

JAKA® | 节卡

Free Your Hands By JAKA

JUST ALWAYS KEEP AMAZING



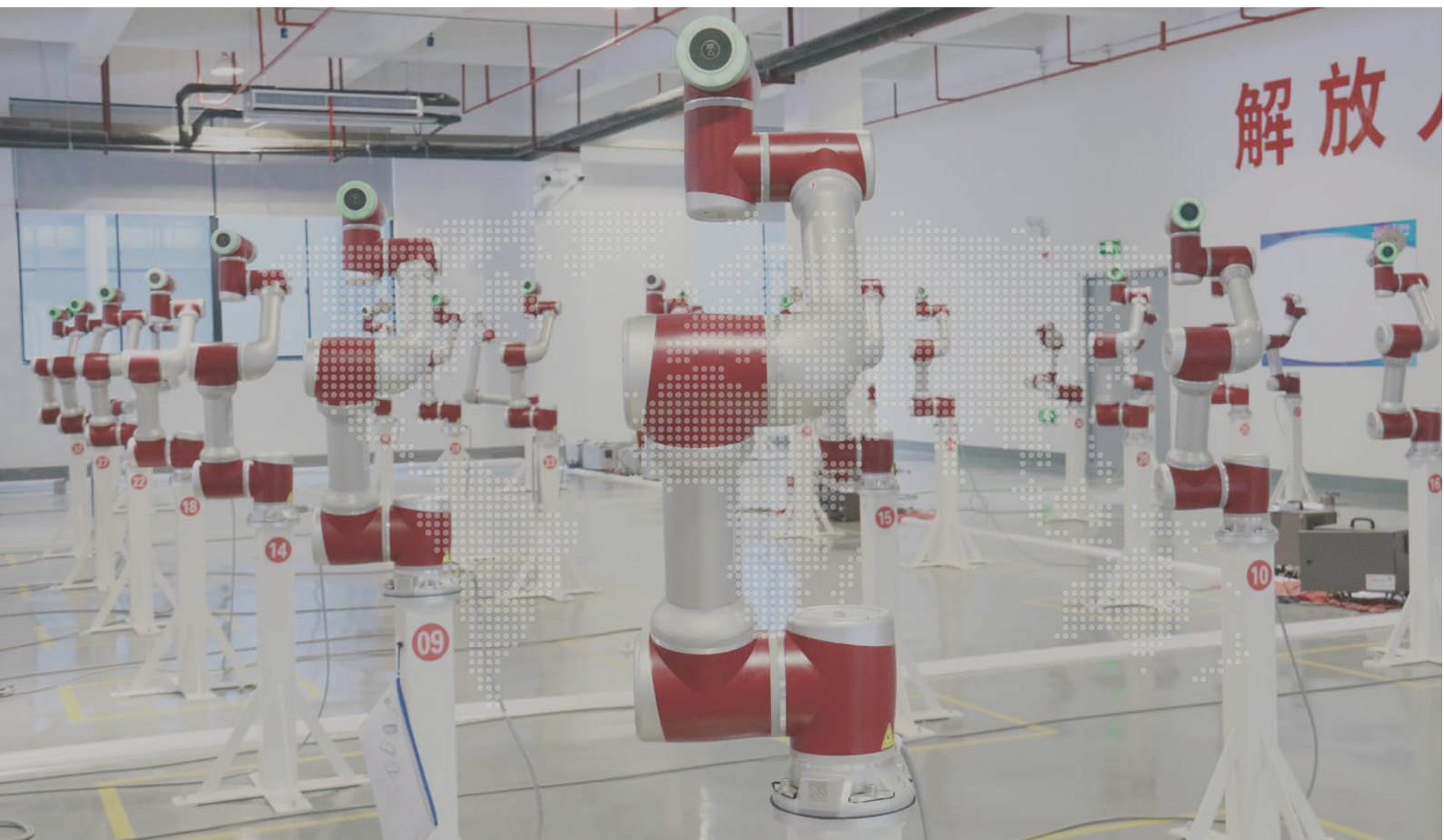
JAKA

About Us

JAKA Robotics was founded in 2014, stands for “Just Always Keep Amazing”. It is a high - tech company aiming at innovation and R&D for new generation of cobots and smart factory.

JAKA Robotics has inherited the accumulation and genes of technology since 1979 from Robotics Institute of Shanghai Jiao Tong University and built a R&D department with strong scientific research ability organized by over 10 leading experts and 100 senior engineers. Innovative breakthroughs have been made in many applications such as drive control integration, integral joints, free-drive programming, wireless connection, etc.. JAKA has continuously led the trend of robotics development.

“Free Your Hands By JAKA” is our mission. Focusing on the spirit of concentration, professionalism and originality, we will spread the spark of wisdom to all corners of the world and facilitate enterprises entering the era of Industry 4.0.



JAKA COBOTS

At present JAKA has launched several series of cobots: **JAKA Zu[®] series (general version, force control S version), JAKA All - in - one series, JAKA Lens series.** These versatility and flexible characteristics can be easily used in industrial, commercial, services and other fields to meet the demand of various application scenarios.

