

PRODUCT CATALOGUE



FAIRINO

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Intelligent human-robot cooperation system solutions

According to different payload and parameter, FAIRINO collaborative robots FR series are divided into nine models: FR3WMS,FR3WML,FR3C,FR3 (Optional Mirror Version) , 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**

PRODUCT DISPLAY



ROBOT ARM TECHNICAL SPECIFICATION

	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		1854 mm		1403 mm		
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				
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		
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	Working range	Maximum speed	Working range	Maximum 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° (Dual Arm: - 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°	±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 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		(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		(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		(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/ 1.5 A		24V/ 1.5 A		24V/ 1.5 A		
Footprint	128mm		128mm		125mm		128mm		149mm		190mm		190mm		240mm		240mm		
Weight	≈10.5kg		≈11.25kg		≈10kg		≈15kg		≈22kg		≈40kg		≈40kg		≈85 kg		≈85 kg		
Operating temperature	0-45℃		0-45℃		0-45℃		0-45℃		0-45℃		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)		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		
■ Typical power test payload settings, different loads are set according to robot models, payload configuration parameters are as follows :																			
	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. After 24 hours, respectively, record the peak and average power of the power meter, and then statistically analyze each model :																			
Typical average power	90W		140W		200W		220W		260W		300W		310W		620W		600W		
Typical peak power	130W		240W		230W		280W		310W		500W		410W		810W		910W		

CONTROLLER TECHNICAL SPECIFICATION



DC MINI Controller 2kW



DC Controller 5kW



AC MINI Controller 2kW



AC Controller 5kW

Features

IP classification	IP54		IP54		IP54		IP54	
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)	
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	

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-cobot 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]



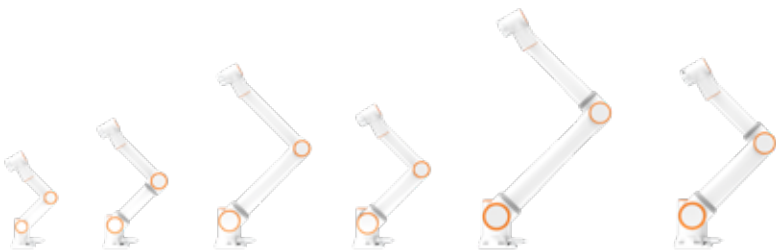
IP classification	IP54
Operating humidity	90%RH(non-condensing)
Display resolution	1280 x 800 pixels
L*W*H	268*210*88mm
Weight	1.6kg
Materials	ABS、PP
Cable length	5m

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

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	KW/48VDC/A
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

INDUSTRY

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.

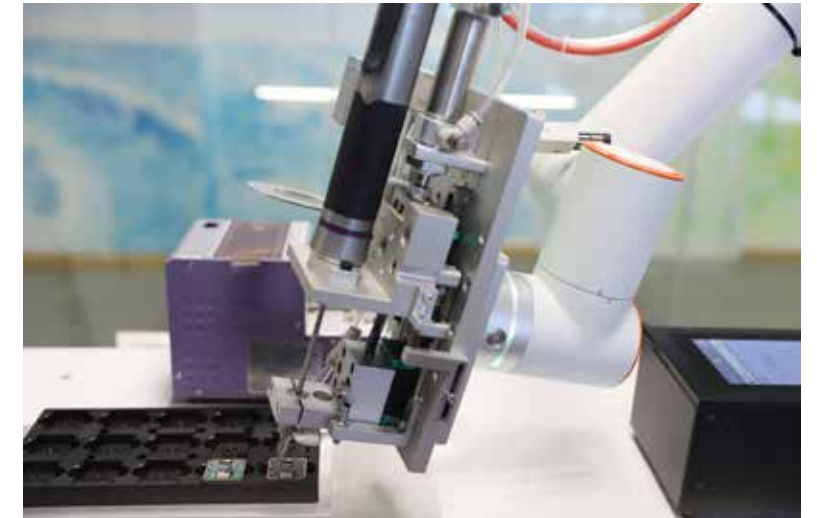
The platform utilizes a six-axis collaborative robot to accomplish palletizing work, offering easy deployment and quick utilization, truly enabling a plug-and-play experience.

Palletizing Solution

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.

