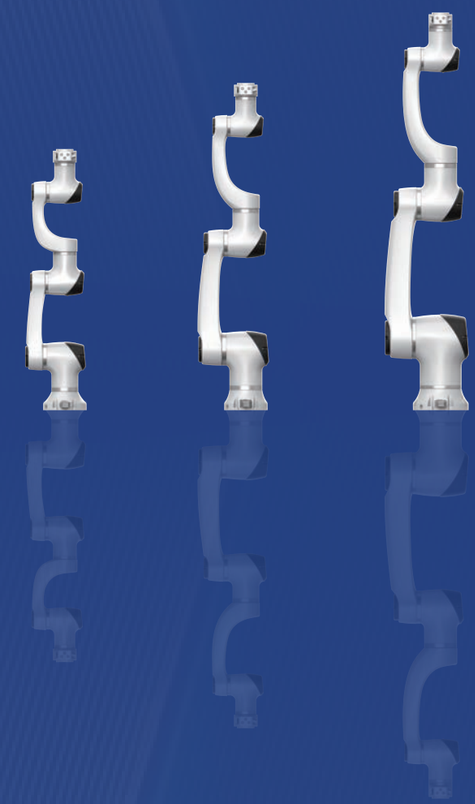
Ver005 / 2021-9-02

HAN'S ROBOT
大族机器人



International service hotline

400-852-9898

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Shenzhen Han's Robot Co., Ltd.
www.hansrobot.net

Catalog

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HAN'S ROBOT
大族机器人

Company Profile

Vision

To be the global leader in the era of intelligent robots

Mission

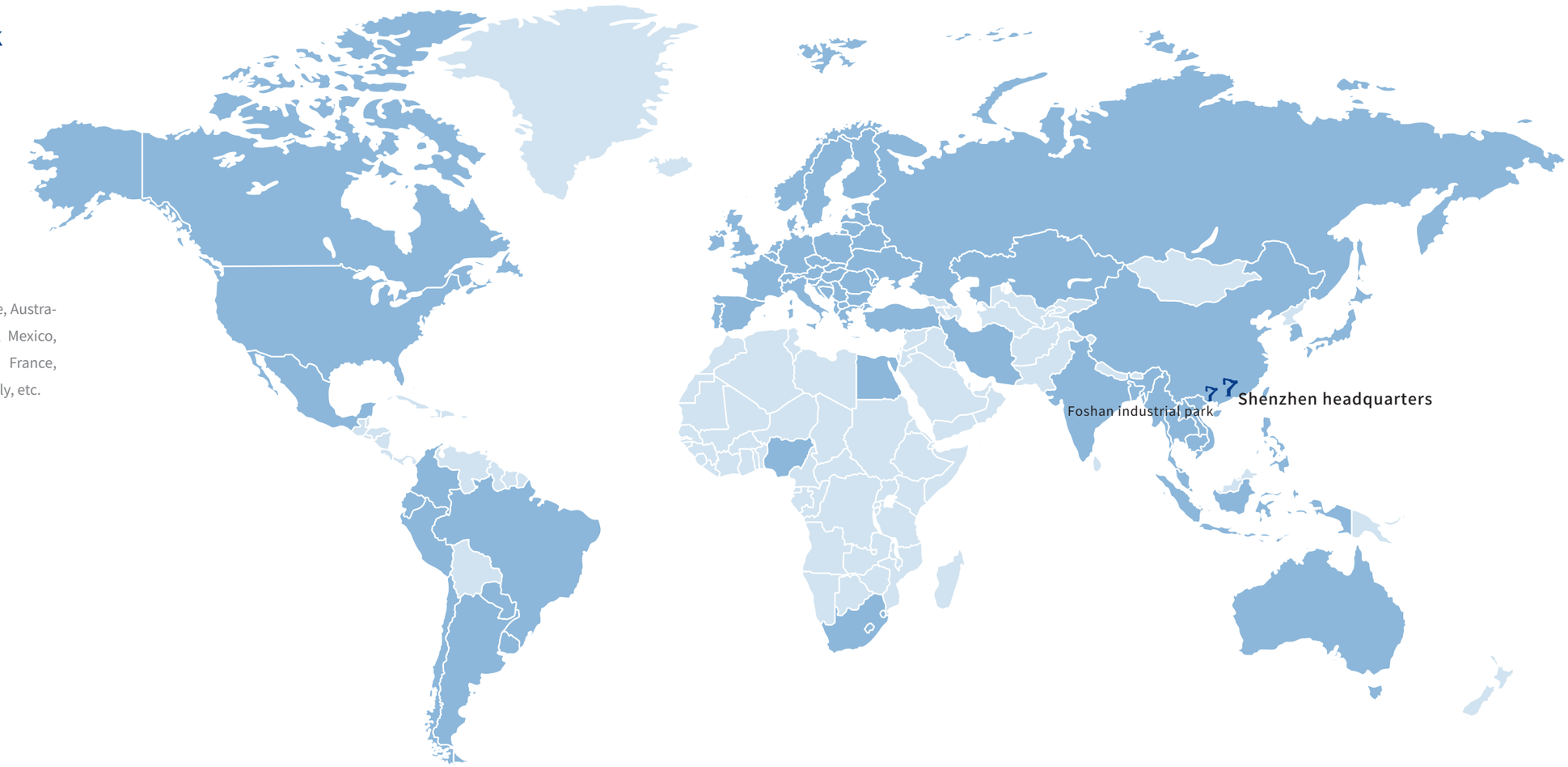
Serve humanity with robot technology

Values

Lead, fast-speed, service, sharing, passion, enthusiasm, curiosity

Shenzhen Han's Robot Co., Ltd., invested and established by Han's Laser Technology Group (stock name: Han's Laser, stock code: 002008), is a high-tech enterprise established on the basis of the Robot Division from Han's Motor. It was founded in August, 2017 with its headquarter and production base located in Han's Laser global intelligent manufacturing base, Bao'an District, Shenzhen. Han's Robot is dedicated to the development, promotion and application of intelligent robots in industry, healthcare, logistics, services and so on, becoming the global leader in the era of intelligent robots.

