- Modularization
- Quick deployment
- Easy operation

FAIRINO
ROBOT

PRODUCT VISION

Collaborative robots will extend your time and space, liberate complex and ine cient repetition, and let

you embrace a wider horizon.In the future, You will see **FAIRINO ROBOTS**.

With its emergence, it not only improves the e ciency 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
产品展示

FAIRINO FR SERIES

FR5,FR10,FR16,FR20 ,FR30。

ISO

ISO 9001

CR, CE, KCs, NRTL, RoHS 2.0, NSF, SEMI, IP65

ISO 10218, ISO 13849, ISO 15066

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

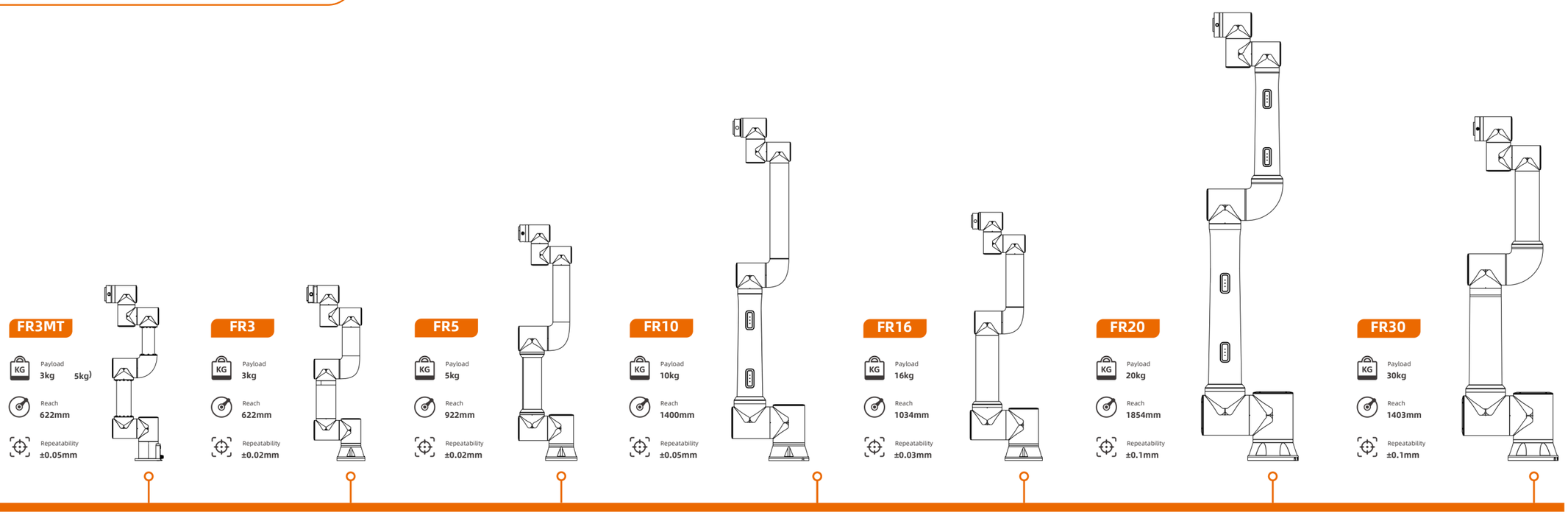
To provide partners&customers with better quality assurance,FAIRINO has obtained a more comprehensive range of certificates through international certification organizations.

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

Intelligent human-robot cooperation system solutions



ROBOT ARM TECHNICAL SPECIFICATION

	FR3MT	FR3	FR5	FR10	FR16	FR20	FR30
(Payload)	3kg(5kg) (Instanta neous 5kg)	3kg	5kg	10kg	16kg	20kg	30kg
(Reach)	622mm	622mm	922mm	1400mm	1034mm	1854mm	1403mm
(Degrees of freedom)	6 6 rotatingjoints	6 6 rotating joints	6 6 rotating joints	6 6 rotating joints	6 6 rotating joints	6 6 rotating joints	6 6 rotating joints
(HMI)	10.1 Web App 10.1 inch teach pendant or mobile terminal Web App			10.1 Web App 10.1 inch teach pendant or mobile terminal Web App			
(Pose repeatability per ISO 9283)	±0.05mm	±0.02mm	±0.03mm	±0.05mm	±0.03mm	±0.1mm	±0.1mm