With the achievements in drive control integration, integrated joints, drag programming, wireless interconnection and other aspects, JAKA series have been successfully applied in several industrial automatic production fields, which is providing a continuous and strong equipment foundation for industrial innovation.

Safe Cooperation, Collision Protection

Built-in torque feedback module, when the collision reaches the set upper torque, JAKA cobots will stop in time to avoid personnel injury or equipment damage and achieve human-machine safety cooperation at last.

Wireless Interconnection, No Teach Pendant

JAKA Cobots adopt mobile terminal APP control mode, freeing cobots from traditional bulky teaching demonstrator and redundant control lines, which is convenient for the limited space teaching.

Drag and Graphic Programming

Manually drag the robot terminal to the corresponding point, the robot arm learns and remembers autonomously to complete programming. Even the zero-based users can easily demonstration and teaching that facilitates human-robot cooperation more humanized. New program can be timely tuned to meet different requirements and the whole process takes only a few minutes to achieve rapid task conversion.

Remote Interaction, Real-time Monitoring

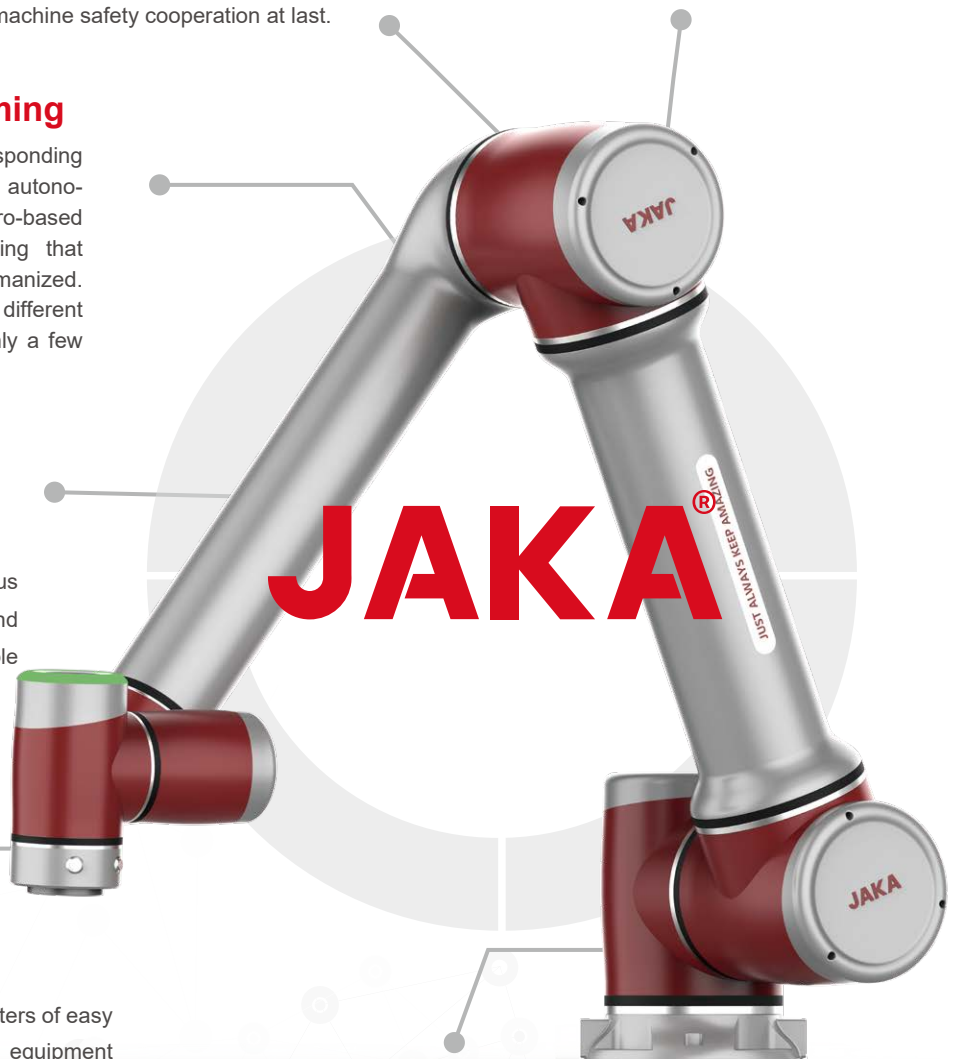
JAKA Cobots support remote programming thus no longer limited to geographical boundaries and also realize one mobile terminal controls multiple robots.

Plug And Play, Quick Switch

JAKA Cobots are light and compact with characters of easy installation, visual recognition and excellent equipment compatibility. Good versatility and flexibility make JAKA Cobot in any production environment can truly achieve plug and play, rapid deployment. For small batch, multi-batch, customization, short cycle, and other production needs perform excellent application.

Open Software and Hardware Ecosystem

JAKA Cobots are based on the Linux system platform with high compatibility. Users can remotely interact with robots through Ethernet protocol (TCP/IP) and Modbus from multi-platform systems such as Android, iOS and Windows. With universal control interface JAKA Cobots can quickly match the automation equipment in supply chain.