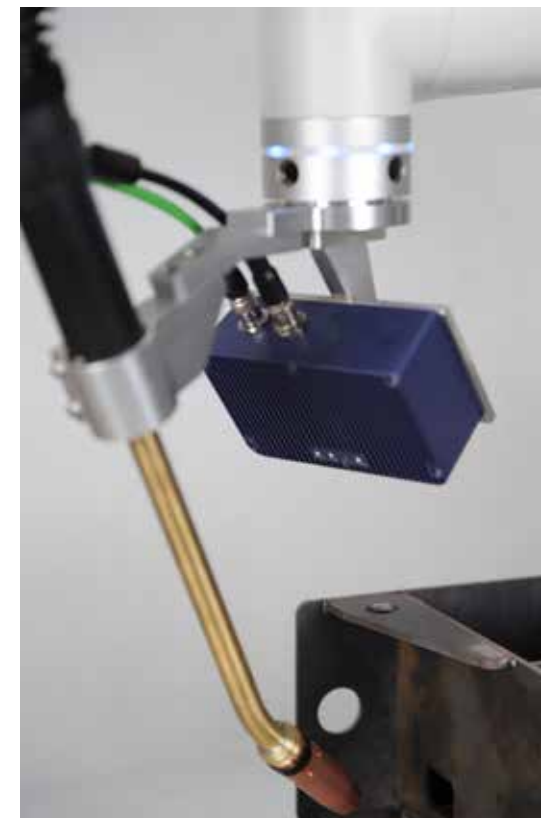
- Safe and convenient
- Flexible deployment
- Flexible force control
- High efficiency in production



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 efficiency and ensuring welding quality.

- Ultimate safety
- Flexible deployment
- Reduced entry barriers
- Multi-axis coordination
- High production efficiency



APPLICATIONS



Conveyor Belt Solution

- Enhance work safety
- Reduce error rate and losses
- Data recording and traceability
- Real-time monitoring and feedback
- Improve production efficiency
- Accurate tracking and identification



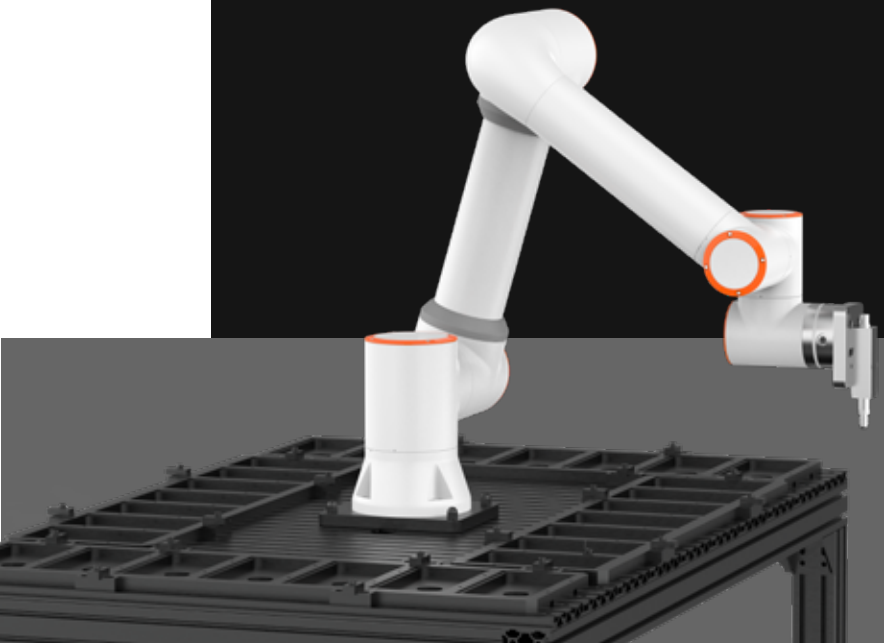
Pick And Place Solution

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.

Educational Solution



The platform includes common functions in the industrial field, such as gluing, tightening, and material handling, closely 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.

COMMERCIAL

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.



Rehabilitation Solution

- Ultimate safety
- Open platform
- Data traceability
- Reduced entry barriers

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



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 efficiency.
- 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.

Automated Tea Solution

COMPANY PROFILE



FAIRINO ROBOT

FAIRINO is the collaborative robot company who has achieved independent R&D of all core components.

We focus on user experience and are dedicated to offering the industry with artificial intelligent robot system.

