



SENFENG



SF-CMW Series

Collaborative Robot MIG/MAG
Welding Machine



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COMPANY PROFILE

COMPANY PROFILE

Craftsmanship and Intelligence for a Bright Future

Jinan Senfeng Laser Technology Co.,Ltd.



SENFENG is an international manufacturer committed to providing automated metal fabrication solutions to users worldwide. The company has independently developed several core technologies, including cutting, bending, welding, cladding, and automation, positioning itself as a technology-driven enterprise featured by the full laser industry chain.

SENFENG independently develops core components such as laser sources, laser heads, and control systems, producing a variety of laser automation equipment. This includes fiber laser cutting machines, laser welding machines, laser cladding systems, laser cleaning machines, coil-fed laser cutting machines, material warehouses, automatic loading and unloading systems, panel benders, and flexible production lines for laser processing. Our products are widely used in industries such as automotive, rail transit, construction machinery, aerospace, steel structure construction, elevator manufacturing, and sheet metal processing.

Arc Welding for Quality

MIG/MAG (350A/500A) Collaborative Robot Welding Machine

Low-spatter welding

One-stop solution

Inverter with multiple welding modes

Rich arc welding process package

Flexible installation for human-machine collaboration

Convenient and Efficient Drag-and-Drop Programming

Long Reach with Lightweight Design

Multiple control modes





EQUIPMENT INTRODUCTION

EQUIPMENT INTRODUCTION

CMW Series

3D Welding Technology



➤ Meet precision welding requirements

The robot offers high repeatability and precision, enabling it to perform high-precision tasks over extended periods. The handheld controller replaces the traditional teach pendant and provides key functions such as joint control, linear movements, arc and corner starting and stopping, and dragging. It is lightweight and portable, with a magnetic base for easy attachment.

➤ Capable of welding multiple workpieces

The welding platform features pre-positioned mounting holes, allowing the installation of a variety of fixtures, making it ideal for clamping complex workpieces.

➤ Mature welding technology

The powerful and comprehensive professional welding package offers a range of advanced welding processes. Years of proven welding expertise ensure high-quality welds across various materials.

