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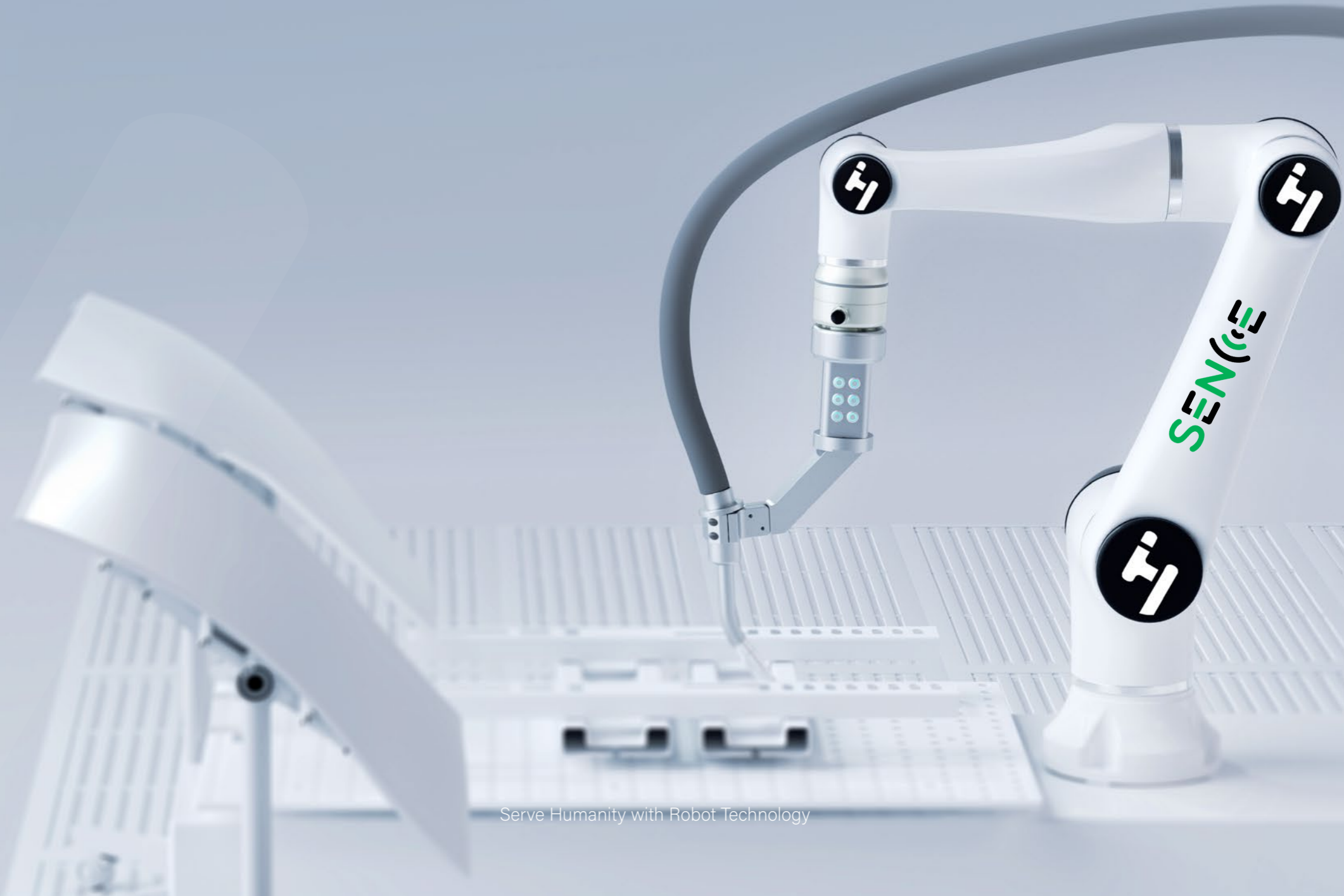


