

# SIASUN

WELDING&CUTTING ROBOTS

Medium and Heavy Plat



## SIASUN

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***High quality, low repair***

The robot intelligent welding and cutting system has high applicability to complex and changeable environments, guarantees the welding quality, saves working time, and reduces the repair rate of the workpiece.

***High efficiency and high applicability*** improve the adaptability of robots to complex and changeable environments, solve technical problems, ensure welding quality, improve production efficiency, reduce operating costs, and work with customers to create brilliant corporate brands

***Diversity welding***

fusion of sensory information, empirical knowledge, reasoning and judgment, welding process control, data processing and other professional technologies to meet the quality and diversity requirements of welding production.

***Rich engineering experience***

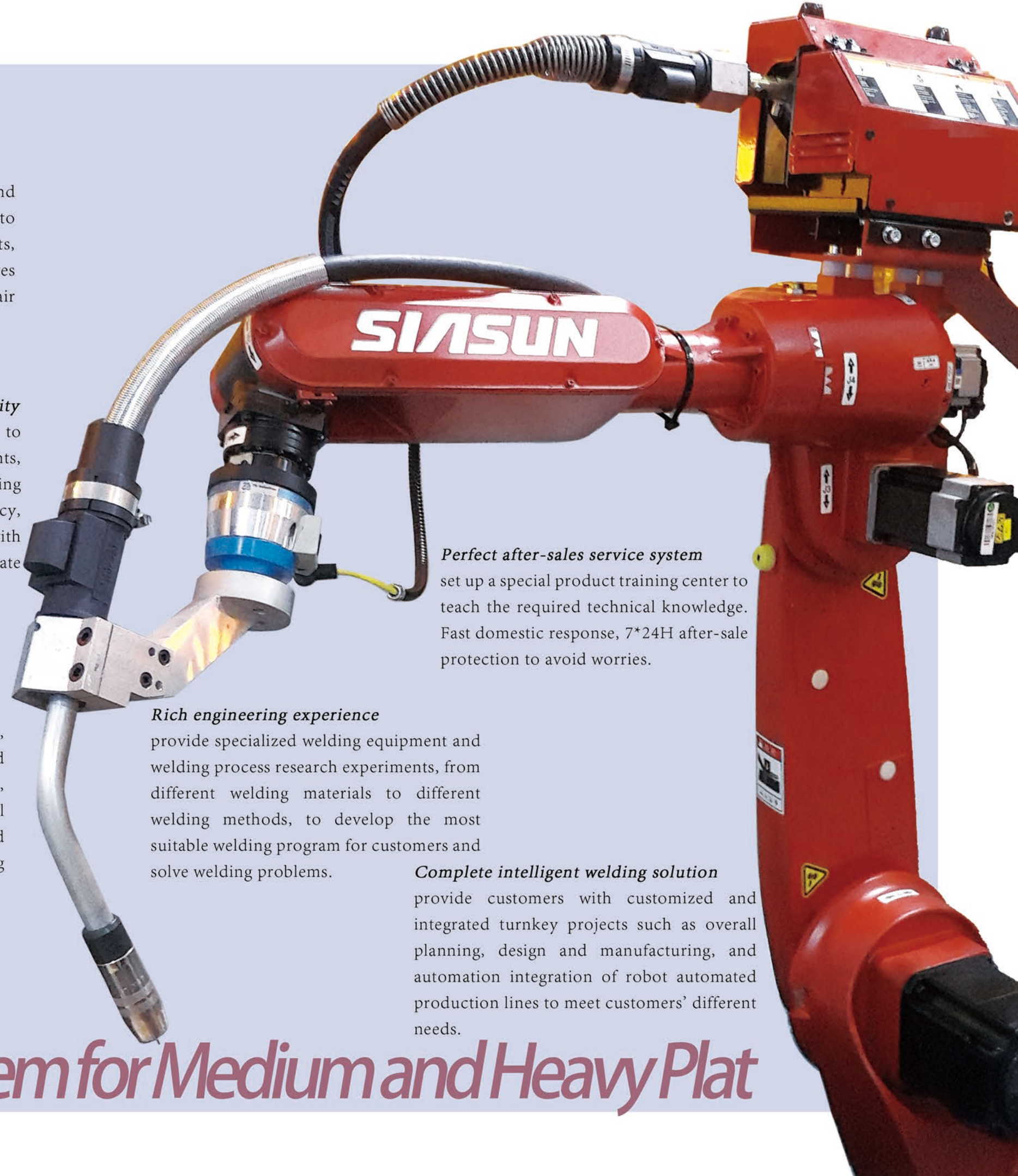
provide specialized welding equipment and welding process research experiments, from different welding materials to different welding methods, to develop the most suitable welding program for customers and solve welding problems.

***Perfect after-sales service system***

set up a special product training center to teach the required technical knowledge. Fast domestic response, 7\*24H after-sale protection to avoid worries.

***Complete intelligent welding solution***

provide customers with customized and integrated turnkey projects such as overall planning, design and manufacturing, and automation integration of robot automated production lines to meet customers' different needs.



**SIASUN**

***Welding and Cutting System for Medium and Heavy Plat***



# SIASUN Welding robot system for medium and heavy plate

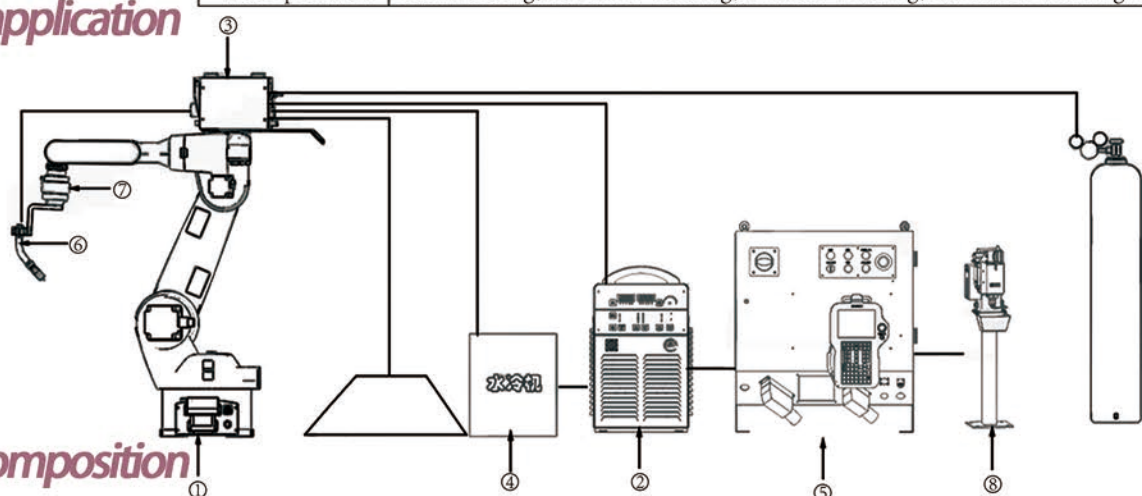
Introduce the world's most advanced supporting products, strategic technical cooperation  
According to the process requirements and customer's needs, welding equipment of various brands can be configured.

