Galexon ROBOTICS
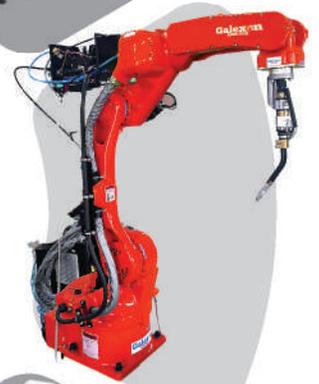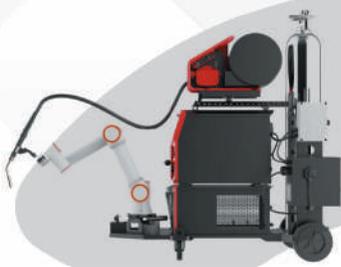
FAIRINO COBOTS

FR+
PRODUCT ECOLOGY

FR3WMS FR3WML FR3C FR3 FR5 FR10 FR16 FR20 FR30

SAVE **50%** in Cost with our Cobots Compared to Others – **BOOST** Productivity, **ENHANCE** Efficiency, and Work **SMARTER!**

"Bring your needs to Us, Take Solution from Us!"

FAIRINO

FAIRINO ROBOT

Intelligent Human - Robot Cooperation System Solutions

According to different payload and parameter, FAIRINO collaborative robots FR series are divided into six models : FR3, FR5, FR10, FR16, FR20 and FR30.

To provide partners & customers with better quality assurance, FAIRINO has obtained a more comprehensive range of certificates through international certification organizations.

Quality Management System	:	ISO 9001
Product Certification	:	CR, CE, KCs, NRTL, RoHS 2.0, NSF, SEMI, IP65
ISO Functional Safety Certification	:	ISO 10218, ISO 13849, ISO 15066

FAIRINO / Galexon ROBOTICS

General Specifications

	FR3WMS	FR3WML	FR3C	FR3	FR5	FR10	FR16	FR20	FR30
Payload	3kg	3kg	3kg (peak:5kg)	3kg(Max:5kg)	5kg(Max:7kg)	10kg (Max:14kg)	16kg (Max:20kg)	20kg (Max:25kg)	30kg(Max:35kg)
Reach	622mm	922mm	622mm	622mm	922mm	1400mm	1034mm	1854mm	1403mm
Degrees of freedom	6 rotating joints	6 rotating joints	6 rotating joints	6 rotating joints	6 rotating joints	6 rotating joints	6 rotating joints	6 rotating joints	6 rotating joints
HMI	10.1 inch teach pendant or mobile terminal Web App	10.1 inch teach pendant or mobile terminal Web App	10.1 inch teach pendant or mobile terminal Web App	10.1 inch teach pendant or mobile terminal Web App	10.1 inch teach pendant or mobile terminal Web App	10.1 inch teach pendant or mobile terminal Web App	10.1 inch teach pendant or mobile terminal Web App	10.1 inch teach pendant or mobile terminal Web App	10.1 inch teach pendant or mobile terminal Web App
Dual arm robotics applications				Mirror versions available to build dual arm robots					
Pose repeatability per ISO 9283	±0.02mm	±0.05mm	±0.05mm	±0.02mm	±0.02mm	±0.05mm	±0.03mm	±0.1mm	±0.1mm
Typical TCP speed	1m/s	1m/s	1m/s	1m/s	1m/s	1.5m/s	1m/s	2m/s	2m/s
IP classification	IP54 (IP65 Optional)	IP54 (IP65 Optional)	IP54 (IP65 Optional)	IP54 (IP65 Optional)	IP54 (IP65 Optional)	IP54 (IP65 Optional)	IP54 (IP65 Optional)	IP54 (IP65 Optional)	IP54 (IP65 Optional)
Noise	<65dB	<65dB	<65dB	<65dB	<65dB	<65dB	<65dB	<70dB	<70dB
Robot mounting	Any orientation	Any orientation	Any orientation	Any orientation	Any orientation	Any orientation	Any orientation	Any orientation	Any orientation
I/O Ports	(DI) 2 (DO) 2 / (AI) 1 (AO) 1	(DI) 2 (DO) 2 / (AI) 1 (AO) 1	(DI) 2 (DO) 2 / (AI) 1 (AO) 1	(DI) 2 (DO) 2 / (AI) 1 (AO) 1	(DI) 2 (DO) 2 / (AI) 1 (AO) 1	(DI) 2 (DO) 2 / (AI) 1 (AO) 1	(DI) 2 (DO) 2 / (AI) 1 (AO) 1	(DI) 2 (DO) 2 / (AI) 1 (AO) 1	(DI) 2 (DO) 2 / (AI) 1 (AO) 1
Tool I/O power supply	24V/1.5A	24V/1.5A	24V/1.5A	24V/1.5A	24V/1.5A	24V/1.5A	24V/1.5A	24V/1.5A	24V/1.5A
Footprint	128mm	128mm	125mm	128mm	149mm	190mm	190mm	240mm	240mm
Weight	≈10.5kg	≈11.25kg	≈10kg	≈15kg	≈22kg	≈40kg	≈40kg	≈85kg	≈85kg
Operating temperature	0~45°C	0~45°C	0~45°C	0~45°C	0~45°C	0~45 °C	0~45°C	0~45°C	0~45 °C
Operating humidity	90%RH(non-condensing)	90%RH(non-condensing)	90%RH(non-condensing)	90%RH(non-condensing)	90%RH(non-condensing)	90%RH(non-condensing)	90%RH(non-condensing)	90%RH(non-condensing)	90%RH(non-condensing)
Materials	Aluminium、Steel	Aluminium、Steel	Aluminium、Steel	Aluminium、Steel	Aluminium、Steel	Aluminium、Steel	Aluminium、Steel	Aluminium、Steel	Aluminium、Steel
Black Optional	no	no	no	no	yes	yes	no	no	no