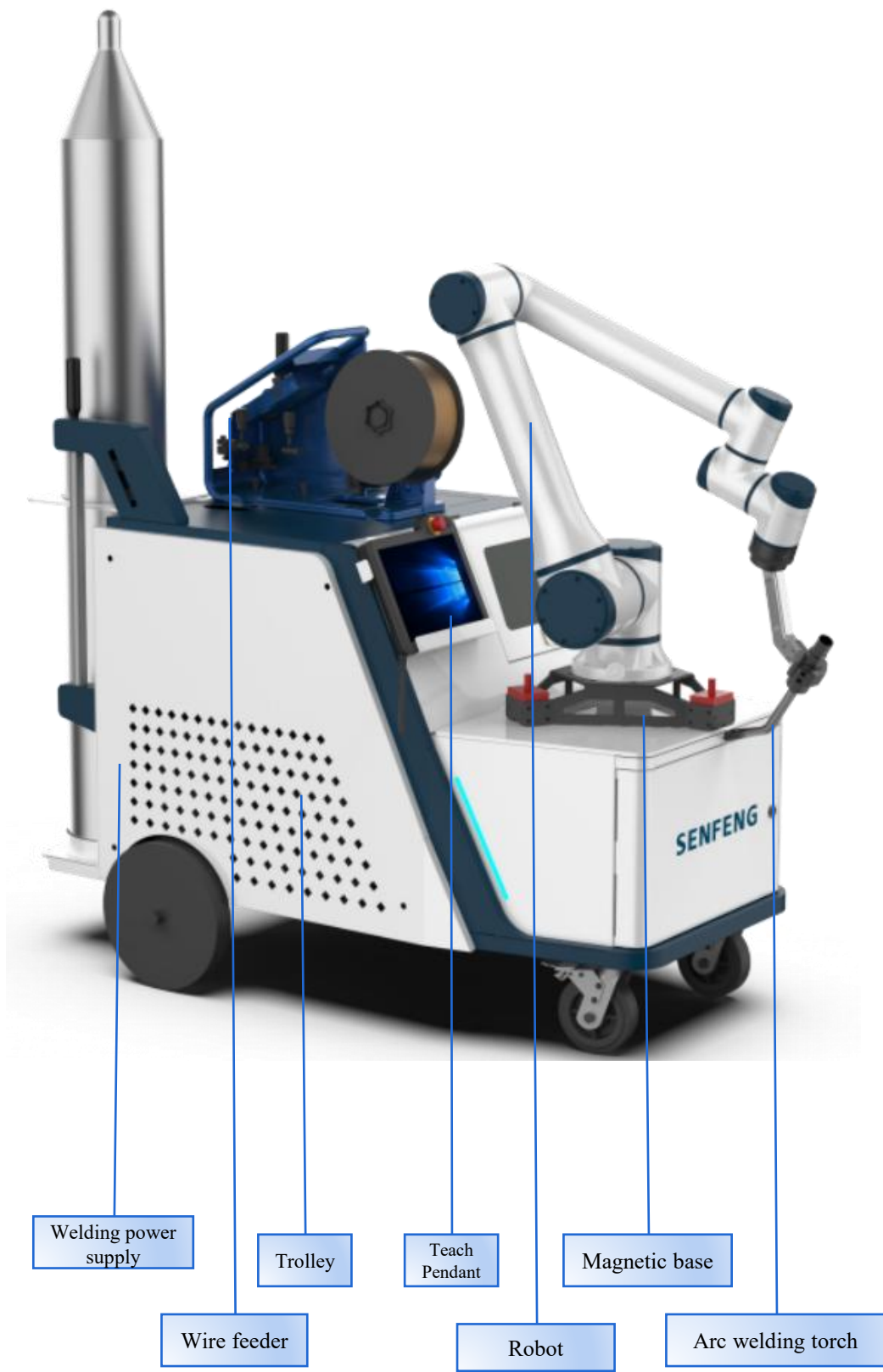
➤ 3D flexible platform

The 3D flexible platform is available in various models, enabling users to select the most suitable one based on the welding requirements of their workpieces.



EQUIPMENT INTRODUCTION

EQUIPMENT INTRODUCTION



Note: This introduction is for reference only; please refer to the actual product for details.



TECHNICAL PARAMETERS

TECHNICAL PARAMETERS

Model	SF-350CMW	SF-500CMW
Robot Arm Reach (End-Effector Load)	1077mm (7kg) 1460mm (6kg) 2000mm (6kg)	
Robot Arm Reach (Repeatability)	1077mm (± 0.02 mm) 1460mm (± 0.05 mm) 2000mm (± 0.05 mm)	
MIG/MAG Welding Machine	350A	500A
Welding Torch	Air-Cooled	Water-Cooled
Cooling Method	Air-Cooled	Water-Cooled
Robot Body Weight	Reach 1077mm (21kg) Reach 1460mm (22kg) Reach 2000mm (35kg)	
Power Supply	380V $\pm 10\%$, 50Hz ± 1	
Total Power Consumption	17kW	27kW
Equipment Weight	Reach 1077mm (220kg) Reach 1460mm (220kg) Reach 2000mm (240kg)	Gross Weight 300kg Gross Weight 300kg Gross Weight 350kg
Package Dimensions	1700 $\times$ 1150 $\times$ 1650(mm) 1077mm/1460mm 1700 $\times$ 1300 $\times$ 1650(mm) 2000mm	

Note:

1. This introduction is for reference only; please refer to the actual specifications.
2. The standard power supply is "50Hz"; please specify if "60Hz" is required.



ROBOT DEVICE ROBOT DEVICE



Features:

- ◆ Rated Load: 6 kg; Working Radius: 1460 mm; Tool Tip Speed: Up to 3000 mm/s
- ◆ The robot offers high repeatability, capable of long-duration, continuous high-precision work, significantly improving production yield.
- ◆ It supports multiple operation methods, including drag teaching, coordinate positioning, and route planning, with a visual interface that is easy to learn.