## 一、Welding robot system for plate

### 1 Scope of application

Project	Specification
Material	Carbon steel, low alloy steel, stainless steel, aluminum alloy, etc.
Plate thickness	4.5-100mm
Bevel shape	V type, single V type, U type
Connector form	Butt joint, overlap joint, corner joint, T type
Weld position	Flat welding, flat fillet welding, vertical welding, elevation welding etc.

### 2 Standard system composition



① Robot ② Welding power ③ Wire feeder ④ Water machines ⑤ Controller ⑥ Wire gun ⑦ Anti-collision sensor ⑧ Cleaning station



### 3

#### Robot product series

Type	SR7CL	SR10C	SR10AL	SR10C-7H
Repeatability	± 0.02mm	± 0.05mm	± 0.05mm	± 0.05mm
Reach	906mm	1393mm	1957mm	2493mm
DOF	6	6	6	7
Payload	7kg	10kg	10kg	10kg
Body Weight	49kg	160kg	280kg	450kg
Power	1.3KVA	1.5KVA	3KVA	5KVA
Installation	Multi-angle installation, floor-mounted, inverted-mounted, side-mounted, etc.			

### 4

#### Welding power



SIASUN is willing to combine with all mainstream welding power sources to provide users with more choices. According to the actual process needs of customers, choose the most suitable welding and cutting equipment. The power sources currently available for the use of SIASUN robots are: Lincoln, Magmett, OTC, Lechi, Fornis, Issa, Miller, Kenby, Migamik, Aotai

### 5

#### Additional configuration

Any welding gun used by SIASUN robot will provide anti-collision sensor to prevent unpredictable collision and other factors during use to cause the welding gun position change and teaching point shift

□welding gun, anti-collision sensor and automatic cleaning device



### 6

#### Cutting power



SIASUN robot supports various mainstream welding and cutting equipment, and can realize various cutting processes such as flame cutting, plasma cutting, etc.

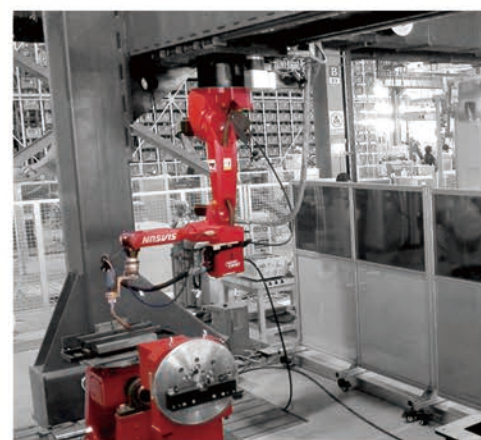
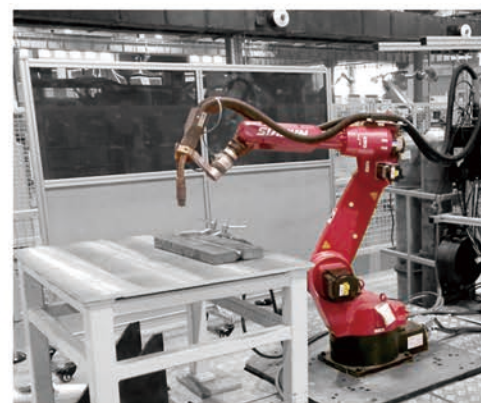
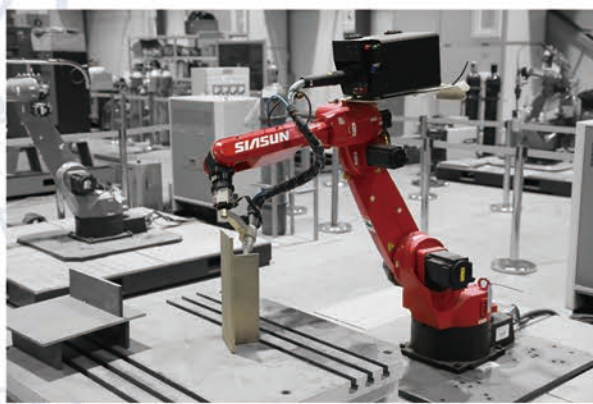
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独家全面兼容



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### Welding station

SIASUN has a welding laboratory with a variety of equipment, advanced functions and a high degree of automation. Specializing in testing and research of welding equipment, welding process and so on. From different welding materials to different welding methods, we can solve welding problems for customers.

## 二、Robot welding laboratory

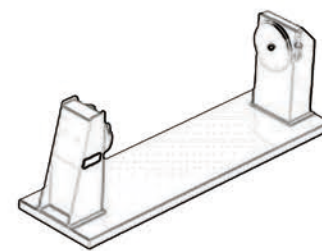
## 三、Peripheral device

SIASUN can provide a variety of standard and non-standard positioners, supports, slides and robots to coordinate the work, increasing the weldable space of the robot, responding to complex and diverse welding seam forms, thus to guarantee welding speed and welding posture, provides higher welding quality, and meets the needs of different users.