JAKA Zu[®] Series Cobots

JAKA Zu[®] 3 Cobot



Weight
12kg



Payload
3kg



Working radius
626mm



Repeatability
±0.02mm



Product Features

- **Lighter self-weight:** Self-weight 12kg, payload 3kg, working radius up to 626mm.
- **More flexible and portable:** Light weight design, higher efficiency, faster and more convenient customer deployment.
- **Higher precision:** Able to adapt to tight space installation, flexible production line with high precision and density requirement.

Recommended Markets

3C electronics, Medical treatments, Scientific researches, Injection molding

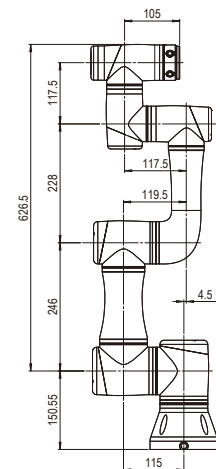


Parameters and Layout of JAKA Zu[®] 3

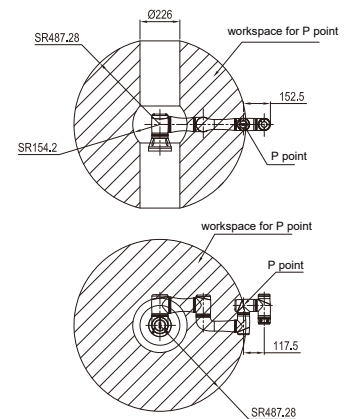
Payload	3kg
Weight (W cable)	12kg
Work radius	626mm
Repeatability	±0.02mm
Axis	6
Programming	Graphical programming, free-drive
Teach pendant	MT (PAD/Mobile) APP
Collaborative operation	Accordance with GB 11291.1-2011

Robot	Work scope	Max speed
Joint 1	±360°	180°/s
Joint 2	-85°, +265°	180°/s
Joint 3	±175°	180°/s
Joint 4	-85°, +265°	220°/s
Joint 5	±360°	220°/s
Joint 6	±360°	220°/s
Max speed	/	1.5m/s

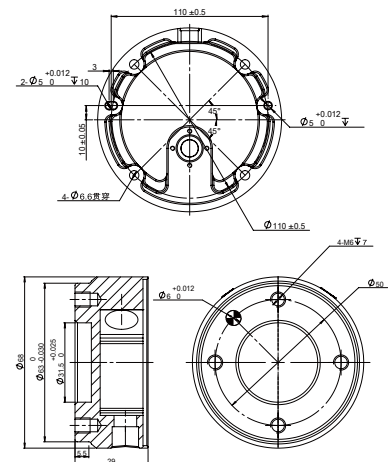
Rated power	150W
Temperature range	0-50°C
IP Specification	IP54
Installation	Installation at any angle
Tool I/O	Digital input 2 Digital output 2 Analog input 1
Tool I/O power	24V
Tool I/O size	M8
Materials	Aluminum, PC
base diameter	129mm
Cable length	6m



JAKA Zu[®] 3 work radius



JAKA Zu[®] 3 P point front view / top view



JAKA Zu[®] 3 base / flange

JAKA Zu[®] Series Cobots

JAKA Zu[®] 5 Cobot



Weight
23kg



Payload
5kg



Working radius
954mm



Repeatability
±0.02mm



Product Features

- **Compact and portable:** Self-weight 23kg, payload 5kg, working radius up to 954mm.
- **High flexibility:** Rapid deployment, saving staff working time, optimizing productivity.
- **Well adaptability:** Meeting the requirements of lightweight operations such as loading and unloading, detection assembly, etc..

Recommended Markets

Metal processing, 3C electronics, Chemical industry

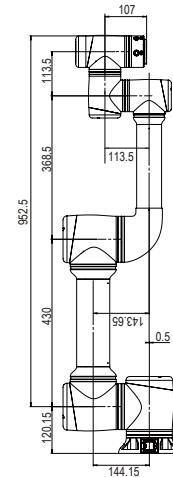


Parameters and Layout of JAKA Zu[®] 5

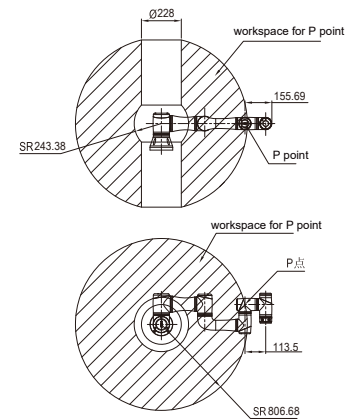
Payload	5kg
Weight (W cable)	23kg
Work radius	954mm
Repeatability	±0.02mm
Axis	6
Programming	Graphical programming, free-drive
Teach pendant	MT (PAD/Mobile) APP
Collaborative operation	Accordance with GB 11291.1-2011

Robot	Work scope	Max speed
Joint 1	±360°	180°/s
Joint 2	-85°, +265°	180°/s
Joint 3	±175°	180°/s
Joint 4	-85°, +265°	180°/s
Joint 5	±360°	180°/s
Joint 6	±360°	180°/s
Max speed	/	3m/s

