PRODUCT
CATALOGUE

CONTACT US

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FAIRINO

CONTENTS

Intelligent human-robot cooperation system solutions

According to different payload and parameter, FAIRINO collaborative robots FR series are divided into six models: 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

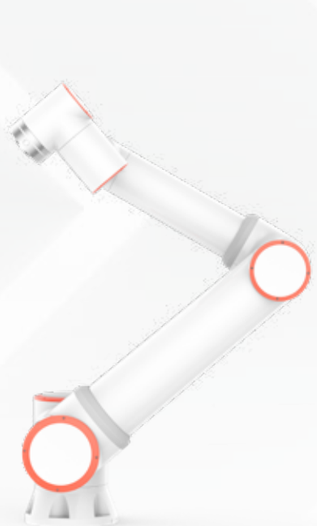
FR3

FR5

FR10

FR16

FR20



FR30

ROBOT ARM TECHNICAL SPECIFICATION

	FR3		FR5		FR10		FR16		FR20		FR30	
Payload	**3kg**		**5kg**		**10kg**		**16kg**		**20kg**		**30kg**	
Reach	**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	
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			
Dual arm robotics applications	Mirror versions available to build dual arm robots											
Pose repeatability per ISO 9283	**±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
Base	±175°	±180°/s	±175°	±180°/s	±175°	±120°/s	±175°	±120°/s	±175°	±120°/s	±175°	±120°/s
Shoulder	+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°	±180°/s	±160°	±180°/s	±160°	±180°/s	±160°	±180°/s	±160°	±120°/s	±160°	±120°/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
Wrist 2	±175°	±180°/s	±175°	±180°/s	±175°	±180°/s	±175°	±180°/s	±175°	±180°/s	±175°	±180°/s
Wrist 3	±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		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)	
Noise	<65dB		<65dB		<65dB		<65dB		<70dB			
Robot mounting	Any orientation		Any orientation		Any orientation		Any orientation		Any orientation		<70dB	
I/O Ports	(DI) 2 (DO) 2		(DI) 2 (DO) 2		(DI) 2 (DO) 2		(DI) 2 (DO) 2		(DI) 2 (DO) 2		Any orientation	
	(AI) 1 (AO) 1		(AI) 1 (AO) 1		(AI) 1 (AO) 1		(AI) 1 (AO) 1		(AI) 1 (AO) 1		(DI) 2 (DO) 2	
Tool I/O power supply	24V/1.5A		24V/1.5A		24V/1.5A		24V/1.5A		24V/1.5A		(AI) 1 (AO) 1	
											24V/1.5A	
Footprint	128mm		149mm		190mm		190mm		240mm		240mm	
Weight	≈15kg		≈22kg		≈40kg		≈40kg		≈85kg		≈85kg	
Operating temperature	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)	
Materials	Aluminium、Steel		Aluminium、Steel		Aluminium、Steel		Aluminium、Steel		Aluminium、Steel		Aluminium、Steel	
Black Optional	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 :

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	220W	260W	300W	310W	620W	600W
Typical peak power	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℃	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	FR3,FR5,FR10,FR16	FR20/FR30	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)

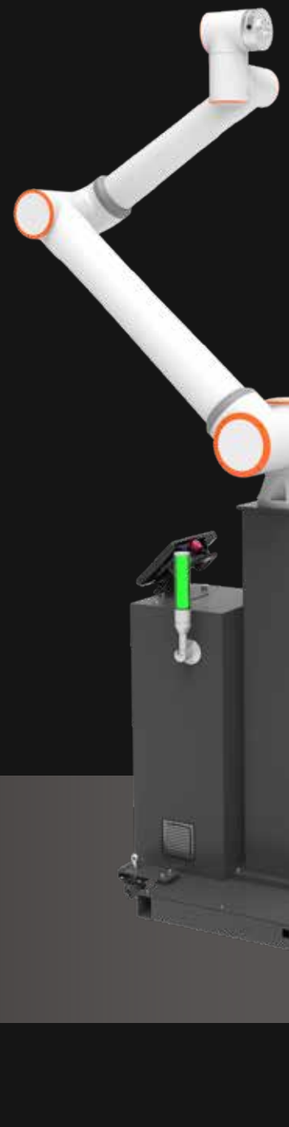
It has good technical performance. The cabinet must be resistant to vibration, impact, corrosion, dust, water, and radiation to ensure stable and reliable operation of devices. Good usability and safety protection facilities, easy operation, installation and maintenance, and to ensure the safety of the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

IP classification	IP65
Operating Environment Temperature	0℃-45℃
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

FAIRINO

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.



