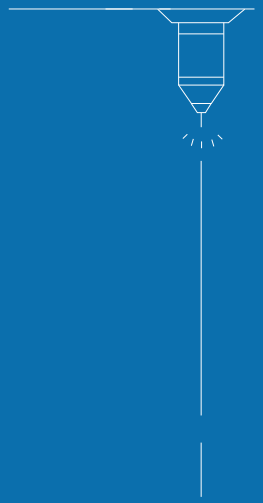
SENFENG

HOW TO SELECT YOUR LASER WELDING MACHINES

www.senfenglaser.com

Provide Global Customers with Metal Forming Automation Solutions

CONTENTS



1 **About Laser Welding**

Laser Welding Technology and Business Division

2 **Laser Welding Machines**

Specific Models, Competitive Strengths,
Technical Parameters and Specific Configurations

3 **Applicable Industries**

Practical Usage in Various Industries

4 **After-sales Service**

Quick-response Service and
Globe-spanning Service Outlets

About Laser Welding

Laser welding is acknowledged as one of the most appealing crafts in the world. The reason why it gains such recognition is that it makes use of high-energy laser beam to heat metal surface until workpiece melts with pre-defined molten pool, so that welding work is finished.

Featuring high-density energy, focusing property, deep penetration, high efficiency & precision, well-adapted ability and pleasing post-weld joints, laser welding can handle with various metals and outperform in welding quality, cycle time and manufacturing costs. In doing so, traditional welding has been significantly changed.

4

Kinds of Laser Welding Crafts

Laser Welding

For its part, laser is adopted as heat source. Thanks to its deep penetration, high precision, fast speed, low heat input and well-shaped finished products, it has emerged as one of the most efficient welding crafts all over the world.

Laser Filler Wire Welding

It carries out laser welding by using servo-driven, additional axis, dual-driven wire feeding and its weld seams are well-adapted, high-strength and fully-formed.

Laser Hybrid Welding

To weld red copper, brass, AL and other dissimilar metals, we adopt the hybrid welding technology composed of optical fiber and semiconductor or blue light to make the current laser welding better. It is pleasing in welding shape, high in quality and small in deformation.

Laser-arc Hybrid Welding

It has excellent performance and can weld thick sheets at high speed but with small deformation based on both laser energy (high-density energy, fast speed, deep penetration and small thermal deformation) and MIG high-pressure arc (high stability and ability of molten pool gap transition).

SENFENG Laser-arc Hybrid Welding Center

SENFENG, one of the earliest companies founding laser welding centers in China, is dedicated to the relevant R&D. Since the establishment, we always proceed from cutting-edge technologies and terminal customers while testing its materials required, welding patterns, crafts and applications in various industries as well as practical feasibility. In addition to free proofing, technical verification and post-weld detection, we can also offer turnkey welding solutions to our cooperative partners, with the purpose of becoming internationally famous laboratory and pushing forward the entire laser welding industry.

Up to now, there have been 4 categories/10+ kinds of laser welding machines like handheld laser welding, robot-assisted welding, laser cleaning and automatic cleaning devices. They are serving auto parts, rail transit, equipment manufacturing and medical instrument, and taking a road of extensive industrialization.

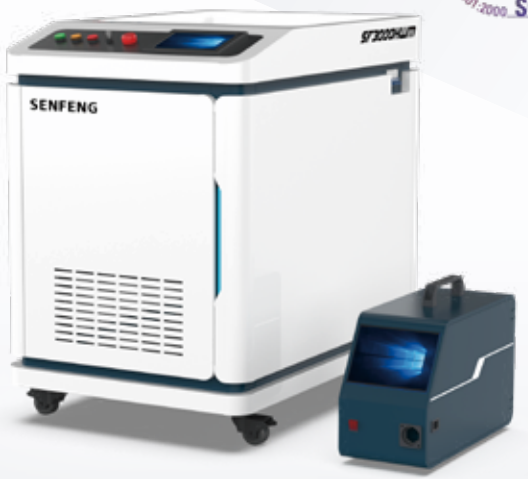
SENFENG Laser Welding Testing Laboratory

In the laboratory, a lot of testing devices are available, incl. tensile machine, metallographic microscope, metallographic sample polishing machine, metallographic sample pointing machine, friction wear testing machine, Vickers hardness tester and digital microscope. With these, laser welding detection can be conducted in time, accompanied by authoritative testing reports. Both new and regular customers will enjoy laser welding machines of high stability and excellent welding effects.

