

**JAKA® | 节卡**

**Worldwide Cobot Innovation Leader**

**JUST ALWAYS KEEP AMAZING**



## About Us

JAKA Robotics founded in 2014, stands for “Just Always Keeping Amazing”. JAKA robotics is new and 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 Shanghai Jiao Tong University and has a R&D department with strong scientific research ability organized by over than 10 leading experts and 100 senior engineers. Innovative breakthroughs have been made in many applications such as drive control integration, integrated joints, free-drive programming, wireless connection, etc. JAKA has continuously led the trend of robotics development.

JAKA Robotics is on mission to “Free Your Hands By JAKA”. We are in accordance with spirit of concentration, professionalism, and originalism to spread the sparkle of wisdom to every corner of the Earth, and facilitating enterprises striding onto Industry 4.0.





## JAKA Cobots

JAKA Zu® Cobots | JAKA All-in-one Cobots

JAKA has launched multiple series of cobots: JAKA Zu® Cobots ( generalversion and s (force control) version), JAKA All-in-one Cobots, JAKA Lens series visual products, etc.. Thanks to more benefits of versatility and flexibility ,JAKA Cobots can be easy applies in production lines in various industries, and meet the needs of different production situations.

Owing to the achievements of JAKA Cobots are in drive control integration, integrated joints, drag-and-drop play, free-drive programming, wireless connection and so on. JAKA Cobots have been applied to automation production in many industries, providing a strong and continuous foundation for industrial innovation.

### Safe Cooperation Collision Protection

Built-in torque feedback module in JAKA Cobots, when the collision reaches the set upper limit of the torque, the cobot stops in time to avoid injury to people and other equipment, and achieve human-machine safety cooperation.

### Wireless Connection No Teach Pendant

JAKA Cobots pioneered the mobile terminal APP control mode, freeing the traditional bulky teaching devices and lengthy control lines, making the teaching process in the local space more convenient.

### Free-drive And Graphic Programming

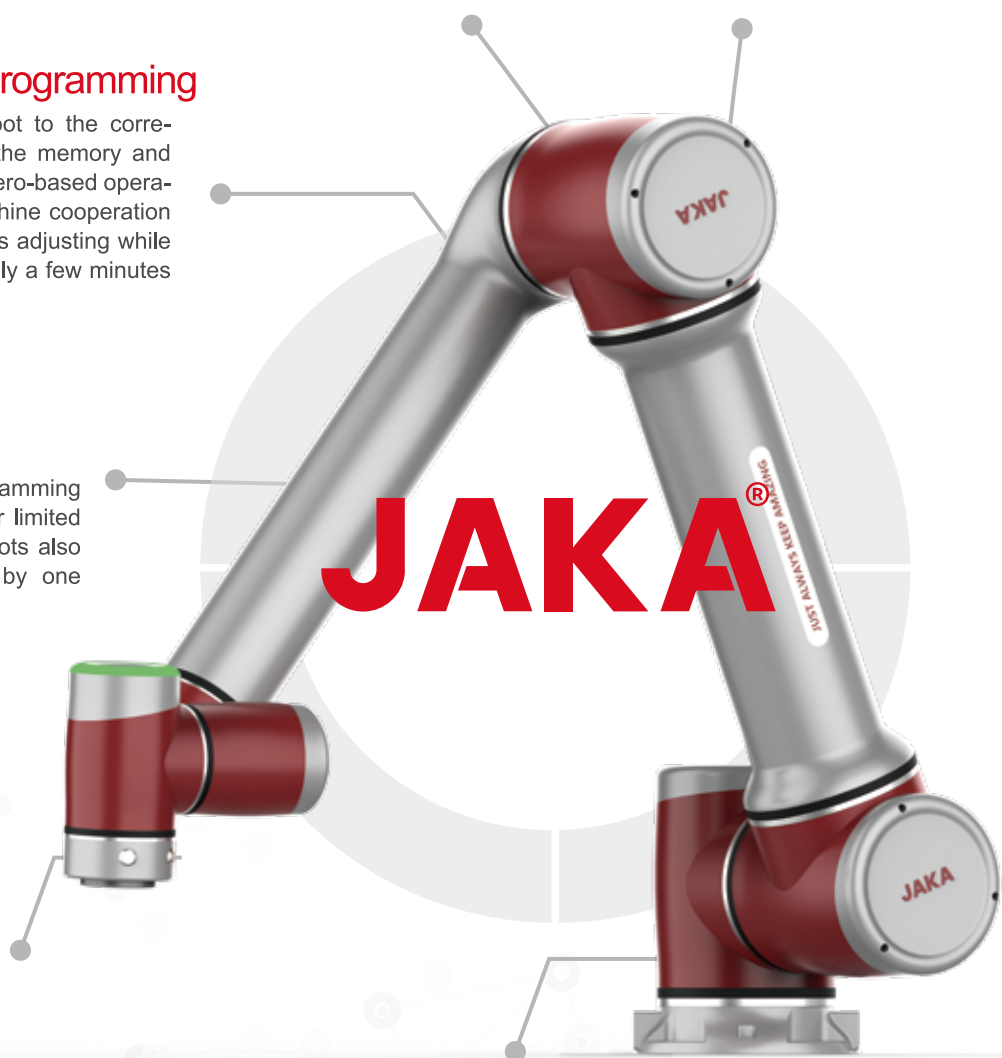
Manually dragging the end of the cobot to the corresponding point, the cobot arm learns the memory and completes the programming, even the zero-based operator can easily use, and the human-machine cooperation is more humanized. The new program is adjusting while editing, and the whole process takes only a few minutes to achieve rapid task conversion.