Collaborative Robot Model Selection

End-Effector Load	SFXC0907-A	SFXC1406-A	SFXC2006-A
Maximum Coverage	7kg	6kg	6kg
Repeated Positioning Accuracy	1077mm	1460mm	2000mm
Robot Body Weight	±0.02mm	±0.05mm	±0.05mm
Applicable Environment	21kg	22kg	35kg
End-Effector Load	For arc welding		

Features:

- Easy operation with frequently used buttons positioned at the front;
- Capable of drag teaching, point-to-point positioning, path planning, linear setting, arc setting, arc start, and arc stop;
- Lightweight design, suitable for handling tasks.



WELDING POWER SOURCE

WELDING POWER SOURCE

NBC 350RL Welding Machine

Features:

- ◆ Three welding modes: Low spatter, fast spot welding, and constant voltage.
- ◆ Achieves ultra-low spatter surface welding on 1-3 mm carbon steel, reducing welding spatter by 60%.
- ◆ Heat input reduced by 10% to ~2096 J/mm, making welding of thin plates easier to control with minimal distortion."
- ◆ Fully digital system enables precise control of droplet transfer, ensuring consistent and stable weld quality.
- ◆ Soft-switch inverter technology improves overall machine reliability and energy efficiency.
- ◆ Fully digital, high-precision wire feed control system: The two-drive, two-pull system with encoder ensures stable wire feeding, even when external factors like power supply voltage or wire feed resistance change.



Welding Machine Technical Parameters

Model	NBC 350RL
Rated Input Voltage/Frequency	Three-phase 380 $\pm$ 10%, 60/50Hz
Rated Input Capacity	14 kVA
Rated Output Current	350A
Rated Output Voltage	31.5V
Rated Duty Cycle	60%
Output Current Range	60A~350A
Output Voltage Range	17V~31.5V
Ambient Temperature	-10°C~40°C
Suitable Wire Diameter	Φ 0.8, Φ 1.0, Φ 1.2
Weight (kg)	55
Applicable Materials	Carbon steel, galvanized steel
CE Certification	CE certified (with robot)



WELDING POWER SOURCE

WELDING POWER SOURCE

NBC-500RP PLUS Welding Machine

Features:

- ◆ The inverter-based gas-shielded welding machine uses soft-switching inverter technology, significantly enhancing the reliability of the IGBT components.
- ◆ Offers multiple welding modes including pulse, fast pulse, deep penetration, constant voltage, and more. Customizable process modules can be developed according to customer requirements.
- ◆ Utilizes ultra-high inverter frequency, enabling real-time fine management of droplet energy, resulting in concentrated arc energy with high stiffness.
- ◆ Wide range of mixed gas compatibility, with improved consistency of long-stick current, and the arc-start mode can be freely switched.
- ◆ Newly designed dual closed-loop wire feed control system, paired with a high-torque permanent magnet motor, ensures precise and smooth wire feeding.
- ◆ Compatible with push-pull welding torches, eliminating the need to separately purchase expensive synchronizers.



Welding Machine Technical Parameters

Model	NBC-500 RP PLUS
Rated Input Voltage/Frequency	Three-phase 380 $\pm$ 10%, 60/50Hz
Rated Input Capacity	24 kW
Rated Output Current	500A
Rated Output Voltage	39V
Rated Duty Cycle	100%
Output Current Range	60A~500A
Output Voltage Range	17V~39V
Ambient Temperature	-10°C~40°C
Suitable Wire Diameter	Φ 1.0, Φ 1.2, Φ 1.4, Φ 1.6
Weight (kg)	55
Applicable Materials	Carbon steel, galvanized steel, stainless steel
CE Certification	CE certified (with robot)



WIRE FEEDER

ARC WELDING-WIRE FEEDER



Features:

- ◆ The robot wire feeder provides buttons for wire feeding, wire retracting, and gas detection functions.
- ◆ Code disk feedback and back electromotive force (EMF) feedback switching.;
- ◆ Optional push-pull welding torch interface.

The image is for reference only; please refer to the actual product.