Handheld Laser Welding Machines

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

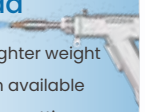
▶ Make Traditional Welding A Thing of Past



Laser Generator

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

Laser Welding Head

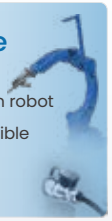


- AL alloy structure with the lighter weight
- Temperature sensing alarm available
- Take into account of welding, cutting, rust removal and weld seam cleaning

Water Cooling System

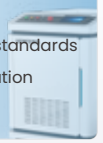
- Dual temperature and control
- Smart one-touch control
- Super-high heat transfer efficiency

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.

Technical Parameters

Laser power	1500W/2000W/3000W
Welding ability	≥4mm/5mm/7mm
Welding materials	Carbon steel, stainless steel, AL alloy, etc.
Machine size	954*715*1080mm
Models we recommend	SF1500HWM/SF2000HWM/SF3000HWM

* Machine appearance, function description and technical parameters on this page are derived from SENFENG's Technical R&D Center based on our self-developed machines. For reference only, in kind prevail!

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.

Technical Parameters

Laser power	1500W/2000W/3000W
Welding ability	≥4mm/5mm/7mm
Welding materials	Carbon steel, stainless steel, AL alloy, etc.
Machine size	968*660*826mm
Models we recommend	SF1500HW/SF2000HW/SF3000HW

* Machine appearance, function description and technical parameters on this page are derived from SENFENG's Technical R&D Center based on our self-developed machines. For reference only, in kind prevail!

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

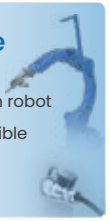
Laser Welding Head

- 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.

Technical Parameters

Laser power	800W/1200W/1500W
Welding ability	≥3mm/4mm/5mm
Welding materials	Carbon steel, stainless steel, AL alloy, etc.
Machine size	670*335*590mm
Models we recommend	SF3S/SF4S/SF5S

* Machine appearance, function description and technical parameters on this page are derived from SENFENG's Technical R&D Center based on our self-developed machines. For reference only, in kind prevail!

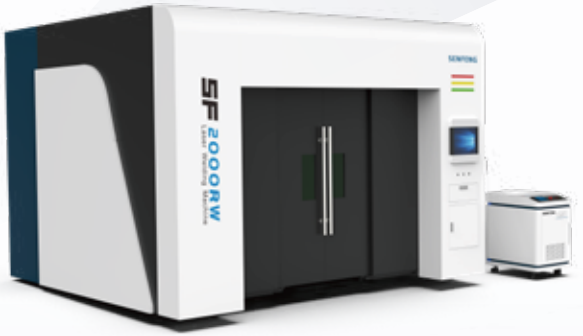
Robot-assisted Laser Welding Machines

SF-RW Series Robot-assisted Laser Welding Machine

▶ 360° Welding at High Quality

Vertical Robot-assisted Laser Welding Machine

Gantry Robot-assisted Laser Welding Machine



Fully-protected Robot-assisted Laser Welding Machine

3 Competitive Strengths

- High-performing robot
- Nice-looking and traceable weld seams
- Flexible work and mass production

Technical Parameters

Laser power	1500W—20000W
Arm span of robot	1831mm
Welding materials	Carbon steel, stainless steel, AL alloy, etc.
Welding penetration	0.5-10mm

* Machine appearance, function description and technical parameters on this page are derived from SENFENG's Technical R&D Center based on our self-developed machines. For reference only, in kind prevail!

Robot-assisted Laser Welding Machines

SF-CRW Series Robot-assisted Laser Welding Machine

▶ Search for High Precision and Cost Performance

When it works, workpiece will be melted with specific molten pool by controlling main parameters like laser power, swing width and frequency.

Our homegrown high-performing welding robot works with mechanical swing welding head and offers weld seam tracking craft as optional function. When welding location changes, the head will be horizontally adjusted, so that even high-reflectivity materials are also welded at high quality.

3 Competitive Strengths

- Take a stabler control of system software
- Work with CCD to monitor weld seams in real time
- Easy to operate and learn

Technical Parameters

Laser power	1500W—6000W
Arm span of robot	1730mm
Welding materials	Carbon steel, stainless steel, AL alloy
Welding penetration	0.5-6mm

* Machine appearance, function description and technical parameters on this page are derived from SENFENG's Technical R&D Center based on our self-developed machines. For reference only, in kind prevail!