Axis movement

	FR3WMS Working range	FR3WMS Max speed	FR3WML Working range	FR3WML Max speed	FR3C Working range	FR3C Max speed	FR3 Working range	FR3 Max speed	FR5 Working range	FR5 Max speed	FR10 Working range	FR10 Max speed	FR16 Working range	FR16 Max speed	FR20 Working range	FR20 Max speed	FR30 Working range	FR30 Max speed
Base	±175°	±150°/s	±175°	±150°/s	±175°	±150°/s	±175°	±180°/s	±175°	±180°/s	±175°	±120°/s	±175°	±120°/s	±175°	±120°/s	±175°	±120°/s
Shoulder	+85°/-265°	±150°/s	+85°/-265°	±150°/s	+85°/-265°	±150°/s	+85°/-265°	±180°/s	+85°/-265°	±180°/s	+85°/-265°	±120°/s	+85°/-265°	±120°/s	+85°/-265°	±120°/s	+85°/-265°	±120°/s
Elbow	±150°	±150°/s	±150°	±150°/s	±150°	±150°/s	±150°	±180°/s	±160°	±180°/s	±160°	±180°/s	±160°	±180°/s	±160°	±120°/s	±160°	±120°/s
Wrist 1	+85°/-265°	±180°/s	+85°/-265°	±180°/s	+85°/-265°	±180°/s	+85°/-265° (Dual Arm: -85°/+265°)	±180°/s	+85°/-265° (Dual Arm: -85°/+265°)	±180°/s	+85°/-265°	±180°/s	+85°/-265°	±180°/s	+85°/-265°	±180°/s	+85°/-265°	±180°/s
Wrist 2	±175°	±180°/s	±175°	±180°/s	350°	±180°/s	±175°	±180°/s	±175°	±180°/s	±175°	±180°/s	±175°	±180°/s	±175°	±180°/s	±175°	±180°/s
Wrist 3	±360°	±180°/s	±360°	±180°/s	±175°	±180°/s	±175°	±180°/s	±175°	±180°/s	±175°	±180°/s	±175°	±180°/s	±175°	±180°/s	±175°	±180°/s

■ Typical power test payload settings, different loads are set according to robot models, payload configuration parameters are as follows :

	FR3WMS	FR3WML	FR3C	FR3	FR5	FR10	FR16	FR20	FR30
Payload setting	FR3WMS payload setting: 3kg, Z-axis: 18mm	FR3WML payload setting: 3kg, Z-axis: 18mm	FR3C payload setting: 3kg, Z-axis: 18mm	FR3 payload setting: 3kg, Z-axis: 18mm	FR5 payload setting: 5kg, Z-axis: 30mm	FR10 payload setting: 10kg, Z-axis: 60	FR16 payload setting: 16kg, Z-axis: 96mm	FR20 payload setting: 20kg, Z-axis: 120mm	FR30 payload setting: 30kg, Z-axis: 200mm

Select aging test program, connect robot's total power to power meter, set robot to automatic mode, set global speed to 100, click run, if there are no abnormalities after running two cycles, start continuous testing for 24 hours, respectively, record the peak and average power of the power meter, and then statistically analyze each model :