Palletizing Solution

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.

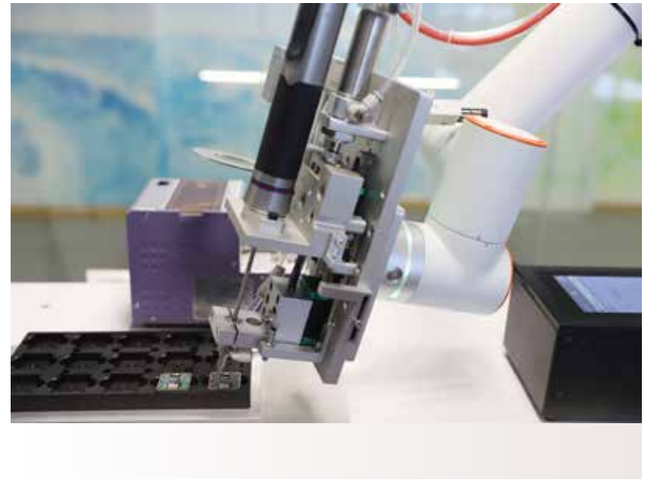
Collaborative robots can perform round-the-clock automated palletizing work, effortlessly and quickly transporting goods to their destinations, saving time and energy. This frees employees from fatigue and repetitive tasks, allowing them to engage in more meaningful work. Additionally, there is no need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

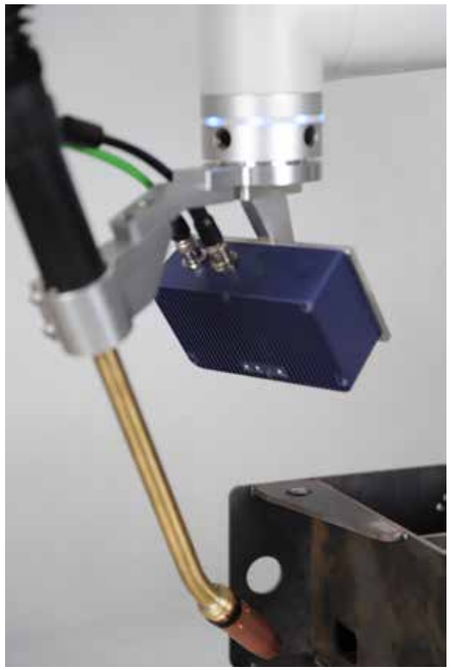
The platform utilizes a six-axis collaborative robot to accomplish palletizing work, offering easy deployment and quick utilization, truly enabling a plug-and-play experience.

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

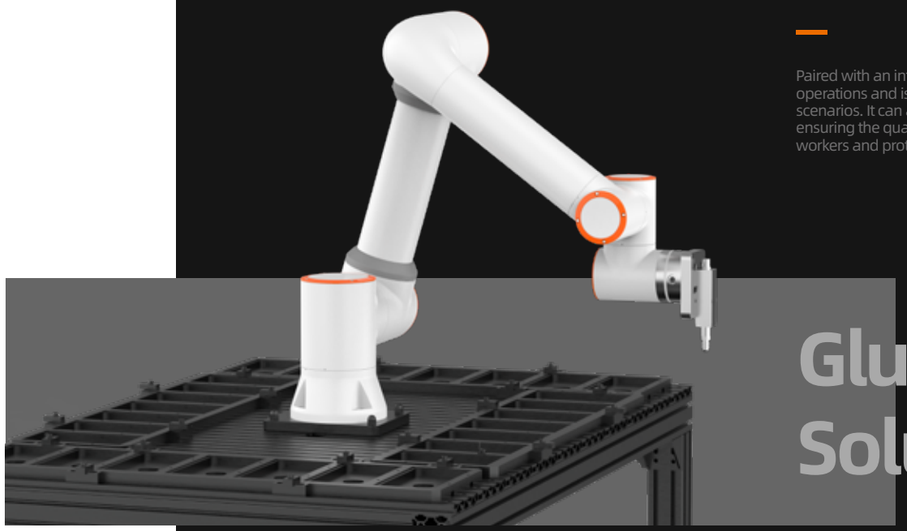
- Enhance work safety
- Reduce error rate and losses
- Data recording and traceability
- Real-time monitoring and feedback
- Improve production efficiency
- Accurate tracking and identification

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.

