

# PRODUCT ECOSYSTEM MANUAL



## CONTACT US

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FAIRINO

# FAIRINO

- › Modularization
- › Quick deployment
- › Easy operation



# FAIRINO ROBOT

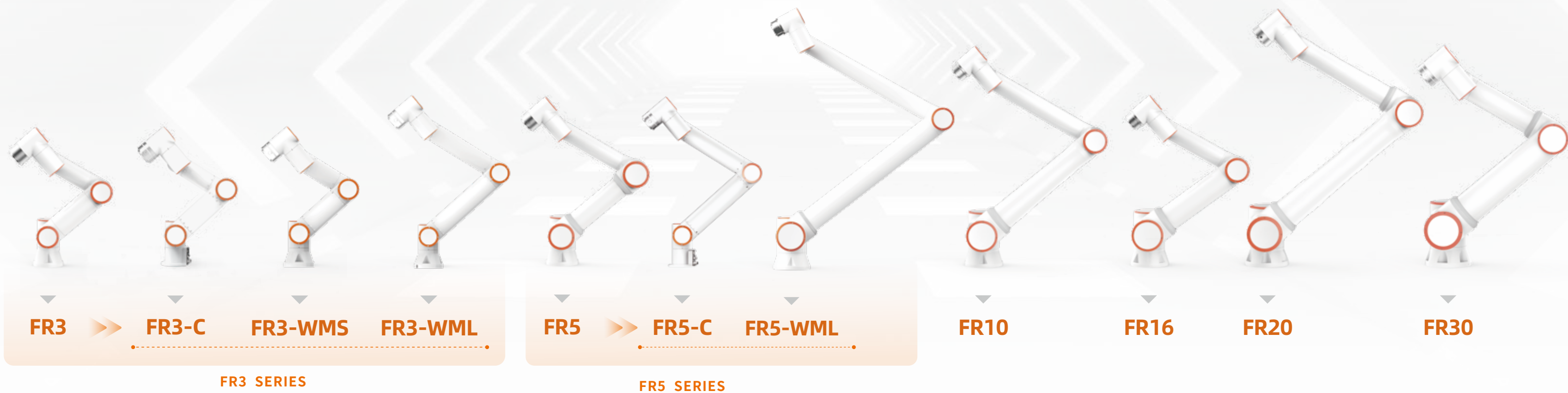
## PRODUCT VISION

### 产品愿景

Collaborative robots will extend your time and space, liberate complex and inefficient repetition, and let you embrace a wider horizon. In the future, You will see **FAIRINO ROBOTS**.

With its emergence, it not only improves the efficiency of human-machine collaboration, but also speeds up the automation process for more enterprises and frees floor space and lowers the cost of implementing robots for manufacturers.

# PRODUCT DISPLAY



# FAIRINO FR SERIES

According to different payload and parameter, FAIRINO collaborative robots FR series are divided into the following models:FR3(Optional Mirror Version), FR3-C, FR3-WMS,FR3-WML, FR5, FR5-C,FR5-WML, FR10, FR16, FR20 and FR30.

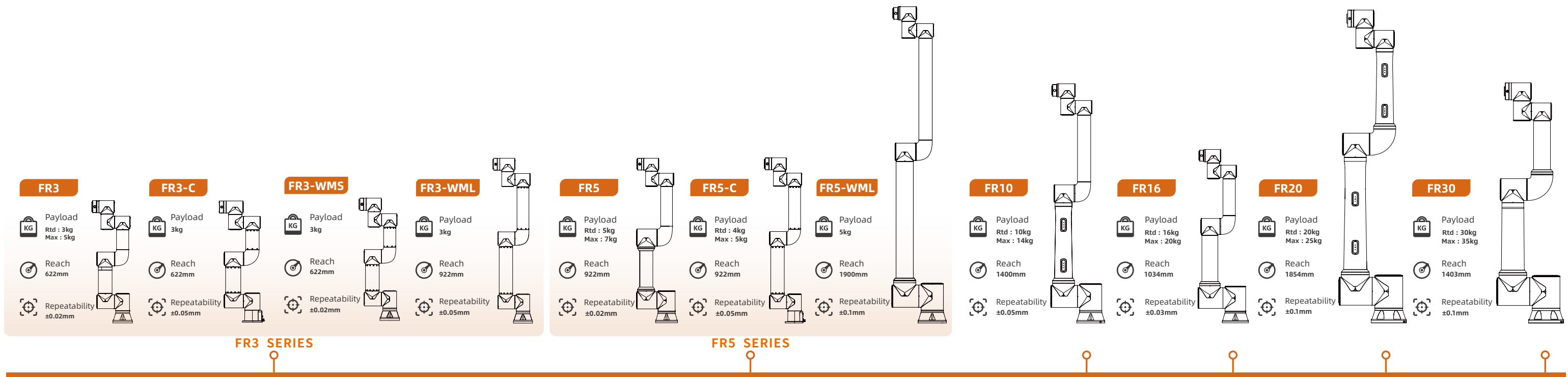
To provide partners&customers with better quality assurance,FAIRINO has obtained a more comprehensive range of certificates through international certification organizations.

Quality Management System: ISO 9001

Product Certification: CR, CE, KCs, NRTL, RoHS 2.0, NSF, SEMI, IP65

ISO Functional Safety Certification: ISO10218, ISO13849, ISO15066

## Intelligent human-robot cooperation system solutions



# ROBOT ARM TECHNICAL SPECIFICATION

>> FR3 SERIES <<

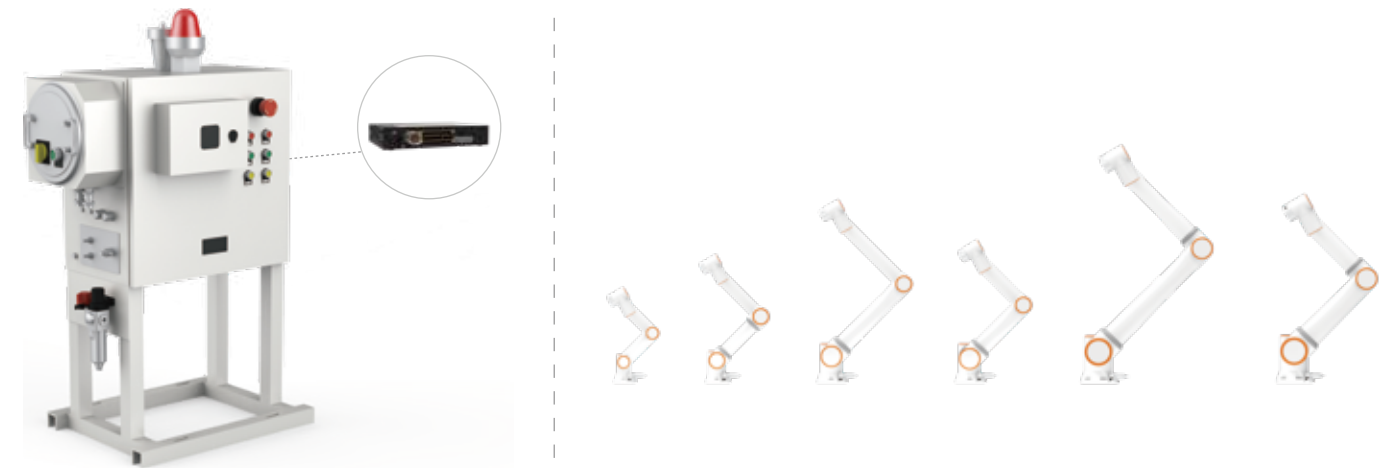
>> FR5 SERIES <<

	FR3		FR3-C		FR3-WMS		FR3-WML		FR5		FR5-C		FR5-WML	
Payload	3kg(Max:5kg)		3kg		3kg		3kg		5kg(Max:7kg)		4kg(Max:5kg)		5kg	
Reach	622mm		622mm		622mm		922mm		922mm		922mm		1900mm	
Degrees of freedom	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 (Optional) or mobile terminal Web App		Not support teach pendant				10.1 inch teach pendant (Optional) or mobile terminal Web App				Not support teach pendant			
Dual arm robotics applications	Mirror versions available to build dual arm robots													
Pose repeatability per ISO 9283	±0.02mm		±0.05mm		±0.02mm		±0.05mm		±0.02mm		±0.05mm		±0.1mm	
Axis movement	Working range	Maximum speed	Working range	Maximum speed	Working range	Maximum speed	Working range	Maximum speed	Working range	Maximum speed	Working range	Maximum speed	Working range	Maximum speed
Base	±175°	±180°/s	±175°	±180°/s	±175°	±150°/s	±175°	±150°/s	±175°	±180°/s	±175°	±150°/s	±175°	±120°/s
Shoulder	+ 85° / - 265° (Dual Arm: -85° / + 265°)	±180°/s	+ 85° / - 265°	±180°/s	+ 85° / - 265°	±150°/s	+ 85° / - 265°	±150°/s	+ 85° / - 265°	±180°/s	+ 85° / - 265°	±150°/s	+ 85° / - 265°	±120°/s
Elbow	±150°	±180°/s	±160°	±180°/s	±150°	±150°/s	±150°	±150°/s	±160°	±180°/s	±160°	±150°/s	±170°	±180°/s
Wrist 1	+85° / - 265° (Dual Arm: -85° / + 265°)	±180°/s	+ 85° / - 265°	±180°/s	+ 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	±175°	±180°/s	±175°	±180°/s	±175°	±180°/s	±175°	±180°/s	±175°	±180°/s
Wrist 3	±175° (Optional ±360°)	±180°/s	±175°	±180°/s	±360°	±180°/s	±360°	±180°/s	±175°(Optional ±360°)	±180°/s	±360°	±180°/s	±360°	±180°/s
Typical TCP speed	1m/s		1m/s		1m/s		1m/s		1m/s		1m/s		2m/s	
IP classification	IP54 (IP65 Optional)		IP54		IP54 (IP65 Optional)		IP54 (IP65 Optional)		IP54 (IP65 Optional)		IP54		IP54 (IP65 Optional)	
Noise	<65dB		<65dB		<65dB		<65dB		<65dB		<65dB		<65dB	
Robot mounting	Any orientation		Any orientation		Any orientation		Any orientation		Any orientation		Any orientation		Any orientation	
I/O Ports	(DI) 2 (DO) 2		(DI) 2 (DO) 2		(DI) 2 (DO) 2		(DI) 2 (DO) 2		(DI) 2 (DO) 2		(DI) 2 (DO) 2		(DI) 2 (DO) 2	
	(AI) 1 (AO) 1		(AI) 1 (AO) 1		(AI) 1 (AO) 1		(AI) 1 (AO) 1		(AI) 1 (AO) 1		(AI) 1 (AO) 1		(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	
Footprint	128mm		125mm		128mm		128mm		149mm		125mm		190mm	
Weight	≈15kg		≈14kg		≈10.5kg		≈11.25kg		≈22kg		≈11.8kg		≤45kg	
Operating temperature	0~ 45°C		0~45°C		0~45°C		0~45°C		0~45°C		0~45°C		-20~ 45°C	
Operating humidity	90%RH(non-condensing)		20%~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	
Black Optional	no		no		no		no		yes		no		no	
<p>■ Typical power test payload settings, different loads are set according to robot models, payload configuration parameters are as follows :</p>														
	FR3 payload setting: 3kg, Z-axis: 18mm		FR3-C payload setting: 3kg, Z-axis: 18mm		FR3-WMS payload setting: 3kg, Z-axis: 18mm		FR3-WML payload setting: 3kg, Z-axis: 18mm		FR5 payload setting: 5kg, Z-axis: 30mm		FR5-C payload setting: 4kg, Z-axis: 30mm		FR5-WML payload setting: 5kg, Z-axis: 30mm	
<p>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. After 24 hours, respectively, record the peak and average power of the power meter, and then statistically analyze each model :</p>														
Typical average power	220W		260W		90W		140W		260W		190W		270W	
Typical peak power	280W		320W		130W		240W		310W		340W		620W	