	FR3WMS	FR3WML	FR3C	FR3	FR5	FR10	FR16	FR20	FR30
Typical average power	90W	140W	200W	220W	260W	300W	310W	620W	600W
Typical peak power	130W	240W	230W	280W	310W	500W	410W	810W	910W

FAIRINO

CONTROLLER TECHNICAL SPECIFICATION

Features	DC MINI Controller 2kW	DC Controller 5kW	AC MINI Controller 2kW	AC Controller 5kW
IP classification	IP54	IP54	IP54	IP54
Operating temperature	0-45(	0-45(	0-45(	0-45(
Operating humidity	90%RH(non-condensing)	90%RH(non-condensing)	90%RH(non-condensing)	90%RH(non-condensing)
I/O Ports	(DI) 16 (DO) 16	(DI) 16 (DO) 16	(DI) 16 (DO) 16	(DI) 16 (DO) 16
	(AI) 2 (AO) 2	(AI) 2 (AO) 2	(AI) 2 (AO) 2	(AI) 2 (AO) 2
	High speed pulse input 2	High speed pulse input 2	High speed pulse input 2	High speed pulse input 2
I/O power supply	24V/1.5A	24V/1.5A	24V/1.5A	24V/1.5A
Standard communication	I/O- TCP/IP- Modbus_TCP/RTU	I/O- TCP/IP- Modbus_TCP/RTU	I/O- TCP/IP- Modbus_TCP/RTU	I/O- TCP/IP- Modbus_TCP/RTU
Optional communication	CC-Link- Profinet- Ethernet/IP- EtherCAT	CC-Link- Profinet- Ethernet/IP- EtherCAT	CC-Link- Profinet- Ethernet/IP- EtherCAT	CC-Link- Profinet- Ethernet/IP- EtherCAT
Communication Board Optional Configuration	MiniPCI Express - real-time Ethernet PC Board	MiniPCI Express - real-time Ethernet PC Board	MiniPCI Express - real-time Ethernet PC Board	MiniPCI Express - real-time Ethernet PC Board
Software development kit	C#/C++/Python/ROS/ROS2	C#/C++/Python/ROS/ROS2	C#/C++/Python/ROS/ROS2	C#/C++/Python/ROS/ROS2
Physical				
L*W*H	245*180*44.5mm (No protrusions)	245*180*89 mm (No protrusions)	245*180*44.5mm (No protrusions)	245*180*89mm (No protrusions)
Weight	2.1kg(Weight without wire)	2.957kg (Weight without wire)	2.5kg(Weight without wire)	3.6kg(Weight without wire)
Materials	Galvanized plate	Galvanized plate	Galvanized plate	Galvanized plate
Power supply	30-60VDC	30-60VDC	100-240VAC / 10A / Single-phase / 50-60Hz	100-240VAC / 16A / Single-phase / 50-60Hz
Output power	48VDC / 42Amax	48VDC / 104Amax	48VDC / 42Amax	48VDC / 104Amax
Applicable Robot	FR3WMS,FR3WML,FR3,FR5,FR10,FR16	FR20/FR30	FR3WMS,FR3WML,FR3,FR5,FR10,FR16	FR20/FR30

Galexon ROBOTICS

SAFETY BOX

IP Classification	IP54
Button Function	Manual/Auto, Drag, Point Record Match or Not with Safety Button BOx, Start/Stop, Shutdown
Communication	TCP/IP
Network transfer rate	100M
Power over ethernet	Standard POE
L*W*H	136*60*66mm (No protrusions)
Weight	490g (Cable weight included)
Materials	ABS
Cable length	5m
Number of Keys	$\geq$ 20W

Human-cobot interaction tools for basis interaction functions. It can be linked with computers, tablets and other devices through the RJ45 interface, and directly log into the Web App teaching interface.

TEACH PENDANT (OPTIONAL)

IP Classification	IP54
Operating humidity	90%RH (non-condensing)
Display resolution	1280 x 800 pixels
L*W*H	268*210*88 mm
Weight	1.6kg
Materials	ABS, PP
Cable length	5m

The teach pendant, computer, tablet or mobile phone is connected to the WebApp system to realize the operation of the collabroative robot.