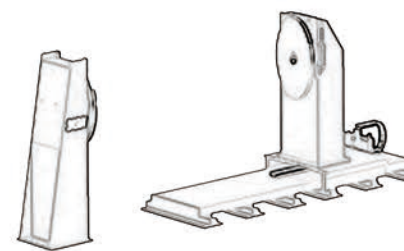
### Positioner

Fixed stroke head and tail rack positioner

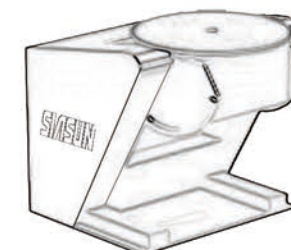
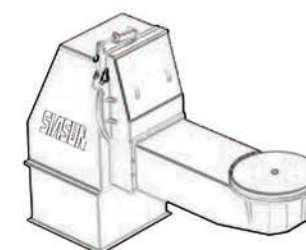
Adjustable stroke head and tail rack positioner



2-axis L-type positioner



2-axis positioner

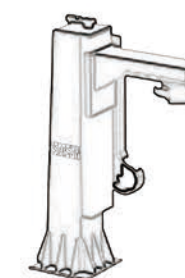
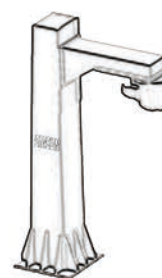


### C-type support

C-shaped support

C-shaped support (rotatable)

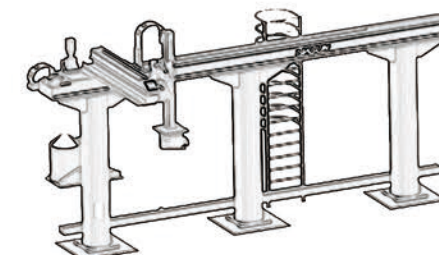
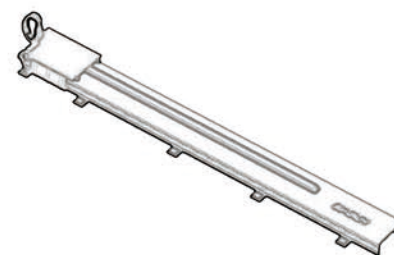
C-type support (can be raised and lowered)



### Sky rail, Ground rail slide

Ground slide

Gantry sliding table





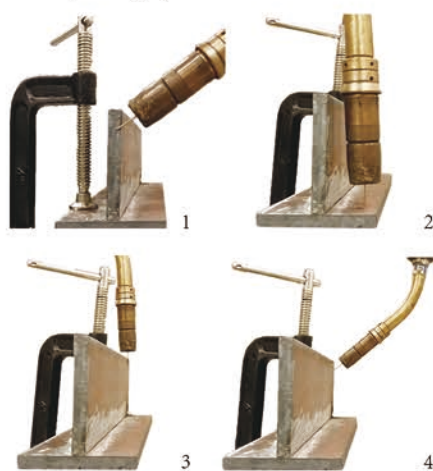
## Position sensor detection function

### Contact sensor detection

SIASUN robot touch sensing detection function mainly includes Three-direction sensing, start point detection, end point detection, arc sensor, contact detection sensor and other functions. The welding wire or nozzle is used to contact the workpiece to sense the position of the workpiece, and the operation is simple and convenient to use, and no other sensing device is needed, thereby increasing the flexibility of the welding gun. It has the advantages of high precision, good accessibility, safety and reliability.

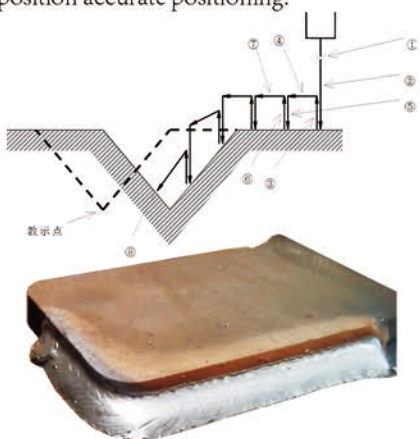
### Three-direction sensing

The three-direction sensing function usually senses the workpiece in x, y, and z directions. When the workpiece is offset, the robot can detect the welding trajectory and make corresponding adjustments.



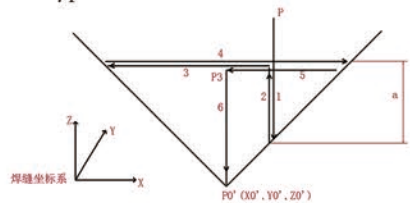
Contact detection sensor

The contact detection sensor function can detect the position of the groove. Use the contact detection sensor to find the approximate position of the weld, according to specific needs, combined with other detection methods to start point and weld position accurate positioning.



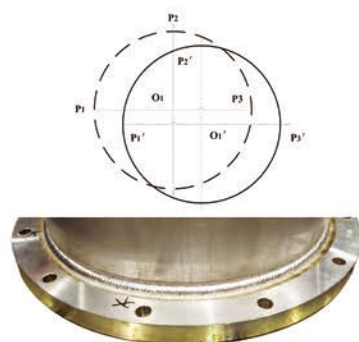
### Starting point (end point) detection

When the welding workpiece deviates within a certain range, the correct starting point (end point) can be re-locked through the starting point (end point) detection function. Diagonal welds, butt grooves and other types of welds are tried.



Arc sensing

The arc sensor function is suitable for arc-shaped workpieces. The difference between the actual position of the workpiece and the teaching position is detected by the welding wire contacting the workpiece. The robot corrects and adjusts the original welding trajectory after processing the data. Automatically generate new welding trajectories to complete automatic welding of offset workpieces.

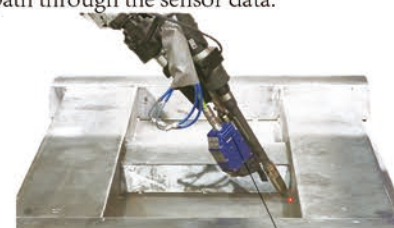


### Non-contact sensor detection

Non-contact sensor detection usually uses spot laser or line laser sensor as a tool. The robot detects the position data of the workpiece in the detection coordinate system X, Y, Z through the sensor, and then combines the characteristics of the workpiece and the type of the weld to determine the start of the weld. Start and end positions. The detection method can be applied to the situation where the deviation of the welding seam is large, and the detection result is not affected by factors such as welding wire bending and inconsistent extension length.

### Point laser sensor detection

Install a point laser sensor around the welding gun, and then calibrate the point laser equipment to determine the relative positional relationship between the sensor and the TCP point of the welding gun. The robot can adjust and optimize the welding path through the sensor data.



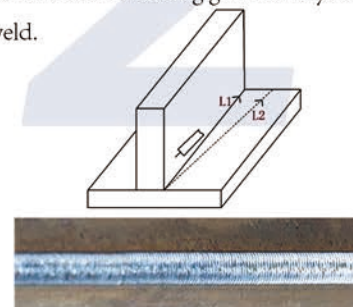
Schematic diagram of laser sensor

### Weld tracking function

The welding seam tracking function of SIASUN robot mainly includes arc tracking and laser tracking.

