JAKA

COLLABORATIVE WELDING UPGRADE UNLOCK NEW HEIGHTS IN THE MANUFACTURING INDUSTRY





TRADITIONAL WELDING VS COLLABORATIVE ROBOT WELDING

by robots Multi task free switching

- High precision repettive tasks
- Dangerous operations are replaced
- Lightweitght-and compact design
- **Extremely simplified operation**

FLEXIBLE ADAPTATION IN ALL SCENE



Part 1 Trolley type



Part 2 Table type



Part 3 Single table with shell





Part 4 Double table with shell



Part 5 Double table with shell

O1 Car-type collaborative robot

Configuration: minimalist mobile cart + secondary separation

Scene : Suitable for small and medium-sized enterprises or production lines that need to be flexibly adjusted. It can quickly switch tasks and reduce equipment investment and space occupancy.

Advantage:

Maximum working radius 11 meters (wire feeder 9m + mechanical arm 2m), covering large workpiece welding

Minimalist Trolley design 240kg (including cylinder), with wheels can quickly switch work positions



RI-WD_TR-JAKA minimalist small car collaborative robot welding system can deal with complex working conditions, simple, practical, durable and light features, convenient and quick to move to the welding station, at the same time, remove unnecessary accessories, panels, etc., to achieve the most optimized cost.

11m of over-the-range coverage Easy to deploy

The maximum working radius of **RI-WD_TR-JAKA** is 11 meters The wire feeder is separated from the robot arm (the wire feeder is 9m + the robot arm is 2m, the wire feeder can be 9m away from the trolley, and the robot can be 2 meters away from the wire feeder), which can be customized according to customer needs.



Switch the station every 5 minutes Flexible movement.

The pulley design, 240kg minimalist mobile station, can be transported by car, quick switching of work stations, flexible shuttle in the workshop with limited ground, convenient and flexible!



O2 Desktop open collaboration workstation. Flexible deployment (size can be customized)

Configuration: mobile cart (1.4 x 0.95 x 0.9m) + quick disassembly welding unit **Scene :** multiple varieties and small batches, multi-station rotation in the workshop, equipment maintenance site

Core advantage:

Flexible layout: The desktop is open, compact and lightweight, flexible and mobile. It is suitable for small space and multi-station switching. The tabletop only weighs 260KG, 170KG less than the first generation, and can easily adapt to the needs of small space and multi-station.

10-minute quick deployment: equipped with omnidirectional casters and self-locking mechanism, zero time for workstation switching.

Open collaboration: Support manual near-field operation, especially suitable for rapid repair of non-standard parts, and promote efficient human-machine collaboration.



O3 Single station system with Shell Environmental protection dust removal, safety protection (size can be customized)

Configuration: independent welding room (1.7 x 1.9×2.4m) + double door design + arc light filtering system Scenario: environment with high environmental protection requirements, strong dust removal requirements and high safety protection level

Core advantage:

Safety single station: closed single station, specially designed for precision welding, providing all-round safety protection.

OD16 level safety cabin: ensure "zero risk" for high-risk operations. Panoramic visualization design with "no blind area" throughout the process.

Multiple security interlocks.

Three color light status warning: red/yellow/gree n real-time display of device operation mode Smoke and dust purificatio n system: effectively eliminates welding smoke and dust, keeping the air in the welding room from mitra External emergency stop safety button: One click shutdown in case of emergency to ensure personnel safety. Dual circuit redundant design, response ti ma <50ms Welding machine status window: Built in high-definition high-tempe

rature resistant glass, real-time

feeding mechanism action.

monitoring of arc stability and wire





Coolant observation window: with engraving

Degree identification and liquid



Ergonomic perspective: Optimized with a tilt angle of 15 ^s for the operation panel, standing/sitting posture conforms to ergonomic design.



Configuration: dual workstations (2.7 x 1.9 x 2.4m) + single sliding door Scenario: continuous welding of medium and thick plates, doublesided welding of automobile chassis parts, and improvement of production line beat

Core advantage:

Dual station efficiency: alternating human-machine operation, efficiency doubled, and the beat time is shortened by 35%.

Flexible collaboration: human and machine work synchronously without interference, improving system flexibility and production efficiency.

04 Closed dual station system (grounded) Capacity doubled (size can be customized)





Configuration: inverted robot (2.7 x 1.9 x 2.4m) + top walking track Scenario: large structural parts welding, multi-angle complex welds, workshop with limited ground space

Core advantage: Space master: double working position inverted design, save space, suitable for complex workpiece welding.

Efficiency doubling: alternating human-machine operation to improve operation efficiency and increase the utilization rate of threedimensional space by 40%.