We provide customized components, complete machines and systems for industry customers, the open development platform provides more convenience and possibility for our partners.

FAIRINO, as always, provides values and grow together with customers and partners.

Welcome to the intelligent world of FAIRINO.

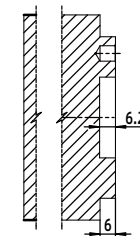
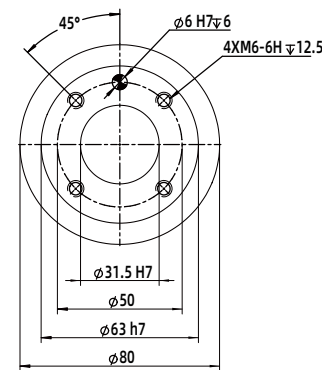
Lots of manufacturers have begun taking advantage of AIoT and human-machine collaboration. What can collaborative robots do for them?

Collaborative robots decrease manufacturing costs, increase the efficiency of production and enhance the skills of employees. They also offer better service quality and improve the customer experience. By providing the standardized functions and low deploying costs, cobots are widespread in commercial scenarios such as household chores, room cleaning and cooking.

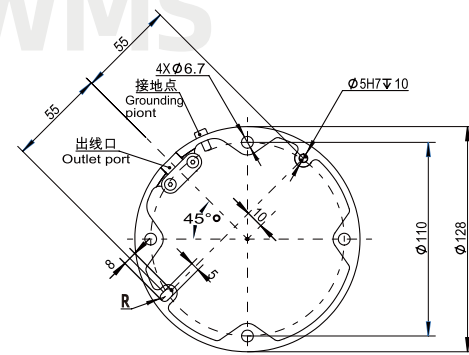
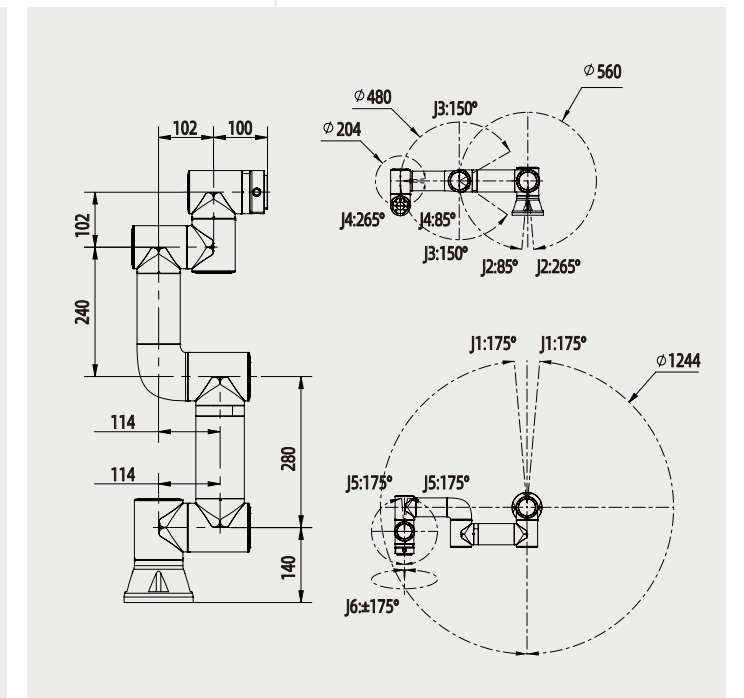
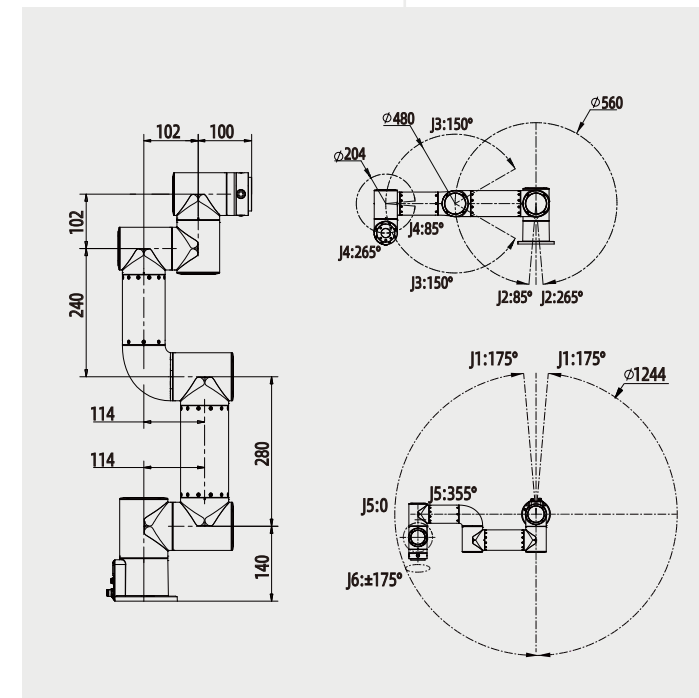
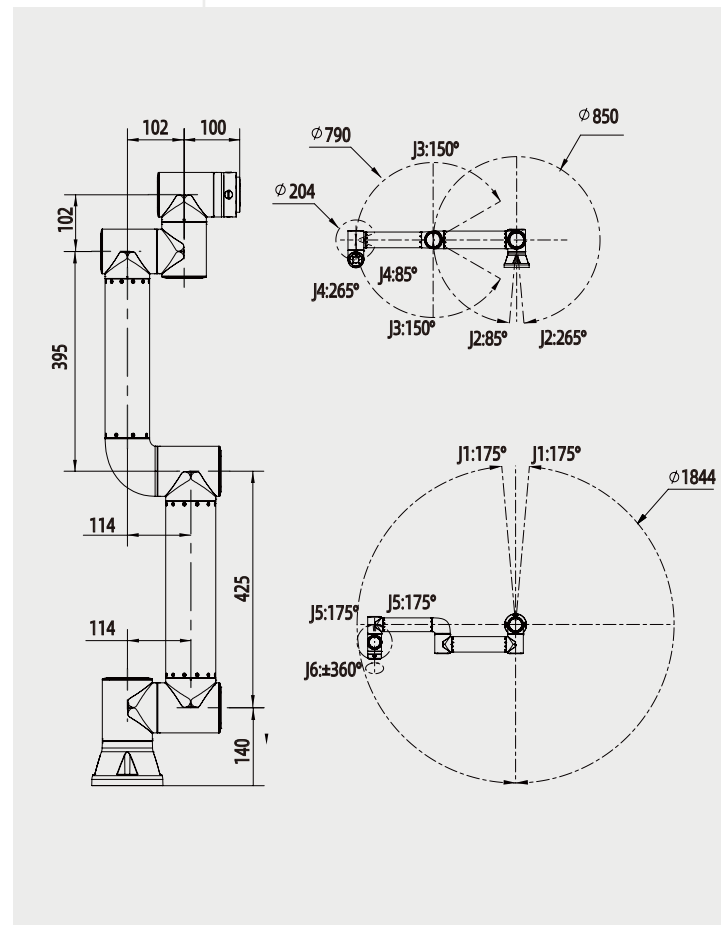
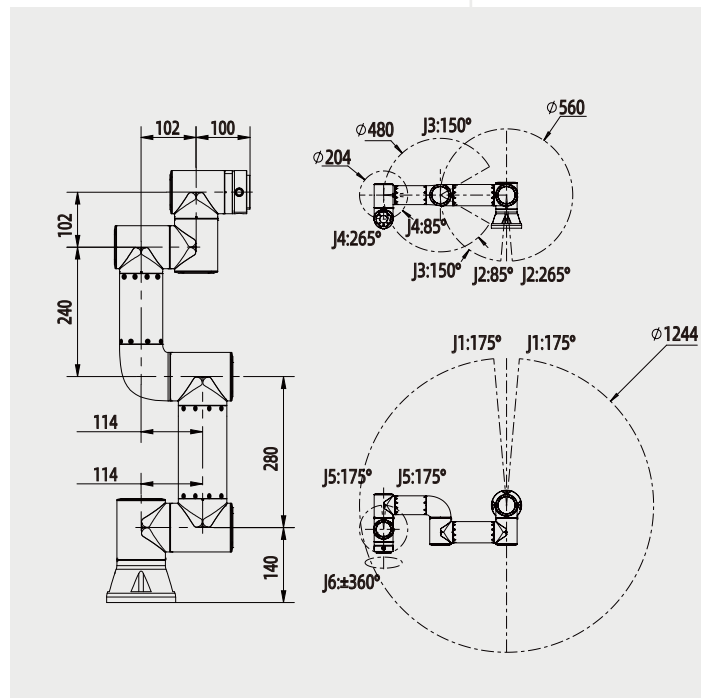
Cobots are believed to have unlimited potential and would be introduced to more scenarios in the future.