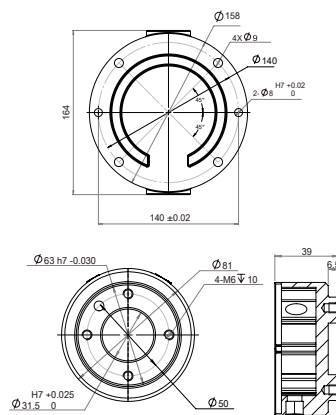
Rated power	350W
Temperature range	0-50°C
IP Specification	IP54
Installation	Installation at any angle
Tool I/O	Digital input 2 Digital output 2 Analog input 1
Tool I/O power	24V
Tool I/O size	M8
Materials	Aluminum, PC
base diameter	158mm
Cable length	6m



JAKA Zu[®] 5 work radius



JAKA Zu[®] 5 P point front view / top view



JAKA Zu[®] 5 base / flange

JAKA Zu[®] Series Cobots

JAKA Zu[®] 7 Cobot



Weight
22kg



Payload
7kg



Working radius
819mm

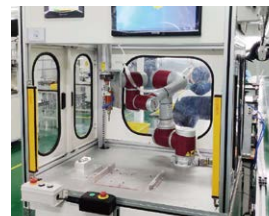


Repeatability
±0.02mm



Product Features

- **Heavier payload:** Self-weight 22kg, payload 7kg, working radius up to 819mm.
- **Higher cost performance:** Good versatility and flexibility enable it to truly achieve plug-and-play, 5-minute production line layout in any production environment.
- **Higher applicability:** Multi-field applications, automotive and accessories, 3C electronic, precision manufacturing, renewable energy, medical instruments, chemical fiber and other fields of loading and unloading, detection and handling.



Recommended Markets

3C electronics, Medical treatments, Automotive industry, Chemical industry

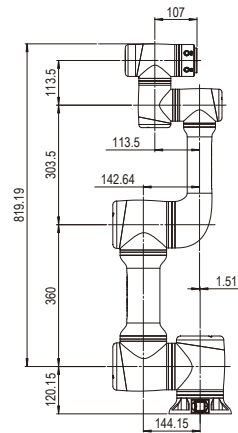


Parameters and Layout of JAKA Zu[®] 7

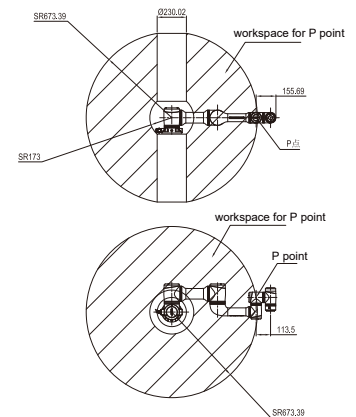
Payload	7kg
Weight (W cable)	22kg
Work radius	819mm
Repeatability	±0.02mm
Axis	6
Programming	Graphical programming, free-drive
Teach pendant	MT (PAD/Mobile) APP
Collaborative operation	Accordance with GB 11291.1-2011

Robot	Work scope	Max speed
Joint 1	±360°	180°/s
Joint 2	-85°, +265°	180°/s
Joint 3	±175°	180°/s
Joint 4	-85°, +265°	180°/s
Joint 5	±360°	180°/s
Joint 6	±360°	180°/s
Max speed	/	2.5m/s

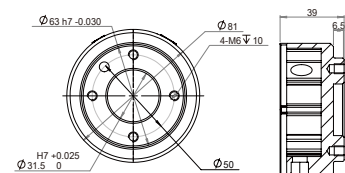
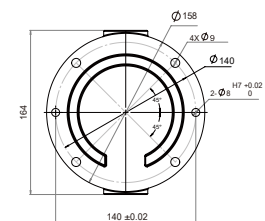
Rated power	350W
Temperature range	0-50°C
IP Specification	IP54
Installation	Installation at any angle
Tool I/O	Digital input 2 Digital output 2 Analog input 1
Tool I/O power	24V
Tool I/O size	M8
Materials	Aluminum, PC
base diameter	158mm
Cable length	6m



JAKA Zu[®] 7 work radius



JAKA Zu[®] 7 P point front view / top view



JAKA Zu[®] 7 base / flange

JAKA Zu[®] Series Cobots

JAKA Zu[®] 12 Cobot



Weight
41kg



Payload
12kg



Working radius
1327mm



Repeatability
±0.03mm

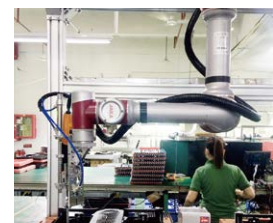


Product Features

- **Heavier payload:** Self-weight 41kg, 12kg payload, working radius up to 1327mm.
- **Flexible deployment:** Easy to switch installation mode/location, lower requirements on deployment environment.
- **Function more:** Replacing heavy physical handling work, filling more industry blank.

Recommended Markets

Metal processing, Automotive industry, Injection molding, Pharmaceutical and chemical industry, etc.