Robot-assisted Laser Welding Machines

SF-CW Series Collaborative Robot-assisted Laser Welding Machine

▶ Man-machine Interaction for High Precision

With visual interface, the robot is easy to learn and workers may control it by towing demonstration, coordinate setting, path planning or offline programming. Thanks to the high repositioning accuracy, it can weld workpieces at high precision for a long time.

When it comes to air-cooling handheld laser welding machine, its welding gun head permits quick disassembly and hand welding of specific weld seams. In a word, it is easy to use for workers.

3 Competitive Strengths

- Easy to tow for demonstration
- Smart welding at a high degree of flexibility and stability
- Work with 3D flexible workbench

Technical Parameters

Laser power	800W—1500W
Arm span of robot	1350mm（optional）
Welding materials	Carbon steel, stainless steel, AL alloy
Welding penetration	SF800CW/SF1200CW/SF1500CW

* Machine appearance, function description and technical parameters on this page are derived from SENFENG's Technical R&D Center based on our self-developed machines. For reference only, in kind prevail!

Robot-assisted Laser Welding Machines

SF-RMW Series Robot-assisted Arc Welding Machine

▶ Weld Thick or Thin Sheet With Low Spatter

The robot moves fast and links up with other procedures smoothly. As thus, thin sheets are welded with ultra-low spatter.

As for thick sheets, its welding is featured by high stability, deep welding penetration, low heat input and nice-looking fish scales. Because of its smooth short-cut transition craft, the weld bead looks uniform and sightly.

3 Competitive Strengths

- Technically mature arc welding robot
- Weld at high precision
- Uniform and sightly weld bead

Technical Parameters

Rated output current	350A/500A
Welding materials	Carbon steel, stainless steel, fillet weld/overlap butt, butt/T-shaped welding
Models we recommend	SF350RMW/SF500RMW

* Machine appearance, function description and technical parameters on this page are derived from SENFENG's Technical R&D Center based on our self-developed machines. For reference only, in kind prevail!

Robot-assisted Laser Welding Machines

SF-CMW Series Collaborative Robot-assisted Arc Welding Machine

▶ Man-machine Interaction at High Efficiency

With high repositioning accuracy, the robot can work at high precision for a long time. In our rich-content arc welding package, a sea of hi-end welding crafts are available. Based on our richness of experience over the years, different metals can be welded at high quality. 3D flexible workbench of different types give users a free hand as the case may be.

3 Competitive Strengths

- Easy to tow for demonstration
- Weld at high precision
- Work with 3D flexible workbench

Technical Parameters

Rated output current	350A/500A
Welding materials	Carbon steel, stainless steel, fillet weld/overlap butt, butt /T-shaped welding
Models we recommend	SF350CMW/SF500CMW

* Machine appearance, function description and technical parameters on this page are derived from SENFENG's Technical R&D Center based on our self-developed machines. For reference only, in kind prevail!

Laser Cleaning Machines

SF-HC Series Handheld CW Laser Cleaning Machine

▶ Easy to Operate and Work at High Efficiency

Laser cleaning means that high-power high-density laser beam irradiates on workpiece surface, then, dirt, rust or coating vaporizes or peels off instantly.

While removing oil paint, stains, dirt, iron rust, coating, etc., it is easy to operate and requires no chemical reagent, mediator, dust nor clean water, except for power on.

4 Competitive Strengths

- Technically mature laser cleaning head
- Put gun head temperature under real-time monitoring
- Easy to operate and work at high efficiency
- Retrieve technical parameters in real time

Technical Parameters

Laser power	1500W—3000W
Cleaning mode	Contact-free laser
Cleaning materials	Oil, rust, paint, etc.
Models we recommend	SF1500HC/SF2000HC/SF3000HC

* Machine appearance, function description and technical parameters on this page are derived from SENFENG's Technical R&D Center based on our self-developed machines. For reference only, in kind prevail!

Laser Cleaning Machines

SF-HC Series Handheld Pulsed Laser Cleaning Machine

This new generation of surface treatment machine is easy to install and operate. Cleaning automation is also made possible. Now, we can offer handheld and portable pulsed laser cleaning machines.

While removing oil paint, stains, dirt, iron rust, coating, etc., it requires no chemical reagent, mediator, dust nor clean water, except for power on.