Global Service Network



Partners from more than 60 countries

China, South Korea, Japan, Thailand, Singapore, Australia, New Zealand, the United States, Canada, Mexico, Brazil, Colombia, Argentina, Russia, Britain, France, Germany, Spain, the Netherlands, Lithuania, Italy, etc.

Top talents from 18+ countries & regions

200+	150+	18+
200+ Employees	150+ Professional engineers	Countries

Milestones

1996
Han's Laser established

2004
Han's Laser listed

2005
Han's Motor established

2014
Han's Robotics Research Institute established

2016
First-generation collaborative robot ELFIN released

2017
Shenzhen Han's Robot Co., Ltd. established

September 2020
165 million Series A round financing completed successfully

November 2020
Han's Robot Advanced Manufacturing Demonstration Park launched in Foshan

March 2021
Intelligent collaborative robot MAiRA released in Shanghai

June 2021
395 million B1 round financing completed successfully

Han's Robot

Product Advantages

Han's Robot has been constantly exploring the breadth and depth for serving human by its self-developed leading collaborative robot technologies. The payload of the robots vary from 3kg to 18kg which can meet the requirements of various customers. Moreover, Han’ s Robot has developed products from the first generation 6-axis collaborative robots Elfin robot to the second-generation Elfin-P robot with higher performance, and has released 7-axis intelligent collaborative robots MAiRA in March 2021.

Each joint with a motion range of ±360°

- High motion efficiency
- More positions can be reached
- Most flexible collaborative robot
- Low power consumption

Self-developed dual-joint modules

- Self-developed dual-joint modules
- Unique arm design, optimized singularity points
- Higher integration
- Higher flexibility

EtherCAT

EtherCAT bus communication

- Strong anti-interference ability
- High communication frequency and fast speed
- High safety, accurate motion trajectory
- All joint data is open

Self-developed of core components

- Completely self-developed core components from Han’ s Group
- Complete set of motors, servo drive
- Grating encoder, 6-dimensional force/ torque sensor
- Electromagnetic brake, high-speed inverter

Advantages

Innovative brake method

- The robot will automatically rebound and then stop when encounter any resistance.
- Output force and power controlled within the safety range to ensure personnel safety.
- Innovative brake design. The robot will be locked immediately in case of a sudden power failure or emergency stop during operation. It will not slide, fall or move at all

More than 16 years of industrial experience

- Incubated from the Robotics Research Institute team of Han's Motor
- More than 16 years experience in motors, servo drives and motion control
- Long-term cooperation with famous universities at home and abroad
- Dedicated to collaborative robot technologies and applications

IP66 protection rating

- Higher waterproof and dust-proof protection
- Which is more suitable for harsher environments
- And can avoid external objects and dust
- Moreover, it can adapt to areas with various climates and humidity levels

More open platform

- Open source ROS interface, which allows users to control the robot joints in real time through EtherCAT under the ROS environment
- ROS platform, which greatly improves the robot's scalability. The robot can be controlled without an additional control box
- Used for ROS teaching in colleges and universities

ISO class 5 cleanroom

- The surface cleanliness of the whole robot is excellent due to the excellent waterproof and dust-proof performance
- Optimized structure of internal parts, low mutual friction, avoiding damage
- Excellent sealing of the whole robot, without impurities intrusion
- Automotive and aerospace industry standards, ensuring high quality

Graphical control

- Graphical software design, intuitive, easy to understand, easy to operate
- User-friendly interface logic design, easy to use
- The software controls the robot with instant reactions, without delay, out of control and other symptoms
- Remote control via touchscreen, excellent human-machine experience

Han's Robot

Plug & Play Tools

Adhering to the ecological concept of "all are friends in the world", Han's Robot has created a more complete and open collaborative ecosystem, and designed various IO and communication interfaces. These IO interfaces greatly expand the application scope of the robot and can support “plug and play” with most accessories in the industrial ecosystem, such as grippers, vision, and sensors, which can meet the needs of multiple scenarios such as loading and unloading, assembly, testing, handling, screw driving, grinding, spraying etc.

Force Sensor

Link-touch	SRI	Onrobot
ATI	Robotiq	Hypersen

Vision

Micromatch	Basler	Cosmosvision
Mech-Mind	Cognex	Seizet
Keyence	Hikvision	

Grippers

Robotiq	SMC	RobustMotion
Onrobot	Schunk	HIWIN
DH-Robotics	HITBOT	SRT

Scan code to join us

Han's Robot Partner Ecosystem

To build an open,shared and win -win industrial ecosystem!