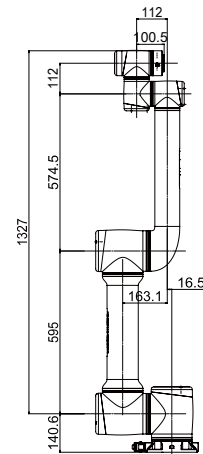


Parameters and Layout of JAKA Zu® 12

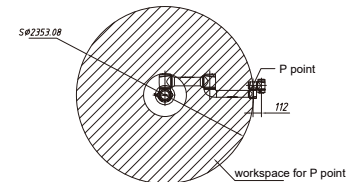
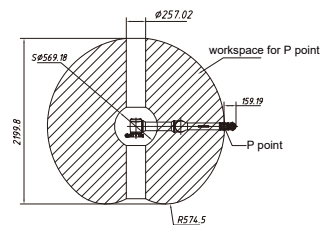
Payload	12kg
Weight (W cable)	41kg
Work radius	1327mm
Repeatability	±0.03mm
Axis	6
Programming	Graphical programming, free-drive
Teach pendant	MT (PAD/Mobile) APP
Collaborative operation	Accordance with GB 11291.1-2011

Robot	Work scope	Max speed
Joint 1	±360°	120°/s
Joint 2	-85°, +265°	120°/s
Joint 3	±175°	120°/s
Joint 4	-85°, +265°	180°/s
Joint 5	±360°	180°/s
Joint 6	±360°	180°/s
Max speed	/	3m/s

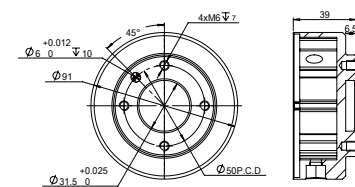
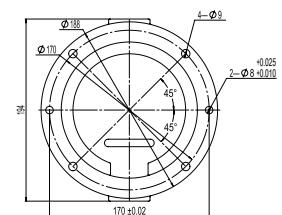
Rated power	500W
Temperature range	0-50°C
IP Specification	IP54
Installation	Installation at any angle
Tool I/O	Digital input 2 Digital output 2 Analog input 1
Tool I/O power	24V
Tool I/O size	M8
Materials	Aluminum, PC
base diameter	188mm
Cable length	6m



JAKA Zu® 12 work radius



JAKA Zu® 12 P point front view / top view



JAKA Zu® 12 base / flange

JAKA Zu[®] Series Cobots

JAKA Zu[®] 18 Cobot



Weight
35kg



Payload
18kg



Working radius
1073mm



Repeatability
 $\pm 0.03\text{mm}$



Product Features

- **Heavy payload:** Self-weight 35kg, 18kg payload, working radius up to 1073mm.
- **High security:** Multiple safety protection, cooperating safely with workers, robot and surrounding environment.
- **Wide application:** Various application scenarios of heavy load cobots

Recommended Markets

Metal processing, Automotive, Injection molding, Medical equipment

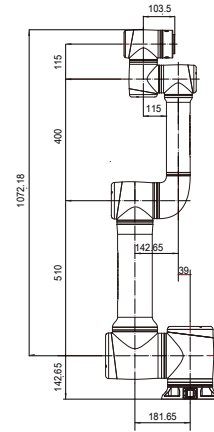


Parameters and Layout of JAKA Zu[®] 18

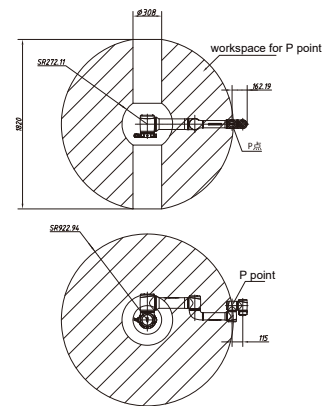
Payload	18kg
Weight (W cable)	35kg
Work radius	1073mm
Repeatability	±0.03mm
Axis	6
Programming	Graphical programming, free-drive
Teach pendant	MT (PAD/Mobile) APP
Collaborative operation	Accordance with GB 11291.1-2011

Robot	Work scope	Max speed
Joint 1	±360°	120°/s
Joint 2	-85°, +265°	120°/s
Joint 3	±175°	120°/s
Joint 4	-85°, +265°	180°/s
Joint 5	±360°	180°/s
Joint 6	±360°	180°/s
Max speed	/	3.5m/s

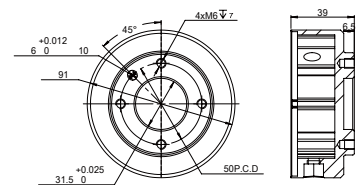
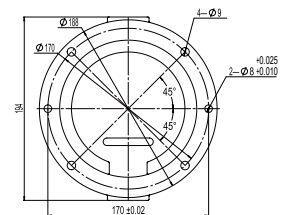
Rated power	600W
Temperature range	0-50°C
IP Specification	IP54
Installation	Installation at any angle
Tool I/O	Digital input 2 Digital output 2 Analog input 1
Tool I/O power	24V
Tool I/O size	M8
Materials	Aluminum, PC
base diameter	188mm
Cable length	6m