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.



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.

Glue Dispending Solution

FAIRINO

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.

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

Welcome to the intelligent world of FAIRINO.

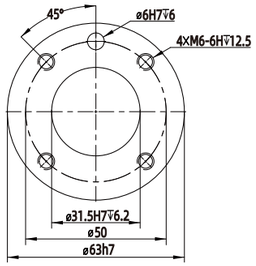
Lots of manufacturers have begun taking advantage of AIoT and human-machine collaboration. What can collaborative robots do for them?

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.

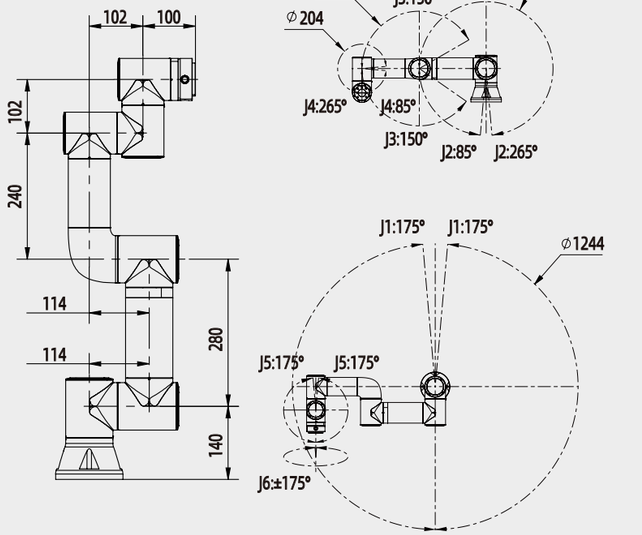
DRAWINGS

Unit : mm

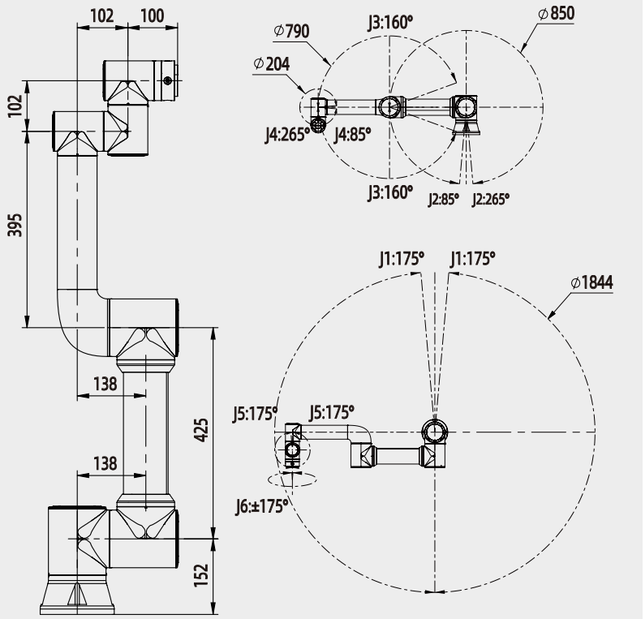


