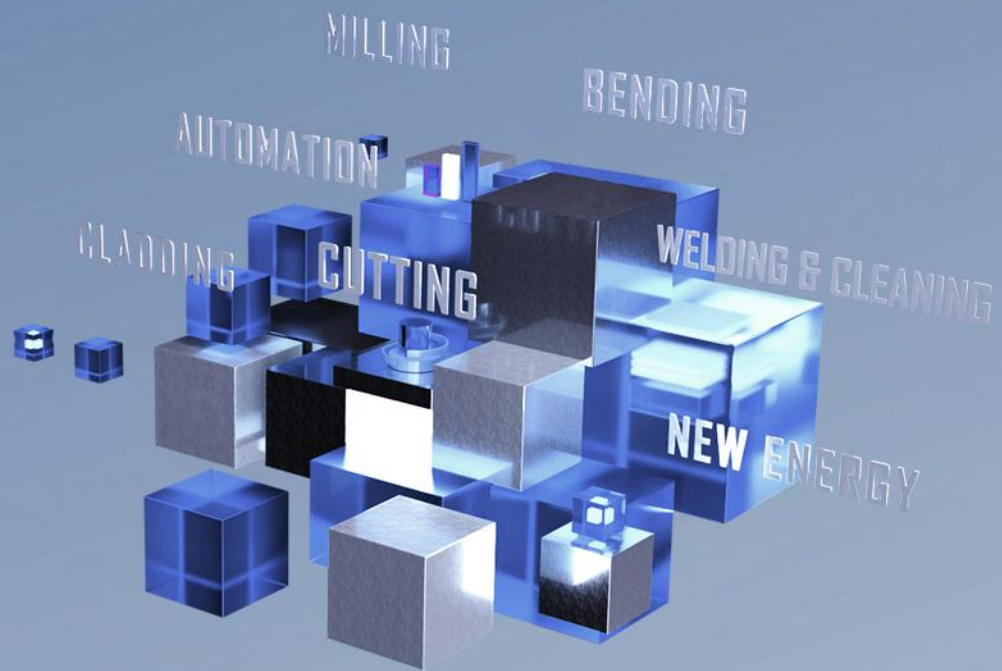
- Mini size, lightweight and portable
- 1.5-2mm thick AL alloy
- Compact structure in line with international standards

All-around Safety Protection

- Gas and lens monitoring, low voltage alarm
- All electric elements are certified by CE and imported from internationally renowned brands.

Providing Global Users with Automated Metal Fabrication Solutions

SENFENG provides automated metal fabrication solutions globally, integrating cutting, bending, welding, cladding, automation, and new energy. With core technologies in laser cutting, welding, and cladding, the company also offers intelligent manufacturing systems like flexible laser processing lines and sheet metal bending centers. These solutions serve industries including automotive, construction, energy, and petrochemicals, and are used in over 100 countries.



03

International PCT Patents

577

Chinese technology patents

SENFENG has developed key components like laser generators, processing heads, Feng Cloud systems, and CNC systems, used in cutting, welding, cladding, and automation. The company offers a complete industry chain, including laser cutting, welding, cladding, cleaning machines, bending centers, and flexible production lines. These solutions are used in sectors like power towers, construction machinery, shipbuilding, bridges, and aerospace, helping businesses accelerate production and reduce costs for greater economic benefits.

After-sales Service

Technical Training to enhance customer production efficiency

1 Before equipment delivery

The buyer can arrange for 1-2 operators to attend a one-week training at the SENFENG factory. The specific dates should be confirmed with our customer service department.

3 Training

The training includes laser principles, equipment structure, process explanation, equipment maintenance, laser safety protection, operating procedures, and basic troubleshooting.

2 During the warranty period

The buyer can apply for one more session of free training for 1-2 operators at SENFENG.

4 Requirement

Trainees must be mechanical, electrical, or optical engineers and pass assessments on equipment operation, laser principles, safety, and maintenance before starting work.

Packaging & Transportation to ensure equipment quality

1 Packaging

Standard packaging, suitable for long-distance transportation, moisture-proof, rust-proof, and shock-resistant. Designed for full lifting with marked lifting points and center of gravity.



2 Transportation

Domestic transportation within China is fully handled by our company, including freight and insurance.



3 Packing List & Certificate

Each package includes a packing list and certificate of conformity. The user manual and other documents are inside the box, while the packing list is on the outside.



Installation professional and high-quality

1 Installation

SENFENG engineers will install the equipment at the client's site.

3 Door-to-door training

On-site training will be provided on equipment maintenance, safety, operation procedures, and basic troubleshooting, with 7 days of guaranteed usage.

2 Equipment Debugging

After installation, the equipment will be debugged for client use.

4 On-site acceptance

After completing the above steps, the engineer may leave the site only after the customer's acceptance (the customer can veto).