EXPLOSION-PROOF CABINET

Explosion-Proof Cabinets
(Integral Explosion-Proof)

Robot (full range explosion-proof)

It has good technical performance. The cabinet must be resistant to vibration, impact, corrosion, dust, water, and radiation to ensure stable and reliable operation of devices. Good usability and safety protection facilities, easy operation, installation and maintenance, and to ensure the safety of the operator

IP Classification	IP65
Operating Environment Temperature	0°C – 45°C
Minimum Positive Pressure	100pa
Maximum Positive Pressure	1000pa
Rated Input Voltage	KW/48VDC/A
Maximum Leakage	15L/Min
L*W*H	682*500*1100 (Incl. alarm light 1286)
Weight	75kg
Materials	Carbon Steel + Stainless Steel
Cabinet Volume	126L
Ventilation Flow Rate	120L/min
Ventilation Time	14 min
Protective Gas	AIR
Explosion-proof Cabinet Certificate	CE22.7131

INDUS**TRY**
PALLETIZING SOLUTION

Abundant welding process kits with a variety of welding technologies, seam welding, straight welding, oscillating welding, arc welding, and multi-layer multi-pass welding. It also incorporates intelligent welding technologies for wire positioning and weld seam tracking, significantly enhancing welding efficiency and ensuring welding quality.
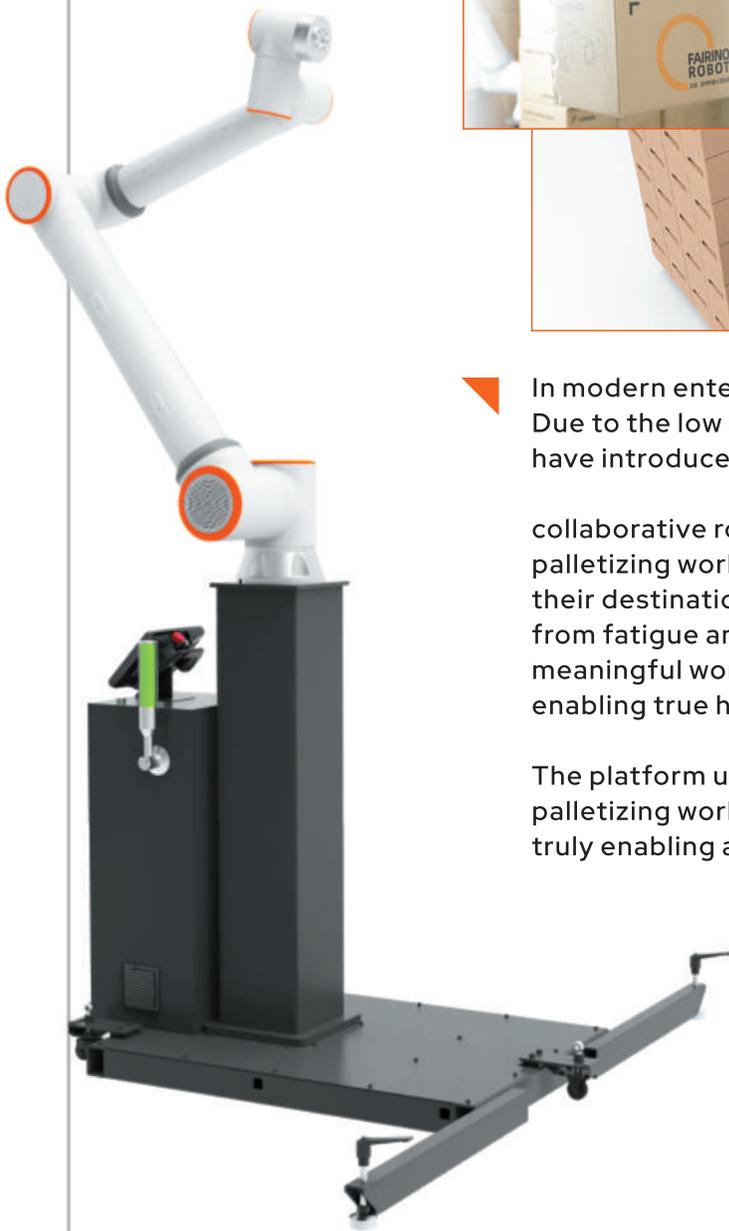
In modern enterprises, palletizing work is very common.
Due to the low efficiency of manual handling, many companies have introduced robotic palletizing systems to automate this task.

collaborative robots can perform round-the-clock automated palletizing work, effortlessly and quickly transporting goods to their destinations, saving time and energy. This frees employees from fatigue and repetitive tasks, allowing them to engage in more meaningful work. Additionally, there is no need for safety barriers, enabling true human-robot collaboration.

The platform utilizes a six-axis collaborative robot to accomplish palletizing work, offering easy deployment and quick utilization, truly enabling a plug-and play experience.