ROBOT END-EFFECTOR COMPATIBLE WITH
INDUSTRIAL ROBOT END-EFFECTOR CONNECTION METHODS

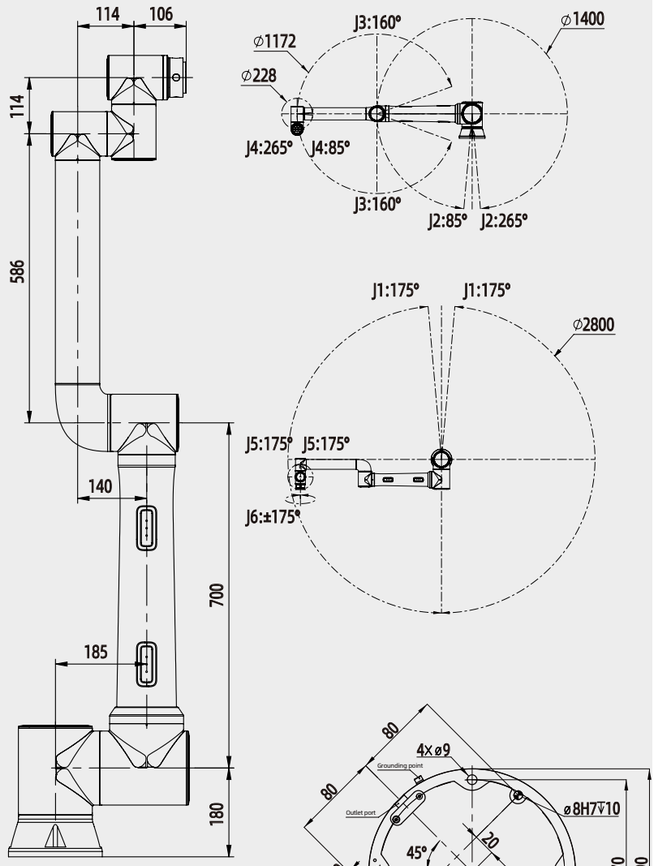
FR3

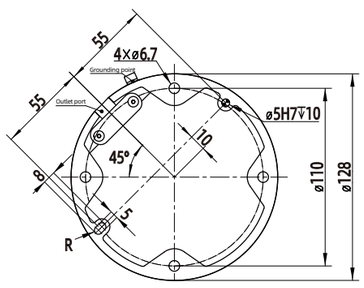


FR5

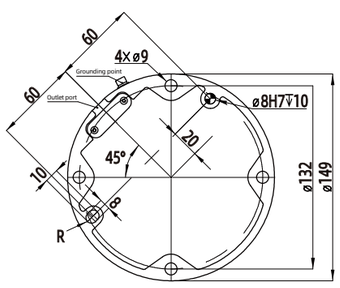


FR10

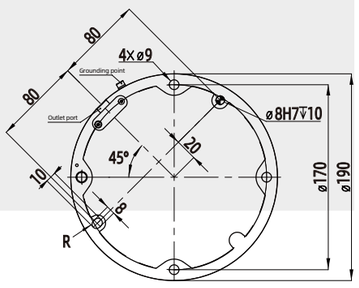




FR3 Pedestal diagram



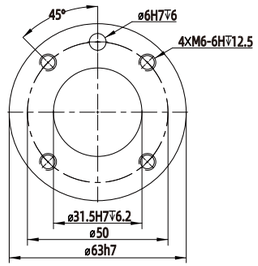
FR5 Pedestal diagram



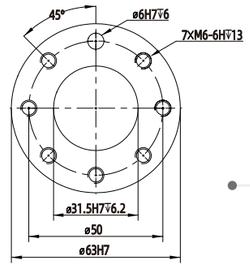
FR10 Pedestal diagram

DRAWINGS

Unit : mm

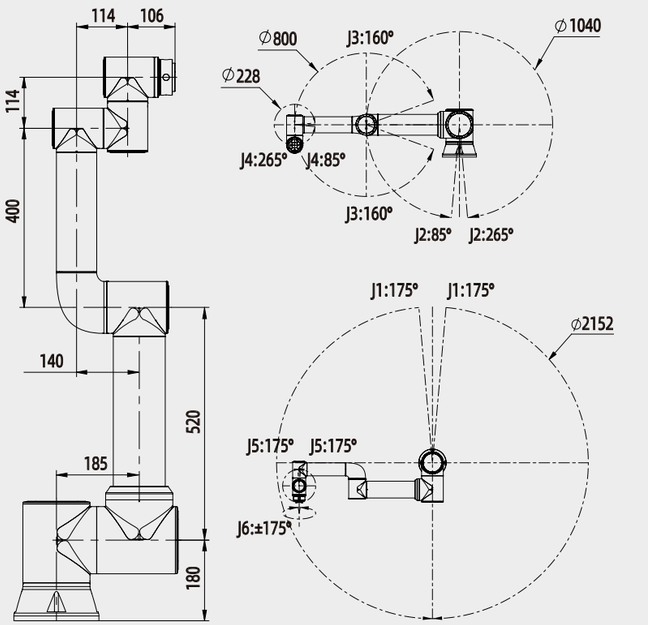


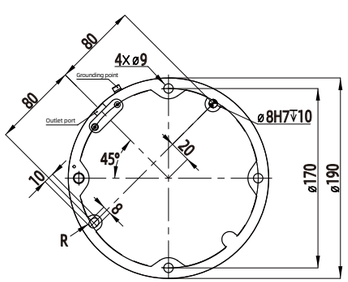
ROBOT END-EFFECTOR COMPATIBLE WITH
INDUSTRIAL ROBOT END-EFFECTOR CONNECTION METHODS