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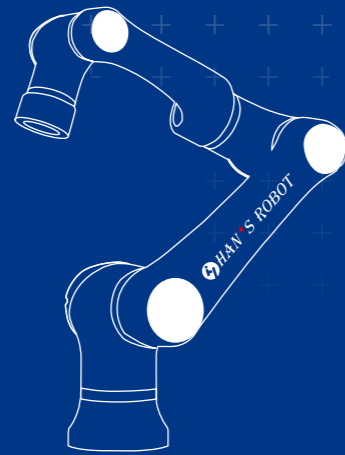
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SENCE
AUTOMATION SOLUTIONS

Automated Welding Workstation (Gas Shielded Arc Welding) Application Solution



Serve Humanity with Robot Technology



Serve Humanity with Robot Technology

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Traditional Welding Pain Point



Difficult Programming, High Requirements

Programming for traditional welding robots is difficult to get right in one step and requires continuous debugging and program modification, demanding high programming skills from operators.



Difficult to Hire, Low Efficiency

It is challenging to train and hire skilled welders. Coupled with the highly repetitive rhythm of operations, the efficiency of manual welding is not high.



Unstable Welding Quality

During manual welding, factors such as welding speed and wire feed length vary from person to person, making it difficult to guarantee product quality stability and consistency.



Heavy Workload and Poor Working Conditions for Welders

The welding operation site has high temperatures, and manual welding has safety risks such as burns and arc burns, posing challenges to corporate safety production.

More Efficient Automated Welding Solution

Collaborative robots advocate for harmonious human-machine integration and mutual support. Hans Robot empowers welding applications. With advantages such as light guidance, flexible deployment, and high safety, it effectively solves the challenges of the shortage of skilled welders and high labor costs in traditional welding. By automating welding, it reduces costs and increases efficiency for customers.



Overview

Hans Robot's automated welding workstation (gas shielded arc welding) is composed of the Elfin-Pro series collaborative robot, welding torch, welding system, etc. The Elfin-Pro series collaborative robot has advantages such as integrated end force control, integrated AI vision, and high repeat positioning accuracy. In conjunction with the laser vision seam tracking system, it realizes flexible dragging, automatic tracking, automatic correction, and supports long-time, uninterrupted, high-quality, and highly stable welding work. It primarily enhances cost-effectiveness in automated production fields such as auto parts, engineering machinery, and metal processing.

Equipment Composition



Han's Robot

With integrated end force control and AI vision, the system offers simple and efficient control, saving time and effort, thereby improving production efficiency.



Welding System

Compatible with mainstream welder, it supports free switching between pulse and DC welding, ensuring good stability.



Welding Software Package

Independently developed by Hans Robot, our software uses a graphical interface that is clear and easy to use.

Featured Applications

Drag-and-Drop Teaching,
Laser Vision Seam Tracking, Arc Tracking, Welding Plugin

1 Drag-and-Drop Teaching:

Simple operations can achieve
linear or circular welding

Elfin-Pro supports integrated end force control, allowing users to drag the welding torch easily and quickly to the designated target welding point. With the end button, they can quickly establish a welding task, complete circular/linear path selection, and set up arc starting/stopping. One drag and drop can be reused.



2 Laser Vision Seam Tracking:

Real-time correction of welding deviation to achieve automatic seam tracking

With the laser vision seam tracking system, welding deviations are corrected in real time, ensuring that the welding gun always stays at the center of the seam during movement. This allows for automatic seam tracking, thus improving welding quality.

3 Arc Tracking:

An arc tracker can collaborate with the robot to obtain the relative position of the welding gun and the groove by collecting and processing arc signals, correcting any deviations in the robot's planned path.

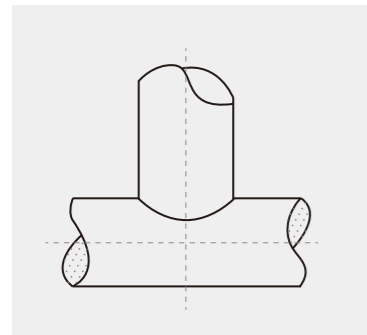
4 Easy-to-Use Welding Plugin:

Hans Robot provides an easy-to-install, easy-to-use welding plugin. The user-friendly interface meets visual and graphical operation needs, enables benign human-machine interaction, and improves production efficiency.