Easy to Operate and No Harm to Substrate

4 Competitive Strengths

- Technically mature laser cleaning head
- 8 kinds of cleaning modes
- Easy to operate and work at high efficiency
- 10 safety alarm protection systems

Small in Size and No Worry about Cleaning Effects

4 Competitive Strengths

- Technically mature laser cleaning head
- Air cooling, feel at ease even under high temperature
- Mini size at industrial style
- Quality cleaning at high precision

Technical Parameters

Model Laser power	SF-HC Series Handheld Pulsed Laser Cleaning Machine 500W—1000W	SF-HC Series Portable Pulsed Laser Cleaning Machine 200W—300W
Cleaning mode Cleaning materials	Contact-free laser Oil, rust, paint, etc.	
Models we recommend	SF500HC, SF1000HC	SF200HC, SF300HC

* Machine appearance, function description and technical parameters on this page are derived from SENFENG's Technical R&D Center based on our self-developed machines. For reference only, in kind prevail!

Laser Cleaning Machines

SF-HCR Series Robot-assisted CW Laser Cleaning Machine

▶ 360° Cleaning and Easy to Work at High Precision

Through demonstration or offline programming, it can remove oil paint, stains, dirt, iron rust, coating, etc. but require no chemical reagent, mediator, dust, nor clean water, except for power on.

Its single-swing cleaning head, with large depth of focus, is compatible with F400/F600/F800 focusing lens, of which max cleaning width reaches up to 300mm. Hence, large-format cleaning is made possible at high efficiency in various complex scenes.

4 Competitive Strengths

- Single-swing cleaning head with large depth of focus
- Stable output of laser cleaning beam
- Smart one-touch control
- Clean in large format

Technical Parameters

Laser power	1500W—3000W
Cleaning mode	Contact-free laser
Cleaning materials	Oil, rust, paint, etc.
Models we recommend	SF1500HCR, SF2000HCR, SF3000HCR

* Machine appearance, function description and technical parameters on this page are derived from SENFENG's Technical R&D Center based on our self-developed machines. For reference only, in kind prevail!

Laser Cleaning Machines

SF-HCR Series Robot-assisted Pulsed Laser Cleaning Machine

▶ High Degree of Automation and High Efficiency

Through demonstration or offline programming, it can remove oil paint, stains, dirt, iron rust, coating, etc. but require no chemical reagent, mediator, dust, nor clean water.

Its double-swing cleaning head supports laser spots in 8 shapes like straight line and circular form. This model, with evenly cleaning effects and high efficiency, is ideally fit to various complex scenes.

4 Competitive Strengths

- Double-swing cleaning head
- 8 kinds of laser spots
- Easy to operate
- Keep cleaning effects even and stable

Technical Parameters

Laser power	200W—1000W
Cleaning mode	Contact-free laser
Cleaning materials	Oil, rust, paint, etc.
Models we recommend	SF200HCR/SF300HCR/SF500HCR/SF1000HCR

* Machine appearance, function description and technical parameters on this page are derived from SENFENG's Technical R&D Center based on our self-developed machines. For reference only, in kind prevail!

3D Laser Cutting Machines

SF-RC Series Robot-assisted Laser Cutting Machine

▶ 3D Cutting at High Precision

Owing much to anti-collision and anti-winding functions, its 3D laser cutting head can reset rapidly in case of any collision during cutting, and prevent cable winding to the utmost extent while cutting in different angles or shapes.

In order to rapidly cut large-format 3D workpiece at high precision, we combine gantry-type structure, FANUC robot with light-weighted 3D cutting head. As for the robot, arm span reaches up to 1853mm.

Vertical Robot-assisted Laser Cutting Machine

Gantry Robot-assisted Laser Cutting Machine

Fully-protected Robot-assisted Laser Cutting Machine

4 Competitive Strengths

- Electromagnetic anti-collision device for much safer work
- 360° anti-winding function
- High-precision robot available
- High adaptability

Technical Parameters

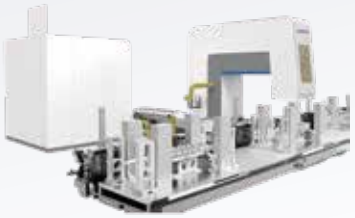
Laser power	2000W—6000W
Arm span of robot	1853mm
Cutting materials	Carbon steel,stainless steel, AL alloy, brass, etc.
Cutting thickness	0.5-16mm

* Machine appearance, function description and technical parameters on this page are derived from SENFENG's Technical R&D Center based on our self-developed machines. For reference only, in kind prevail!