# ROBOT ARM TECHNICAL SPECIFICATION

	FR10	FR16	FR20	FR30				
Payload	10kg (Max:14kg)	16kg (Max:20kg)	20kg (Max:25kg)	30kg (Max:35kg)				
Reach	1400mm	1034mm	1854 mm	1403 mm				
Degrees of freedom	6 rotating joints	6 rotating joints	6 rotating joints	6 rotating joints				
HMI	10.1 inch teach pendant (Optional) or mobile terminal Web App							
Dual arm robotics applications								
Pose repeatability per ISO 9283	±0.05mm	±0.03mm	±0.1 mm	±0.1 mm				
Axis movement	Working range	Maximum speed	Working range	Maximum speed	Working range	Maximum speed	Working range	Maximum speed
Base	±175°	±120°/s	±175°	±120°/s	±175°	±120°/s	±175°	±120°/s
Shoulder	+ 85° / - 265°	±120°/s	+ 85° / - 265°	±120°/s	+ 85° / - 265°	±120°/s	+ 85° / - 265°	±120°/s
Elbow	±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°	±180°/s
Wrist 2	±175°	±180°/s	±175°	±180°/s	±175°	±180°/s	±175°	±180°/s
Wrist 3	±175°(Optional ±360°)	±180°/s	±175°(Optional ±360°)	±180°/s	±175°	±180°/s	±175°	±180°/s
Typical TCP speed	1.5m/s	1m/s	2m/s	2m/s				
IP classification	IP54 (IP65 Optional)	IP54 (IP65 Optional)	IP54 (IP65 Optional)	IP54 (IP65 Optional)				
Noise	<65dB	<65dB	<70dB	<70dB				
Robot mounting	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				
Tool I/O power supply	24V/1.5A	24V/ 1.5A	24V/ 1.5A	24V/ 1.5A				
Footprint	190mm	190mm	240mm	240mm				
Weight	≈40kg	≈40kg	≈85 kg	≈85 kg				
Operating temperature	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)				
Materials	Aluminium 、 Steel	Aluminium 、 Steel	Aluminium 、 Steel	Aluminium 、 Steel				
Black Optional	yes	no	no	no				
<p>■ Typical power test payload settings, different loads are set according to robot models, payload configuration parameters are as follows :</p>								
	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				
<p>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. After 24 hours, respectively, record the peak and average power of the power meter, and then statistically analyze each model;</p>								
Typical average power	300W	310W	620W	600W				
Typical peak power	500W	410W	810W	910W				

# EXPLOSION-PROOF CABINET [Optional]



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	100-240Vac
Maximum Leakage	15L/Min
L*W*H	682*500*1100(Includes alarm light 1286)
Weight	75kg
Materials	Carbon Steel + Stainless Steel
Cabinet Volume	126L
Ventilation Flow Rate	120L/min
Ventilation Time	14min
Protective Gas	AIR
Explosion-proof Cabinet Certificate	CE22.7131

# 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	≥20W

Human-robot interaction tools for basic interaction functions. It can be linked with computers, tablets and other devices through the RJ45 interface, and directly log in to 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*88mm
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 collaborative robot.

# COLLABORATIVE ROBOT MOBILE MOUNTING KIT

[ Optional ]

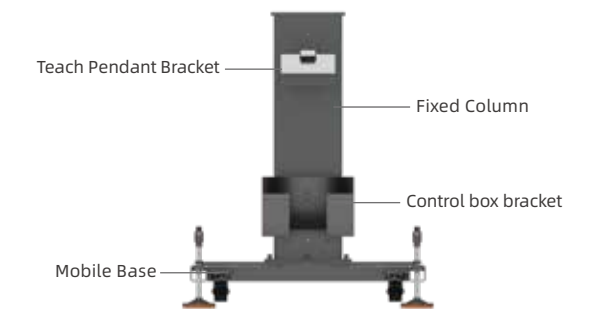
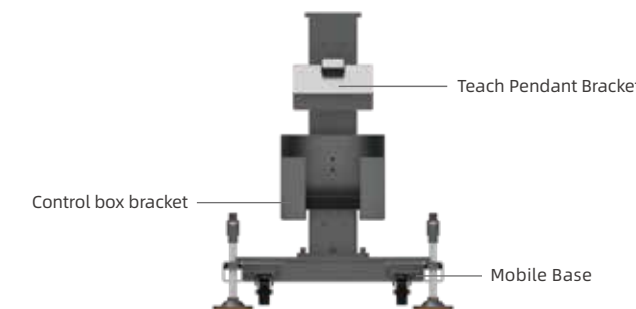
The mobile mounting kit is specifically designed for collaborative robots, supporting rapid deployment and flexible mobile operations. The kit includes a mobile base, fixed column, robot base adapter, teach pendant bracket, and control cabinet bracket module. Components can be optionally selected according to application needs and flexibly configured into light-duty or heavy-duty versions, making the kit suitable for mobile operation requirements across various industrial scenarios.



1 Robot Base Adapter	Material	Steel Plate
	Steel	45°: 280mm*280mm*245mm 15°: 280mm*280mm*150mm
	Stiffness	Light: Meets the requirements for full-load and full-speed operation of the compatible robot (the adapter base needs to be fixed)
2 Robot Fixed Column	Material	Hollow Square Tube + Steel Plate
	Dimensions	Total height of the column: 610mm,760mm,915mm,1065mm,1220mm
	Stiffness	Light: Meets the requirements for full-load and full-speed operation of the compatible robot (column needs to be fixed) Heavy-duty: Meets the full-load operation requirements of compatible robots (within a speed of 1 m/s, the column needs to be fixed)
3 Teach Pendant Bracket	Material	Sheet Metal + Universal Adjustment Bracket
4 Control box bracket (optional as needed)	Material	Sheet Metal
	Material	Q235
5 Mobile Base	Size	Light: 1020mm*600mm*250mm Heavy: 1240mm*920mm*300mm
	Mobility and Support	Adjustable Foot Supports and Swivel Casters for Movement
	Stiffness	Light: Meets the requirements for full-load and full-speed operation of the compatible robot (base must be fixed) Heavy-duty: Meets the full-load operation requirements of the compatible robot (within a speed of 1 m/s, with the base required to be fixed)

■ **Lightweight Mobile Mounting Kit:** Compatible with FR3 and its series of products (FR3-C,FR3-WMS, FR3-WML), FR5 and its series of robots (FR5-WML, FR5-C), FR10, and FR16

■ **Heavy-duty Mobile Mounting Kit:** Compatible with FR10, FR16, FR20, FR30



# FOOD INDUSTRY PROTECTIVE SUIT

FAIRINO Robot Food-Grade Special Protective Suit is tailor-made for hygiene-sensitive industries such as food and beverage, baking, and dairy products. It thoroughly avoids the risk of cross-contamination caused by robots during food production. Meanwhile, it protects the robot body from erosion by food raw materials, detergents and humid environments, serving as an essential safety component for food-grade automated production lines. The lightweight and high-elastic structure does not affect the robot's motion accuracy and working efficiency, and it is perfectly suitable for various food production scenarios such as bread baking and pastry assembly lines.

## PERFORMANCE SPECIFICATIONS



Performance Category	Performance Index
Protection Grade	P5X (Dust protection Level 5, non-waterproof; resistant to floating grease, dust and other particles in food factories)
Protection Coverage	During dynamic operation, all parts are fully covered except the base and end effector
Matched Robot	Compatible with FR10; customized versions are available for other robot models. (The protective suit will not interfere with the robot's movement within its normal operating range.)
Motion Range	Consistent with the standard FR10 robot
Material	Polyester + Spandex, white color, elongation rate over 190%
Working Environment	Temperature: 10°C, Humidity: 95%RH
Installation/Removal Duration	Single-person installation / removal ≤ 5 minutes
Cleanability Requirement	Smooth surface without particulate matter, easy to rinse
Disassembly & Cleaning Frequency	Daily cleaning; washable with household laundry detergent and household washing machine
Reliability Requirements	1. Wiped 30 times a day with neutral detergent, no damage after 60 consecutive days 2. No abnormal performance after 60 days of use under specified temperature, humidity and cleaning frequency

## APPLICATION ADVANTAGES



### Excellent Dustproof Performance

IP5X professional protection grade, capable of coping with dusty working environments



### Ultra-high Elasticity

Adopts optimized polyester and spandex formula with elongation rate over 190%, ensuring flexible movement without restriction



### Quick Installation & Disassembly

Designed for replacement within 5 minutes, saving time and labor for disassembly, cleaning and maintenance



### Easy Cleaning & Maintenance

Compatible with neutral detergents, simple and convenient for daily upkeep



# FOOD INDUSTRY PROTECTIVE SUIT

## APPLICABLE SCENARIOS

Palletizing of food raw materials, semi-finished products and finished products; Food packaging processes including cartoning, box sealing and labeling.

