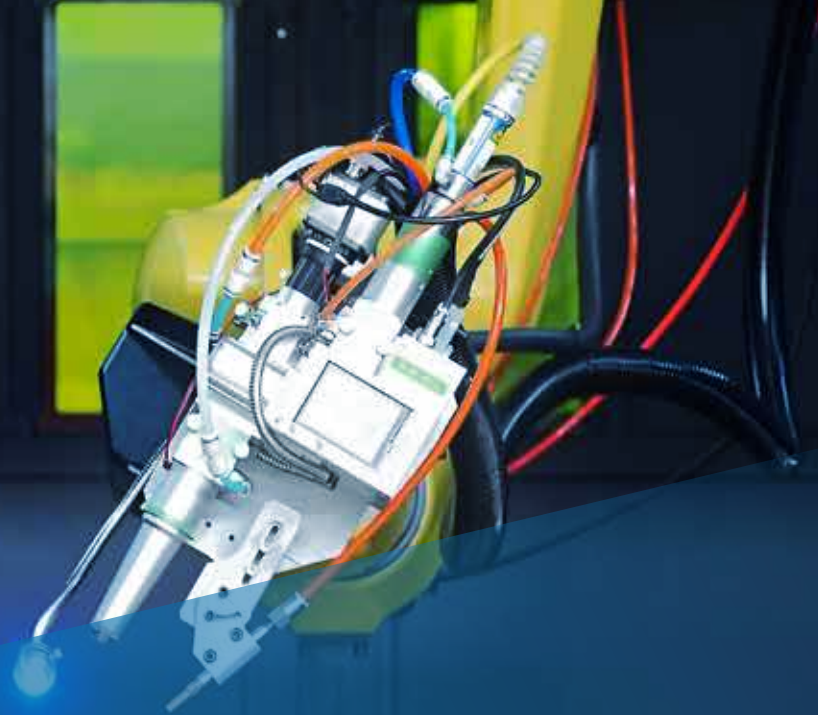


SENFENG



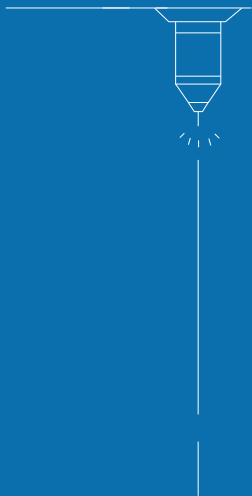
HOW TO SELECT YOUR LASER WELDING MACHINES

www.senfenglaser.com



Provide Global Customers with Metal
Forming Automation Solutions

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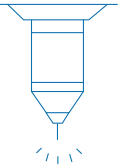
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About Laser Welding

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 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 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-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

- 5% power redundancy
- 0 laser attenuation within 2 years
- *CE-certified model within international warranty



Laser Welding Head

- Dual protective lens
- Temperature sensing alarm
- Integrated handheld welding gun



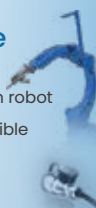
Water Cooling System

- 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

- Dual protective lens, phase sequence 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	865*690*920mm
Models we recommend	SF1500HW/SF2000HW/SF3000HW

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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



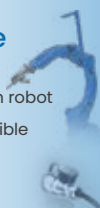
Air Cooling System

- 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

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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

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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

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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

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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

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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

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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

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

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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

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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

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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

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Automatic Laser Welding Machines

Laser Welding Automation Production Line



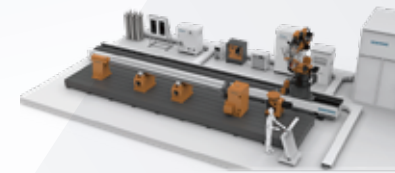
Fully Automatic Welding Production Line
for Auto Parts



Online Pipe Laser Welding System



Flexible Robot-assisted
Laser Cutting & Welding System



Automatic Metal Plate Laser Welding System



Large Sheet Laser Welding System

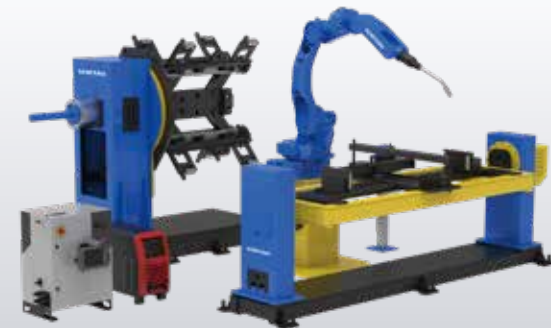


Laser Welding Automation Production Line for Wheel Hubs

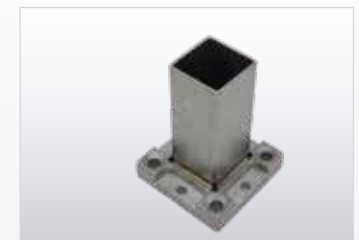
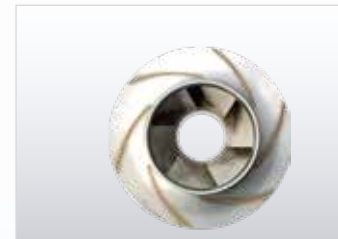
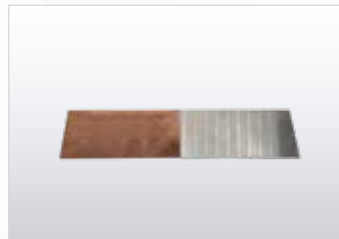
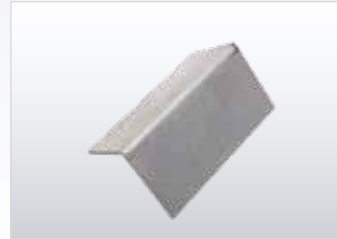
Laser Welding
Automation Production Line
for New Energy



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