### Arc tracking

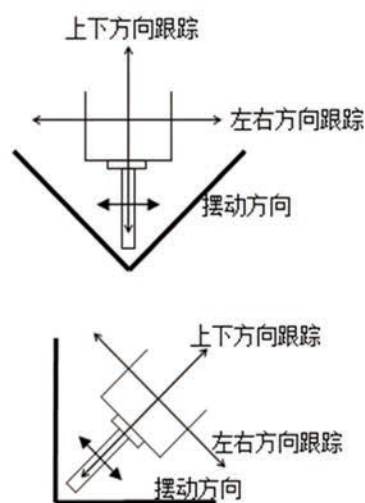
When the actual weld trajectory deviates from the teaching program trajectory or the workpiece undergoes thermal deformation during welding, the robot collects and processes the welding process data to modify the compensation trajectory in real time to ensure that the welding trajectory at the end of the welding gun is always on the weld.



Through the welding seam tracking function, the robot can distinguish the deviation in the left-right direction of welding and the deviation in the vertical direction of welding. Ensure that the deviation in the welding position can be corrected accurately. At the same time, the arc tracking function can realize the tracking of complex curves, ensuring the practicality of arc tracking. During the welding process, through the arc tracking function, the position of the welding gun is adjusted in real time to ensure that the dry elongation of the welding wire is unchanged, ensuring the stability of the welding process and ensuring the consistency of the entire weld formation.

### Laser tracking

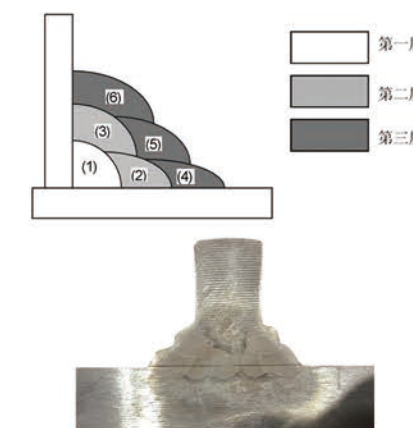
When the welding seam position shifts, the robot collects and processes the welding seam position data through the front laser sensor, realizing the real-time correction of the movement trajectory during the welding process, and can automatically detect the end point. Line laser can track and modify fillet welds (with or without bevel), butt welds (with or without bevel), lap welds, vertical welds, and overhead welds to meet all positions Welding trace.



### Multi-pass welding function

When welding one weld cannot meet the process requirements, in order to use welding more easily and quickly, SIASUN Robot has developed a multi-pass welding module.

The multi-layer multi-pass welding function can be used in combination with other functions such as contact sensing detection function and welding seam tracking function. Through the contact sensor detection function and the welding seam tracking function, the workpiece information acquired during the welding of the first layer is recorded. After systematically sorting and calculating, the results are directly applied to the second layer and the subsequent welding to ensure the welding quality. At the same time, the setting of the welding process and the adjustment of the welding gun attitude can be applied to the welding of each layer. Multiple methods to ensure welding quality and bring satisfactory welding results to customers.



## 四、Welding software

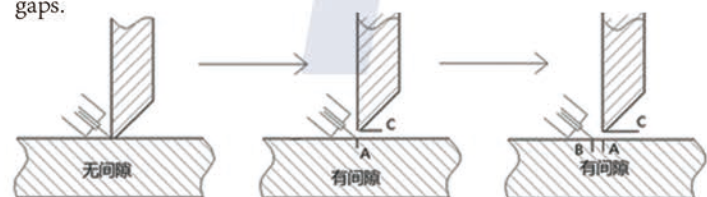
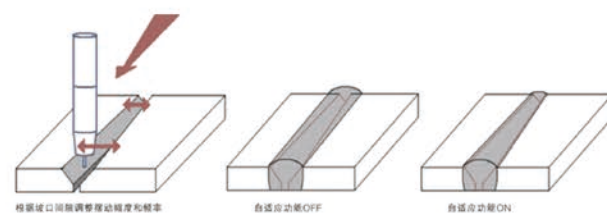
SIASUN Robot has a wealth of intelligent welding software packages, such as Position point sensing detection, weld seam tracking, multi-layer multi-pass welding, bevel or gap adaptation, intermittent welding, real-time monitoring of welding production, welding database, function to support continuous operation of the robot Etc., to solve the problems of poor workpiece accuracy, welding quality consistency, and centralized production management for customers in medium and thick plates and other fields.



### Bevel or gap adaptive function

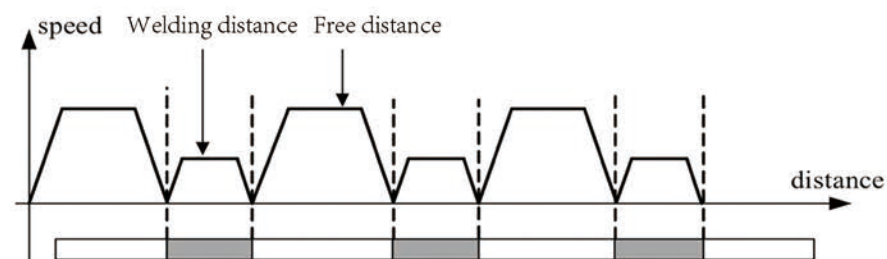
During the welding process, through the action of the welding torch or line laser the scanned data can detect the change of the width of the groove and the change of the gap of the weld, and automatically compensate for the parameters such as swing conditions, welding speed, current and so on. Welding with uniform fill volume of welding seam.

When the gap of the fillet weld changes, the robot collects data according to the line laser and adjusts the position of the welding torch to achieve the effect of uniform formation of the weld with different gaps.



### Intermittent welding function

In actual production, some welds do not need to be fully welded, and intermittent welds can fully meet the welding strength requirements. By editing the intermittent welding program, the robot can automatically divide a whole section of weld into several sections, each section contains a welding distance and free path distance, and the welding speed is continuously changed by arc starting and arc changing. Normally, the free distance movement speed is relatively fast. The intermittent welding function greatly reduces the repeated teaching work and improves the ease of operation of the robot.



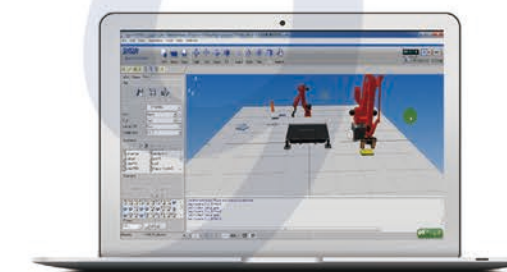
### Real-time production monitoring function

The production real-time monitoring system can simultaneously monitor the working conditions of the robot welding work platform in multiple locations outside the work site, and obtain various information such as robot parameters and welding parameters. Complete the information management of welding data, robot welding equipment management, weld seam quality evaluation, etc., and realize the analysis and processing of relevant data, data storage, quality tracking and other functions. Make the management more modern and comprehensive, and greatly improve the management efficiency of the robot welding process.