# CONTROLLER TECHNICAL SPECIFICATION



**DC MINI Controller**



**AC MINI Controller 2kW**



**AC Controller 5kW**

**Features**

IP classification	IP54	IP54	IP54
Operating temperature	0-45°C	0-45°C	0-45°C
Operating humidity	90%RH(non-condensing)	90%RH(non-condensing)	90%RH(non-condensing)
I/O Ports	(DI) 16 (DO) 16 (AI) 2 (AO) 2	(DI) 16 (DO) 16 (AI) 2 (AO) 2	(DI) 16 (DO) 16 (AI) 2 (AO) 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
Standard communication	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 IE Field Basic、Profinet、Ethernet/IP、EtherCAT	CC-Link IE Field Basic、Profinet、Ethernet/IP、EtherCAT	CC-Link IE Field Basic、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
Software development kit	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*44.5mm (No protrusions)	245*180*89mm (No protrusions)
Weight	2.044 kg (Weight without wire)	2.5kg (Weight without wire)	3.6kg (Weight without wire)
Materials	Galvanized plate	Galvanized plate	Galvanized plate
Power supply	30-60VDC	100-240VAC / 10A / Single-phase / 50-60Hz	100-240VAC / 16A / Single-phase / 50-60Hz
Output power	48VDC / 104Amax	48VDC / 42Amax	48VDC / 104Amax

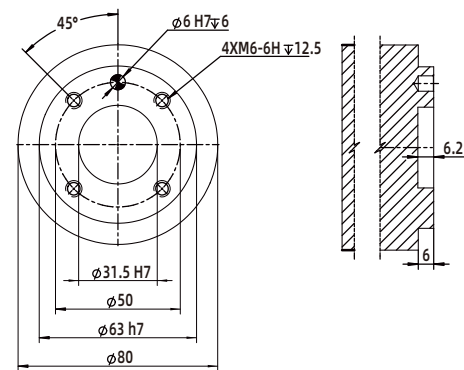
**Applicable Robot**

FR3/FR3-WMS/FR3-WML/FR5/FR5-WML/FR10/FR16/FR20/FR30	FR3/FR3-WMS/FR3-WML/FR5/FR5-WML/FR10/FR16	FR20/FR30
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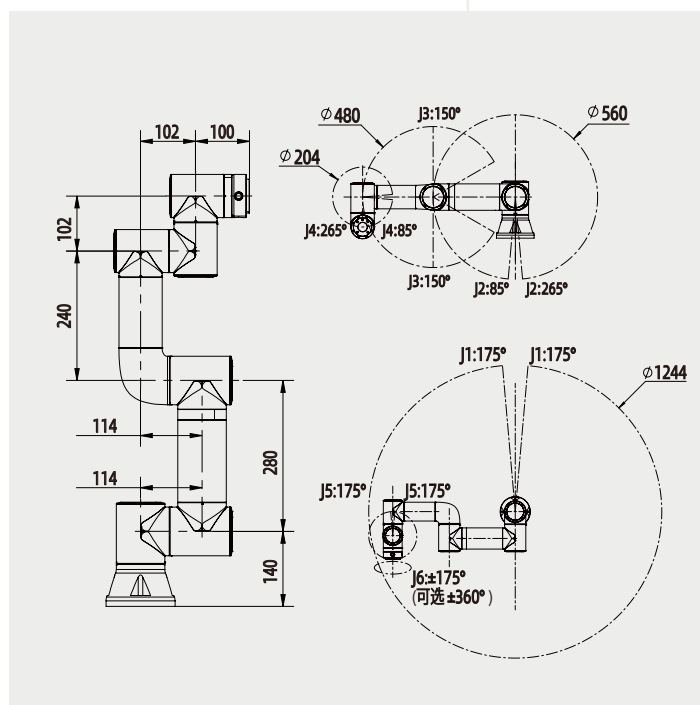
Note: The FR3-C&FR5-C control cabinet is integrated into the robot base.

# DRAWINGS

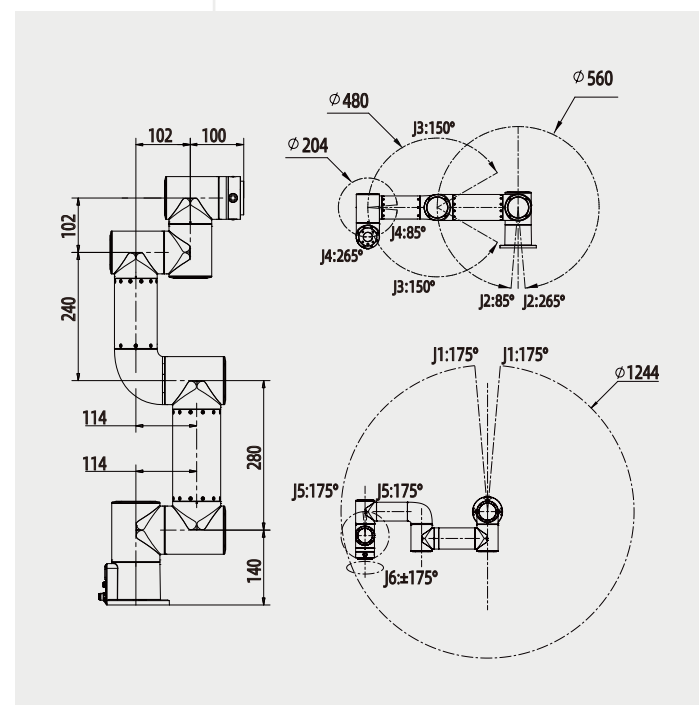
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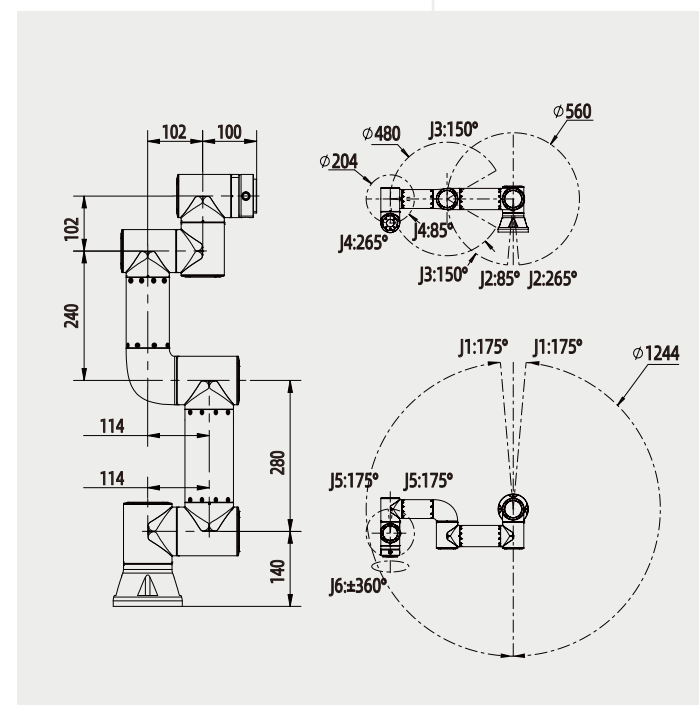
▶ ROBOT END-EFFECTOR COMPATIBLE WITH INDUSTRIAL ROBOT END-EFFECTOR CONNECTION METHODS