Automatic Laser Welding Machines

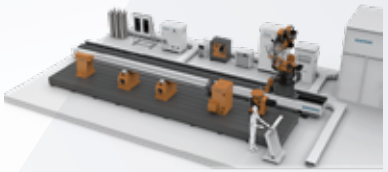
Laser Welding Automation Production Line

Fully Automatic Welding Production Line for Auto Parts



Online Pipe Laser Welding System

Flexible Robot-assisted Laser Cutting & Welding System



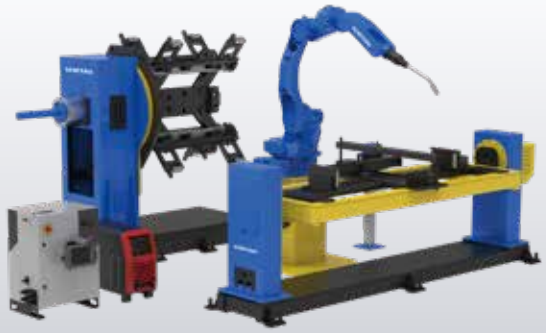
Automatic Metal Plate Laser Welding System

Large Sheet Laser Welding System

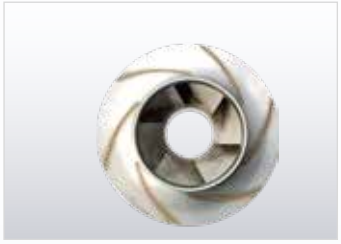
Laser Welding Automation Production Line for Wheel Hubs

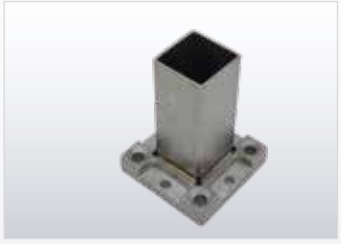
Laser Welding Automation Production Line for New Energy

Arc Welding Automation Machine for Transformer



Laser Welding Samples





Applicable Industry

Aerospace

Auto parts

Chassis cabinet

Safety door

Engineering machinery

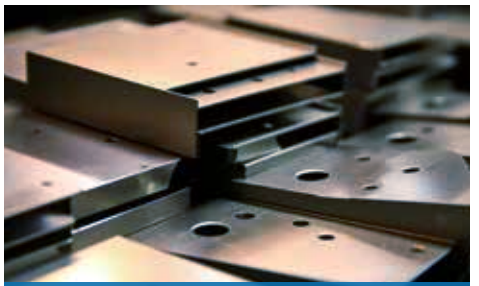
New energy

Kitchenware and sanitary wares

Machinery production

Office furniture

Medical instrument


Metal plate machining

Mold making

After-sales Service

Quick-response Service

High Efficiency

Answer your repair calls for 24*7*365 days

Technical engineers can diagnose your machine within 10min, make repair plans within 1h and dispatch to your location within 1 workday after receiving your request for repair.

Craftsmanship Spirit

Provide custom-made solutions and make well-targeted plans as the case may be

Engineer certifications: Our all engineers take appointment with certificate after strict training

Train how to fix your FAQ: Collect FAQ and ask the certified engineers to train relevant customers

Online one-to-one guidance: Senior engineers guide customers to get problems solved through phone, video or other online means.

One time is enough: Commission the machine and settle similar matters only once

For Your Peace of Mind

Pre-arrival service: Train in technical theory, actual operation and troubleshooting at great length

Regular service: Reminder of maintenance, door-to-door and sales promotion service

Value-added service: Software & hardware upgrade, finance leasing and further extension of warranty period

Uphold the Spirit of Craftsmanship to

Make Our Future Smarter

Jinan Senfeng Laser Technology Co., Ltd.

No. 1777 Kejia Road, High-tech Zone, Jinan City, Shandong Province, PRC

+86 132 1054 6543 senfeng@sfcnclaser.com

www.senfenglaser.com

Germany Subsidiary
Add: Oberer Westring 33, 33142 Büren, Germany

USA Subsidiary
Add: 5989 Rickenbacker Road, Commerce CA90040

UAE Subsidiary
Add: Al Sajaa Industrial-Al Jlail-Sharjah-UAE

Pakistan Service Center
Add: Dullukhur metro station 26 Ferozpur road, Lahore

India Service Center
Add: Plot no 4/09, survey no-519, TSIIC, ip nadergul, hyderabad

Vietnam Service Center
Add: K13 Ngã 3 NgọcHồi Xã Ngũ Hiệp Huyện Thanh Trì Hà Nội

Jordan Service Center
Add: Amman-Sahab-Alazraq highway

Note: The pictures and parameters in the album are for reference only, and the actual product shall prevail. Printed in Jan.2025