"POSS" Concept

The smartest body, the smartest brain:

Han's Robot believes that the characteristics of a good collaborative robot can be summarized as POSS. We are dedicated to the research and application expression of cutting-edge robotics technology, and the development of robots with the smartest body and the smartest brain.

Higher Performance

More Open

More Smart

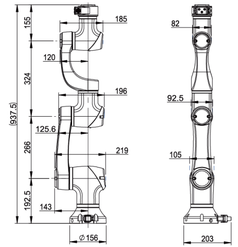
More Safe

Overview

Model	E03	E05	E05-L	E10	E10-L	P03	P05	P05-L	P10	P10-L
Weight	17kg	23kg	24kg	40kg	42.5kg	18kg	24kg	25kg	42kg	45.5kg
Payload	4kg	6kg	5kg	12kg	10kg	3kg	5kg	4kg	10kg	8kg
Reach	590mm	800mm	950mm	1000mm	1300mm	590mm	800mm	950mm	1000mm	1300mm
Power consumption	100W typical application	180W typical application	180W typical application	350W typical application	350W typical application	100W typical application	180W typical application	180W typical application	350W typical application	350W typical application
Joint range	±360°					±360°				
Joint speed	J1-J4 180°/s J5-J6 200°/s	J1-J4 180°/s J5-J6 200°/s	J1-J4 180°/s J5-J6 200°/s	J1-J2 100°/s J3-J4 150°/s J5-J6 180°/s	J1-J2 100°/s J3-J4 150°/s J5-J6 180°/s	J1-J4 180°/s J5-J6 200°/s	J1-J4 180°/s J5-J6 200°/s	J1-J4 180°/s J5-J6 200°/s	J1-J2 120°/s J3-J4 135°/s J5-J6 180°/s	J1-J2 100°/s J3-J4 135°/s J5-J6 180°/s
Tool speed	2m/s					2m/s				
Repeatability	±0.03mm	±0.03mm	±0.03mm	±0.05mm	±0.1mm	±0.02mm	±0.03mm	±0.03mm	±0.05mm	±0.1mm
Degrees of freedom	6					6				
Control box size	536*445*319mm					536*445*319mm				
End I/O port	Digital input: 3, digital output: 3, analog input: 2					Digital input: 3, digital output: 3, analog input: 2				
Control box I/O port	Digital input: 16, digital output: 16, analog input: 2, analog output: 2					Digital input: 16, digital output: 16, analog input: 2, analog output: 2				
I/O source	24V 2A					24V 2A				
Communication	TCP/IP and Modbus					TCP/IP and Modbus				
Programming	Graphical programming, remote call interface					Graphical programming, remote call interface				
IP rating	IP54					IP66				
Collaborative operation	10 advanced security configuration functions					10 advanced security configuration functions				
Main material	Aluminum alloy					Aluminum alloy				
Working temperature	0-50°C					0-50°C				
Power input	200-240V AC, 50-60Hz					200-240V AC, 50-60Hz				
Cable	Cable to the control box: 5 m, cable to the teach pendant: 5 m					Cable to the control cabinet: 5 m, cable to the teach pendant: 5 m				

Drawing

E03



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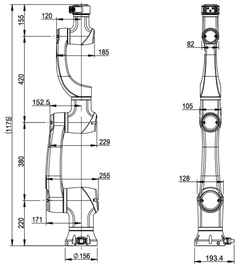

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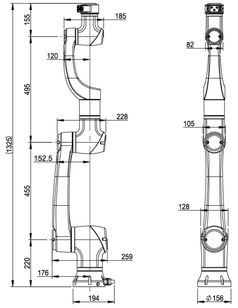

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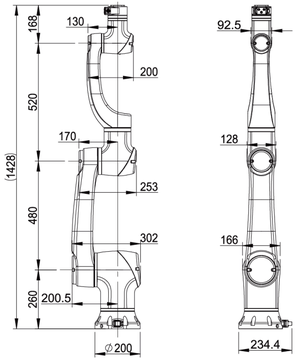

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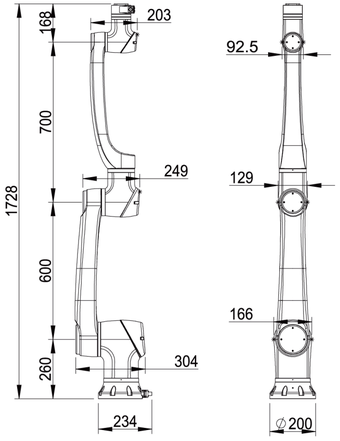
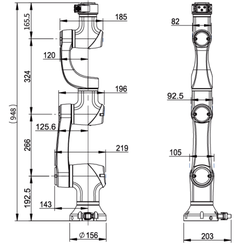


P03



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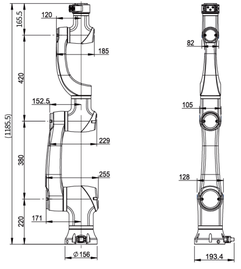

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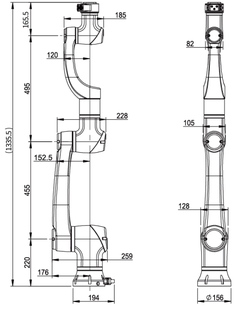