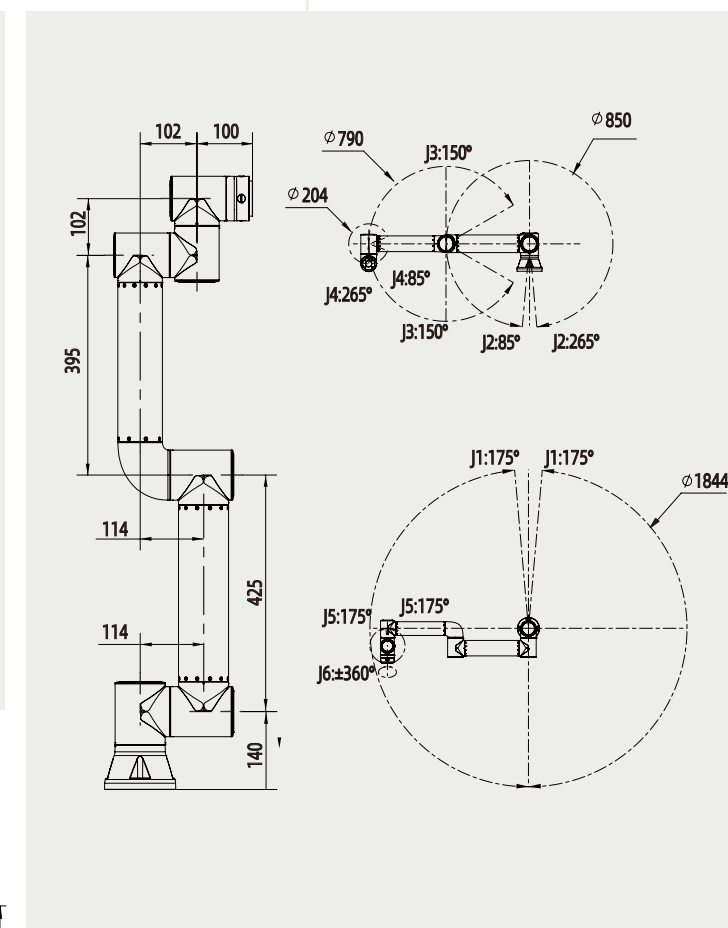
FR3



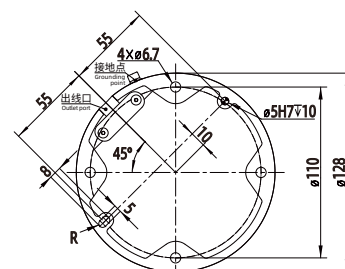
FR3-C



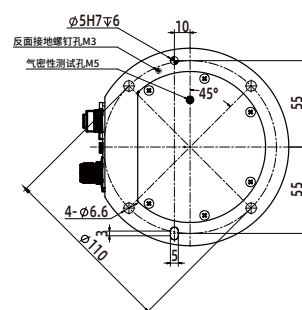
FR3-WMS



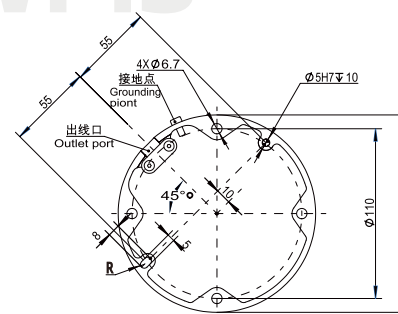
FR3-WML



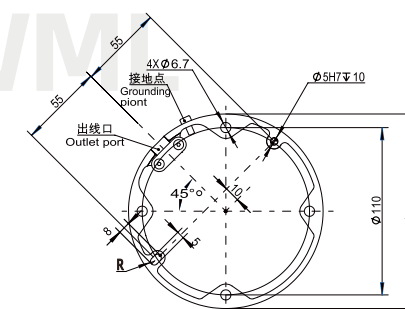
FR3 Pedestal diagram



FR3-C Pedestal diagram



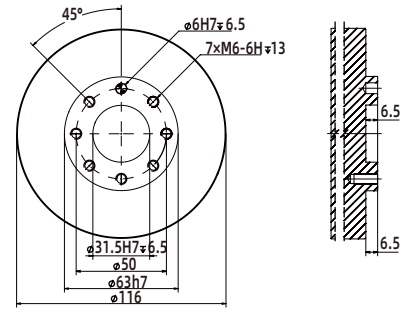
FR3-WMS Pedestal diagram



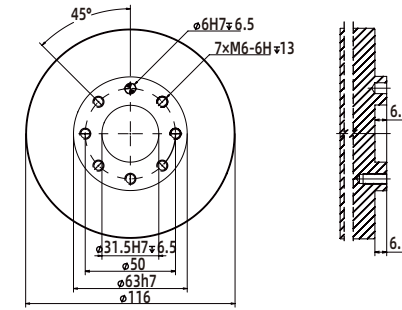
FR3-WML Pedestal diagram

# DRAWINGS

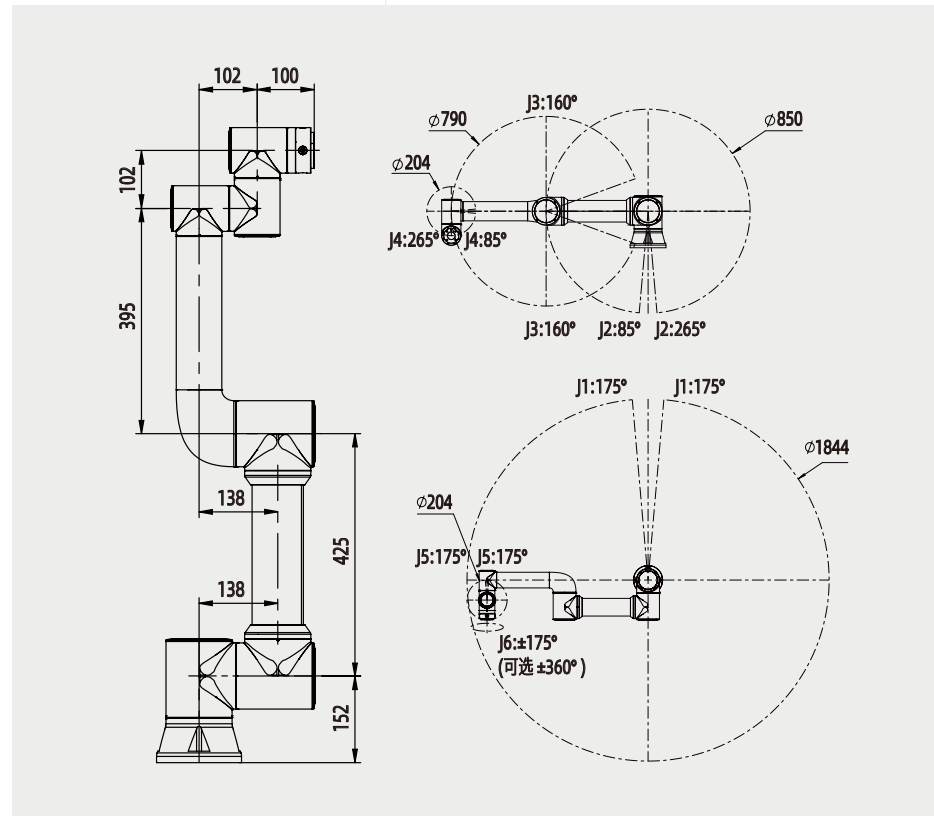
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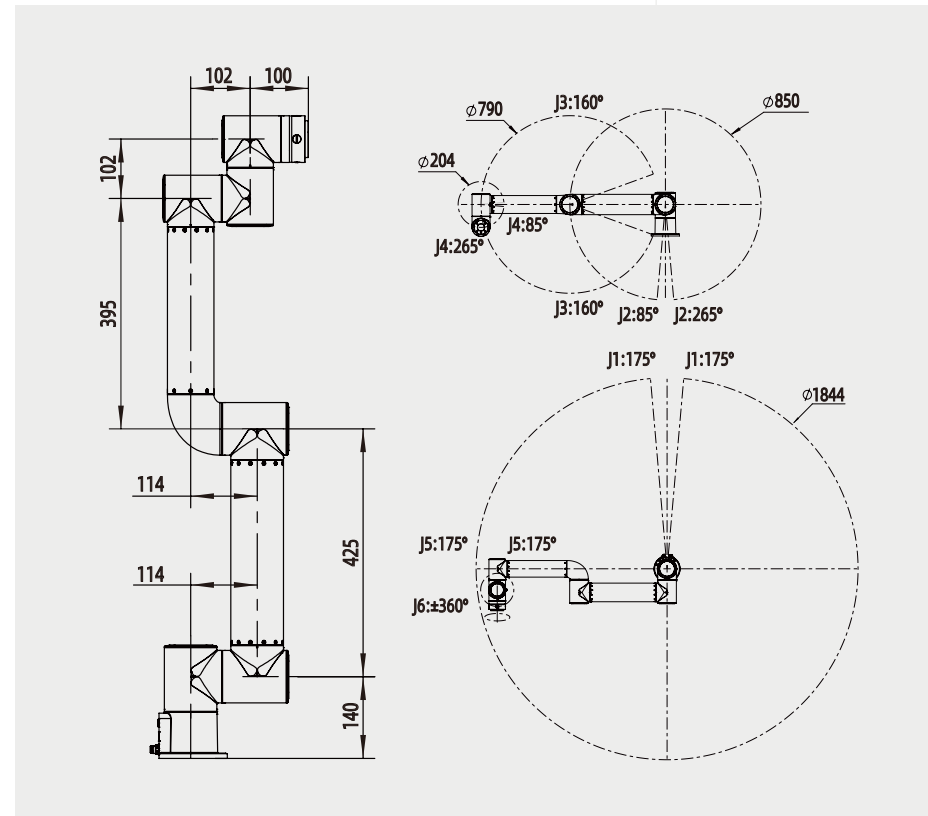
COMPATIBILITY OF ROBOT  
END EFFECTOR  
CONNECTION METHODS OF  
THE END EFFECTOR OF  
INDUSTRIAL ROBOTS



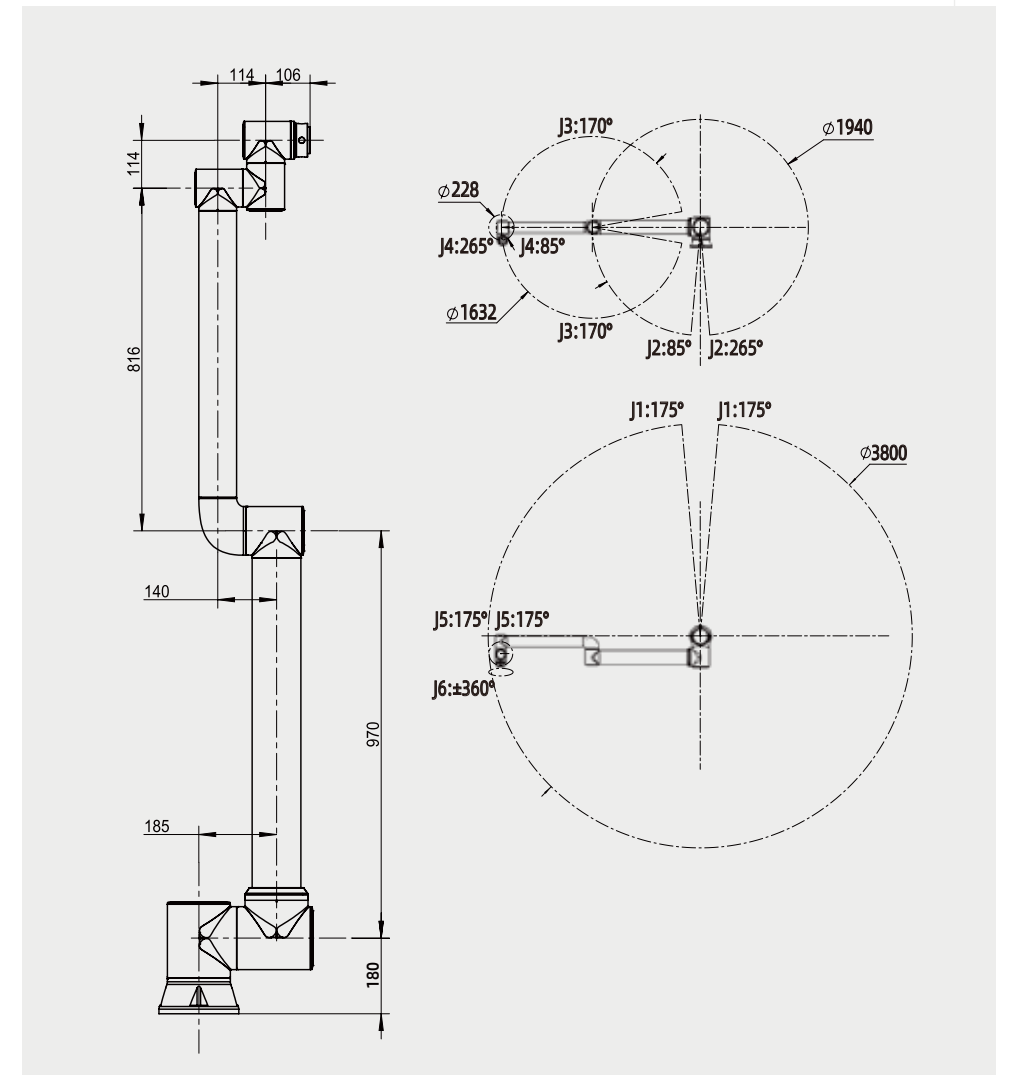
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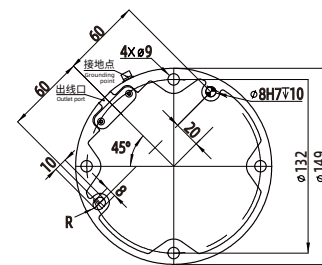
FR5