DRAWINGS

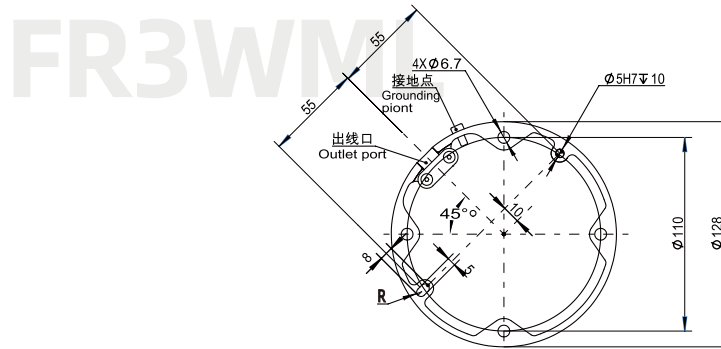
Unit : mm



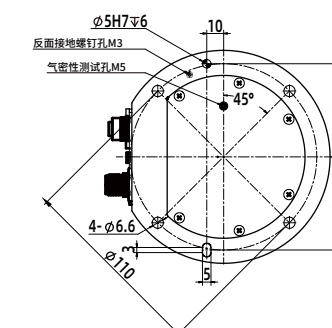
▶ ROBOT END-EFFECTOR
COMPATIBLE WITH
INDUSTRIAL ROBOT
END-EFFECTOR
CONNECTION METHODS



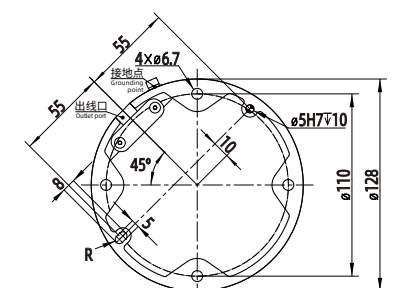
FR3WMS Pedestal diagram



FR3WML Pedestal diagram



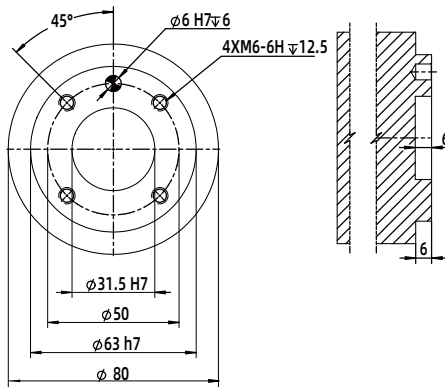
FR3C Pedestal diagram



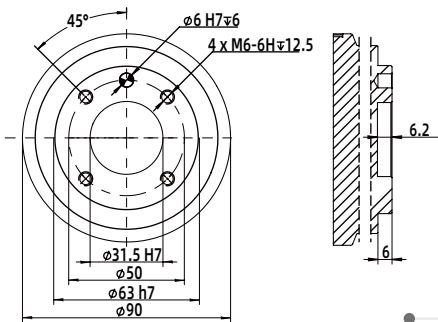
FR3 Pedestal diagram

DRAWINGS

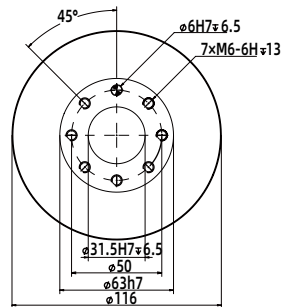
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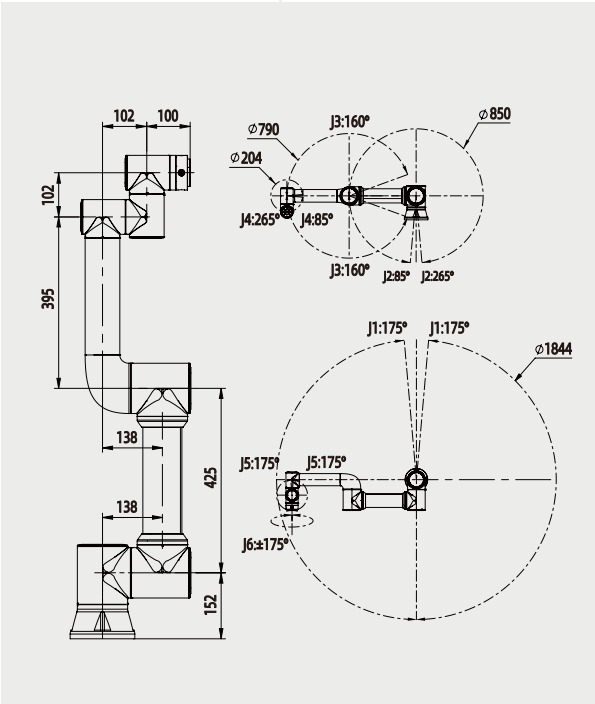
ROBOT END-EFFECTOR
COMPATIBLE WITH
INDUSTRIAL ROBOT
END-EFFECTOR
CONNECTION METHODS