Main Technical Specifications of Wire Feeder

No.	Item	Parameter Value	Unit
1	Wire Feeding Drive Control	Photoelectric encoder feedback + independent chip high-speed loop control, motor synchronous control; four-wheel wire feeding drive	
2	Wire Feeding Speed	0.8~24	mm/min
3	Wire Feeder Welding Torch Interface	Air-cooled welding torch (Japanese interface) / Water-cooled welding torch (European interface)	
4	Cooling Method	Air-cooled / Water-cooled	
5	Welding Torch	350A air-cooled/500A water-cooled	
6	Suitable Wire Diameter	350A(Φ0.8、φ1.0、φ1.2) 500A(Φ0.8、φ1.0、φ1.2、φ1.6)	mm

Note: This introduction is for reference only; please refer to the actual product for details.

WATER CHILLER WATER CHILLER



Water Chiller Appearance

Features:

- ◆ Constant control mode is adopted to ensure stable welding output and extend the service life of the welding torch.
- ◆ Standard configuration includes circulating cooling with heat dissipation and built-in alarm protection functions; compressor refrigeration is available as an optional configuration.
- ◆ Integrated design for convenient maintenance and servicing.

Main Technical Specifications of Water Chiller			
Standard Water Chiller		Optional Water Chiller	
Item	Value	Item	Value
Model	CWIN-5000 (6090)	Model	CWIN-5000G (6090)
Power Supply	220V 50Hz	Power Supply	220V 50Hz
Operating Current	0.4-1.2A	Operating Current	1.4-3.8A
Rated Power (kW)	0.4	Rated Power (kW)	0.478
Cooling Capacity (kW)	-	Cooling Capacity (kW)	0.692
Refrigerant	-	Refrigerant	R134a
Maximum Pump Head (m)	25	Maximum Pump Head (m)	25
Flow Rate (L/min)	10	Flow Rate (L/min)	10
Water Tank Capacity (L)	3	Water Tank Capacity (L)	3
Dimensions (mm)	485×305×218	Dimensions (mm)	485×305×218
Net Weight (kg)	11.6	Net Weight (kg)	17.6
Protection Functions	Water Flow Protection	Protection Functions	Water Flow Protection, High Water Temperature Alarm, Low Water Temperature Alarm, Compressor Overload Protection, High Ambient Temperature Alarm



AIR-COOLED /WATER-COOLED WELDING TORCH

AIR-COOLED /WATER-COOLED WELDING TORCH

Features:

- ◆ High reliability and durability.
- ◆ Easy to disassemble the neck, with quick replacement and maintenance.
- ◆ Automatic water stop function, no need to shut off the water pump when replacing the neck.
- ◆ Optional wire holding function for added convenience.
- ◆ High-quality protective sleeves and tubing, resistant to long-term fatigue and bending without damage.
- ◆ Multiple options for neck length, curvature, and nozzle style, with customization available based on requirements.
- ◆ For 350A welding machines, it is recommended to use an air-cooled welding torch, while for 500A welding machines, a water-cooled welding torch is recommended.



Main Technical Parameters for Robot-Specific Water-Cooled Welding Torch

No.	Item	Parameter Value	Unit
1	Cooling Method	Dual-water cooling (expandable to three-way cooling)	
2	Rated Current	CO ₂ 500A / MAG 450A	A
3	Duty Cycle	100	%
4	Wire Diameter	0.8~1.6	mm

Main Technical Parameters for Robot-Specific Air-Cooled Welding Torch

No.	Item	Parameter Value	Unit
1	Cooling Method	Air-cooled	
2	Rated Current	CO ₂ 350A / MAG300A	A
3	Duty Cycle	60	%
4	Wire Diameter	0.8~1.2	mm



EQUIPMENT INTRODUCTION

EQUIPMENT INTRODUCTION



Traditional Physical
Shortcut Keys (Standard)

Advanced and Clear
Touchscreen Shortcut
Keys (Optional)



Touchscreen Shortcut
Keys (Optional)





MOBILE TROLLEY MOBILE TROLLEY



Features:

- ◆ The mobile cart adopts a manual push design and is equipped with a braking function.
- ◆ Easy to move and operate, it is compatible with SF-XC1406, SF-XC0907, and SFXC2006-A models.
- ◆ The welding machine, water tank, wire feeder, gas cylinder, control cabinet, and robot are integrated into one unit, making on-site relocation convenient for customers.
- ◆ The cart dimensions are 1520 × 850 × 1130 mm, with a maximum load capacity of 240 kg.