(Axis movement)	(Working range)	(Maximum speed)	(Workin g range)	(Maximum speed)	(Working range)	(Maximum speed)	(Working range)	(Maximum speed)	(Working range)	(Maxim um speed)	(Working range)	(Maximum speed)	(Working range)	(Maximum speed)
(Base)	±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°	±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°	±180°/s	±160°	±180°/s	±160°	±180°/s	±160°	±180°/s	±160°	±120°/s	±160°	±120°/s
1(Wrist 1)	+ 85°/ _ 265°	±180°/s	+ 85°/ _ 265°	±180°/s	+ 85°/ _ 265°	±180°/s	+ 85°/ – 265°	±120°/s	+ 85°/ _ 265°	±180°/s	+ 85°/ _ 265°	±120°/s	+ 85°/ _ 265°	±180°/s
2(Wrist 2)	350°	±180°/s	±175°	±180°/s	±175°	±180°/s	±175°	±120°/s	±175°	±180°/s	±175°	±120°/s	±175°	±180°/s
3(Wrist 3)	±175°	±180°/s	±175°	±180°/s	±175°	±180°/s	±175°	±120°/s	±175°	±180°/s	±175°	±120°/s	±175°	±180°/s
TCP (Typical TCP speed)	1m/s		1m/s		1m/s		1.5m/ s		1m/s		2m/s		2m/s	
(IP classification)	IP54 (IP65)	(IP65 Optional)	IP54 (IP65)	(IP65 Optional)	IP54 (IP65)	(IP65 Optional)	IP54 (IP65)	(IP65 Optional)	IP54 (IP65)	(IP65 Optional)	IP54 (IP65)	(IP65 Optional)	IP54 (IP65)	(IP65 Optional)
(Noise)	<65dB		<65dB		<65dB		<65dB		<65dB		<70dB		<70dB	
(Robot mounting)	Any orientation		Any orientation		Any orientation		Any orientation		Any orientation		Any orientation		Any orientation	
I/O (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
	入 (AI) 1	(AO) 1	入 (AI) 1	(AO) 1	(AI) 1	(AO) 1	(AI) 1	(AO) 1	(AI)1	(AO) 1	(AI)1	(AO) 1	(AI)1	(AO) 1
I/O (Tool I/O power su pply)	24V/1.5A		24V/1.5A		24V/1.5A		24V/1.5 A		24V/1.5A		24V/1.5A		24V/1.5A	
(Footprint) (Weight)	125mm		128mm		149mm		190mm		190mm		240mm		240mm	
(Operating temperature)	≈10kg		≈15kg		≈22kg		≈40kg		≈40kg		≈85kg		≈85kg	
(Operating humidity)	0-45℃		0-45℃		0-45℃		0-45℃		0-45℃		0-45℃		0-45℃	
(Materials)	90%RH(n on-condensing)		90%RH(n on-condensing)		90%RH(no n-condensing)		90%RH(non-condensing)		90%RH(no n-condensing)		90%RH(no n-condensing)		90%RH(no n-condensing)	
	Aluminium、Steel		Aluminium、Steel		Aluminium、Steel		Aluminium、Steel		Aluminium、Steel		Aluminium、Steel		Aluminium、Steel	

■

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

	FR3MT:3kg，Z:18 FR3MT payload setting: 3kg, Z-axis: 18	FR3:3kg，Z:18 FR3 payload setting: 3kg, Z-axis: 18	FR5:5kg，Z:30 FR5 payload setting: 5kg, Z-axis: 30	FR10:10kg，Z:60 FR10 payload setting: 10kg, Z-axis: 60	FR16:16kg，Z:96 FR16 payload setting: 16kg, Z-axis: 96	FR20:20kg，Z:120 FR20 payload setting: 20kg, Z-axis: 120	FR30:30kg，Z:200 FR30 payload setting: 30kg, Z-axis: 200

:

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)	198W	224W	261W	294W	315W	624W	594W
(Typical peak power)	231W	276W	314W	503W	410W	806W	909W