All-round welding: whether vertical, inclined or complex curved surface, stable output of high quality welding effect, no fear of tricky angles.

05 Closed double station system (inverted) No dead corners in welding

PRODUCT ADVANTAGES

- Integrated upgrade of the interface: quick plug of the gas line + integrated electric control to achieve single point docking, 10 seconds power on, farewell to messy cables.
- Sensor handle upgrade: high resolution six-dimensional force/torque sensor for accurate positioning.
- Welding channel planning and upgrading: intelligent calculation of groove trajectory, compatible with a variety of non-standard grooves.
- Welding type upgrade: all types of welding are available, simple and complex welding can be easily handled.
- Upgrade of weld arrangement: automatic stratification planning, parameters can be set at will.
- Gun posture control upgrade: automatically correct the welding gun Angle and offset to ensure the best welding quality.
- Human-machine collaborative upgrade: one-click standard welding, quickly complete small batch repetitive welding tasks.
- Flexible adaptation and upgrade of the whole scene: from single station to whole line intelligent manufacturing, accurately matching the production scene.



Six dimensional technology. Foldable handle

- Equipped with high resolution six-dimensional force/torque sensor (positioning accuracy up to ±0.05mm).
- Zero programming drag and teach is realized. The operator can directly pull the robot arm to complete trajectory calibration through the foldable handle. It is used for welding complex surfaces and narrow Spaces.

Full weld type is universal Simple and complex welding is easy to deal with

- Supports a variety of types such as straight weld, arc weld, corner weld and splicing weld.
- It can be combined with a variety of oscillating welding methods to easily deal with various welding tasks.





Sample -Flat Welding

Sample -Vertical Welding





Teaching points: Starting point of arc, Arc extinguishing point, Reference point



groove)

Teaching points: Starting point (root of groove), Arc extinguishing point (root of groove), Reference point



Multi layer and multi pass butt welds (double V-groove)

Teaching points: Starting point (center of the root of the arc plate groove), Arc extinguishing point (center of the root of the arc starting plate groove), Reference point (on the inclined surface of the workpiece groove)

Automatic intelligent welding seam arrangement Parameters are customizable

- arc welds, and groove welds

- Support intelligent weld bead planning through key parameters.

Multi layer and multi pass fillet weld (without bevel)

Multi layer and multi pass fillet weld (single-sided

• Support automatic layering planning for straight lines/arcs/fillet welds. • Supports multi-layer and multi pass welding of straight line welds, circular

• Customizable weld spacing, swing amplitude, bevel angle, etc.

• Supports automatic and manual routing of multi-layer and multi pass welds.

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Automatic intelligent welding seam arrangement Parameters are customizable

- Support automatic layering planning for straight lines/arcs/fillet welds.
- Supports multi-layer and multi pass welding of straight line welds, circular arc welds, and groove welds
- Customizable weld spacing, swing amplitude, bevel angle, etc.
- Supports automatic and manual routing of multi-layer and multi pass welds.
- Support intelligent weld bead planning through key parameters.

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conditions

One - Click Standard Welding Enable quick completion of small - batch repetitive welding tasks with just one click.

Standardization & Inheritance of Welding Processes Establish standardized WPS for effective management and utilization of welding processes.

WPS Process Library with Flexible Parameter Built - in expert parameter library for materials like carbon steel, stainless steel, and aluminum alloy, offering reliable welding parameter references.

Air circuit quick plug+electronic Say goodbye to the chaotic scene

- Integrated Power & Quick Connect
- 380V/220V, gas & coolant quick plug
- Single-point docking, 10s power on"
- Eliminates cable clutter
- Clean, easy operation

Human computer collaborative operating system 10 minute training, seamlessly connecting complex working

OD16 level safety cabin Ensure Full protection for high-risk operations

Arc protection: double-sided explosion-proof observation windows, allowing for real-time monitoring of the welding process and timely understanding of the operation status.

Smoke and dust purification system: effectively eliminates welding smoke and dust, keeping the air in the welding room fresh.

External emergency stop safety button: One click shutdown in case of emergency to ensure personnel safety.