JAKA Zu[®] 18 work radius



JAKA Zu[®] 18 P point front view / top view



JAKA Zu[®] 18 base / flange

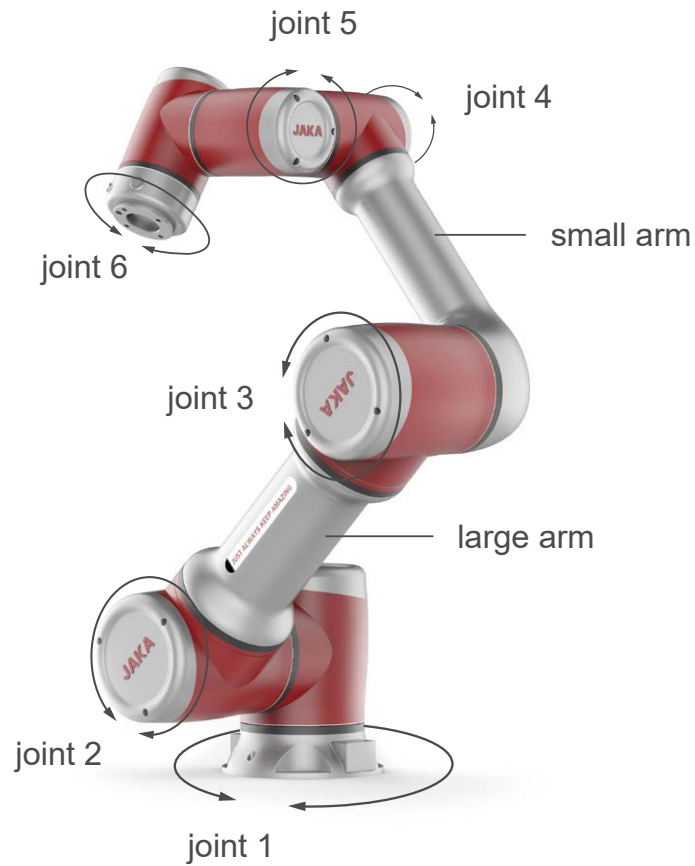


Traditional industrial robot production lines are repetitive, boring, mechanically operated and full of potential industrial injury risk. Enterprises also face the problems of constantly increased labor costs and compressed enterprise ROI (return on investment).

With all the advantages of advanced robotic and automatic technologies, JAKA cobots have avoided the extra costs of necessary safety protection area setup for traditional robots, and through the assignment of work, liberated workers from the boring, repetitive, dangerous and dirty working environment. Good operation efficiency allows the enterprise to recover the investment cost in a short time, realizing modern intelligent factory.



JAKA Zu[®] Structure and Control Cabinet



 <p>Control Cabinet</p>	IP Specification	IP44
	I/O Power	16 Digital input/16 Digital output /2 Analog input or output
	Tool I/O	24V
	Communication	TCP/IP, Modbus TCP, Modbus RTU
	Power	100-240VAC, 50-60Hz
	Size	410×307×235 (mm) (W×H×D)
	Weight	12kg (Zu 3,Zu 5, Zu 7) / 16kg (Zu 12, Zu 18)
	Material	Stainless steel

S version of JAKA Zu[®] Cobots



JAKA Zu[®] 3s

JAKA Zu[®] 5s

JAKA Zu[®] 7s

JAKA Zu[®] 12s

JAKA Zu[®] 18s

■ Installation method:

Mount at end or base



At end



At base

■ Product Features:

JAKA Zu S-series cobots APP software are equipped with force control module, which can be directly set the safe force value and automatically identify payload. Real time displaying force value convenient different application requirements of setting up control parameters. And the constant force or speed mode can be selected in JAKA App.

Product Description

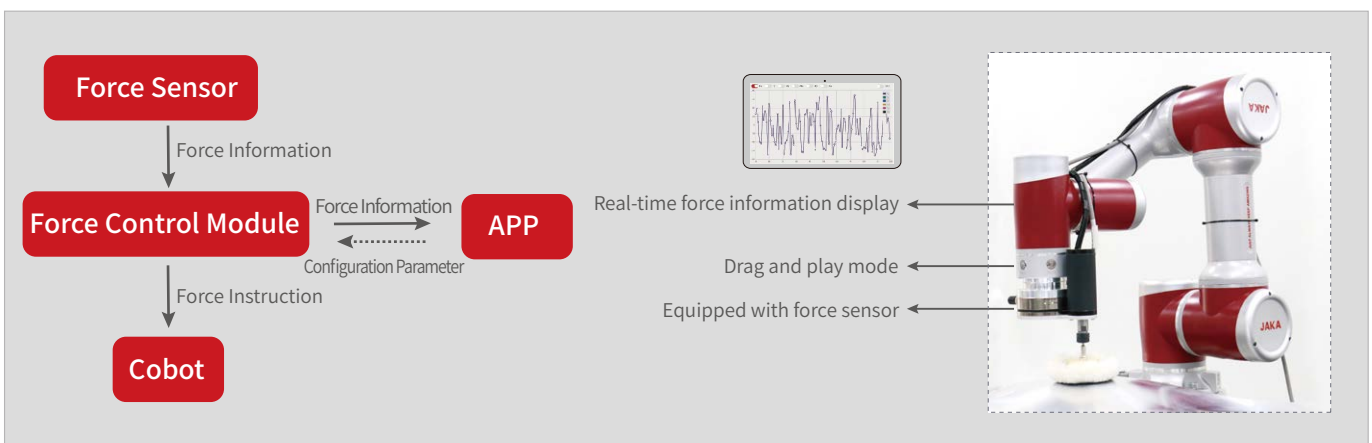
S version of JAKA Zu cobots equipped with advanced industrial force sensor, and integrated with force control algorithm of independent intellectual property rights, improve the perception of cobots and provide better human-COBOT interaction experience and security guarantee for customers. They provide a variety of force control solutions such as constant force, normal tracking and speed mode to realize full-arm collision detection.