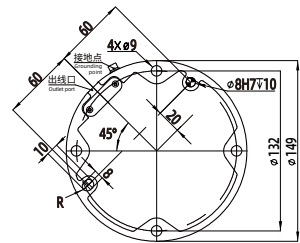
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COMPATIBLE WITH
INDUSTRIAL ROBOT
END-EFFECTOR
CONNECTION METHODS



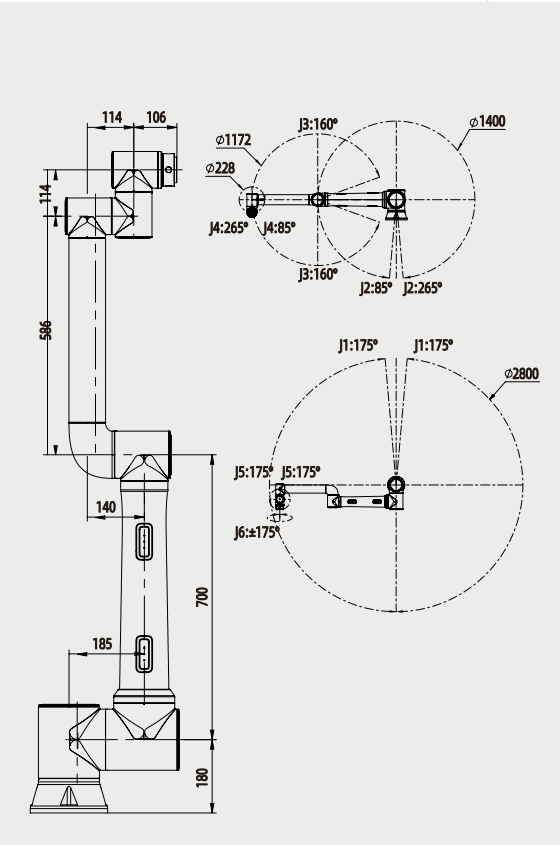
ROBOT END-EFFECTOR
COMPATIBLE WITH
INDUSTRIAL ROBOT
END-EFFECTOR
CONNECTION METHODS