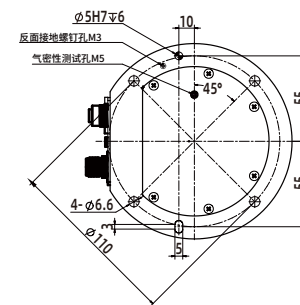
FR5-C



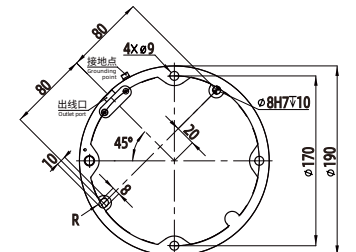
FR5-WML



FR5 Pedestal diagram



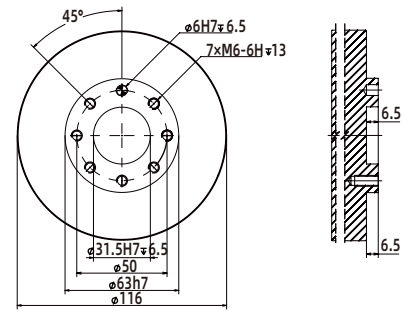
FR5-C Pedestal diagram



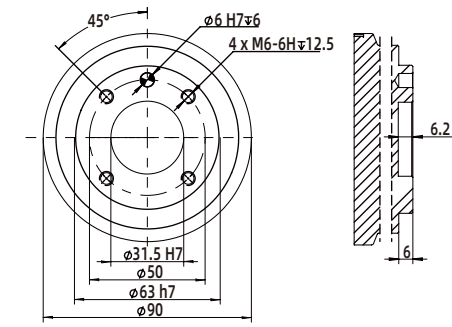
FR5-WML Pedestal diagram

# DRAWINGS

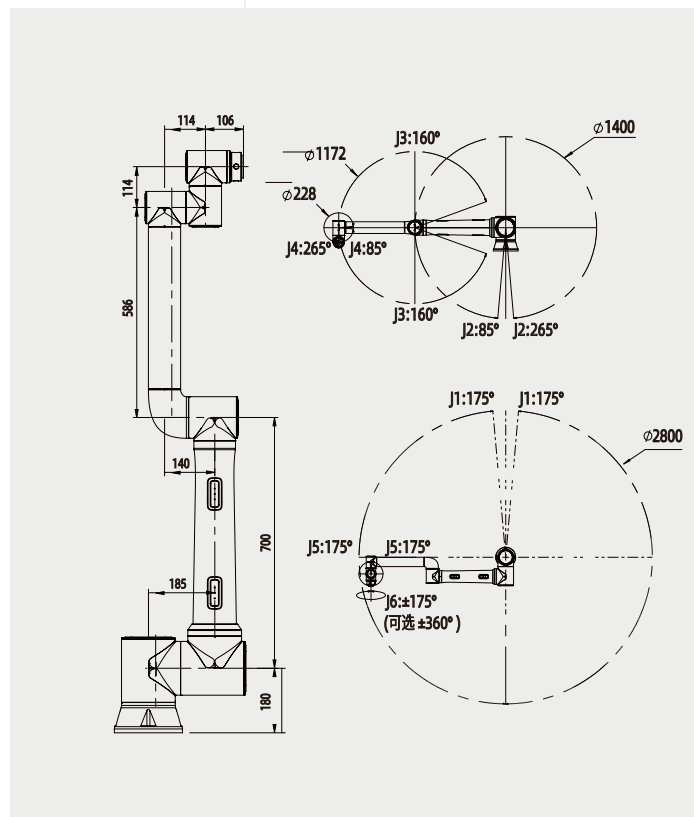
Unit : mm



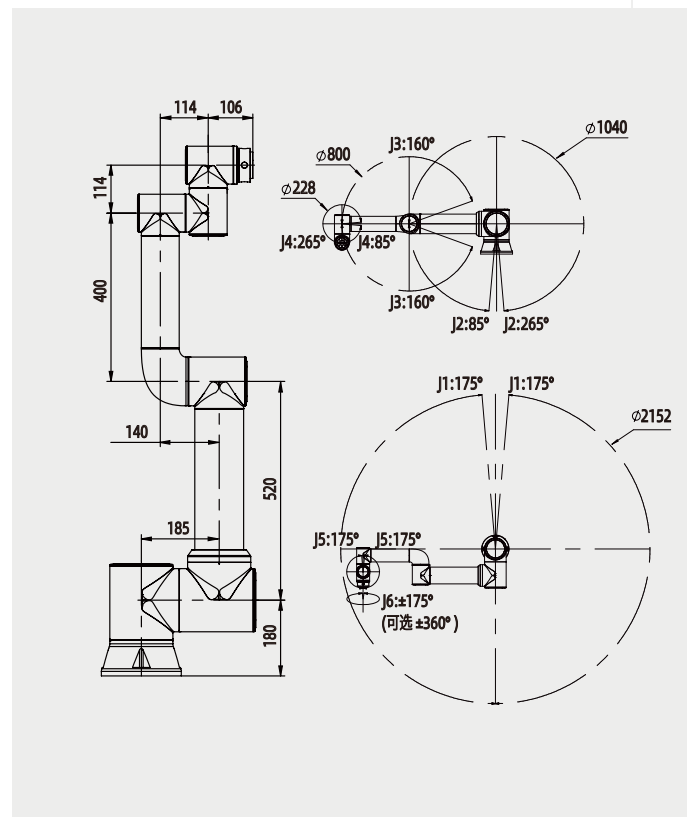
▶ COMPATIBILITY OF ROBOT END EFFECTOR CONNECTION METHODS OF THE END EFFECTOR OF INDUSTRIAL ROBOTS



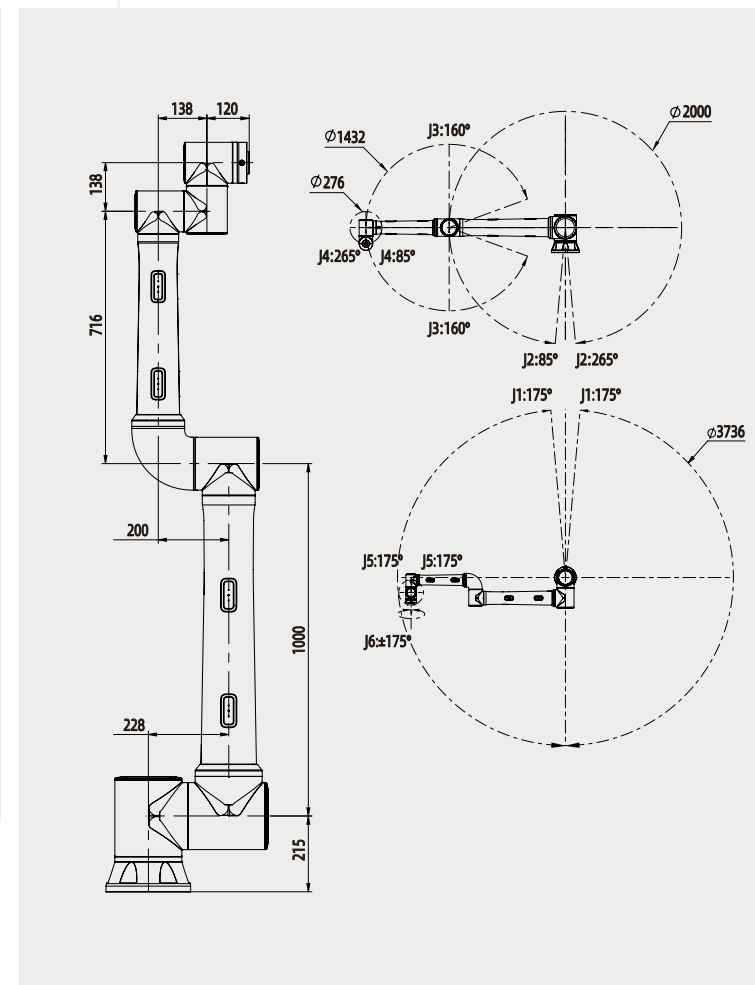
▶ ROBOT END-EFFECTOR COMPATIBLE WITH INDUSTRIAL ROBOT END-EFFECTOR CONNECTION METHODS



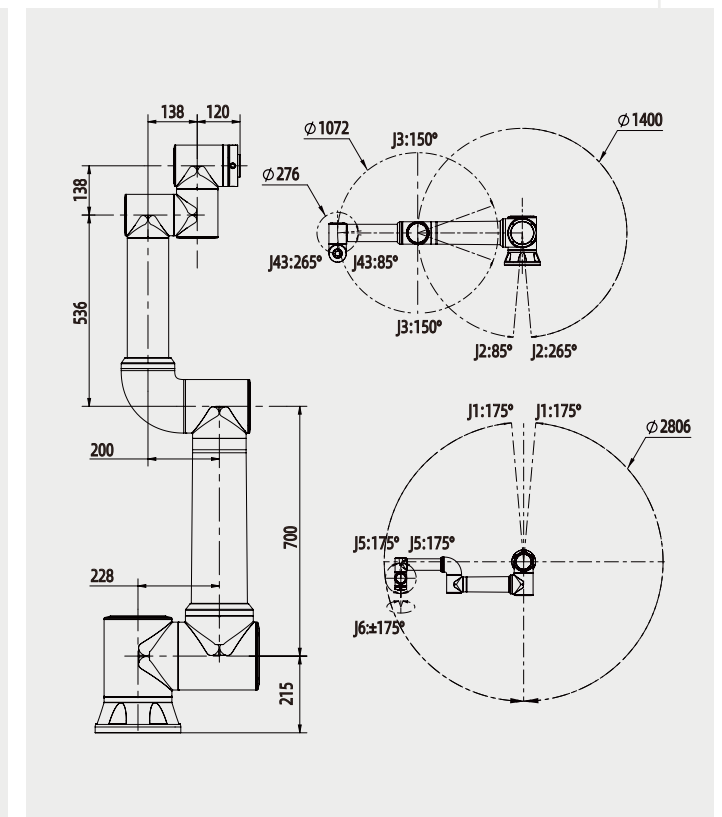
FR10



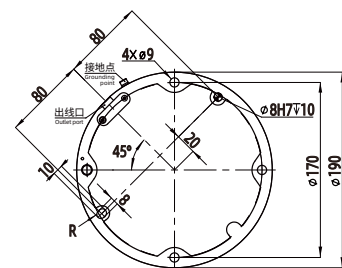
FR16



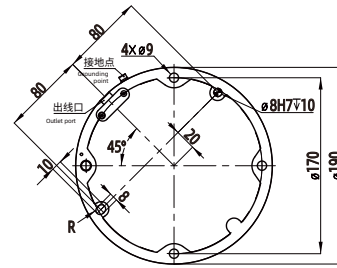
FR20



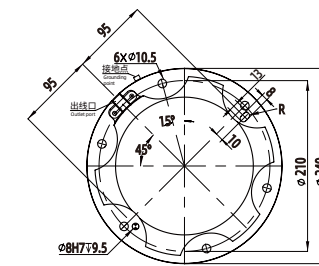
FR30



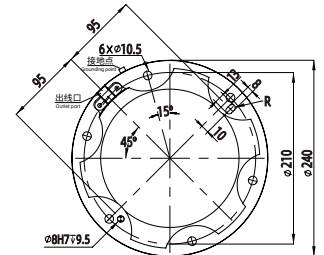
FR10 Pedestal diagram



FR16 Pedestal diagram



FR20 Pedestal diagram



FR30 Pedestal diagram



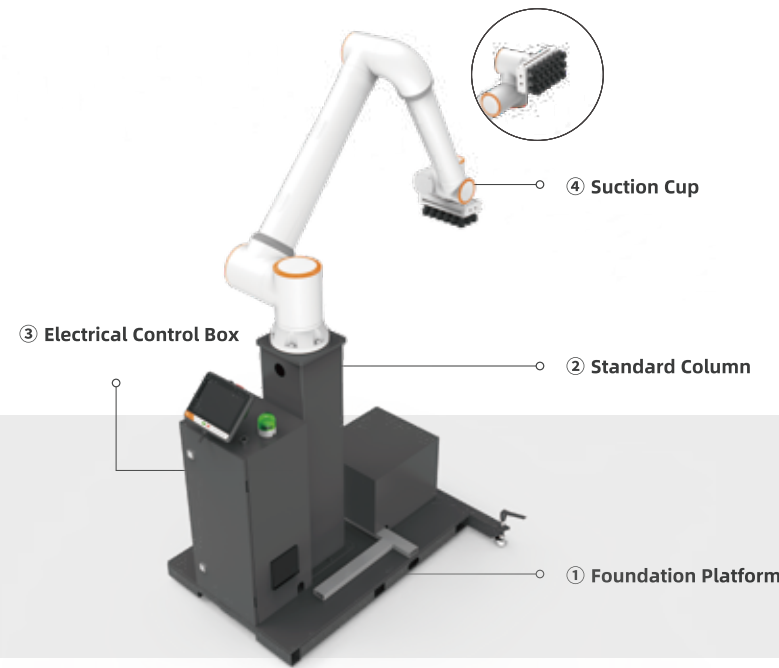
**FR + ACCESSORIES ECOSYSTEM**

\* FAIRINO only provides required components and does not offer complete solution