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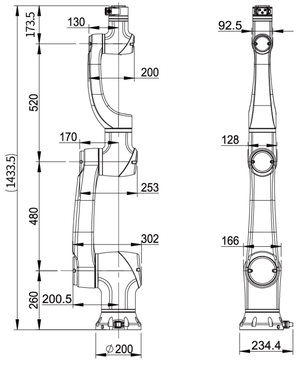
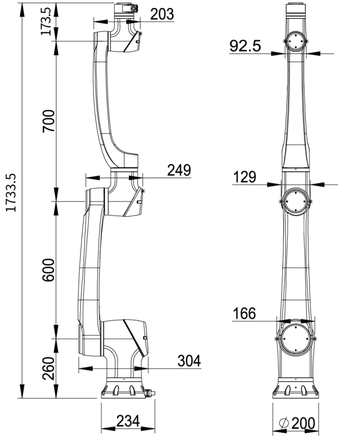


P10-L



Han's Robot Product Details →

Elfin
collaborative
robot

Elfin-P
collaborative
robot

Star
robot

Elfin Collaborative Robot

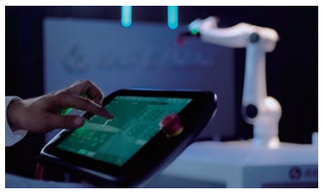
Overview

The Elfin 6-axis collaborative robot can be used in automated integrated production lines, assembly, picking, welding, grinding, spraing and other applications, and have been exported to more than 60 countries and regions. It adopts a unique double-joint module design, where one motion module contains two joints to form a unique kinematic structure, which not only differs from most collaborative robots in the market, but also provides more flexibility when working.

Why Elfin

Optimized Singularity

The unique arm design not only avoids the product homogeneity, but also reduces the singularity.



First dual-joint module design in China

The unique kinematic design enables the robot to have high flexibility. The highly integrated modular design minimizes the arm weight.

Highly Flexibility 6-DOF collaborative robot

The collaborative robot with 4/6-axis coaxial structure has almost reached the flexibility of 7-DOF robots

Modularity

All-in-one module of fully self-developed reducer, motor, encoder, drive and software

Industries

- Electronics
- Automotive
- Metal processing
- Semiconductor
- Education and research

Applications

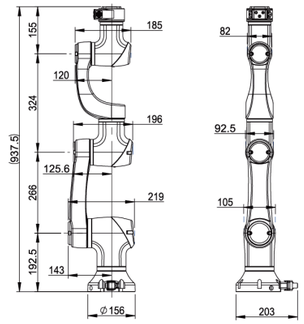
- Loading and unloading
- Assembly
- Picking
- Welding
- Palletizing
- Glue dispensing
- Inspecting

Technical Specifications

Model	E03	E05	E05-L	E10	E10-L
Weight	17kg	23kg	24kg	40kg	42.5kg
Payload	4kg	6kg	5kg	12kg	10kg
Reach	590mm	800mm	950mm	1000mm	1300mm
Power	100W typical application	180W typical application	180W typical application	350W typical application	350W typical application
Joint range			±360°		
Joint speed	J1-J4 180°/s J5-J6 200°/s	J1-J4 180°/s J5-J6 200°/s	J1-J4 180°/s J5-J6 200°/s	J1-J2 100°/s J3-J4 150°/s J5-J6 180°/s	J1-J2 100°/s J3-J4 150°/s J5-J6 180°/s
Tool speed			2m/s		
Repeatability	±0.03mm	±0.03mm	±0.03mm	±0.05mm	±0.1mm
Degree of freedom			6		
Control box size			536*445*319mm		
End I/O port			Digital input: 3, digital output: 3, analog input: 2		
Control box I/O port			Digital input: 16, digital output: 16, analog input: 2, analog output: 2		
I/O Source			24V 2A		
Communication			TCP/IP and Modbus		
Programming			Graphical programming, remote call interface		
IP classification			IP54		
Collaborative operation			10 advanced security configuration functions		
Main material			Aluminum alloy		
Working temperature			0-50℃		
Power input			200-240V AC, 50-60Hz		
Cable			Cable to the control box: 5m; cable to the teach pendant: 5m		

Drawing

E03



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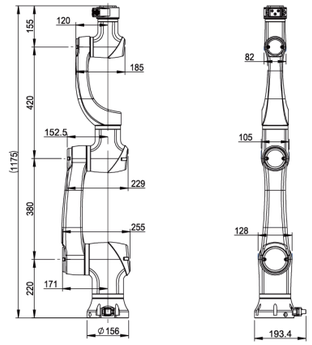
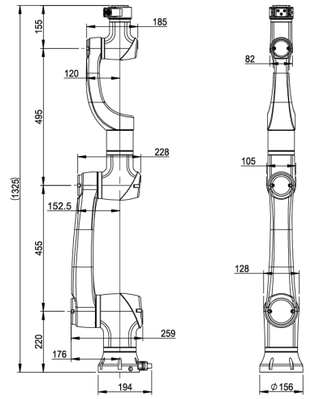