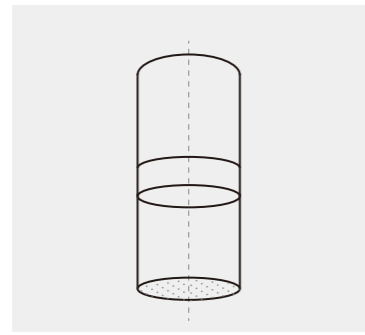


Line shape Meet various welding scenarios

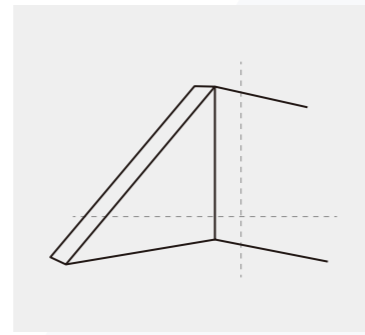
The workstation supports arbitrary welding trajectories, splice trajectories, and caters to saddle shape, round shape, corner shape, V-shape, and various other welding modes, covering a vast majority of welding application scenarios.



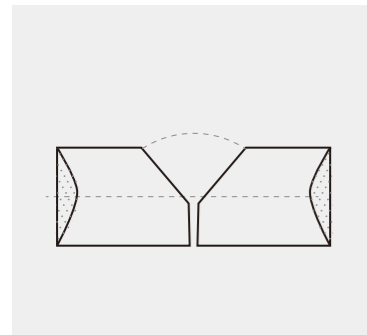
Saddle shape



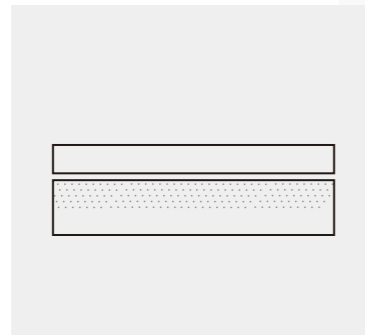
Circular shape



Corner shape



V-shape



Line shape



Simpler operation procedures

The Han's Robot automated welding workstation (gas shielded arc welding) can rapidly operate through point setting, drag teaching, and intelligent remote sensing. The welding technique package can flexibly configure current, voltage, welding speed, welding posture, etc., meeting users' needs for quickly setting up various welding applications.

Step 1 •

1. New creation of welding tasks.
2. Setting of the start point of the welding track.



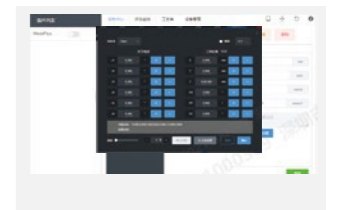
Step 2 •

- Setting of the starting arc welding parameters: welding time and welding current.



Step 3 •

- Setting of the end point of the welding track.



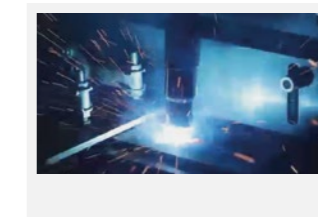
Step 4 •

- Setting of the end-arc welding parameters: Arc crater time, burn back time, dwell gas feed time and current.