# One-Step Palletizing Workstation

Complete palletizing automation tasks in three steps

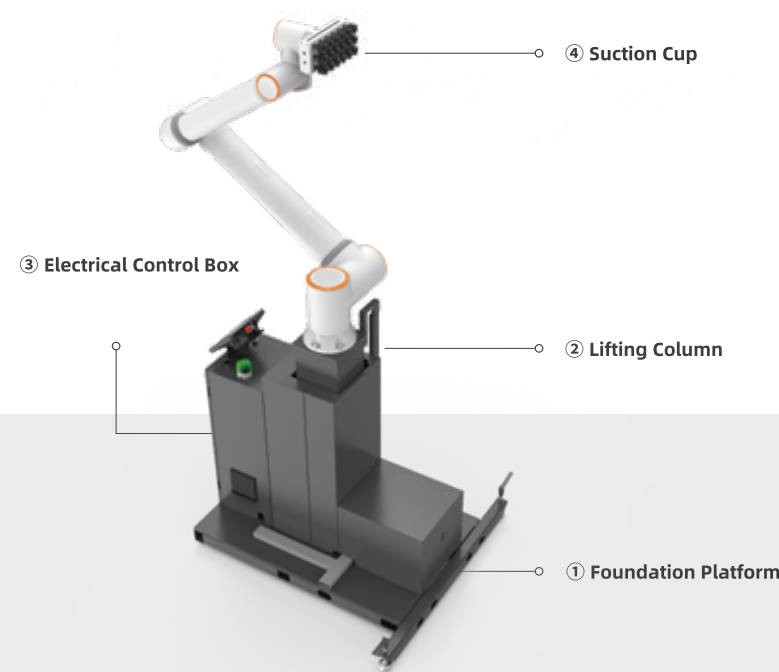
Just three steps are needed to complete the overall programming work for FAIRINO turnkey palletizing solution. The graphical programming is convenient and efficient; plug and play allows for quick and easy switching, achieving production line flexibility and automation.



## Palletizing Workstation Components

### Using FR20

Column height: 1210mm  
 Pallet size: 1200\*1100mm/1200\*800mm  
 The workstation supports floor mobility.  
 The fixed FR20 palletizing system weighs approximately 330 kg.  
 The column-mounted version of the palletizing kit supports a stacking height of up to 1800 mm.

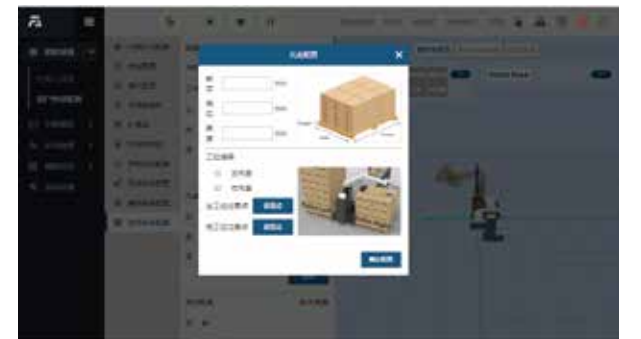
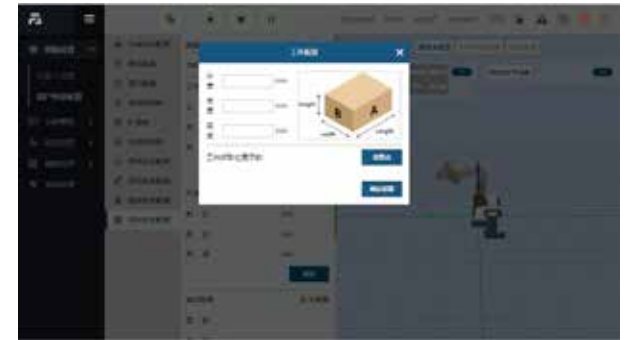
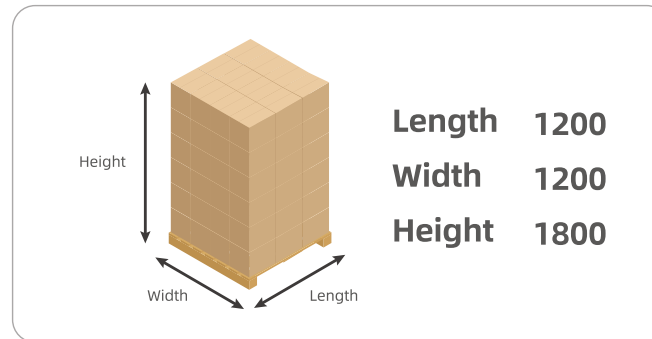
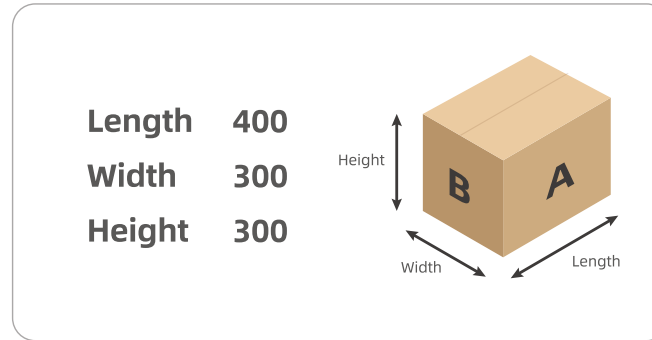


### Using FR10

Lifting column height range: 1140-1640mm, lifting speed 50mm/s  
 Electrical specification:  
 Main Power Supply : 110-240 VAC  
 Pallet size: 1200\*1100mm/1200\*800mm  
 The workstation supports floor mobility.  
 Total weight: Approx375kg

### Using FR20

Lifting column height range: 1140-1640mm, lifting speed 50mm/s  
 Electrical specification:  
 Main Power Supply : 110-240 VAC  
 Pallet size: 1200\*1100mm/1200\*800mm  
 The workstation supports floor mobility.  
 Total weight: Approx410kg



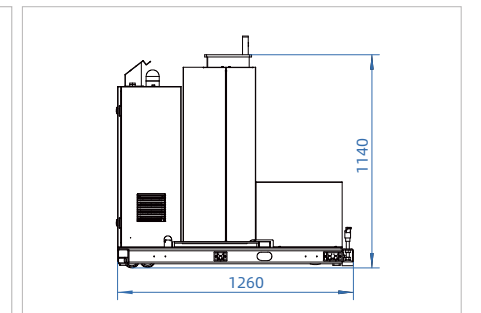
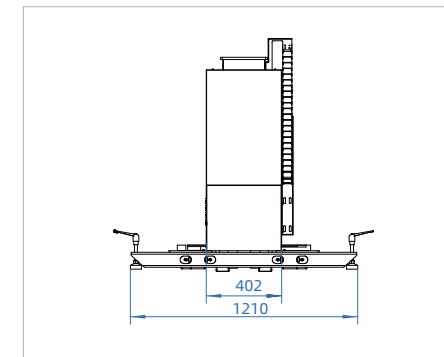
Web interface

**Delivery Time** 25 working days

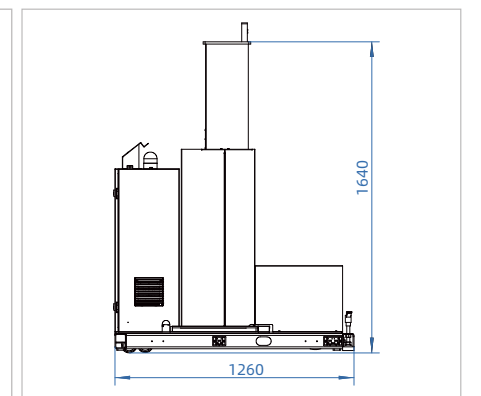
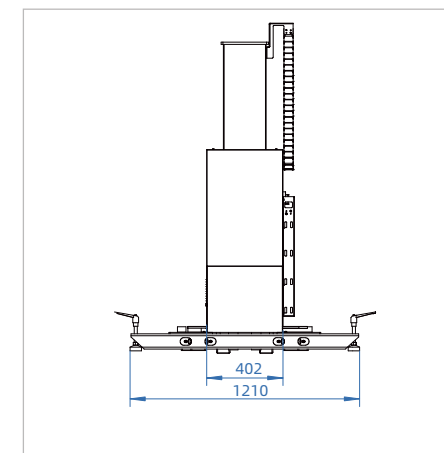


Code to get the accessory list including software & hardware accessories

# Palletizing Solution



单位：mm



**DRAWINGS**

# 3D Vision-Based No-Programming Welding Solution

Open a new journey of convenient welding with one click

This solution integrates FAIRINO cobots, 3D cameras, and the FAIRINO AIRLab system. Paired with a no-programming welding platform, it enables automatic and precise weld seam detection, efficient teaching-free operation, and intelligent weld path analysis and planning – ensuring high consistency and accuracy in welding tasks.



## FR-Welding-Hardware

### Welding Hardware

#### Solution

- ① Welder (with water tank): Ehawe2 CM500M
- ② 3D Camera: FE-SV-Nano, FE-SV-Nano-Pro, FE-SV-Nano-Pro-C
- ③ Switch Cabinet
- ④ Magnet (3 pcs)
- ⑤ Trolley
- ⑥ Router: TL-CPE1300D
- ⑦ Controller
- ⑧ Torch Extension Cable
- ⑨ End tool

#### Technical Specification

Size **1472\*840\*1649mm**  
 Magnetic base for fixation, can be easily moved around  
 Magnetic base size **382\*331\*121mm**  
 The equipment is fixed on a trolley, which can be moved along with the trolley  
 The wire feeder can rotate 360° and can be detached from the trolley and placed freely

### Robot Vision

#### Solution

- ① 3D Camera: FE-SV-Nano, FE-SV-Nano-Pro, FE-SV-Nano-Pro-C
- ② IPC Industrial Processing Computer
- ③ IPC Graphics + Graphics Card : RTX A2000
- ④ Vision Software