### SIASUN S-Virtual System

Indirect teaching and fast programming



### Welding expert database

The welding expert condition database contains various welding parameters and processes set for the welding seam form, users can directly call database data according to the welding seam form of the workpiece to automatically generate robot welding programs and improve programming efficiency. The database can also be modified or newly built according to its own process conditions, so as to achieve a more ideal welding effect and meet the needs of welding production.

### Function to support continuous operation of the robot

Arc restart, Automatic sticky wire release, Breakpoint recovery, Adjustment online

#### Arc restart

When it is difficult to start the arc at the welding starting point, the robot can be moved in a small range. After successful arc starting at different locations, the robot returns to the welding starting point to continue welding. Increase the success rate of arc starting to ensure the continuous operation of the system.

#### Automatic sticky wire release

The automatic release function of sticky wire can judge whether the welding wire sticks to the weld at the end of welding. After that, it is automatically released. At the same time, it is equipped with a welding gun cleaning station, which can realize automatic cleaning, wire cutting and oil injection. Can keep the system continuous.

#### Breakpoint recovery

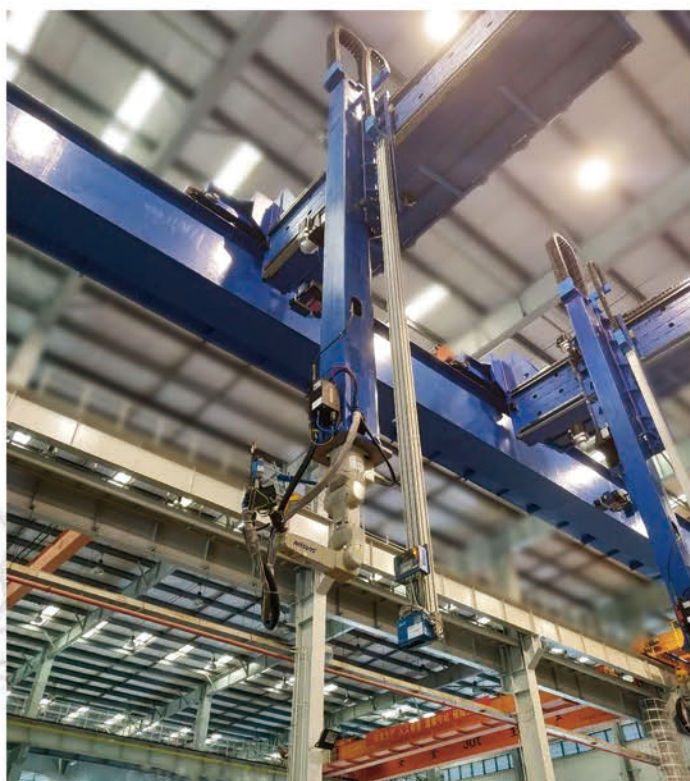
If the robot has problems during the welding process, the welding is interrupted. After troubleshooting the problem, the robot can continue the welding at the welding interruption point through the breakpoint recovery function.

#### Adjustment online

During the welding process, the welding process parameters such as current and voltage can be adjusted in real time, thereby changing the welding forming and improving the efficiency of welding debugging. The parameters can also be fine-tuned according to the actual situation to add another layer of insurance for the guarantee of welding quality. The adjusted process parameters can be saved for future use.

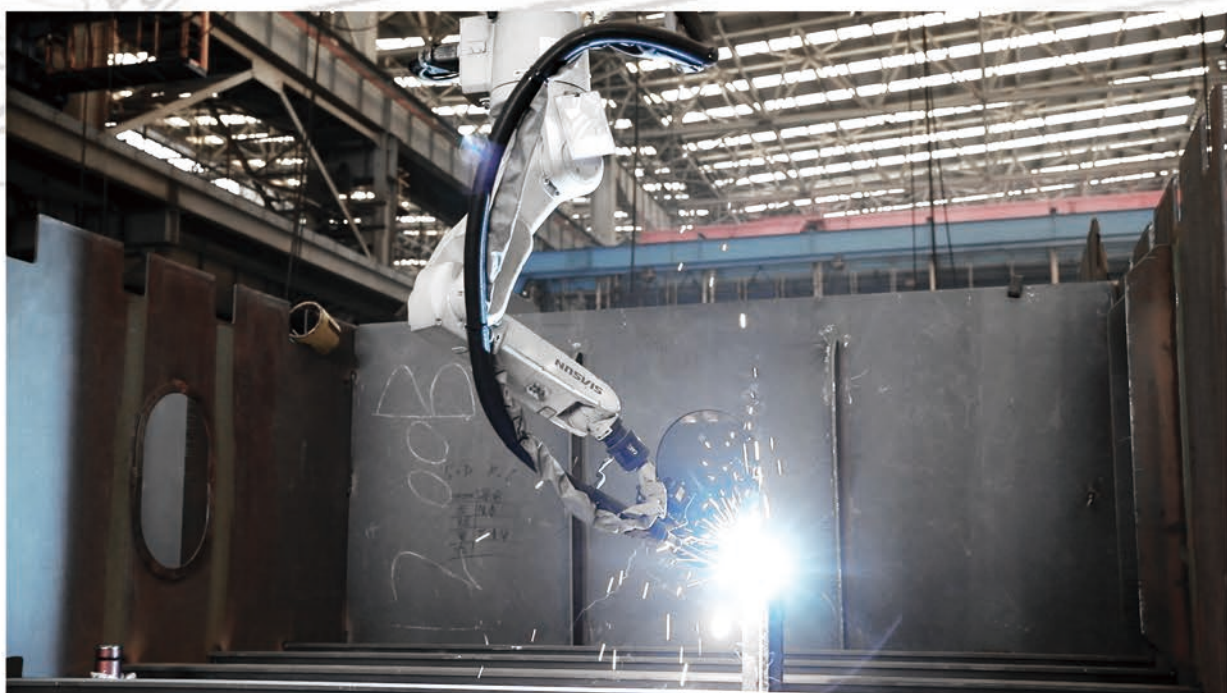


# Personalized empowerment-ship bridge industry



## "Handshake across the ocean"

SIASUN intelligent robot welding production line was successfully applied to the world-class cross-sea channel project.