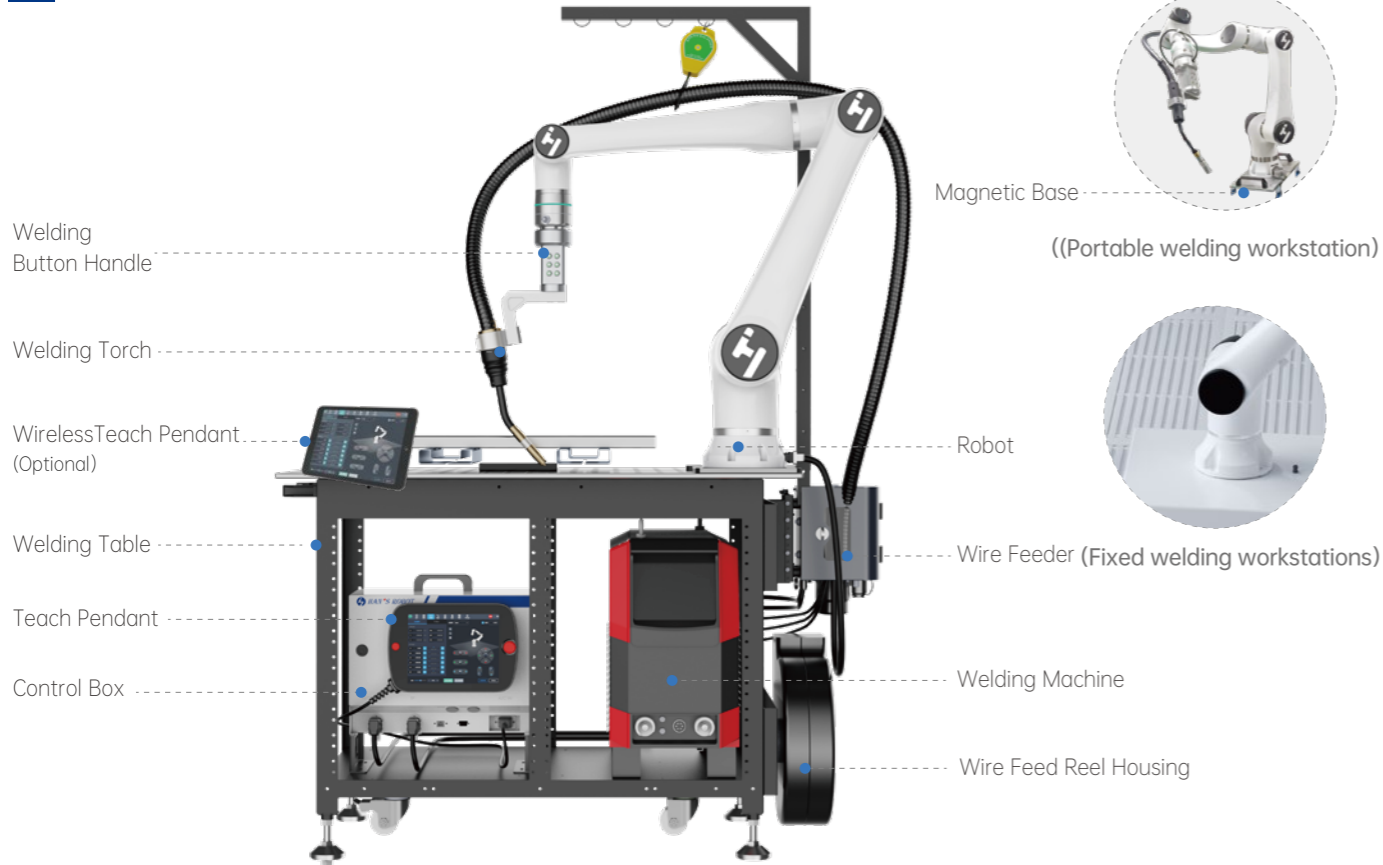


Step 5 •

- Operation of welding task.