CONTROLLER TECHNICAL SPECIFICATION




		mini	mini 2kw	4kw	6kw
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	(I/O Ports)	(DI) 16 (DO) 16	DI) 16 (AI) 2 (DO) 16 AO) 2	(DI) 16 (DO) 16	(DI) 16 (DO) 16
		(AI) 2 (AO) 2	(High speed pulse input) 2	(AI) 2 (AO) 2	(AI) 2 (AO) 2
		(High speed pulse input) 2	24V/1.5A	(High speed pulse input) 2 24V/1.5A	(High speed pulse input) 2
I/O	(I/O power supply)	24V/1.5A			24V/1.5A
	(Standard com munication)	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 com munication)	CC-Link、Profinet、Ethernet/lP、EtherCAT	CC-Link Profinet、Ethernet/lP、EtherCAT	CC-Link Profinet、Ethernet/lP、EtherCAT	CC-Link Profinet、Ethernet/lP、EtherCAT
	(Software de velopment 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	245*180*44.5mm	245*180*89mm	320*183*100mm
	(Weight)	2.1kg	2.5kg	3.6kg	6.5kg
	(Materials)	Galvanized plate	Galvanized plate	Galvanized plate	Galvanized plate
	(Power supply)	30-60VDC	176-264VAC ~ 50-60Hz 100-240VAC ~ 50-60Hz	100-240VAC ~ 50-60Hz	176-264VAC ~ 50-60Hz

TEACH PENDANT [Optional]

All operations are gathered in the hand

WebAPP

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

- The user interface is more intuitive
- Wide range of technological packages
- Cloud deployment provides greater convenience

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

SAFTY BOX

RJ45

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.

- Simple to use
- Easy to operate
- Flexible to deploy

Features	(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)	POE Standard POE
Physical	(L*W*H)	136*60*66mm (No protrusions)
	(Weight)	490g (C able weight included)
	(Materials)	(ABS
	(Cable length)	5m
	(Number of key s)	≥20 W

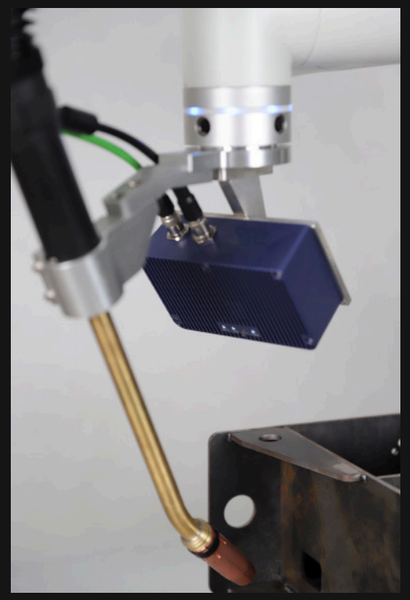
INDUSTRY APPLICATIONS

Pick And Place Solution

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

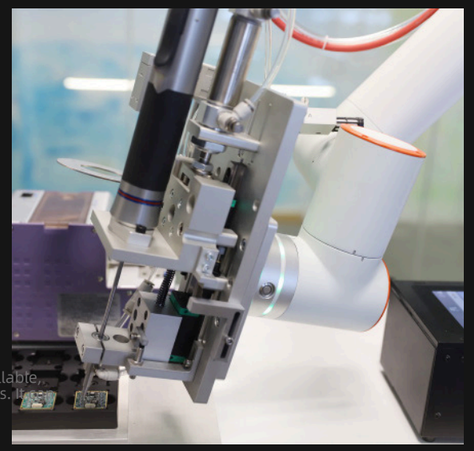
Welding Robot

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 e ciency and ensuring welding quality.



Screw Tightening Robot

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



Glue Dispending Solution

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

Conveyor Belt Solution

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

COMMERCIAL APPLICATIONS

Automated Tea Robot

Collaborative robots can be applied in various types of new retail scenarios and can be customized according to di erent scenario requirements. Benefits include:

Cost-saving: They replace manual labor, reducing manpower costs while increasing work e ciency.

Consistent tea brewing: They ensure consistent taste regardless of di erent operators or di erent 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-e ective: 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.

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 e ciency.

Moxibustion Solution

It fully replicates the five major moxibustion techniques, o ering 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
- Lower barrier to entry
- Flexible deployment
- Effcient moxibustion

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 o ering 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.

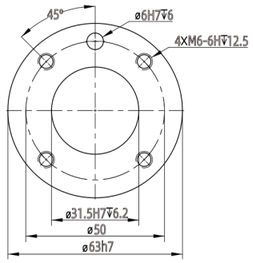
Lots of manufacturers have begun taking advantage of AIoT and human-robot collaboration. What can collaborative robots do for them?