E05-L



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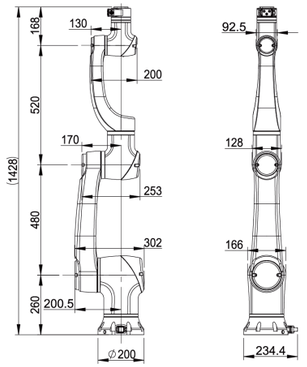
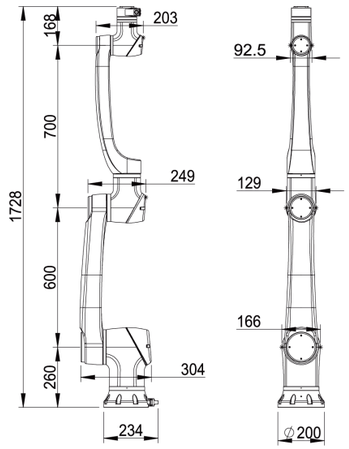
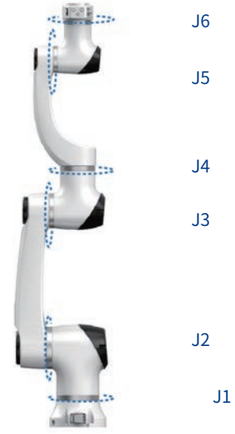


E10-L



Joint motions:



Elfin-P Collaborative Robot

Overview

Elfin-P is a lightweight 6-axis collaborative robot developed based on Elfin that can be used in automated integrated production lines, assembly, picking, welding, grinding, spraying, dispensing, inspecting and other applications. The high repeatability and protection rating ensures it can be used freely in complex working environments.

P03
590mm
3kg

P05
800mm
5kg

P05-L
950mm
4kg

P10
1000mm
10kg

P10-L
1300mm
8kg

Industries

- Electronics
- Automotive
- Semiconductor
- Metal processing
- Education and research

Applications

- Loading and unloading
- Assembly
- Picking
- Welding
- Palletizing
- Dispensing
- Inspecting

Why Elfin-P

Higher protection rating

IP66 protection rating is designed to be dust-proof and waterproof, ensuring that it can be used freely in harsh environments such as oil and moisture

Faster response

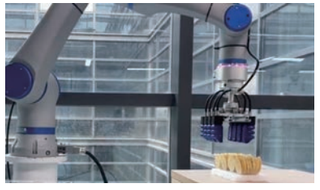
The EtherCAT communication between the controller and each joint enables real-time control of the refresh frequency of 1000Hz for industry-leading trajectory accuracy control

Stronger anti-interference ability

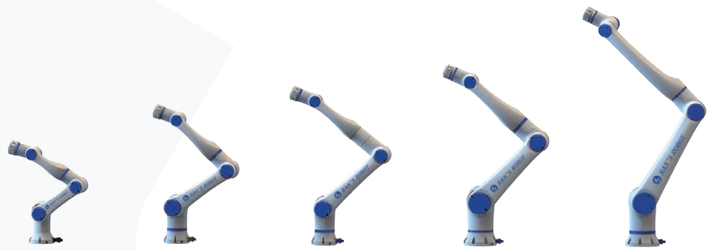
Stronger electromagnetic compatibility, which ensures that the robot can still operate properly in a strong electromagnetic interference environment

High accuracy

The repeatability can reach ±0.02 mm and it will not decrease with the wear of the reducer.



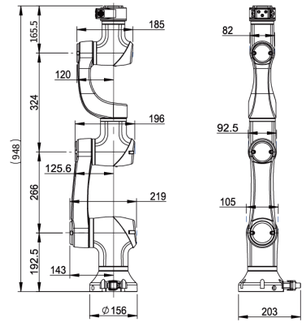
Technical Specifications



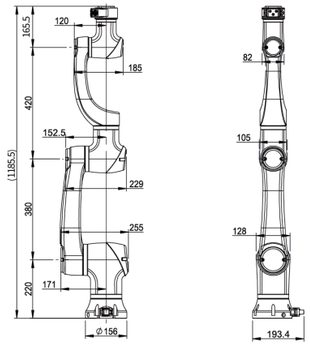
Type	P03	P05	P05-L	P10	P10-L
Weight	18kg	24kg	25kg	42kg	45.5kg
Payload	3kg	5kg	4kg	10kg	8kg
Reach	590mm	800mm	950mm	1000mm	1300mm
Power	100W typical application	180W typical application	180W typical application	350W typical application	350W typical application
Joint range			±360°		
Joint speed	J1-J4 180°/s J5-J6 200°/s	J1-J4 180°/s J5-J6 200°/s	J1-J4 180°/s J5-J6 200°/s	J1-J2 120°/s J3-J4 135°/s J5-J6 180°/s	J1-J2 100°/s J3-J4 135°/s J5-J6 180°/s
Tool speed			2m/s		
Repeatability	±0.02mm	±0.03mm	±0.03mm	±0.05mm	±0.1mm
Degree of freedom			6		
Control box size			536*445*319mm		
End I/O port			Digital input: 3, digital output: 3, analog input: 2		
Control box I/O port			Digital input: 16, digital output: 16, analog input: 2, analog output: 2		
I/O source			24V 2A		
Communication			TCP/IP and Modbus		
Programming			Graphical programming, remote call interface		
IP classification			IP66		
Collaborative operation			10 advanced security configuration functions		
Main material			Aluminum alloy		
Working temperature			0-50°C		
Power input			200-240V AC, 50-60Hz		
Cable			Cable to the control cabinet: 5m; cable to the teach pendant: 5m		