Main Configuration



(Cart-type welding workstation)

	Configuration 1: Integrated End Force Control Version	Configuration 2: External Force Control Version	Brand Offer/Support
Robotic System	① Robotic arm: E03-Pro, E05-Pro, E10-Pro, E10L-Pro, E15-Pro ② Controller and control cable ③ Teach pendant and flexible cables	① Robotic arm: E03, E05, E10, E10-L, E15 ② Controller and control cable ③ Teach pendant and flexible cables	Han's Robot
Force Control System	Elfin-Pro series enable integrated end force control	Robot force control + control handle	External power control version: blue dot touch, etc.
Welding Systems	① All-digital industrial welding power supply ② Welding cables, control cables and other accessories ③ Wire feeder ④ Protective gas related equipment (provided by the customer)	① All-digital industrial welding power supply ② Welding cables, control cables and other accessories ③ Wire feeders ④ Protective gas related equipment (provided by the customer)	MegMeet, Aotai, Miller, Lincoln, Binzel, Furnius, EWM, Lorch, Esab, Kemppi, Panasonic, OTC DAIHEN, etc.
Torch Systems	① Robot welding torch ② Welding torch holder	① Robot welding torch ② Torch holder	TRM, Kunshan Rihao, Binzel and other brands
System Software	Arc welding software package	Arc welding software package	Han's Robot
Workstation Form of composition	Fixed (fixed base) Cart type (mobile cart base) Portable (magnetic base for use with E03-Pro, E05-Pro)	Fixed (fixed base) Cart type (mobile cart base) Portable (magnetic base for use with E03, E05)	Han's Robot
Optional (Not standard, must be purchased separately)	① Wireless teach pendant	① Wireless teach pendant	Han's Robot

Performance Indicators	
Floor Space	2m×1.5m
Work Cycle	7×24h
Welding Power Supply	MegMeet, Binzel, Aotai
Operator Requirements	Ordinary Staff

Advantages



Multiple control techniques for high-quality welding

Short-circuit transition control process with special energy control, "pulse energy regulation" of the melt-drop transition control process, and the synergistic process based on variable wire feed speed pulsed energy control process, which is extremely suitable for the consistent high quality welding of carbon steel, stainless steel, aluminum alloys, etc. uniformly high quality welding.



Graphical programming, quick mastery within 10 minutes

The welding process package integrates a wealth of parameters to meet the needs of the welding process. Straight or circular welding can be carried out with simple commands: select and define linear, circular, zigzag paths by moving the robot arm to the points of your choice and locking them with buttons on the flange to make welding as easy as using a mobile phone.



Flexible drag teaching, improved work efficiency

The Elfin-Pro series collaborative robot integrates end force control, possesses excellent precision and accuracy, realizes smoother, more efficient drag teaching abilities. A one-time teaching for repeated use can automate and continually perform welding tasks, significantly improving work efficiency.



Multiple safety protections ensure safe production

Han's Robot uses an electromagnetic brake mode in the event of a sudden power failure or emergency stop during operation, it can be held directly without falling, which effectively increases operational safety.



User-friendly UI interface, for stress-free work

Han's Robot optimizes and upgrades the system UI interface based on actual user application scenarios, allowing the robot to serve users better.



Industry Applications

Metal Working

Metal forming is often associated with high levels of labor, noise pollution and metal dust. Sometimes in hot, humid and even polluted environments, the work is simple and boring, making it difficult for companies to recruit staff. The application of collaborative robots can not only solve the problem of employing people in enterprises, but also improve processing efficiency and safety in order to enhance processing accuracy. This solution has great scope for application.



Automobile Components

In recent years, the automotive industry has diversified in order to meet the needs of the general public. Traditional welding cannot meet the segmented and multiscene welding needs of automotive component manufacturing. Han's Robot's welding equipment allows for flexible layout and production. It collaborates with people in modern automotive parts production plants in order to increase production efficiency.



Shipbuilding

There are nearly a thousand welded components in the ship's structure and nearly ten thousand parts involved. Many of the important load-bearing components of the ship are welded components, and the ship's hull is subjected to significant pressure during operation. This is the reason the welding requirements are so stringent. Han's Robot has a repeatable positioning accuracy of down to +0.02 mm, which enables precise welding of the ship's components in automated welding processes.



Kitchen and Bathroom Industry

The kitchen and bathroom industry as a more labor-intensive industry, the automation of the production process is necessary. Welding with Han's Robot can be deployed flexibly and easily, and it can solve the problem of recruitment difficulties for manual labor, thus reducing costs and increasing efficiency.



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