ADVANCED TOUCH SCREEN BUTTON PANEL ADVANCED TOUCH SCREEN BUTTON PANEL (OPTIONAL)



Features:

- ◆ More user-friendly human-machine interaction with preset functions including joint positioning, linear positioning, arc positioning, arc start, arc stop, and undo operations.
- ◆ Displays alarm and fault information.
- ◆ Added control functions for wire feeding, wire retracting, TCP calibration, and fine adjustment.





3D FLEXIBLE PLATFORM

3D FLEXIBLE PLATFORM (OPTIONAL)



Features:

- ◆ The 28-diameter series platform has a hole center distance of 100 ± 0.03 mm between adjacent holes.
- ◆ The three-dimensional flexible platform is cast as one piece, with five sides machined and through-holes for versatility.
- ◆ The platform surface dimensions are as specified in the "Main Technical Specifications of the Three-Dimensional Flexible Platform". The height of the legs is 450 mm, and the total platform height is 650 mm.

Main Technical Specifications of the 3D Flexible Platform		
Code	Specifications (mm)	Net Weight (approx.) (kg)
TTK2810001	1000x1000x200	322.00
TTK2810003	1500x1000x200	483.00
TTK2810005	2000x1000x200	598.00



APPLICATIONS AND WELDING CAPABILITIES

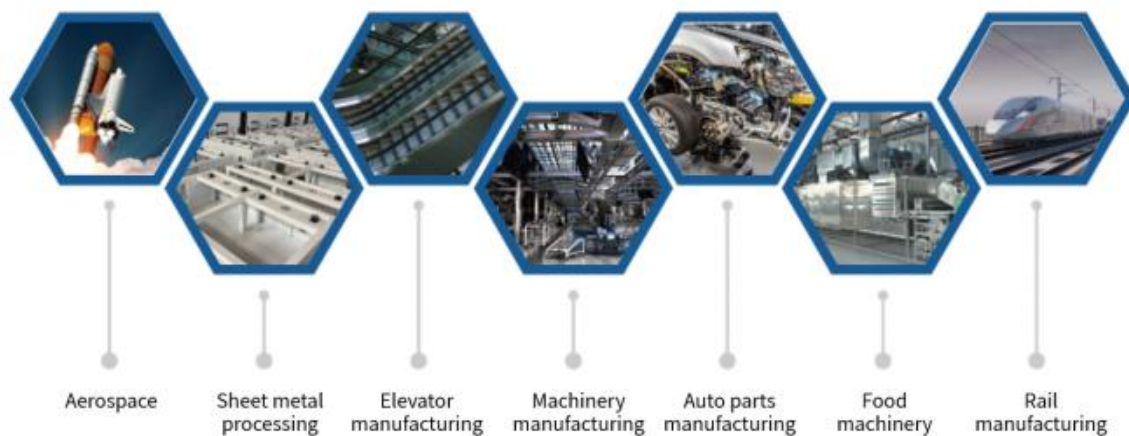
APPLICATIONS AND WELDING CAPABILITIES

- **Welding Materials**

Carbon steel, stainless steel, galvanized sheet, etc.