10-MINUTE ULTRA-FAST PROGRAMMING SWITCHOVER

VARIOUS PALLETIZING PACKAGES TO MEET INDIVIDUAL NEEDS

OVER 30% PRODUCTIVITY INCREASED IN 7*24 HOUR OPERATION

SCREW TIGHTENING SOLUTION

Combined with the end intelligent tightening device at the end, it achieves adjustable, controllable, and programmable torque, making it suitable for screw tightening in various scenarios. It can stably, efficiently, and accurately complete the production process, greatly reducing repetitive labor for workers and supporting data traceability.

- ◤ SAFE AND CONVENIENT
- ◤ FLEXIBLE DEPLOYMENT
- ◤ FLEXIBLE FORCE CONTROL
- ◤ HIGH EFFICIENCY IN PRODUCTION
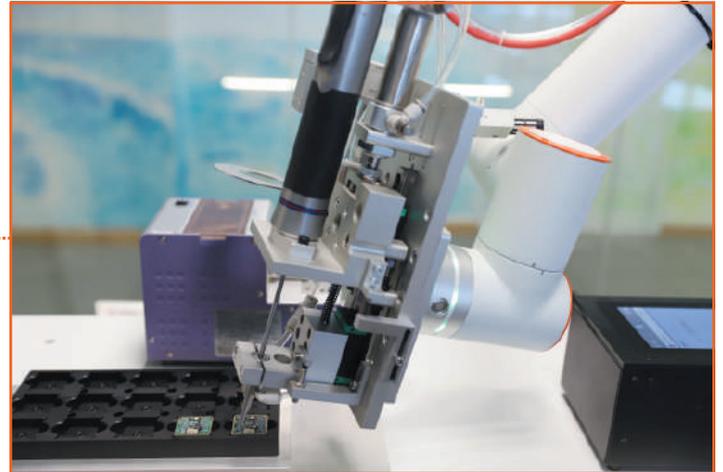
WELDING SOLUTION

Abundant welding process kits, with a variety of welding technologies such as spot welding, seam welding, straight welding, oscillating welding, arc welding, and multi-layer multi-pass welding. It also incorporates intelligent welding technologies for wire positioning and weld seam tracking, significantly enhancing welding effciency and ensuring welding quality.

- ◤ ULTIMATE SAFETY
- ◤ FLEXIBLE DEPLOYMENT
- ◤ REDUCED ENTRY BARRIERS
- ◤ MULTI-AXIS COORDINATION
- ◤ HIGH PRODUCTION EFFICIENCY

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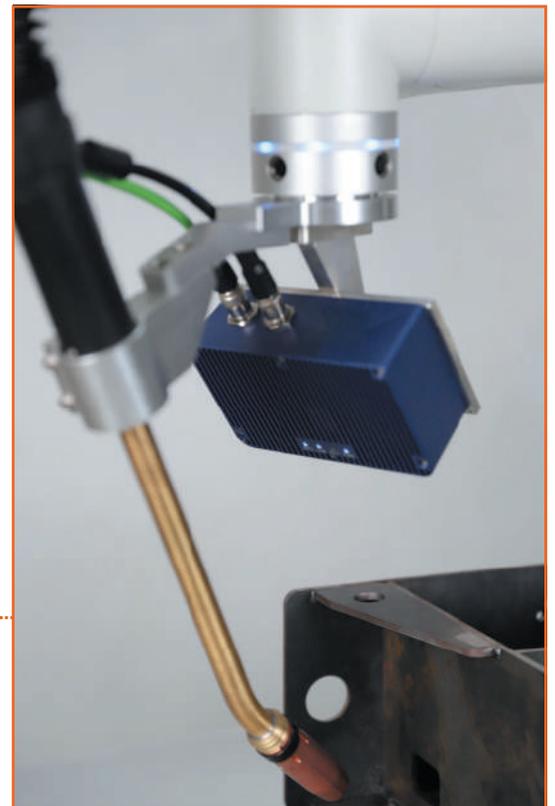
APPLICATION

CONVEYOR BELT SOLUTION

▼ ENHANCE WORK SAFETY

▼ REAL-TIME MONITORING AND FEEDBACK

▼ REDUCE ERROR RATE AND LOSSES

▼ DATA RECORDING AND TRACEABILITY

▼ IMPROVE PRODUCTION EFFICIENCY

▼ ACCURATE TRACKING AND IDENTIFICATION

PICK AND PLACE SOLUTION

Material handling robots can improve production efficiency, quality, and safety, reduce labor intensity, and provide flexibility and adaptability, bringing higher benefits and competitive advantages to businesses.