After-sales Service

Premium Customization

In the digital era, intelligent transformation in metal processing is essential. Building unmanned factories is key to upgrading, with customized automation solutions being a top priority.

1

SENFENG understands the client's industry status and specific production processes, identifies issues, and assesses their needs.



2

Through in-depth on-site communication, customize metal fabrication automation solutions based on the client's pain points and needs.



3

A tailored solution, different from competitors' standardized models.



4

Provide a one-stop R&D and production service from design to final machine, with thorough quality checks until customer satisfaction and acceptance.



SENFENG

5-star Fast Service

Efficient

- Our repair hotline is available 24/7.
- A professional engineer will respond to customer inquiries within 10 minutes and provide a repair plan within 1 hour.



Professional

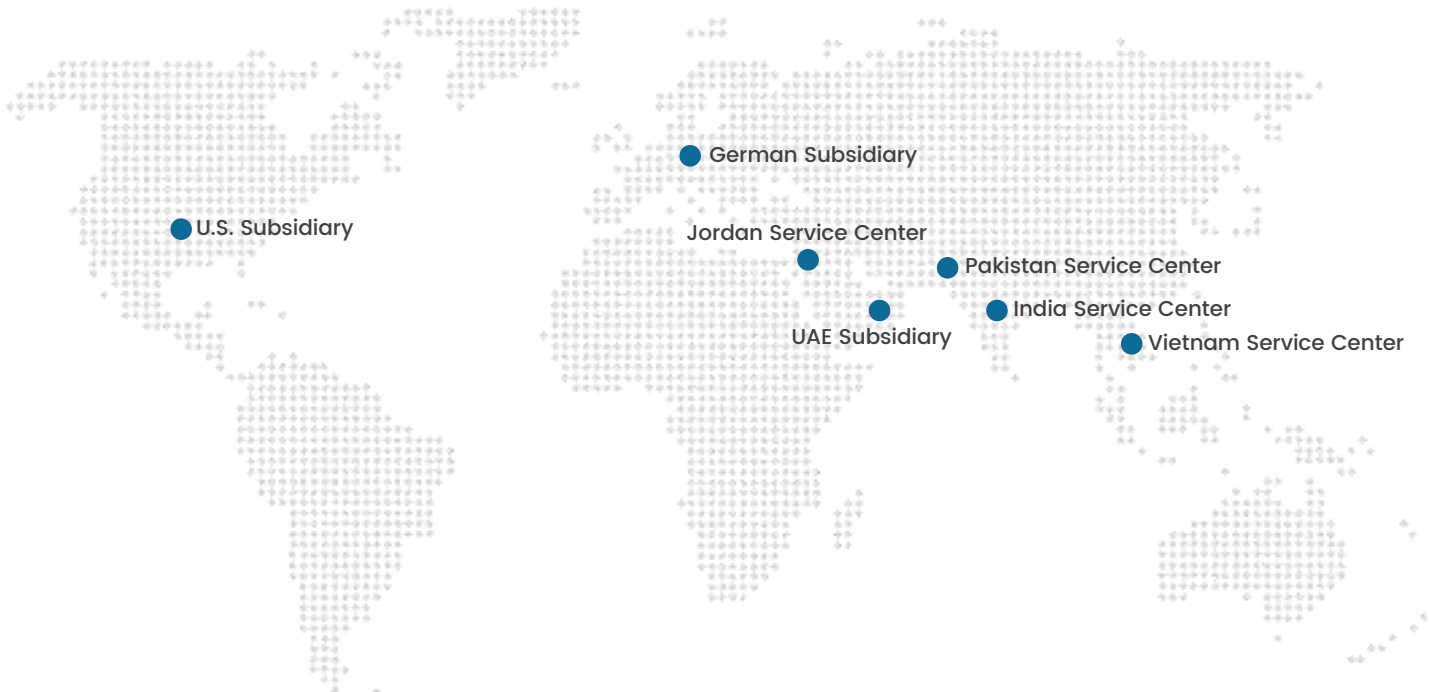
- **Custom Service:** Tailored service plans based on the specific needs of the customer.
- **Service Engineer Certification System:** Each service engineer undergoes rigorous training and assessment before being certified to work.
- **Common Issues Training:** Create a manual for common issues based on equipment models, with certified engineers providing customer training.
- **Online Guidance:** Experienced senior engineers offer support through phone or video calls to help customers resolve issues.
- **Professional Technical Support:** The equipment is properly calibrated during the first installation, and similar issues are resolved in one go.



Comprehensive

- **Pre-service:** Theoretical and hands-on operation training, common fault self-diagnosis training, quick repair guidance for troubleshooting, usage reminders.
- **Regular Service:** Regular maintenance reminders, on-site services, periodic promotional activities.
- **Value-added Service:** Equipment software and hardware upgrades, financing lease services, extended warranty services.





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