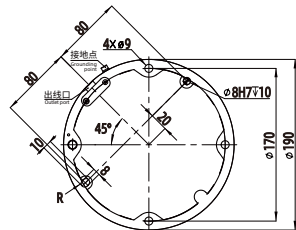
FR5



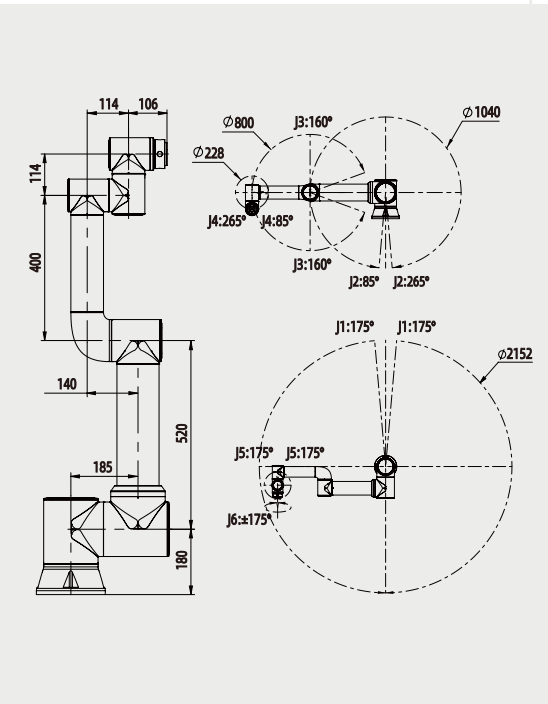
FR5 Pedestal diagram



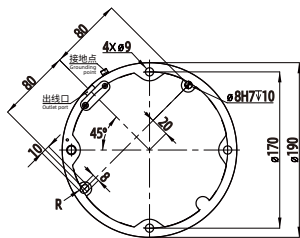
FR10



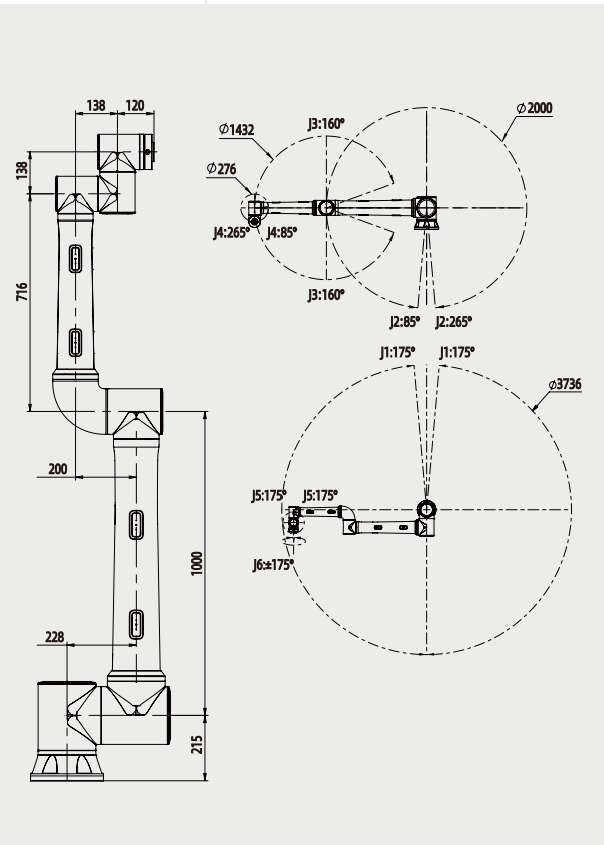
FR10 Pedestal diagram



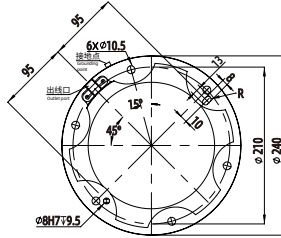
FR16



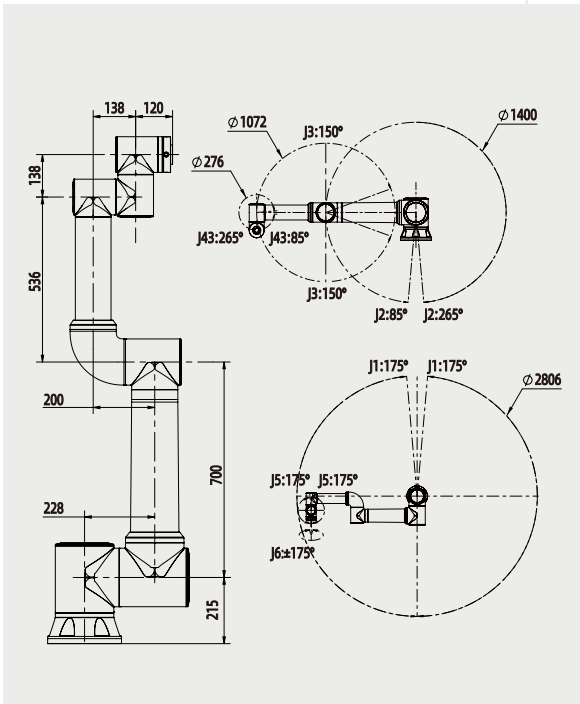
FR16 Pedestal diagram



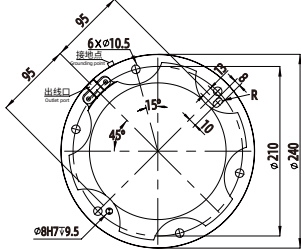
FR20



FR20 Pedestal diagram



FR30



FR30 Pedestal diagram