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EDUCATIONAL SOLUTION

The platform includes common functions in the industrial field, such as gluing, tightening, and material handling, closel y aligning with actual production line scenarios. It allows students to experience the real factory atmosphere up close in the classroom, making it an invaluable collaborative robot training platform in the field of education.

GLUE DISPENSING SOLUTION

Paired with an intelligent dispensing device at the end effector, it enables precise operations and is suitable for precise gluing and dispensing tasks in various scenarios. It can achieve stable, efficient, and accurate adhesive application, ensuring the quality of the adhesive work. This greatly reduces repetitive labor for workers and protects their health.

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Galexon ROBOTICS

COMMERCIAL

| REHABILITATION SOLUTION

It has achieved integration of upper limb rehabilitation and lower limb exercise, reducing the barrier to entry through the reproduction of motion trajectories. By recording real-time feedback data, it significantly enhances safety performance. With various mode settings, it makes rehabilitation treatment more targeted, leading to a significant improvement in rehabilitation efficiency.

- ◤ ULTIMATE SAFETY
- ◤ OPEN PLATFORM
- ◤ DATA TRACEABILITY
- ◤ REDUCED ENTRY BARRIERS

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MOXIBUSTION SOLUTION

It fully replicates the five major moxibustion techniques, offering hovering moxibustion, sparrow pecking moxibustion, rotating moxibustion, reciprocating moxibustion, and meridian moxibustion, thus reducing the barrier to entry for moxibustion. With the latest certifications, it is equipped with end collision detection, temperature control, and infrared distance measurement, providing triple protection to ensure the safety of moxibustion. It also has a built-in suction device to prevent inhalation of smoke and dust during the moxibustion process.

◣ **ULTIMATE SAFETY**

◣ **FLEXIBLE DEPLOYMENT**

◣ **EFFICIENT MOXIBUSTION**

◣ **LOWER BARRIER TO ENTRY**

AUTOMATED TEA SOLUTION

Collaborative robots can be applied in various types of new retail scenarios and can be customized according to different scenario requirements.

Benefits include :
Cost-saving :
They replace manual labor, reducing manpower costs while increasing work effciency.

Consistent tea brewing :
They ensure consistent taste regardless of different operators or different time points, eliminating variations caused by human factors.

Entertainment value :
The robotic performance brings enjoyment to consumers, while employees can focus on more fulfilling and higher-paying jobs.

Cost-effective :
They have low costs and provide a quick return on investment, resulting in good economic benefits.

Small footprint :
They occupy less space, resulting
in higher space utilization and adaptability to various innovative business models.

INTELLIGENT WELDING WORKSTATION

Open a new journey of convenient welding with one click

FAIRINO's digital welding process software kit supports various welding techniques, fully meeting the welding needs of different scenarios. The programming-free automatic welding platform developed by FAIRINO can automatically locate welding seam positions, conduct simulation rehearsals in advance, identify problems promptly, and mitigate risks. During the welding process, real-time welding seam deviation compensation is performed to ensure the consistency and precision of the welding operations.

FR-Welding-Hardware

Welding Hardware

Solution	Technical Specification
Welder (with water tank)	Size 1449*750*1098 mm
Smart Tool	Magnetic base for fixation,
Switch Cabinet	can be easily moved around.
Magnet (3 pcs)	Magnetic base size 382*331*121 mm
Trolley	The equipment is fixed on a trolley,
Router	which can be moved along with
Controller	the trolley The wire feeder can
Torch Extension Cable	rotate 360° and can be detached
Welding Torch	from the trolley and placed freely

Robot Vision

Solution	Technical Specification
Camera	Working Distance **350-800mm**
IPC Industrial Processing	Near Field on View **270mm*200mm@350mm**
Computer	Far Field of View **630mm*450mm@800mm**
IPC Graphics + Graphics	Resolution **1440*1080**
Card Display Card	z-axis Repeatability **0.08mm @ 500mm**
Vision Software	Fastest Acquisition Time **0.8s**