### Remote Interaction Real-time Monitoring

JAKA Cobots support remote programming control collaboration, and are no longer limited to geographical boundaries. JAKA Cobots also implement control of multiple robots by one mobile terminal.

### Plug And Play Quick Switch

JAKA Cobots are light and compact, with easy installation, visual recognition, and strong equipment compatibility. The high passability and flexibility make JAKA Cobots plug-and-play, convenient deployment process in any production environment. With JAKA Cobots, you can achieve success in production as multi-batch, customized, short cycle, etc.



### Open Software And Hardware Ecosystem

JAKA Cobots are based on the Linux system platform and have high compatibility. Users can remotely interact with robots via 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 with automation equipments in the supply chain.

# JAKA Zu® Series Cobots



Lighter Weight



Higher Payload



Larger Scope



Higher Accuracy



**JAKA Zu® 3**

**Weight** 12kg    **Payload** 3kg    **Working radius** 626mm

**Product Features:**

Flexible and light  
Small space requirement  
High Cost-Effective



**JAKA Zu® 7**

**Weight** 22kg    **Payload** 7kg    **Working radius** 819mm

**Product Features:**

High payload and weight ratio ( $\approx 1:3$ )  
High applicability  
High Cost-Effective



**JAKA Zu® 12**

**Weight** 41kg    **Payload** 12kg    **Working radius** 1327mm

**Product Features:**

High payload and Major radius  
High-strength applications  
High Cost-Effective



**JAKA Zu® 18**

**Weight** 35kg    **Payload** 18kg    **Working radius** 1073mm

**Product Features:**

Higher Payload  
Higher Security  
High Cost-Effective



**Recommended Markets:**

3C electronics, Precision manufacturing, Education, Service industry, Medical equipment, Chemical fiber, Metal processing, Injection molding, Electrical appliances, Food, Automotive and related

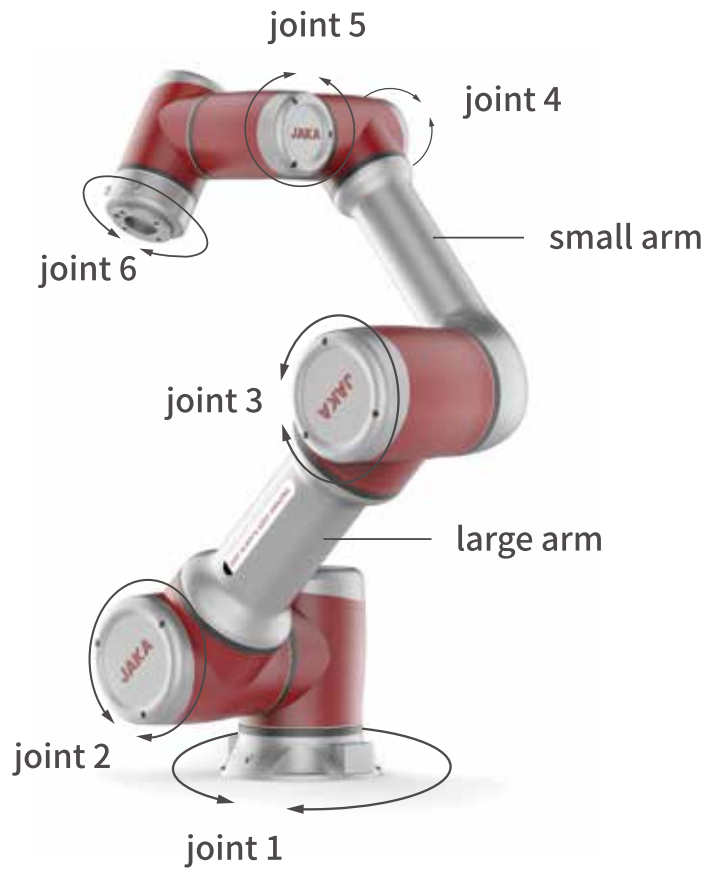





Traditional industrial robot production lines are often repetitive, boring, mechanically operated and full of potential Industrial injury risk. Nowadays, enterprises are faced with the problems of constantly increasing labor costs and shortening product market life cycle, and the space of enterprise ROI(return on investment) is constantly compressed.