## "New infrastructure, New kinetic energy"

SIASUN develops new engines and builds the most powerful driving force with innovative products and solutions

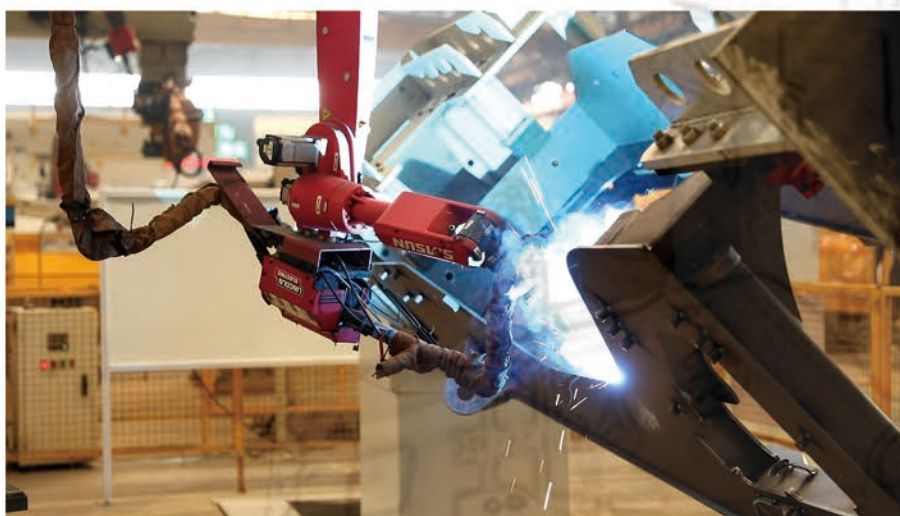
# Personalized empowerment-Infrastructure engineering industry



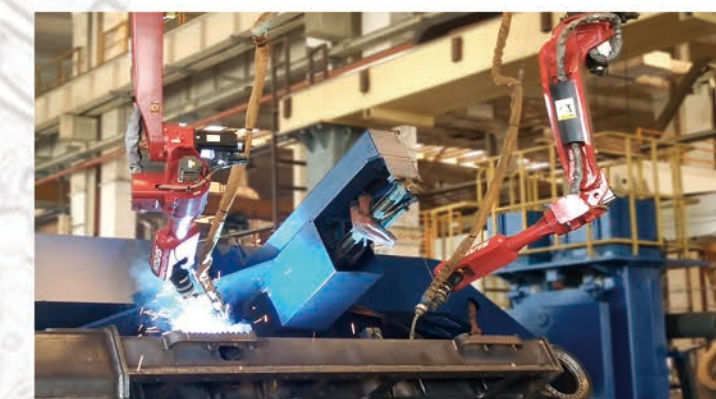
## Personalized empowerment-construction machinery

“The epitome of the integration of the two technologies”

SIASUN overcomes the technical difficulties, and is the first to complete the production of intelligent welding robot production equipment in China to achieve the intelligent upgrade of the target workshop.



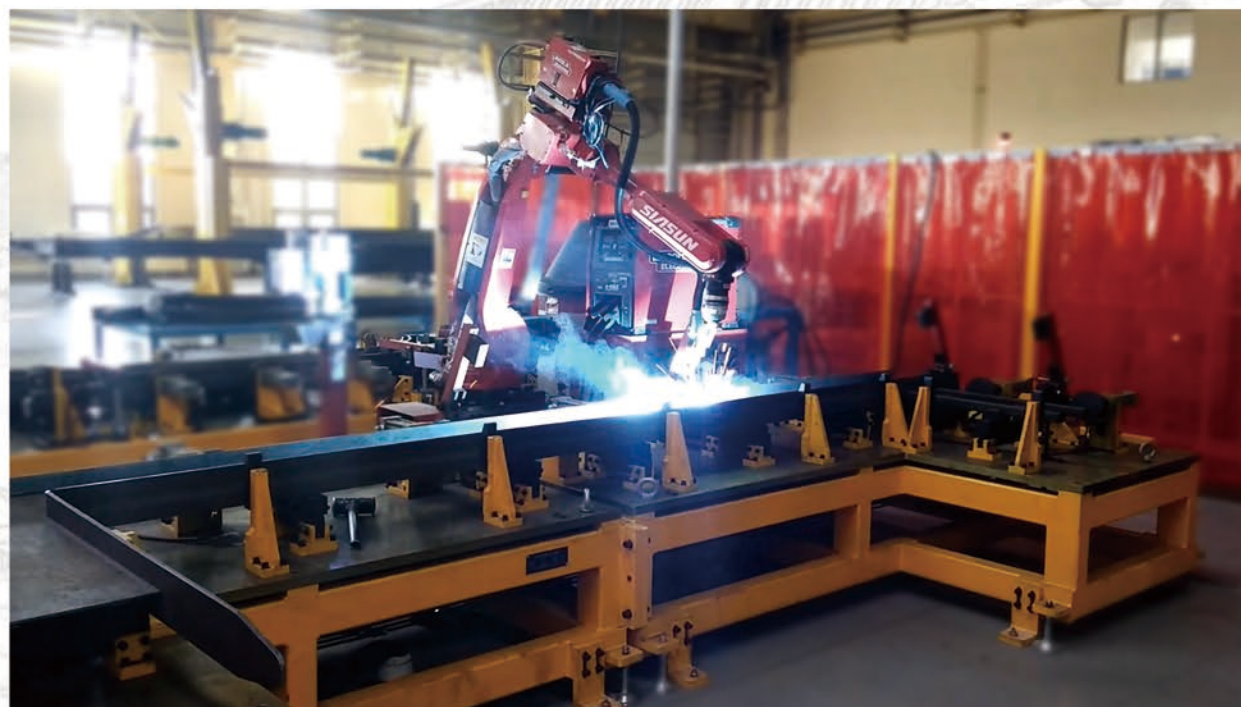
In the manufacture of excavators, loader cabs, main frames, lower frames, sticks, rear covers, front frames, rocker arms, rear frames, hoods, track beams, oil trays, graders and other components, The intelligent welding robot can skillfully and easily complete various welding tasks.