Drawing

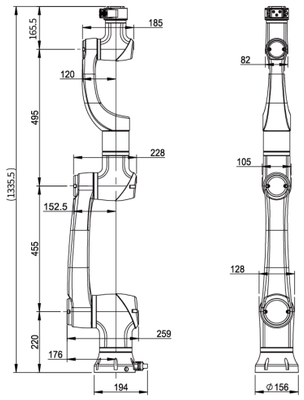
P03



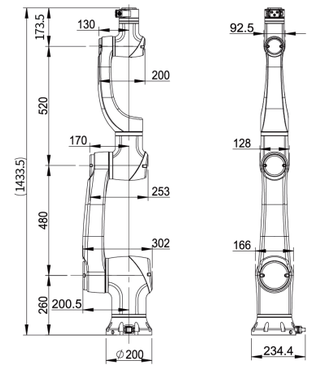
P05



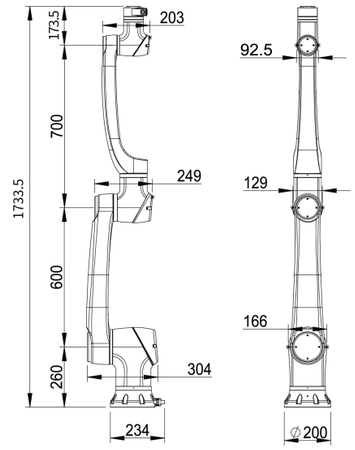
P05-L



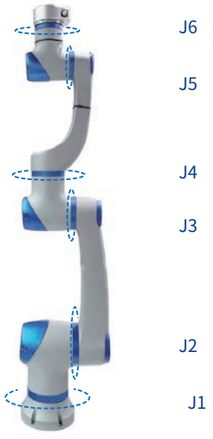
P10



P10-L



Joint motions:



Star Robot

Overview

Star robot is a movable manipulator that can pick and transport materials in work positions, which reduces the number of robots to be used and improves the flexibility of the production line. With Han's AGV, Han's six-axis collaborative robot, vision system, and force control gripping in robot system, start robot can confirm the location of the workpieces. It is mainly used in industries (such as electronics, metal products, auto parts, electricity, new energy, ships, aerospace), healthcare, family services, file management and other applications.

Intelligent scheduling

Schedule robots on a large scale based on self-developed architecture and intelligent planning algorithms, which ensures efficient system operation

High expansibility

It can efficiently connect to the enterprises' MES/WMS and information system, and can quickly carry application and function modules as required

Intelligent obstacle avoidance

Intelligently detect and identify obstacles, and actively stop and bypass obstacles, via the equipped sensors such as lidar and vision cameras

Dynamic stability

The power and load are positively auto-correlated within a safe range by using the proprietary core patent

Features

Fast deployment

The environment map can be automatically generated based on natural trackless navigation technology, no need to do scene modification, so as to rapidly deploy the scheduling and planning services

Self-check

It can obtain the robot hardware and operating status in real time, which realizes self-check and fast fault diagnosis

Automatic charging

Star can automatically go back to charging pile for recharging, which ensures the robot to achieve 7x24 operation and high-frequency fast response