Collaborative robots decrease manufacturing costs, increase the e ciency of production and enhance the skills of employees. They also o er 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.

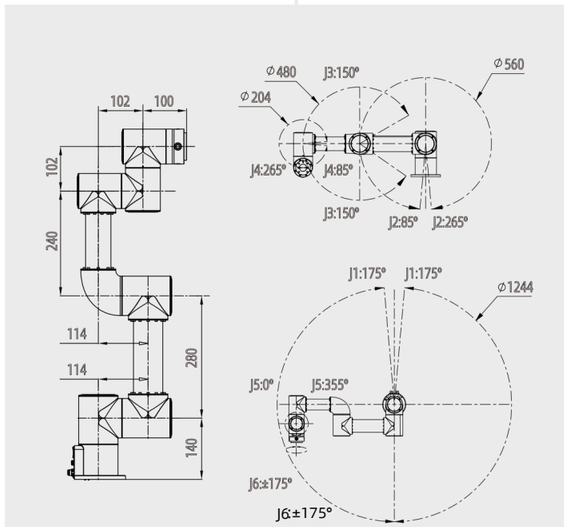
Cobots are believed to have unlimited potential and would be introduced to more scenarios in the future.

DRAWINGS

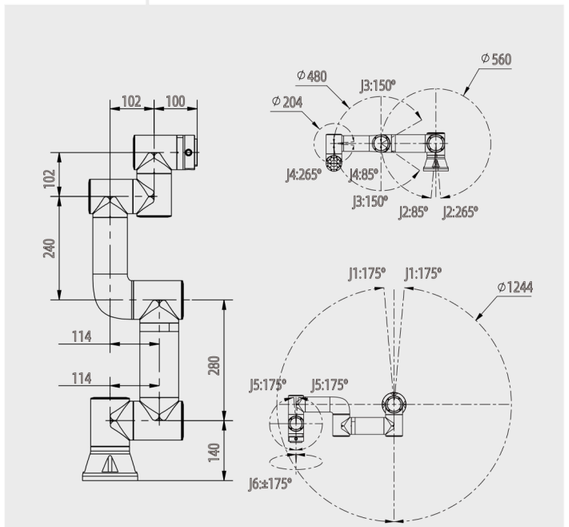
(Unit) : mm



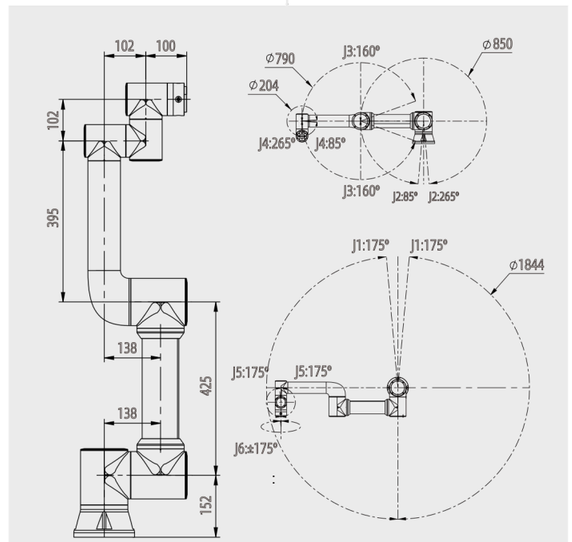
ROBOT END-EFFECTOR COMPATIBLE WITH INDUSTRIAL ROBOT END-EFFECTOR CONNECTION METHODS