#### Technical Specification

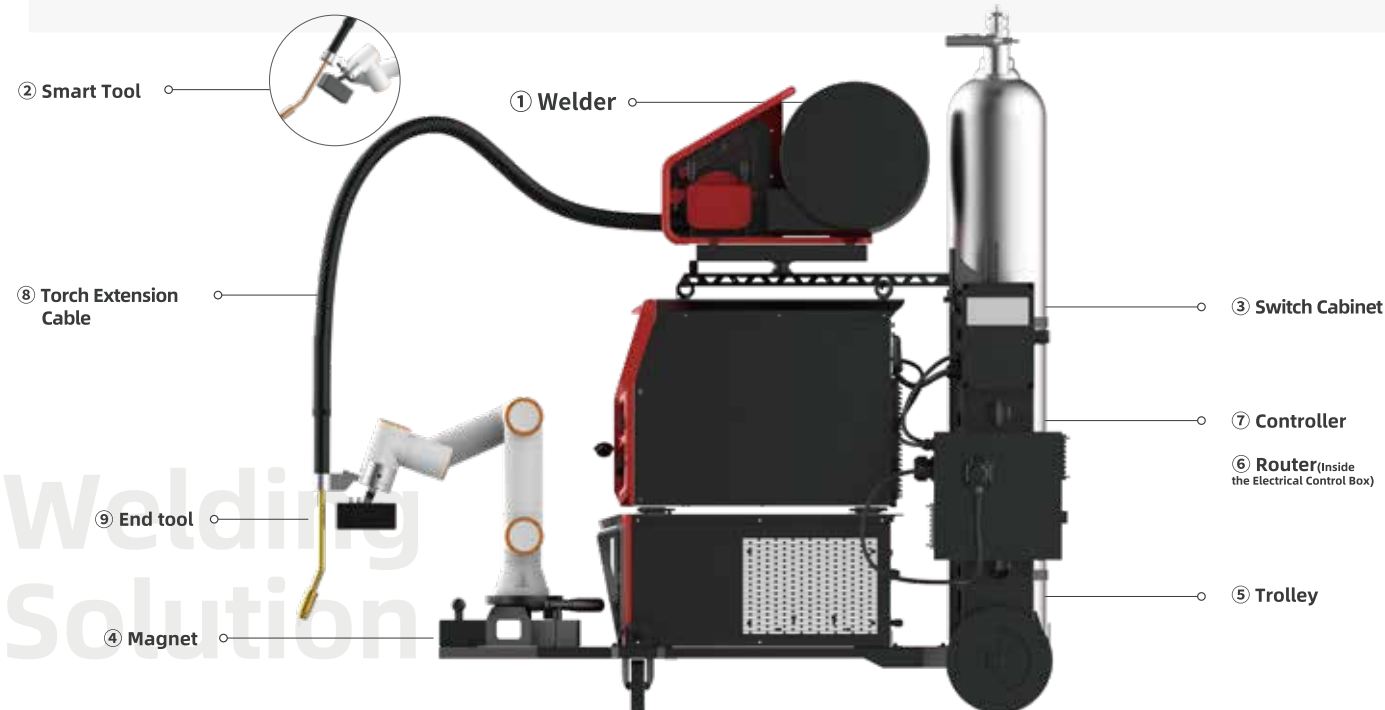
Field of View : 52°\*50° (H\*V)  
 Near Field: 329\*287mm@350mm  
 Far Field: 1021\*881mm@1100mm  
 Working Range: 350 ~1100mm (varies with environment)  
 Point Cloud Resolution: 1280 x 1024  
 Accuracy: <0.05%@1100mm

**Delivery Time** 25 working days

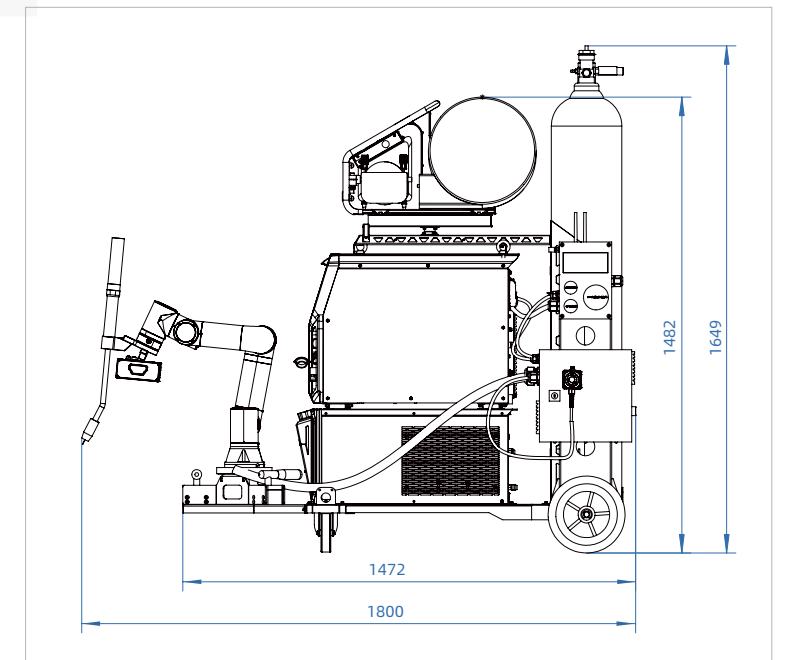
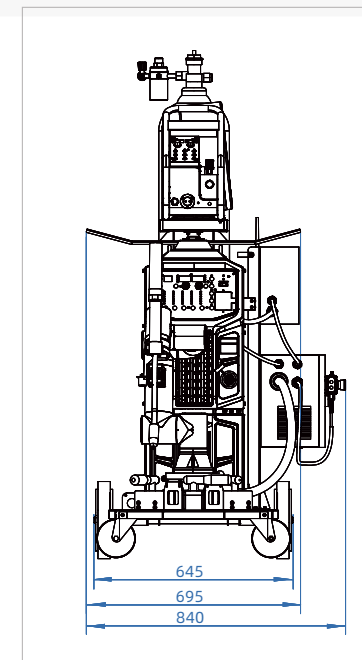
**Qualification** Magnet: GIG  
 IPC Graphics + Graphics Card Display Card: CE、UL、RHOS



Code to get the accessory list including software & hardware accessories



Unit : mm  
**DRAWINGS**



## CNC Workstation

New-generation lightweight intelligent CNC workstation

Widely used in 3C electronics, auto parts, precision machinery, hardware processing, small home-appliances and other industries. It can interface with various CNC machine tools, machining centers and other machine equipment to realize full-process automated operations.

### CNC Workstation Components

#### Main Components

- ① Material positioning assembly
- ② FR10 Robot
- ③ Teach pendant and teach pendant suspension assembly
- ④ Button box assembly
- ⑤ Air source processing assembly
- ⑥ Base assembly

#### Performance Parameters

Overall dimensions (excluding robot)  
**1313mm\* 700mm\* 1035mm**

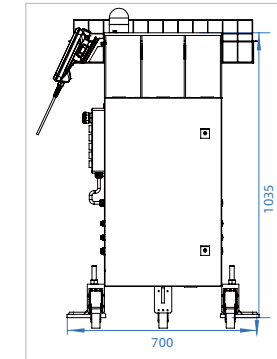
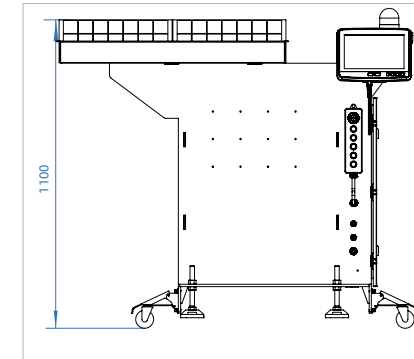
Rated end load **10kg**

Rated voltage **110-220VAC**    Rated power **2KW**

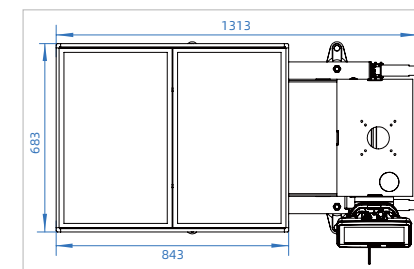
IP rating **IP40**

Self-weight (including FR10 robot) **200KG**

Noise **<70dB**



**DRAWINGS** Unit : mm



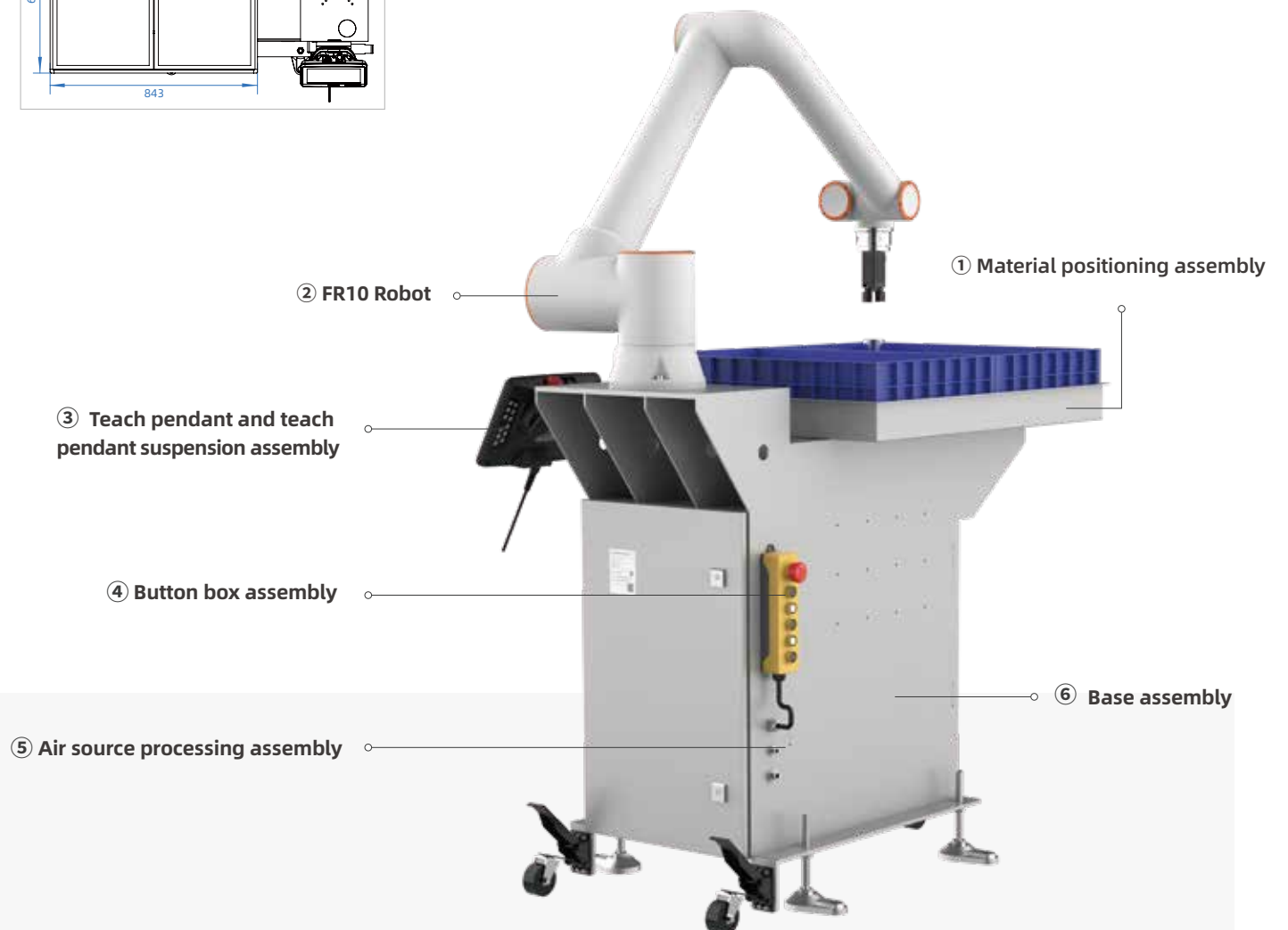
#### Delivery Time

15 working days

#### Product Advantages

- High production efficiency, capable of 7/24 non-stop operation.
- High-precision positioning and gripping. Equipped with high-accuracy vision and sensing systems to ensure error-free picking and placement of materials.
- High safety performance. Built-in collision detection and safety protection design ensure safe human-machine collaboration.
- High adaptability with modular design, flexibly compatible with various machine tools and special-shaped workpieces.
- Lower cost, compact structure, controllable investment, easy maintenance and faster payback.