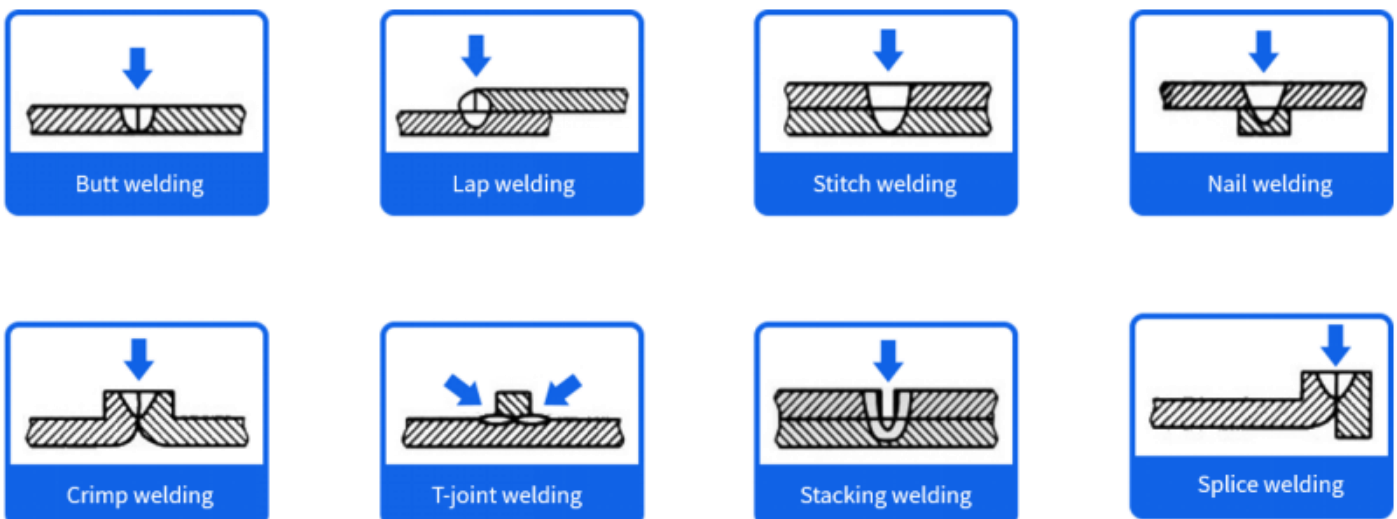
- **Applications**

Steel structures, machinery, automotive, pressure vessels, wind power, oil machinery, food machinery, decoration and advertising, etc.



- **Welding Method**

Note: Different methods may cause slight variations in parameters.



Note: This introduction is for reference only; please refer to the actual product for details.



CONFIGURATION LIST

CONFIGURATION LIST

No.	Item	Specification/Model	Quantity	Brand
Configuration List				
—	Standard Configuration			
1	Welding Robot (including main body, electrical cabinet, teach pendant)	SFXC0907-A SFXC1406-A SFXC2006-A	1	SENFENG
2	Welding Power Source	350A/500A	1	AOTAI
3	Welding Torch	Air-cooled/Water-cooled	1	Domestic
4	Robot Wire Feeder	Welding machine accessory	1	AOTAI
5	Chiller	CW-5000 (Standard for 500A, Optional for 350A)	1	SENFENG
6	Arc Welding System	Professional arc welding package	1	SENFENG
7	Magnetic Base	Not available for SFXC2006-A; standard configuration for the other two models.	1	SENFENG
8	Mobile Trolley	\	1	SENFENG
9	Other Accessories	\	1	SENFENG
10	Consumables	\	1	SENFENG
11	Certificate of Conformance	Standard	1	SENFENG
Note: 1. The welding torch in item 3 needs to be selected based on the requirement for either air-cooled or water-cooled. 2. The welding power source in item 2 should be selected based on brand preference. 3. For item 5, if using air-cooled, this item is not required.				
—	Optional Configuration			
1	3D Flexible Platform	\	1	SENFENG
2	Advanced Touchscreen Control Panel	\	1	SENFENG

Note

1. This configuration represents the most optimized setup validated by our company. Any changes in brand or configuration may lead to irreversible impacts. Please be advised.
2. The warranty period for the entire equipment (excluding consumables, wear parts, and factors such as non-force majeure natural disasters, wars, improper operation, and human damage) is one year.



CUSTOMER ONSITE REQUIREMENTS

CUSTOMER ONSITE REQUIREMENTS

No.	Item	Detail	Requirement	Remarks
1	Power supply	Three-phase five-wire voltage	380V $\pm$ 5%/50Hz/60A Ground resistance $\leq 4\Omega$	Select a stabilizer based on power
2	Water	Used for water chiller	Distilled water/purified water Antifreeze for winter	20L conductivity 30-50, pH neutral
3	Gas	Mixed gas	Argon 80%, Carbon dioxide 20%	Customer to provide argon regulator and 3-5 gas cylinders
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	Welding wire weight $\leq 20\text{KG}$ Welding wire diameter $\leq 2\text{mm}$	

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 panel benders. 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.