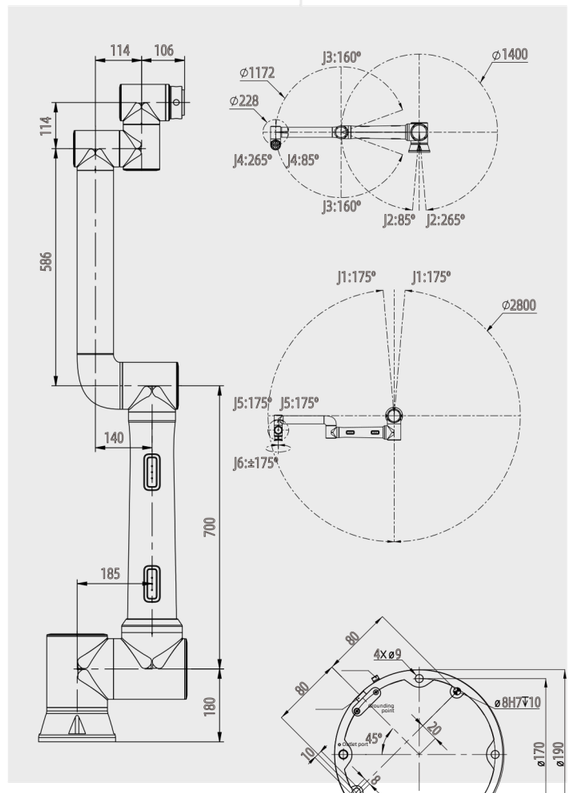
FR3MT



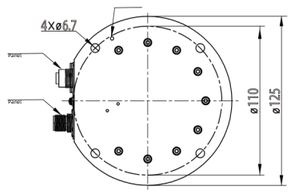
FR3



FR5

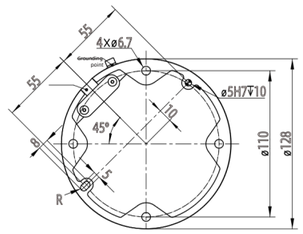


FR10



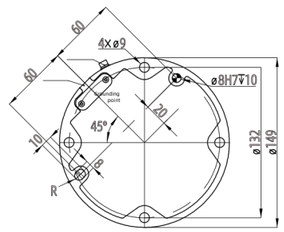
FR3MT

Pedestal diagram



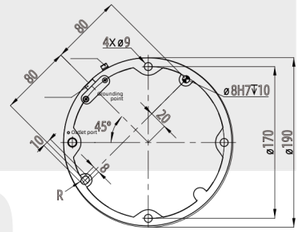
FR3

Pedestal diagram



FR5 基座图

Pedestal diagram

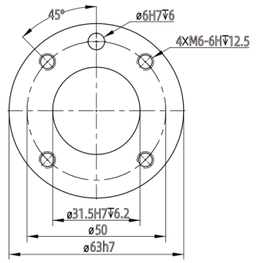


FR10 基座图

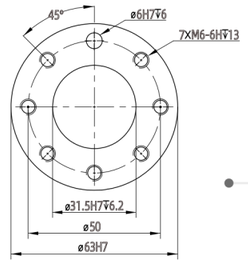
Pedestal diagram

DRAWINGS

(Unit) : mm

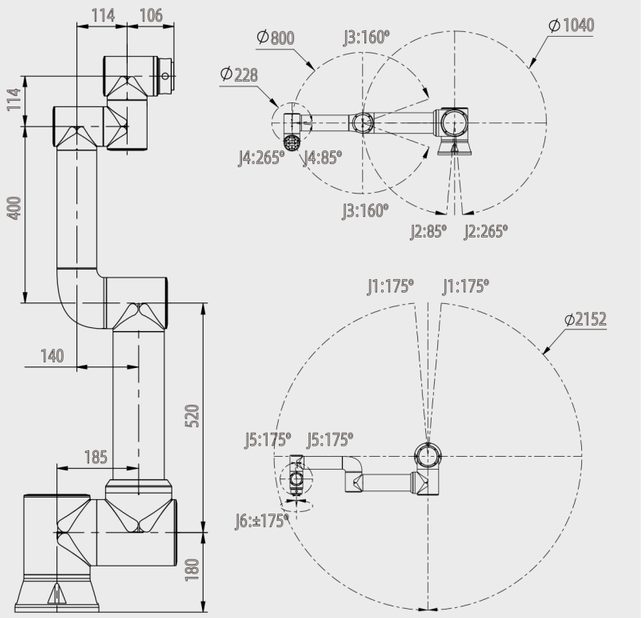


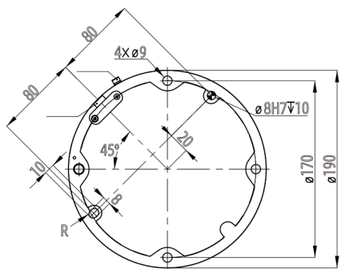
ROBOT END-EFFECTOR COMPATIBLE WITH INDUSTRIAL ROBOT END-EFFECTOR CONNECTION METHODS