# Personalized empowerment-vehicle industry

As a flexible and independent welding processing unit, the SIASUN intelligent welding and cutting system provides a favorable guarantee for high-volume, high-quality assembly line vehicle manufacturing, making high-flexibility short-term elastic production also may



At present, it has been applied to various vehicles such as motorcycles, automobiles, snow plows and other vehicles. In the production and production process of products such as goosenecks, wheels, scrapers, fuel tank bottom shells, hoardings, motorcycle parts and other products, SIASUN intelligent welding and cutting robots Undertake important tasks.



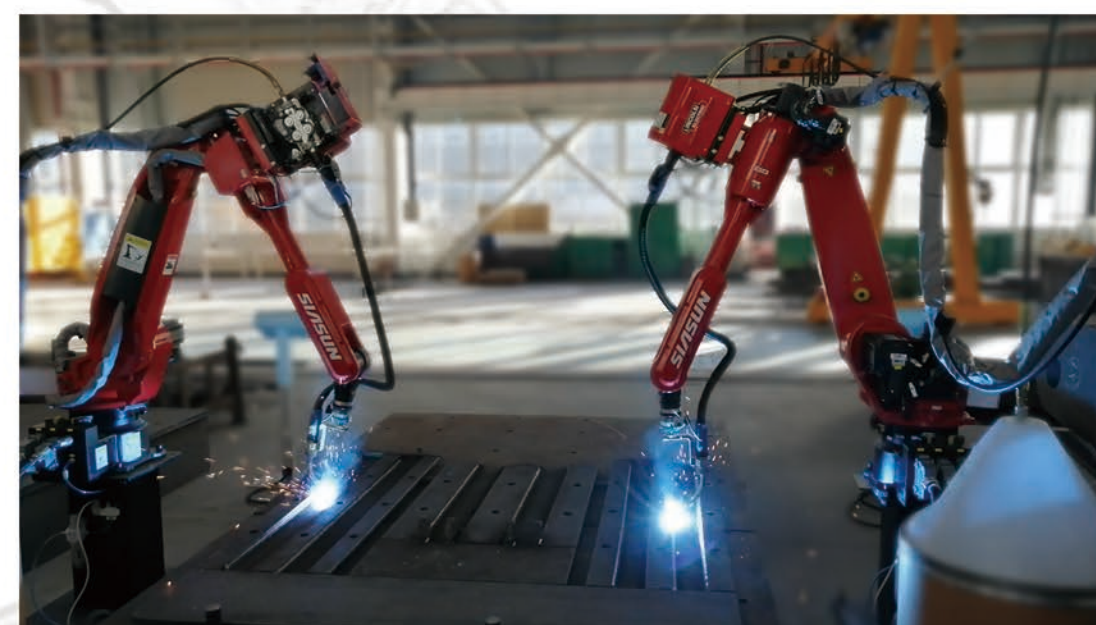
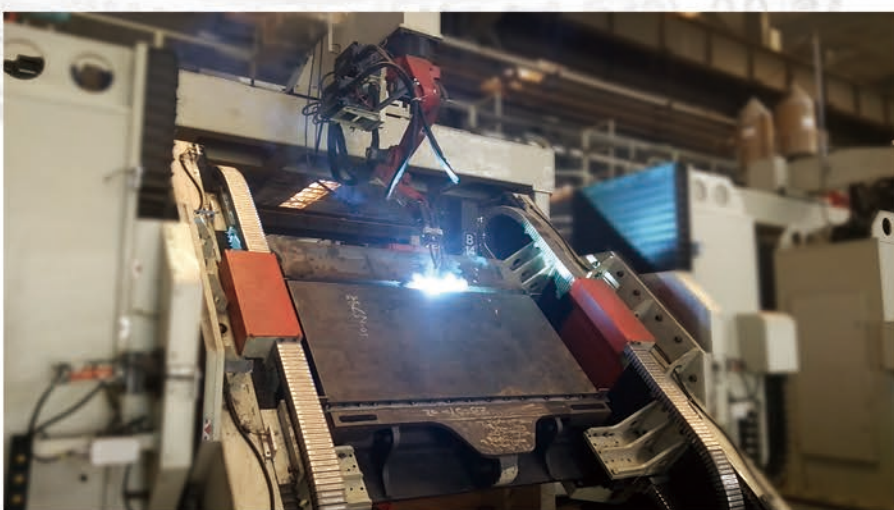
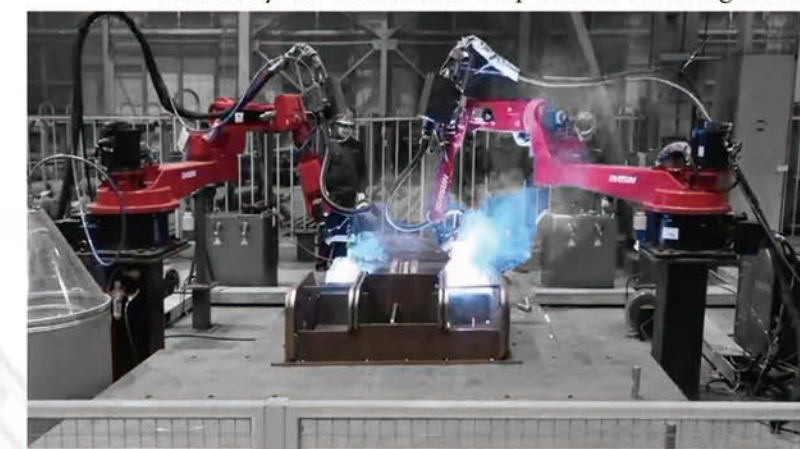


## Personalized empowerment-coal machine industry

SIASUN robot large-scale structural plate intelligent welding robot for large and medium plates, successfully applied in coal mining machinery and other fields.



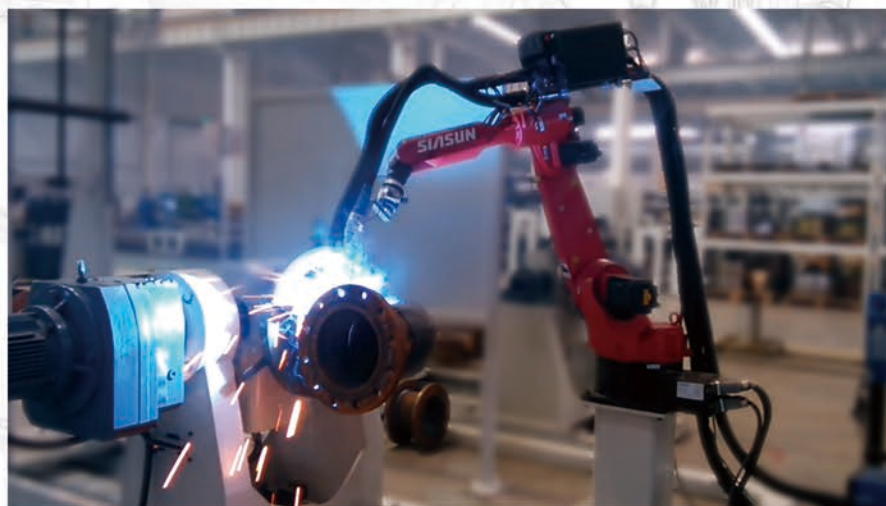
In the manufacturing process of components such as the central groove, shield beam, guard plate, connecting rod, etc., they all undertake important welding tasks.