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

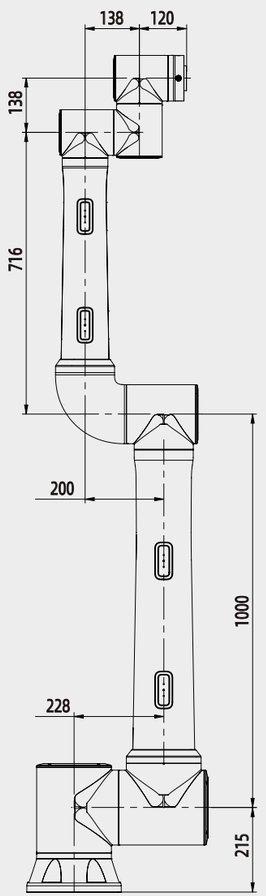
FR16

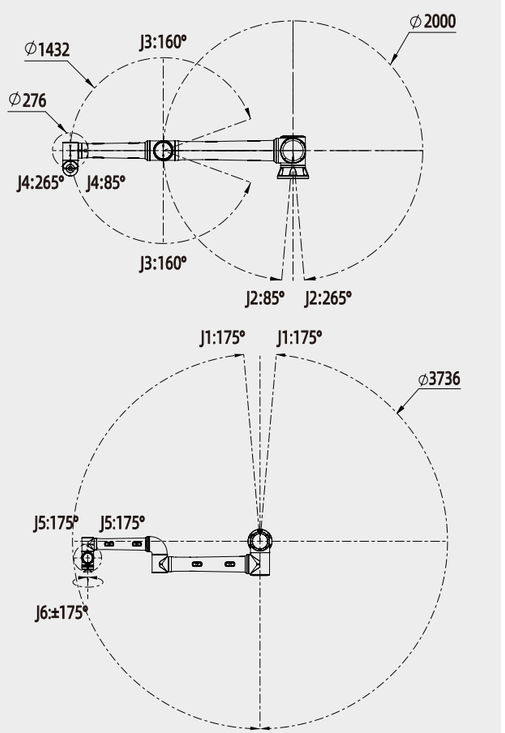


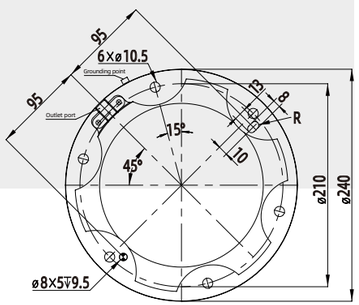


FR16 Pedestal diagram

FR20

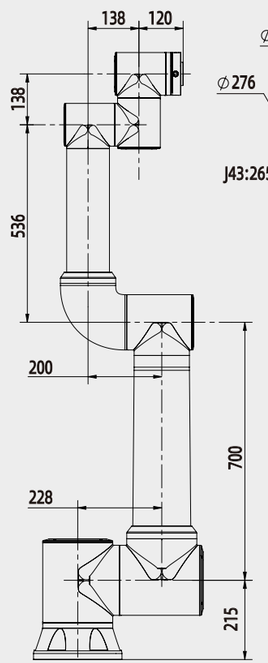


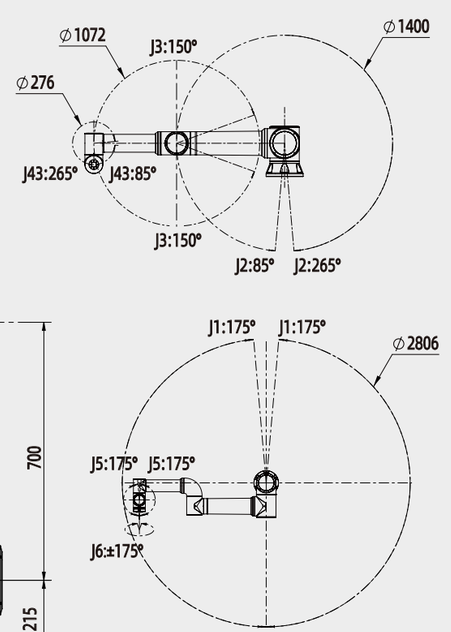


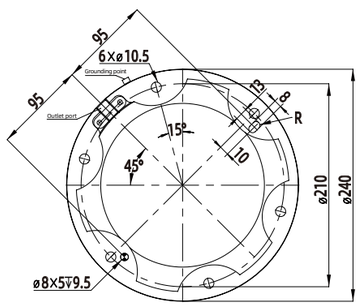


FR20 Pedestal diagram

FR30







FR30 Pedestal diagram