2 During the warranty period

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

3 Training

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

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.

2 Equipment Debugging

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

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.

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

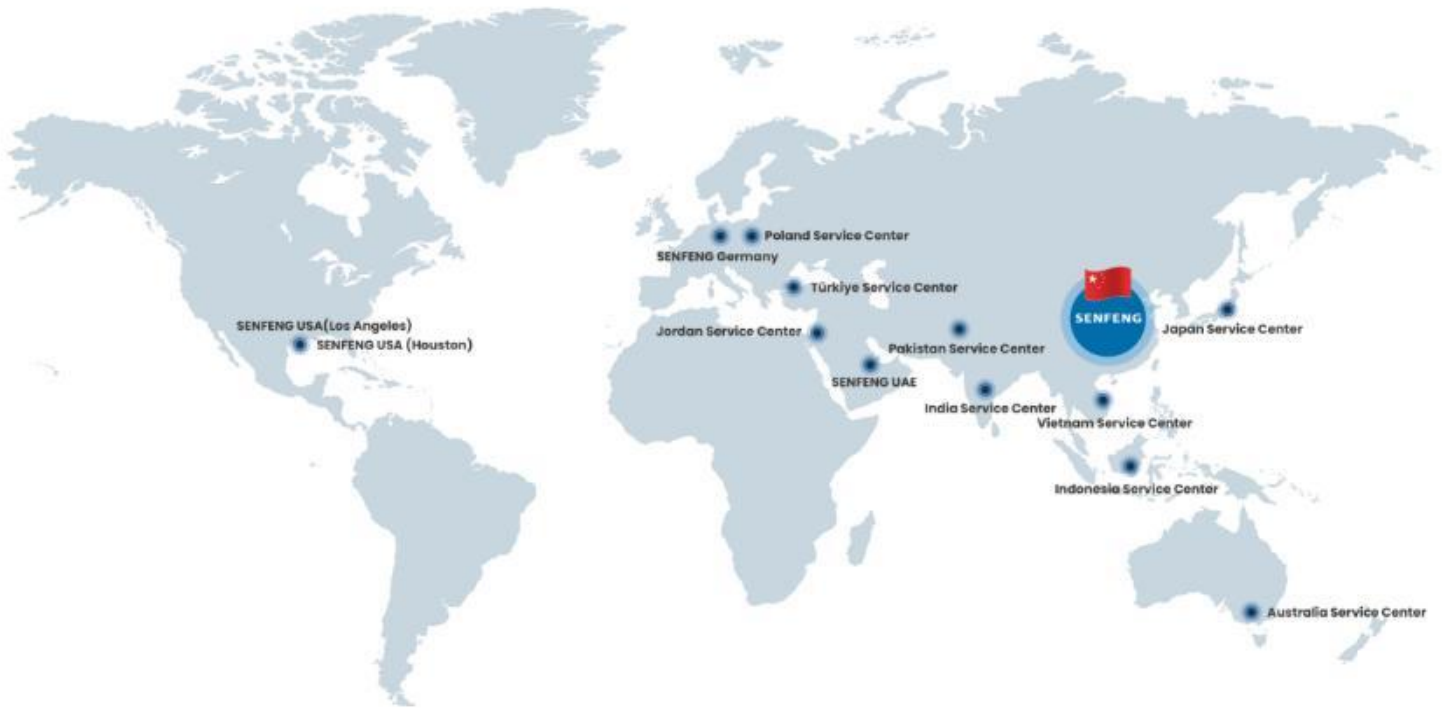
- **Custom Service:** Tailored service plans based on the specific needs of the customer.
- **Service Engineer Certification System:** Each service engineer undergoes rigorous training and assessment before being certified to work.
- **Common Issues Training:** Create a manual for common issues based 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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