Applications

Intelligent automatic distribution in motor workshops

Automatic loading and unloading on the dicing and splitting machine

Loading and unloading in intelligent workshops

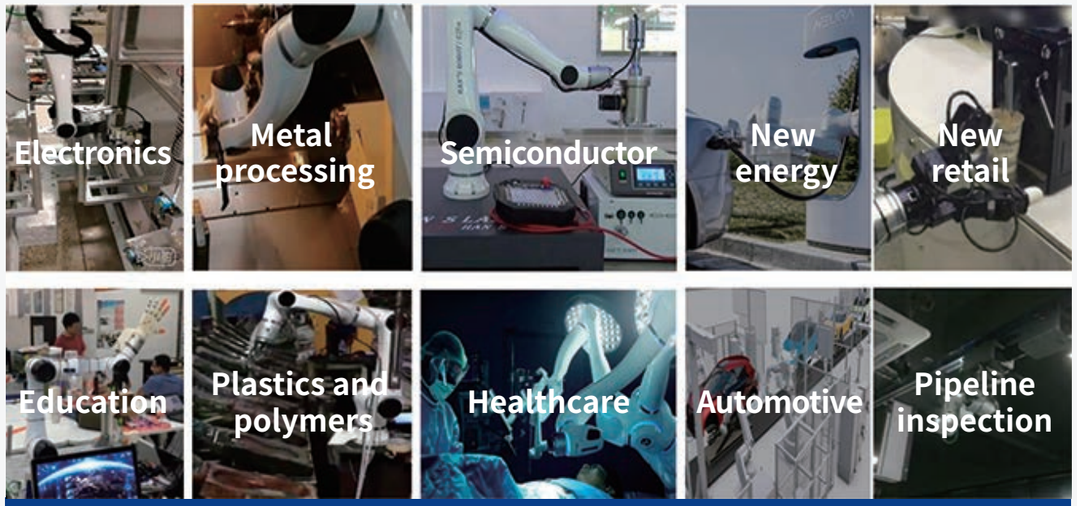
Technical Specifications

	Model	STAR-I	STAR-II
Main body	Robot	E5 (6-axis collaborative robot, 5kg payload)	E10 (6-axis collaborative robot, 10kg payload)
	Vehicle	AGV (300kg load capacity)	AGV (600kg payload)
Basic performance	Dimensions (length x width x height)	1,100 x 650 x 745mm (size tolerance ± 2mm)	
	Weight	460kg (including the vehicle weight)	
	Payload	50kg	
Running performance	Speed	1.5m/s	
	Operating speed	Forward: 1m/s; backward 0.3m/s	
	Radius of gyration	568mm	
	Gradeability	5°	
	Obstacle clearance height	10mm	
	Over seam width	30mm	
	Ground clearance	25mm	
	Walking channel width	Min 890mm	
	Revolving channel width	Min 1300mm	
	Site positioning precision	±10mm	
	Battery capacity	51.2V4OAh lithium iron phosphate battery	
Endurance performance	Battery life	DOD ⩾ 80% 1,500 times, 0.5C charge 1C discharge (normal temperature)	
	Endurance time	8 hours, 1m/s, load 600kg	
	Charging method ❶	Automatic/Manual	
	Charging time	Charge to 95% in 1.3 hours	
External Interface ❷	Power outlet	2CH DC51.2V1000W(40~57.6) 32 DC24V20W (regulated power supply) ❸	
	Standard communication interface	One RS232 One CAN	
	I/O interface	CAN communication extension supported	

❶ Use an automatic charging pile. The charging time is 1.3h.
❷ For details about how to use the external interfaces, contact the robot to obtain the usage document.
❸ DC24V, external power supply up to 20 W. If you require a higher power, you are advised to convert DC51.2N into DC24V.

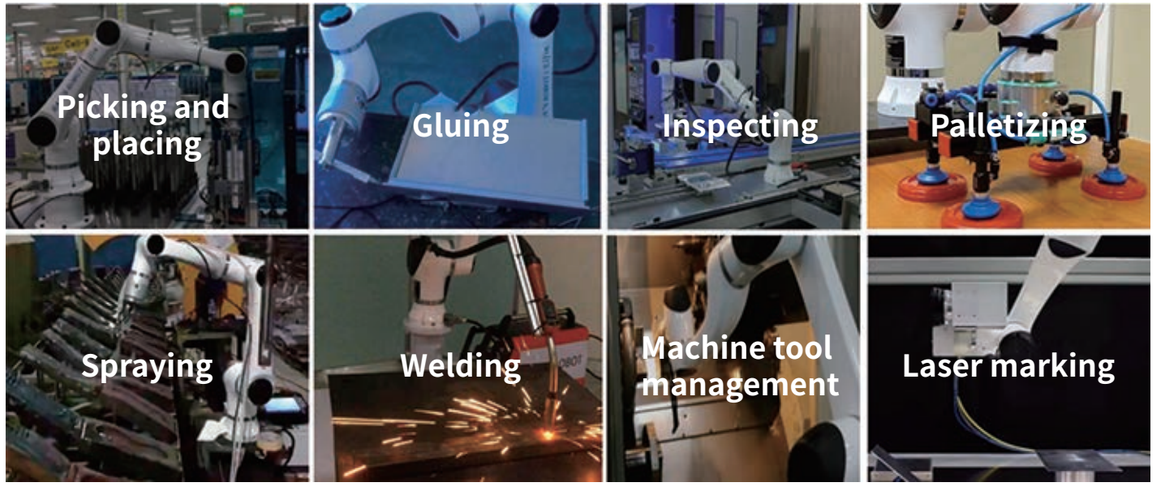
Han's Robot

Applications



↑ Industry applications:
Han's Robot collaborative robots have been widely used in electronics, automotives, semiconductors, metal processing, new energy, pipeline inspection and other fields. Han's Robot uses robot technologies for collaboration in global intelligent manufacturing, which promotes productivity in all walks of life.

↓ Process applications:
Loading and unloading, welding, marking, assembling, polishing, handling, inspecting, gluing, picking, screwing, etc.



Electronics manufacturing industry

Laser cutting

One robot is used for loading and unloading for four laser cutting machines at the same time. The four cutting machines are placed in pairs, and a 7-axis guide rail is used in the middle to realize the motion of the collaborative robot between the machines. A vision camera is integrated to the robot to realize the positioning for loading and unloading as the required unloading precision of the laser cutting machine is about 0.1 mm.

Space-Saving

The overall layout is compact which occupies a small area, and there is no need to do great changes to the original plant. Moreover,the equipment deployment is easy.

Easy to operate

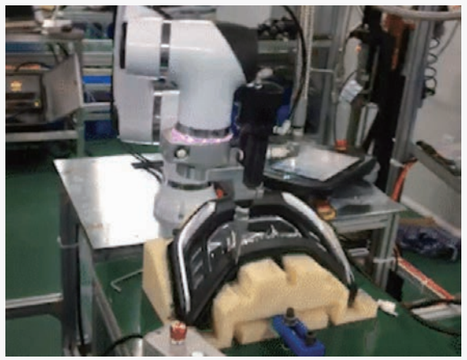
It is easy to operate the collaborative robots. Customers can switch products or debug new products by themselves after simple training, which greatly reduces the cost of product replacement.

More scenarios: loading and unloading, inspecting, grinding, spraying, assembling, marking, etc.

Automotive manufacturing industry

Gluing for car lights

By adopting one-to-two structure integration, one cold glue device supplies can glue for two collaborative robots. The double-station free gluing improves the gluing efficiency and quality and avoids the impact on the personnel health, which greatly reduces labor and equipment costs.



Safe and flexible

High-precision linear gluing, harmless operation, improved yield rate.

Energy saving and low consumption

The cold glue does not require heating, which greatly reduces energy consumption.

More scenarios: loading and unloading, spraying, assembling, inspecting, picking, marking, etc.