Basic Parameter

Hardware Platform	Force sensor
communication interface	TCP/UDP
Maximum accuracy of collision detection	10N
Maximum accuracy of constant force tracking	1N

Product Features:

- Display the force number on APP in real time
- Safe contact force and force control parameters set on APP
- Constant force control and normal tracking
- Full arm collision detection



Function Diagram

JAKA All-in-one Cobots



Product Description

JAKA All-in-one Cobots innovatively adopt the product design principles of JAKA S³ (Smart, Simple, Small), and integrate with advanced robot technologies such as wireless teaching, graphical programming, and visual safety protection. These technologies revolutionize the way of Human-Cobot interaction, improve the safety of human-robot cooperation and greatly reduce the threshold of robots usage. Meanwhile, JAKA All-in-one Cobots deeply integrate vision function to ensure the natural interaction and autonomous adaptation among cobot, human and operating environment, that significantly broadens the robot application boundary.



Product Innovation

- **Smart-Intelligent learning:** Intelligent programming and active protection. Intelligent learning algorithm and autonomous system can easily identify the intent of person or devices.
- **Simple-Human-COBOT cooperation:** Benefit from the technologies of vision & force control, robot self-learning, artificial Intelligence technologies, JAKA All-in-one Cobots can interact with human naturally, realizing Human-COBOT cooperation.
- **Small-High integration:** The development of intelligent product form is highly integrated, flexible and small. With the help of All-in-one technologies, such as Biology, Mechanics, Electronics and Photics, JAKA cobots achieve the ultimate compact intelligent hardware product form.



Control Cabinet



JAKA Lens 2D Camera

Electrical Cabinet Parameter

Model	JAKA MiniCab
Input Power	DC30~60V
Iout	≤40A
Size	180×128×47(mm)(L×W×H)
IP Level	IP20
I/O Port	7 Ports: I/O configurable
I/O Power	DC24V
Installation	Panel/Guide Rail
Communication Protocol	TCP/IP, Modbus TCP, Modbus RTU
Weight	1.1 kg
Material	AL, Steel

JAKA Lens 2D Parameter

Size	67×57×45mm(L×W×H)
Communication Interface	Ethernet Interfaces (TCP/IP Protocol)
Trigger Mode	Soft trigger
PX	5MP
Resolution	2592(H)×1944(V)
FPS	23FPS
Focus	8mm

JAKA Lens Series

JAKA Lens 2D

Product Description

JAKA Lens 2D integrated with high-resolution 2D camera, equipped with specialized light source module and optional camera Lens, provides users with comprehensive functions and experience of 2D vision. Professional industrial design makes it compact and portable, and exquisite in appearance. 2D vision function can be realized by external fixed installation and installed at the end of the mechanical arm.



Product Function

- JAKA Lens 2D inserted in camera, Lens and light source three modules can acquire real-time 2D images, and independent selection of light source on and off.
- Cooperated with the camera communication module and the internal power supply module, the internal power supply and the camera communication can be realized through a single composite cable.
- Equipped with JAKA 2D vision software, it can be configured through the web interface of the controller. With the function of target recognition, visual positioning, camera management, eye-hand calibration, it can realize the rapid configuration and management of 2D vision.

Hardware platform

2D industrial camera, Industrial lens, light source, Integrated circuit

Installation

Fixed to cobot terminal with two mounting hole or external fixation

Communication interface

Ethernet interface(TCP/IP communication)

Basic Parameter

Size	67×57×45mm(L×W×H)
Communication Interface	Ethernet Interfaces (TCP/IP Protocol)
Trigger Mode	Soft trigger
PX	5MP
Resolution	2592(H)×1944(V)
FPS	23FPS
Focus	8mm

JAKA visual protection system

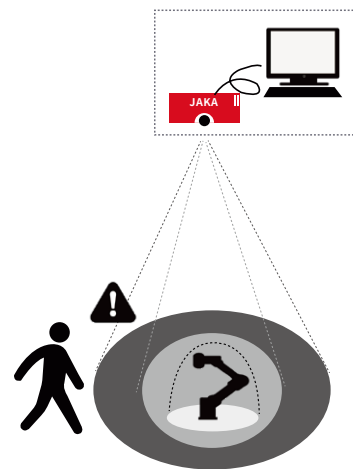
Product Description

JAKA visual protection system adopts industrial-grade wide-angle camera and configures JAKA own independent intellectual property rights of image processing system, connecting with cobot controller. The camera placed above the working area of the cobot monitors the working scenario. When foreign object (people or device) breaks into the monitoring area, the system processes and makes a judgment based on the received image, and then sends instructions to the cobot to take corresponding measures to ensure human and machine safety. This product can also be used as a monitoring device to display real-time monitoring working scenes through the interface.