## CNC WORKSTATION



## Spark Project Education Platform

Eco-level application of "Robot + N" in education field

By integrating visual systems, end effectors, torque sensors, mobile platforms, and other hardware and software components with robots, we achieve a "hand" + "eye" + "foot" + "brain" hardware combination, making our platform more open, user-friendly, and with greater expandability.



Plug and play



Compatible with peripheral devices



Support secondary development

Integrated Modular Design

Open Hardware and Software Platform

Secure Innovative Application



### FR-Spark Project-Hardware

- Gripper
- Camera
- Sensor

EDUCATIONAL WORKBENCH

<b>Gripper</b>	Model: EPG40-050	Adjustable Stroke Single Finger Grip Force	<b>0-40mm</b> <b>2-50N</b>	Body Weight Communication Protocols	<b>360g</b> <b>Modbus RTU(RS 485), Digital I/O</b>
<b>Camera</b>	Model: Gemini 2	Depth Image Measurement Range Working Range Operating Temperature	<b>0.15m-10m</b> <b>0.2m-5m</b> <b>0 ~ 40°C</b>	SDK Depth Image Resolution @ Frame Rate * 3	<b>Orbbec SDK</b> <b>1280x800@30fps</b> <b>640x400@60fps</b>
<b>Sensor</b>	Model: FR-6F-75MM	Resolution Overall Accuracy Overload Capacity	<b>0.1%FS</b> <b>≤1%FS</b> <b>200%</b>	Repeatability Zero Drift (Temperature Coefficient) Operating Temperature	<b>0.2%FS</b> <b>0.3%FS/10°C</b> <b>-20~80°C</b>
<b>Delivery Time</b>	<b>25 working days</b>				
<b>Qualification</b>	<b>Gripper: CE , RoHS</b>				

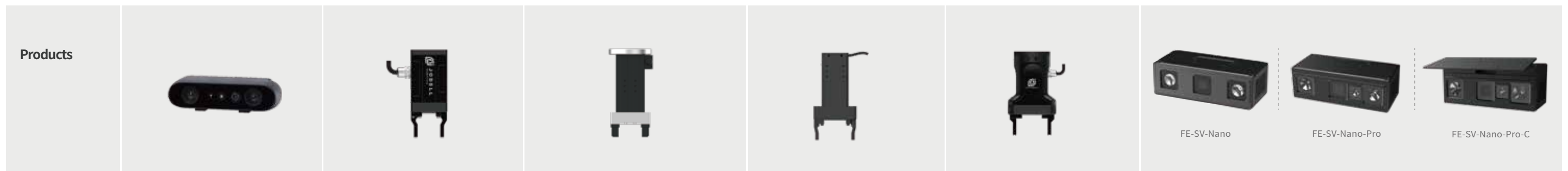






\*The parameters provided are for reference only. Actual accuracy may vary depending on the selected product configuration

Code to get the accessory list including software & hardware accessories



Item	Gemini 2	EPG40-050	PGEA-100-40	FE-MG2-3-E	RG75-300	FE-SV-Nano / FE-SV-Nano-Pro / FE-SV-Nano-Pro-C
<b>Performance Parameters</b>	Depth Image Measurement Range <b>0.15m-10m</b> Working Range <b>0.2m-5m</b> Camera Driver <b>UVC</b> SDK <b>Orbbec SDK</b> Operating Temperature <b>0~40°C</b> Depth Image Resolution @ Frame Rate * 3 <b>1280x800@30fps 640x400@60fps</b> Color Image Resolution @ Frame Rate * 4 <b>1920x1080@30fps 1280x720@60fps</b>	Adjustable Stroke <b>0-40 mm</b> Single Finger Grip Force <b>2-50 N</b> Repeatability <b>±0.02 mm</b> Opening/Closing Time <b>0.5 s</b> Maximum Recommended Load <b>0.8 Kg</b> Operating Environment <b>5~40°C, Below 85% RH</b>	Adjustable Stroke <b>0-40 mm</b> Single Finger Grip Force <b>30-100 N</b> Repeatability <b>±0.02 mm</b> Maximum Recommended Load <b>2 kg</b> Operating noise <b>&lt;50dB</b> Operating Voltage <b>24VDC±10%</b> Rated & Peak Current <b>0.3 A (Rated) 1.2 A (Peak)</b> Peak Power <b>20W</b> Transmission mode <b>Rack and pinion &amp; Cross roller guide</b> Operating Environment <b>0~40°C, Below85% RH</b>	Adjustable Stroke <b>0-50 mm</b> Single Finger Grip Force <b>150 N</b> Repeatability <b>±0.03 mm</b> Maximum Recommended Load <b>3 kg</b> Operating noise <b>&lt;60dB</b> Operating Voltage <b>24VDC±10%</b> Rated & Peak Current <b>1A</b> Peak Power <b>24W</b> Operating Environment <b>0~45°C</b> Transmission mode <b>Rack and Pinion Drive</b> Drop Detection <b>Supported</b>	Adjustable Stroke <b>0-75 mm</b> Single Finger Grip Force <b>40-300 N</b> Repeatability <b>±0.02 mm</b> Opening/Closing Time <b>0.55 s</b> Maximum Recommended Load <b>6 Kg</b> Operating Environment <b>5~40°C, Below 85% RH</b>	Field of View (FOV) <b>52°*50° (H*V)</b> Near Field <b>329*287mm@350mm</b> Far Field <b>1021*881mm@1100mm</b> Working Range <b>350 ~1100mm (varies with environment)</b> Point Cloud Resolution <b>1280 x 1024</b> Accuracy <b>&lt;0.05%@1100mm</b> Point Cloud Frame Rate <b>&lt;3 Hz</b> Power Supply <b>POE (Power over Ethernet)</b>
<b>Dimension</b>	90 * 25 * 30 mm ± 0.5mm	40*24*87mm	118mm*73.8mm*29mm	64 * 40 * 100 mm(Without Fingers)	131.5*100*75mm	FE-SV-Nano: 136.5 * 60.5 * 45.1mm(without camera cover) FE-SV-Nano-Pro: 139 * 61.5 * 46mm(without camera cover) FE-SV-Nano-Pro-C: 139 x 63.8 x 58mm(with camera cover)
<b>Weight</b>	97g	360g	600g	800g	1.5kg	482g(without camera cover)
<b>IP Classification</b>	/	IP40	IP40	IP54	IP65	IP65
<b>Communication Interface</b>	MIPI	Modbus RTU(RS 485), Digital I/O	Modbus (RS485)+I/O (NN)	RS485	Modbus RTU(RS 485)	GigE
<b>Qualification</b>	Class1, RoHS, FCC, CE, Reach, KC	CE, RoHS	CE, FCC, RoHS	/	CE, RoHS	/



Item	FR-6F-75MM	FE-MS1-1-E (Electric Vacuum Actuator)	FE-MS1-2-P (Pneumatic Vacuum Actuator)	Palletizing Workstation Electric Vacuum Actuator Module Assembly <sup>[Optional]</sup>				
<b>Performance Parameters</b>	Fx,Fy	100N	Rated load	1kg(suitable for mirror objects)	Rated load	2kg(Universal for Specular and Non-specular Objects)	Rated load	20kg
	Fz	200N	Maximum Flow Rate	2.5L/min	Maximum Flow Rate	38L/min	Power Supply	24V
	Mx,My	5Nm	Fastest Adsorption Time	0.2s	Fastest Adsorption Time	0.2s	<b>Adsorbent Information</b>	
	Mz	5Nm	Fastest Release Time	0.1s	Fastest Release Time	0.1s	Single Box	MaximumDimensions : 914.4*609.6*609.6mm Minimum Dimensions : 101.6*101.6*304.8mm
	Resolution	0.1%FS	Drop Detection	Supported	Drop Detection	Supported	Double Box	MaximumDimensions : 508*409.6*609.6mm Minimum Dimensions : 101.6*101.6*25.4mm
	Repeatability	0.2%FS	Operating noise	<70dB	Operating noise	<70dB		
	Overall Accuracy	≤1%FS	Rated Voltage	24VDC±10%	Rated Voltage	24VDC±10%		
	Zero Drift (Temperature Coefficient)	0.3%FS/10°C	Rated Power	3W	Rated Power	3W		
			Usage Environment	0~45°C	Usage Environment	0~45°C		
			Maximum Vacuum Level	-60kPa	Air Consumption	70L/min		
<b>Dimension</b>	75*30.5mm	26 * 50 * 74 mm(Without Suction Cups)	26 * 50 * 94 mm(Without Suction Cups)	422 * 343 * 50 mm(Without Suction Cup)				
<b>Weight</b>	200g	180g	200g	590g				
<b>IP Classification</b>	IP64	IP40	IP40	IP40				
<b>Communication Interface</b>	RS485/Industrial Ethernet	RS485	RS485	Ethernet to RS485				
<b>Qualification</b>	/	/	/	/				
<b>Products</b>								



## COMPANY PROFILE



# FAIRINO ROBOT

**FAIRINO**— A robotics company committed to the in-house development and manufacturing of all core components.

We adhere to a core strategy of “tiered product architecture + integration of cutting-edge technologies”, deeply combining collaborative robots with AI, vision, sensors, and other advanced technologies. Our mission is to provide highly convenient intelligent systems for various industries, accelerating the widespread adoption of automation from industrial to commercial sectors.

In the field of embodied intelligence, we have established a full-stack solution system for humanoid robots, offering a complete customized service chain—from joint modules to humanoid robotic arms, upper-body systems, and full humanoid units—precisely meeting enterprises' differentiated needs.

For industry clients, we provide customized components, complete robots, and system solutions for both collaborative robots and humanoid robots. Our open development platform empowers partners to unlock more possibilities. FAIRINO always upholds a partnership-driven philosophy, continuously creating added value for customers and collaborators.

**FAIRINO** invites you to explore and embrace the diverse new world of intelligent automation.

In the era of intelligent manufacturing, how do collaborative robots and humanoid robots jointly create a new value ecosystem?

**Enterprise Efficiency Enhancement:** Reduce costs and improve quality, empower employees to enhance their skills, and drive lean production;

**Business Upgrade:** Optimize service experience, accurately meet customer needs, and build differentiated competitiveness;

**Craftsmanship Inheritance:** Standardize manual processes, balance efficiency and quality, and activate new vitality in traditional crafts;

**Life Assistant:** Share household tasks intelligently and provide customized cleaning and cooking solutions to make technology part of a warm daily life.

From industrial manufacturing to commercial services, from craft workshops to smart homes, from the flexible collaboration of collaborative robots to the embodied intelligence breakthrough of humanoid robots, FAIRINO continuously expands application boundaries with its comprehensive robot product matrix. By combining full-chain in-house R&D capabilities with scenario-based innovation, we unlock diverse possibilities in the intelligent future.