Smart Tool
Torch Extension Cable
Welding Torch
Magnet
Welder
Switch Cabinet
Controller
ROUTER
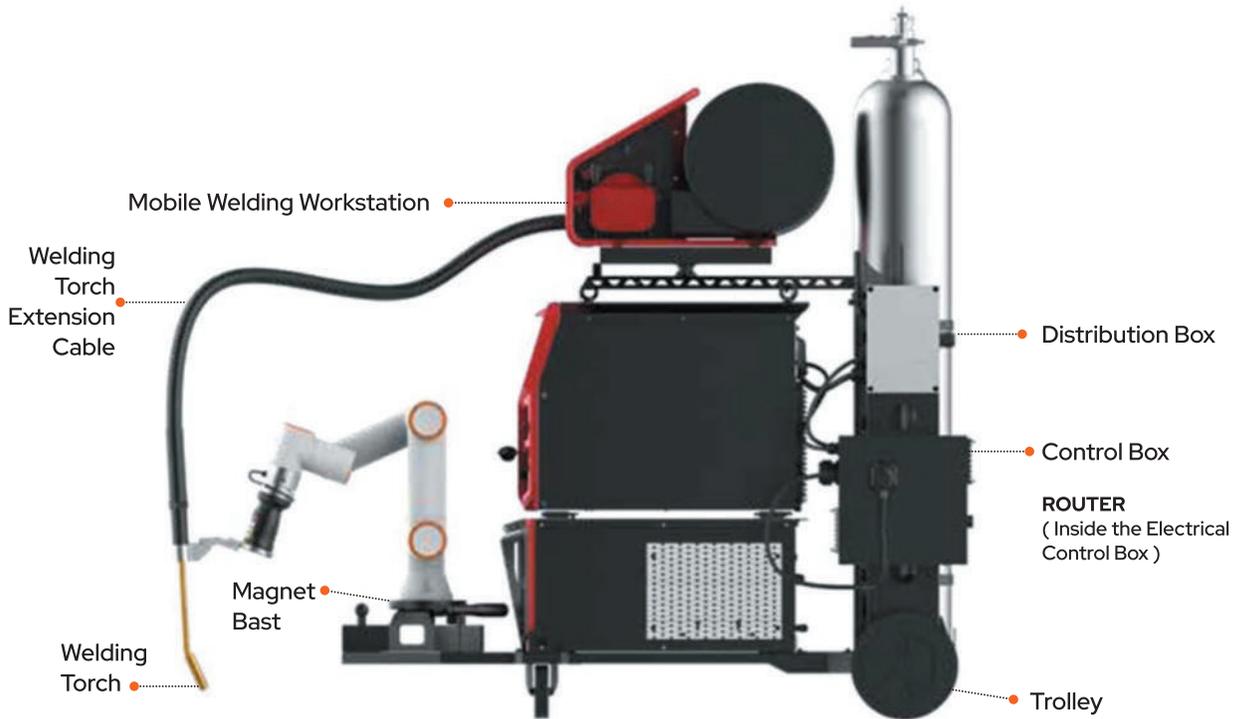(Inside the Electrical Control Box)
Trolley
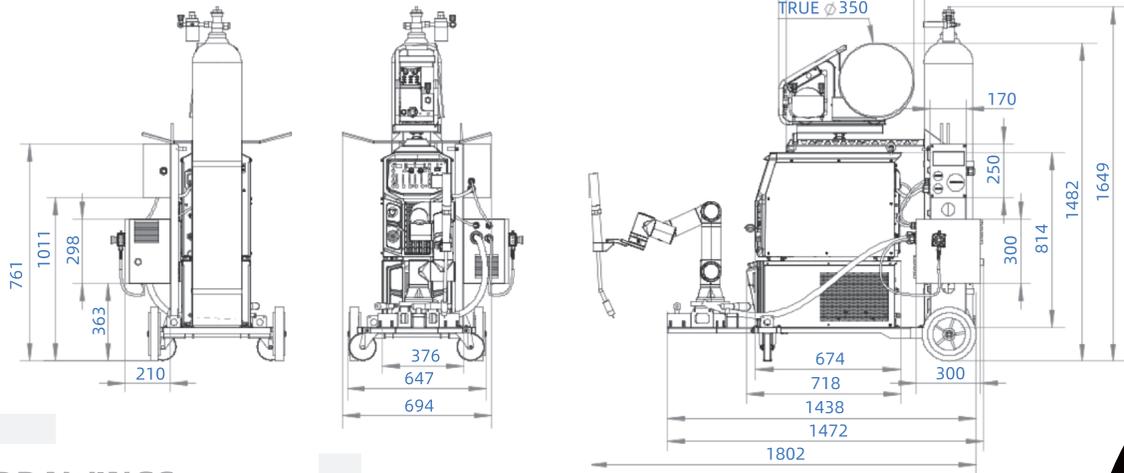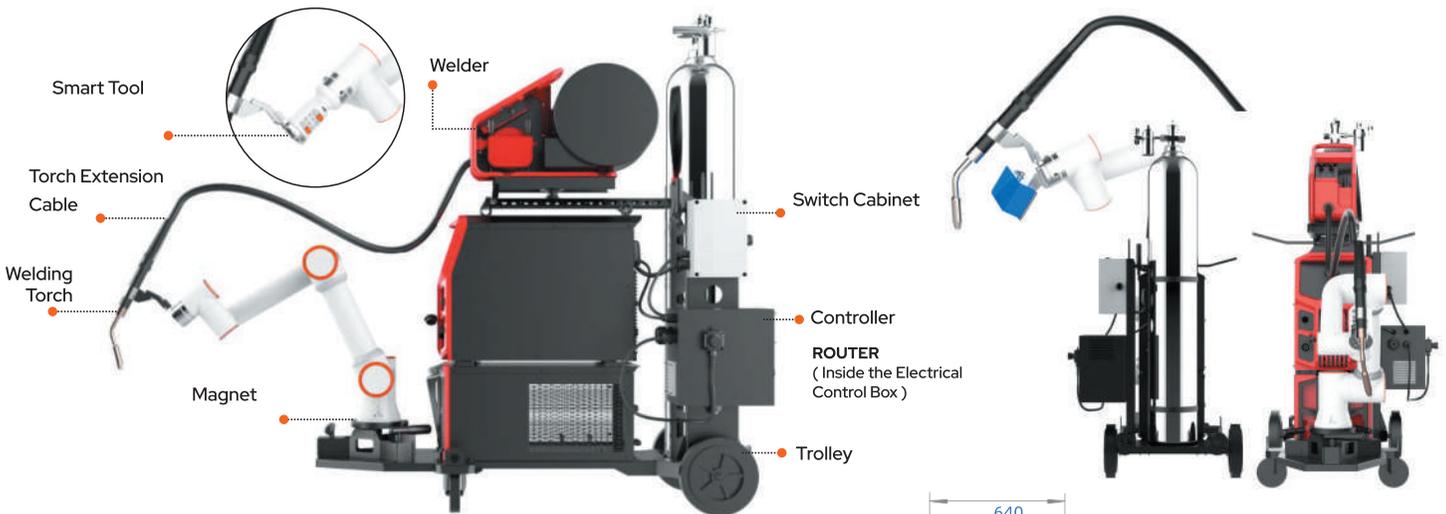
DRAWINGS