Product Function

- The software interface monitors the protected area in real time and alarms the intrusion of foreign objects.
- The scope and protection type of monitoring area can be user defined.
- Emergency measures can be set on software.



Sketch map of visual protection system

Basic Parameter

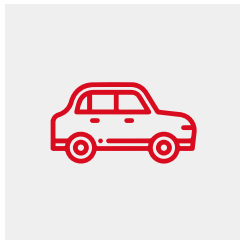
Hardware	CMOS camera, embedded systems
Size	128×128×63.5 (mm) (L×W×H)
Installation	Right above, lateral (angle-free)
Communication Interface	Ethernet Interfaces (POE power receiving), HDMI

Visual safety parameter

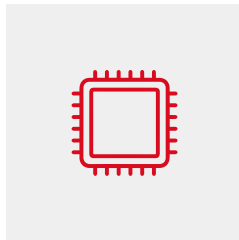
Resolution	130w pixels
Response Time	200 ms
Installation Height	3m(suggest)
Protected Area	5m×4m(adjustable)

Recommend Markets

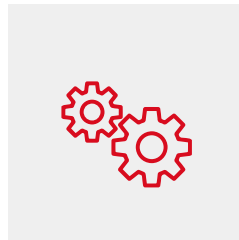
Automobile and accessories, 3C Electronics, Precision manufacturing, Medical devices, Electric appliances, New energy, Chemical & synthetic fibers, Food packaging, Education, New business, etc.



Automobile and Accessories



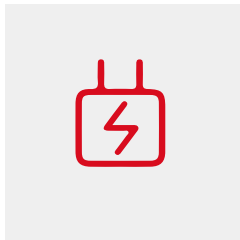
3C Electronics



Precision Manufacturing



Medical Devices



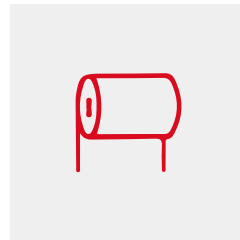
Electric Appliances



Food Packaging



New Energy



Chemical & Synthetic Fibers



Household Appliances



Education



New Business



Etc.

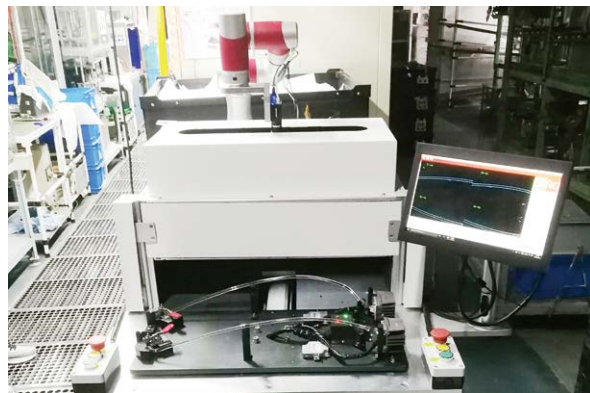
Automobile and Accessories

Automobile and spare parts are industries with high automation level, but due to the complex assembly process and flexible procedures, traditional robots are not applicable to these. JAKA Cobots with the characters of safety and flexibility and interactions cooperation, can not only deal with complicated processes, but also improve the overall factory production efficiency.

Industry Application



Loading and Unloading



Inspection



Visual Grasping



Screw Locking

3C Electronics

Due to the increase of labor costs and rapid product updates in 3C electronics industry, enterprises are looking for the most cost-effective solutions. JAKA Cobots are compatible, light, suitable for flexible production mode, and can be easily deployed on the production line. Nowadays, JAKA Cobots have an extensive application scope and application prospect in 3C electronics industry.

Industry Application



Welding and Dispensing



Inspection



Handling



Loading and Unloading

Precision Manufacturing

Precision manufacturing is a relatively labor-intensive and technology-intensive industry. Processes such as polishing, loading and unloading and assembly need an automation solution. JAKA Cobots, compatible and light, are suitable for flexible production mode, and can be applied in production line with high labor intensity, harsh environment and high requirement of operation skills.

Industry Application



Loading and Unloading



Inspection



Palletizing



Handling and Grasping

New Business

Companies are looking for solutions to cut costs. Those low-skilled, repetitive jobs are being replaced by more efficient, lower-cost robots. JAKA Cobots cooperated with people can bring novel service experience, which is deeply welcomed among enterprises and young people. Now as a waiter, JAKA Cobots have already been widely applied in cafes, restaurants and supermarkets.

■ Industry Application



Cobot Station



Consumption



House and Home



Restaurant

More Application Cases



Medical Devices Industry: Loading and Unloading



New Energy Industry: Inspection and Welding



Household Appliances: Inspection and Laser Marking



Textile Industry: Sorting and Cartonning



Food Packaging Industry: Filling and Canning



Advanced Manufacturing Industry: Inspection

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