Healthcare industry

Remote ultrasound diagnosis and treatment

The remote ultrasonic diagnosis and treatment robot realizes remote consultation of experts in different places by using teleoperation technologies, which meets the increasingly demand for diagnosis resources in the grassroots hospitals.

Precision: The robot accurately reproduces the doctor's operating position and strength, which ensures the quality of ultrasound imaging;

Friendly:Gentle motion control, real-time pressure tracking control, to achieve a friendly patient experience comparable to professional examination methods;

Safe: Ensure the safety of human-computer interaction through high-level safety functions such as robot motion area limitation, inspection pressure protection, and collision protection;

Efficient: High-speed remote communication realizes high-definition ultrasound image transmission, and remote real-time control of robotic arms, which ensures the efficiency and precision of doctors' diagnosis;

More scenarios: drug packaging, test tube pickup and placing, sterilization, testing, surgical assistance, etc.

Hybrid robot

Distribution+ Loading and unloading

In this application, the robot moves intelligently in the same workshop to support multiple productions: Intelligent automatic distribution in the motor workshop project

Case features

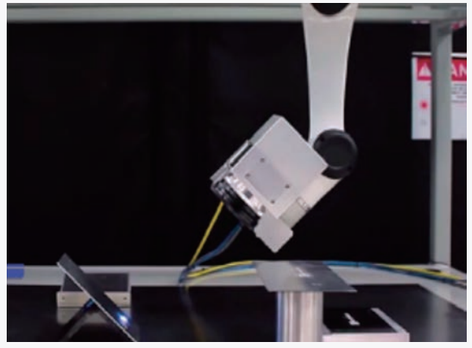
Han's 6-axis collaborative robot integrated with an intelligent AGV can avoid obstacles, which is more suitable for narrow space environment, and can help customers to realize automated production without changes to the original equipment.

More scenarios: warehousing, packaging, assembling, testing, pickup, etc.

Metal processing industry

Laser Marking

Han's marking robots can realize multi-directional automatic marking, from loading and unloading to marking, which meets the unmanned, automated, and flexible use requirements, improves the delivery efficiency, and reduces production costs.



Flexible and efficient

Realize flexible, efficient, multi-angle, multi-material free marking.

Easy to operate

Graphical programming and robot program editing are simple and easy.

More scenarios: **marking, rust removal, grinding, screwing, welding, etc.**

Semiconductor Industry

Wafer handling

Han's hybrid robots interwork with wafer processing equipment to provide MES whole-factory automated wafer handling solutions, and fully independent IPR upper-computer scheduling system and planning.

Fast and robust

One robot is connected to five wafer processing devices for loading and unloading, and the efficiency is 68% higher than manual operation. The fully automated black light factory works automatically in a controllable manner. Multiple devices can be independently scheduled in 24-hour operation.

More scenarios: **lithography, cleaning, etching, precipitation, equipment care, grinding, etc.**

Sanitary industry

Spin welding

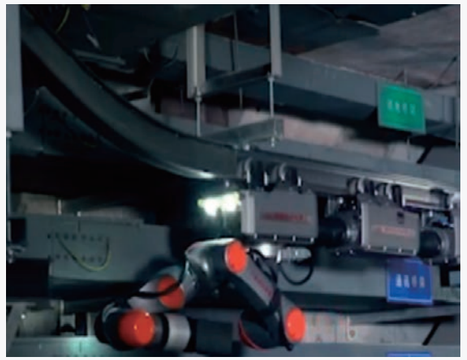
Solve the pain points of ultrasonic welding with high noise and inconsistent manual feeding pace
Less labor and higher efficiency, easy to operate, stable robot production

More scenarios: **visual grasping, gate polishing, assembling, picking and placing, hot plate welding, loading and unloading, etc.**

Pipeline inspection industry

Pipeline equipment inspection

In this application, Han's Robot is integrated with various sensors to realize 24-hour visual automatic inspection in the pipeline. The 6-DOF joint design allows the robot to be better planned for complex motion paths, increases the monitoring scope and precision, and achieves no-blind-angle monitoring.



Diverse applications

Used in power, energy, petroleum, transportation, smart buildings, etc.

Less risks

Less safety risks and labor costs compared with traditional manual inspections

More scenarios: **electricity, energy, construction, transportation, minerals, marine**

Education industry

VR training

1. VR industrial robot task training system based on virtual reality. It realizes multi-brand, multi-robot, multi-scene robot task operation training, including robot welding training, robot spraying training, robot casting training, robot palletizing training, robot loading and unloading training, and robot mobile phone assembly training.
2. Learn and master the operations of industrial robots through the VR robot system, and practical training of physical collaborative robots, which further deepens and consolidates the basic knowledge and skill training results of industrial robots, and greatly improves the teaching and training effects.

More scenarios: **teaching platform, cyclic assembly line, mobile robot application, SCARA application, laser marking robot loading and unloading workstation, disassembly and installation of collaborative robot, robot integrated standard workstation**

New retail industry

Milk tea robot

In this application, a new tea flagship store uses Han's robots in the beverage production area to collaborate in tea making, blending, and delivery, which adds value (such as freshness, attractiveness, and customer experience) to its service and image and greatly speeds up beverage production.

Fresh experience

One-click self-service, widely used in airports, hotels, restaurants, stations, shopping malls, and other places

Save kitchen labor

Less labor and higher efficiency, easy operation, convenient maintenance, short time period of cost recovery

More scenarios: **massage, coffee latte, unmanned sales, etc.**