Panoramic visualization design. The entire process has no blind spots

Ergonomic Perspective: Optimized with a 15 ° tilt angle for the control panel, standing/sitting posture conforms to ergonomic design

Welding machine status window: Built in high-definition high-temperature resistant glass, realtime monitoring of arc stability and wire feeding mechanism action

Coolant observation window: with scale markings and level sensor



STRONG COMPATIBILITY-MEET WELDING/CUTTING REQUIREMENTS





Technical parameters of robotic arm

Model	RI-WD_TR-ZUS	RI-WD_TR-ZU12
Robot arm model	JAKA ZU5	JAKA ZU12
weight of arm	23KG	41KG
operating radius	954MM	1327MM
Maximum load capaci	ty 5KG	12KG
repeatability	±0.02	±0.02
Typical TCP speed	1m/s	1m/s
Number of motion axe	s 6axes	6axes
operation temperature	0-45°C	0-45°C
Basic functions	Circumferential v	velding; Swing welding;Intermittent welding; Fillet
welding; multi-pass we	elding	

Technical parameters of workbench

Model	Small car collaborative robot
Workbench weight	240KG (Excluding gas cylinders)
Dimensions (m)	1.6*0.6*0.9*1.7(Height of gas cylinder included)
Maximum homework radius	9+2=11m
six-dimension force sensor	It can significantly enhance its perception ability, operational
accuracy, and adaptability, r	making it perform more flexible and tactile feedback similar to
human arms in complex tas	ks, greatly improving human-machine collaboration efficiency



Technical parameters of robotic arm

Model				er en
Robot arm model	JAKA ZU5	JAKA ZU7	JAKA ZU12	JAKA PR016
The weight of the	23KG	22KG	41KG	74KG
Operating radius	954MM	819MM	1327MM	1713MM
Maximum load	5KG	7KG	12KG	16KG
Oepeatability	±0.02	±0.02	±0.03	±0.05
Typical TCP speed	1m/s	1m/s	1m/s	1.5m/s
Number of motion	6-axis	6-axis	6-axis	6-axis
Operation	0-45°C	0-45℃	0-45°C	0-45°C
Basic functions	Circumferential well	ding; Swing weldin	g; Intermittent welding	; Fillet welding;

•Welding machine technical parameters

Model

incusi	
Procedure	CO2/MIG/MAG
CURRENT	350A/500A/630A
Welding material	Carbon steel, low alloy steel
Adapt to board	≥3mm
Weld Type	Flat corner weld/vertical corner weld/lap corner weld/butt groove weld/corner
Welding wire type	Solid core welding wire/flux cored welding wire (drum/plate)
welding wire	0.8/1.0/1.2/1.6mm

Technical parameters of workbench

Model	RI-WD-JAKA	RI-WD-1CF-JAKA	RI-WD-2CF-JAKA	RI-WD-2CH-JAKA						
Whole machine	500KG	1.3T	2.5T	3T						
Overall dimensions	1.4*0.95*0.9	1.68*1.66*2.71	2.66*1.97*3.62	2.66*1.97*3.62						
Welding platform	0.85*0.84	1.54*0.99	1.19*0.97	1.19*0.97						
Operating height	0.9m	0.9m	0.9m	0.9m						
Panel operation	1.25m	1.25m/0.72m	1.5m	1.5m						
six-dimension force	It can significantly imp	rove its perception	ability, operational ad	ccuracy, and						
sensor	adaptability, enabling i	t to perform in con	nplex tasks.Closer to	the flexibility and						
Multi joint panel	Highly flexible adjustal	bility, supporting h	eight, tilt angle Multi o	frectional						
bracket	adjustments such as horizontal rotation and forward/backward extension make									
	it easier to adjust the screen to the optimal viewing angle									





Overview

The RI COBOT welding collaborative robot workstation perfectly integrates collaborative robot technology with intelligent welding processes, bringing a revolutionary change to the manufacturing industry. It provides a new, efficient, flexible, and safe automated welding solution, helping enterprises reach new heights in intelligent manufacturing.

Standard

- Intelligent welding system controller
- Special welding gun (with 5-meter cable)
- Wire feeder (with 5-meter cable)
- Six axis collaborative robot
- Welding power source
- Special control board
- Portable permanent magnet base
- Multi joint panel bracket
- Water cooler

Optional

- Gas shielded welding
- Single pulse gas shielded welding
- Double pulse gas shielded welding
- Laser welding
- Argon arc welding
- Plasma cutting machine

• Other models are quoted based on customer defined models

Application Scenario – Single pass welding









Application scenario – Welding quality (multi-layer and multi pass welding)







Application Scenarios – Typical Cases



Groove weld seam (air gouging+manual polishing)

Test weld seam(base+fill+cover, solid core welding wire)



Test weld seam (UT inspection OK)

Application Scenarios – Typical Cases





Multi layer and multi pass welding of butt welds Multi layer and multi pass welding of fillet welds with inner and outer corners



Multi layer and multi pass welding of intersecting line welds with a 30 degree climbing slope



sale

sales@robotindustries.com



www.robotindustries.com

Headquarter

- Südwestkorso 14 12161, Berlin, Germany
- Building 2, Phase II, Jingang Science Park, No. 1, Kechuang Road, Yaohua Street, Qixia District, **Nanjing, China**