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

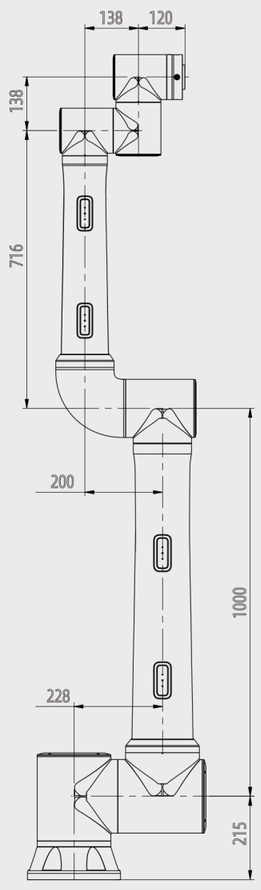
FR16

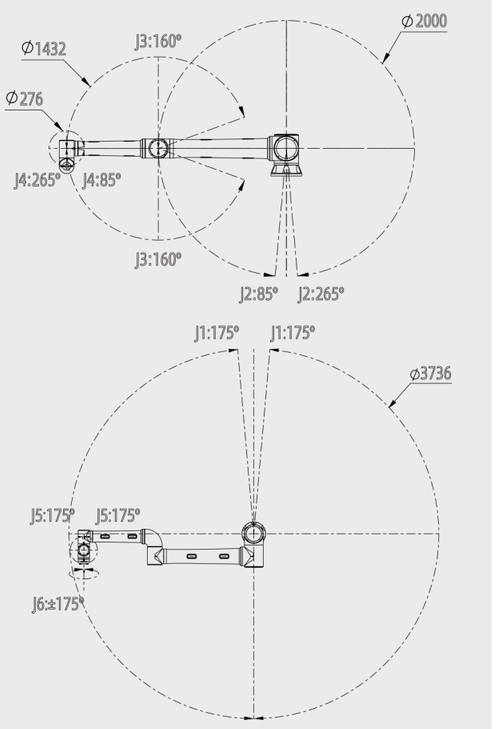


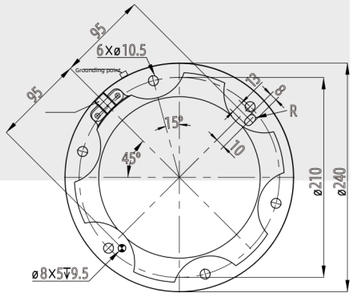


FR16 Pedestal diagram

FR20

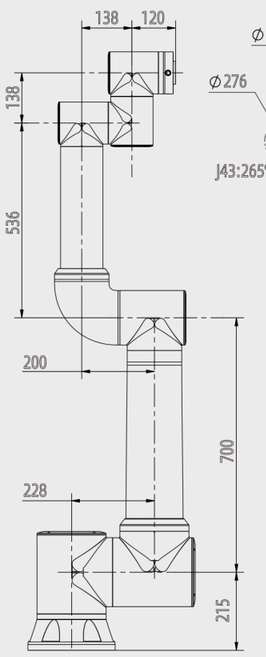


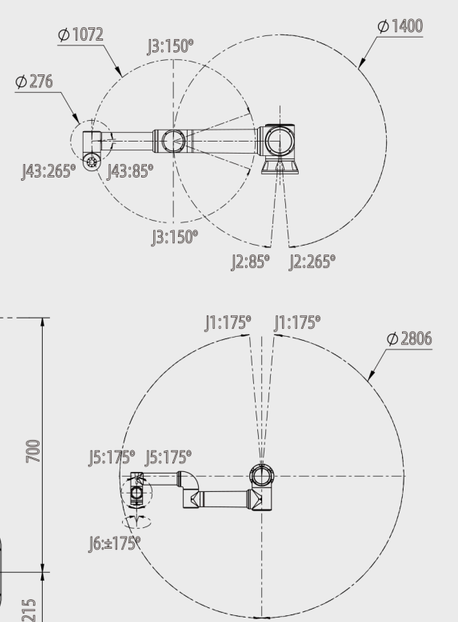


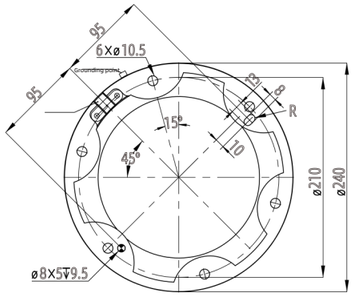


FR20 Pedestal diagram

FR30







FR30 Pedestal diagram