Unit : mm

MOBILE WELDING SOLUTION

The mobile welding solution integrates core equipment units such as a mobile trolley, magnetic base, SMART TOOL, and six-dimensional torque sensor, and each equipment unit works together to give full play to its respective advantages and bring a new experience to welding work.

Mobile Welding Workstation

Welding Torch Extension Cable

Distribution Box

Control Box

ROUTER
(Inside the Electrical Control Box)

Magnet Bast

Welding Torch

Trolley

APPLICATION ADVANTAGES

◥ **High flexibility**

◥ **Easy Operation**

◥ **Precision control**

◥ **Improved Efficiency**

APPLICATION SCENARIOS

Suitable for precision welding tasks in complex spatial structures

◥ **Building steel structure**

◥ **Shipbuilding**

◥ **Sheet Metal Industry**

◥ **Electronics Manufacturing**

◥ **Production of auto parts**

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WELDING ROBOT   YS10-1440-W

Faster, more accurate and more reliable. Suitable for
all types of CO2/MAG/MIG/TIG welding and plasma cutting

SPESIFICATION

Model No.	YS10-1440-W
Number of axes	6
Maximum payload	10kg
Approx. weight	176kg (without Cabinet or welding machine)
Repeatability	± 0.05mm
I/O terminals	16 digital inputs/outputs 2 analog outputs

6-AXIS HANDLING ROBOT YS20-1840

Faster, accurate and reliable. Suitable for
pick-n-place, machine tending, palletizing and painting

SPESIFICATION

Model No.	YS20-1840
Number of axes	6
Maximum payload	20kg
Approx. weight	260kg (without Cabinet or welding machine)
Repeatability	± 0.08mm
I/O terminals	16 digital inputs/outputs 2 analog outputs

TECHNOLOGY PARTERS

Galexon ROBOTICS

PALLETIZING & DEPALLETIZING

WELDING

MACHINE TENDING

PICK & PLACE

LOADING & UNLOADING

ASSEMBLY

ROBOTIC AUTOMATION SOLUTIONS

FAIRINO   yasaka

Vision

Creating a unique market value for our company, embracing new challenges in robotic automation, and driving Industry 4.0 transformation for every client withour cutting–edge solutions."

Mission

We provide complete Robotic and SPM Automation solutions, helping clients adopt technology cost effectively with quick support for any robot related issues."

GALEXON ROBOTICS

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Factory : Ambattur, Chennai

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