JAKA Zu<sup>®</sup> cobots have all the advantages of advanced robotic and automation technologies, but avoiding the extra costs of programming, startup settings and safety protection settings necessary for traditional robots, and freeing people by more flexible work assignments. The super-high efficiency of JAKA cobots support companies to recover their investment costs in a short period of time and achieve modern smart factory.

# JAKA Zu<sup>®</sup> Structure and Control Cabinet



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

## new version of JAKA Zu<sup>®</sup> cobots



JAKA Zu<sup>®</sup> 3s



JAKA Zu<sup>®</sup> 7s



JAKA Zu<sup>®</sup> 12s



JAKA Zu<sup>®</sup> 18s

### ■ Installation method:

Mount at end or/and base



At end



At base

### ■ Product Features:

new version of JAKA Zu cobots are equipped with force control module, which can set the safe force directly by JAKA App. When the external force is higher than the safe value, the cobot will stop immediately. The force value is displayed in real time, the control parameters are set up according to your own application requirements. And the constant force or speed mode can be selected in JAKA App.



## Product Description

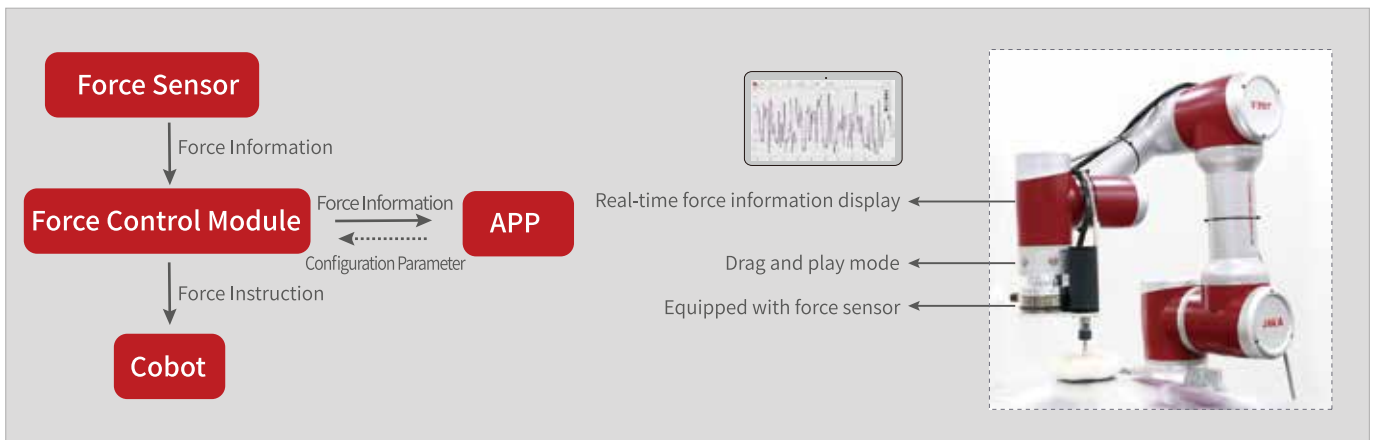
s version of JAKA Zu cobots equipped with advanced industrial force sensor, and integrated with force control algorithm of independent intellectual property rights, for improving the perception of cobots and provide better man-machine interaction experience and security guarantee for customers. They 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



JAKA Ai 3

JAKA Ai 7

JAKA Ai 12

JAKA Ai 18

## ■ Product Description

JAKA All-in-one Cobots innovatively adopting the product design principles of JAKA S<sup>3</sup> (Smart, Simple, Small), and integrating with advanced robot technologies such as wireless teaching, graphical programming and visual protection, it revolutionizes the way of Human-Cobot interaction, improves the safety of human-machine cooperation and greatly reduces the threshold of robots using. Meanwhile, JAKA All-in-one Cobots deeply integrates plug-and-play vision to ensure the natural interaction and autonomous adaptation among cobot, human and operating environment, which significantly broadens the application boundary of robot.