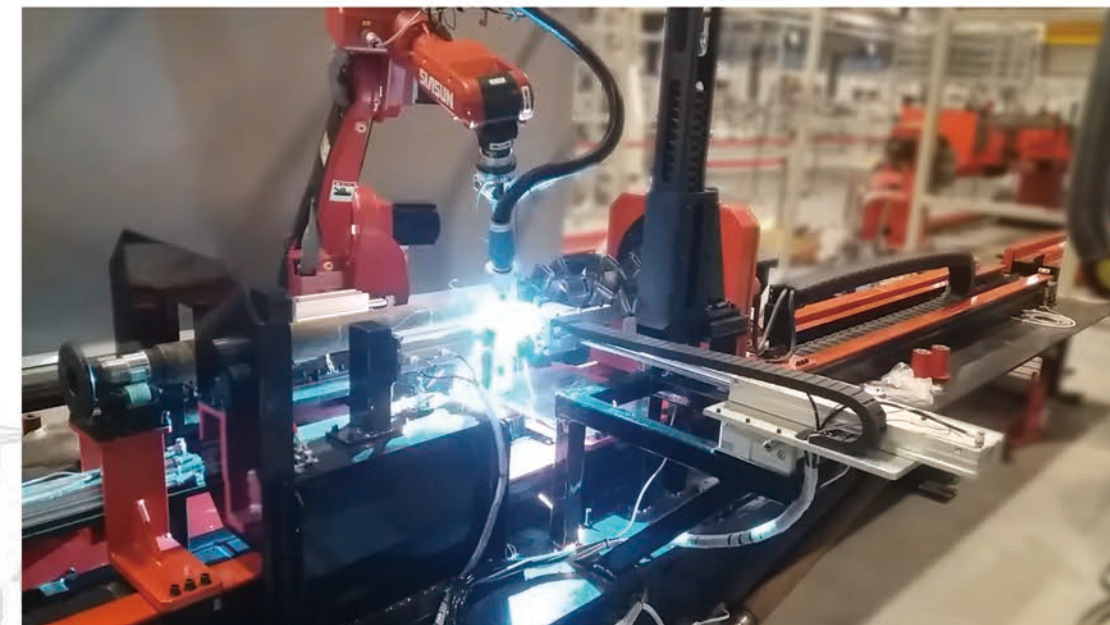
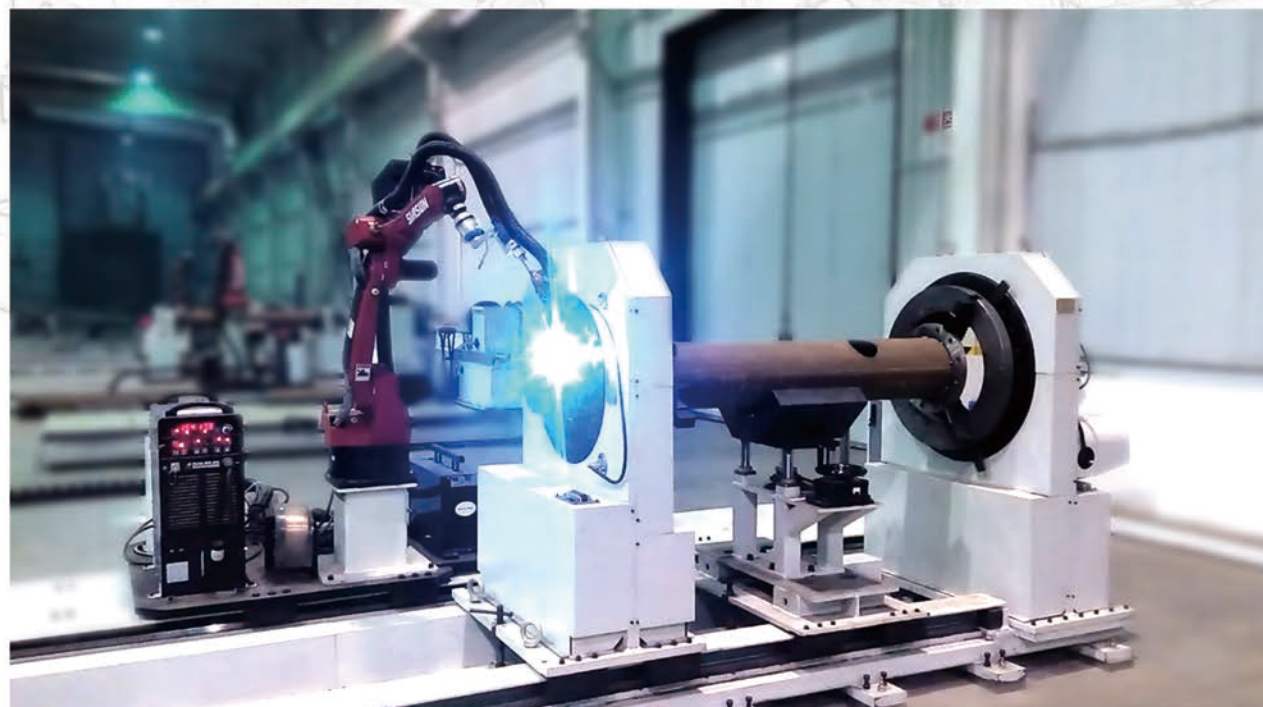


# Personalized empowerment - other industries

“Exquisite workmanship, flexible use in different fields”



SIASUN medium-thick plate welding robot meets the user's personalized needs and has achieved successful experience in multiple welding fields. Such as the heat exchanger pipe intersecting line, short pipe, straight pipe, saddle and other processing technologies all play this important role.



Welding of agricultural machinery base frame, main shaft and other components has been completed by robot