## ■ Product Innovation

- **Smart:** Intelligent Programming and Active Protection. Intelligent learning algorithm and autonomous system can identify the intent of a person or other device.
- **Simple:** Benefit from Vision & Force Control, Robot Self-learning, Ai and other technologies, JAKA All-in-one Cobots can interact with human naturally, so as to realize Human-COBOT cooperation.
- **Small:** The development of intelligent product form is highly integrated, flexible and small. With the benefits of All-in-one technologies, such as Biology, Mechanics, Electronics and Photics, achieve the ultimate compact intelligent hardware product form.



Electrical Cabinet



Lens 2D

### Parameter Of Electrical Cabinet

<b>Device</b>	JAKA MiniCab
<b>Vin</b>	DC30~60V
<b>Iout</b>	≤40A
<b>Size</b>	180×128×47 (mm) (L×W×H)
<b>IP Level</b>	IP20
<b>I/O</b>	7 Digital input: I/O configurable
<b>I/O Power</b>	DC24V
<b>Fixed Form</b>	Panel/Guide Rail
<b>Interface</b>	TCP/IP, Modbus TCP, Modbus RTU
<b>Weight</b>	About 1.1 kg
<b>Material</b>	AL, Steel

### Parameter Of Lens 2D

<b>Size</b>	67×57×45mm(LxWxH)
<b>Communication Interface</b>	Ethernet Interfaces
<b>Trigger Mode</b>	Soft trigger
<b>PX</b>	500w
<b>Resolution</b>	2592(H)*1944(V)
<b>FPS</b>	14FPS
<b>Focus</b>	8mm



# JAKA Lens Series Visual Products

## JAKA Lens 2D

### Product Description

JAKA Lens 2D integrate with high-resolution 2D camera, equipped with specialized light source module and optional camera Lens, providing users with comprehensive functions and experience of 2D vision. With professional industrial design, it is compactlight and delicate in appearance. JAKA Lens 2D vision can be installed with 2 types of external fixed and mounted on the end of the cobot.



### Product Function

- JAKA Lens 2D is equipped with three modules: camera, Lens and light source. 2D images can be acquired in real time, and the light source can be turned on and off independently.
- Integrated 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 functions of target recognition, visual positioning, camera management, eye-hand calibration, etc., it can realize the rapid configuration and management of 2D vision.

### Hardware Platform

2D Industrial Camera, Industrial Lens, Light Source, PCB

### Installation

End of cobot / Above the cobot

### Communication Interface

Ethernet Interfaces (TCP/IP Communication)

### Basic Parameter

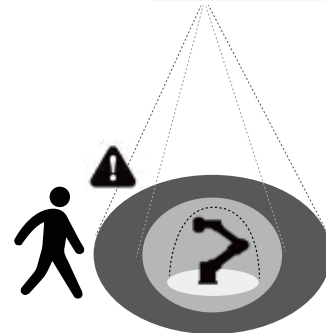
Size	67×57×45mm(LxWxH)
Communication Interface	Ethernet Interfaces
Trigger Mode	Soft trigger
PX	500w
Resolution	2592(H)*1944(V)
FPS	14FPS
Focus	8mm

## JAKA Visual Protection System

### Product Description

JAKA visual protection system adopts industrial-grade wide-angle camera and image processing system of JAKA independent intellectual property rights, which is connected to cobot controller. The camera is placed above the working area of the cobot to monitor the working scene. When an external object (person or device) breaks into the monitoring area, the system processes makes a judgment based on the acquired image, and then sends instructions to the cobot to take corresponding measures to ensure the safety of human and machine.

This product can also be used as a monitoring device to display real-time monitoring working scenes through the interface.



### Product Function

- Intruder alarms by software interface displays the monitoring protection area in real time
- The scope and protection type of monitoring area can be defined by the software
- Emergency measures can be set by software

#### Basic Parameter

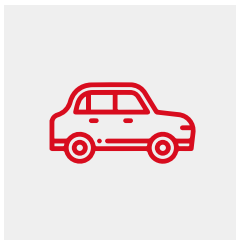
Hardware	CMOS Camera, Embedded Systems
Size	128×128×63.5 (mm) (L×W×H)
Fixed Form	Right Above, Lateral(Any angle)
Communication Interface	Ethernet Interfaces, HDMI

#### Parameter of Vision

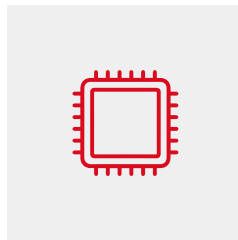
Resolution	130w pixels
Response Time	200 ms
Installation Height	3m (suggest )
Protected Area	5m×4m (adjustable)

## Recommend Markets

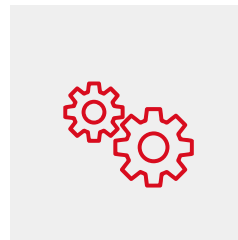
Automobile and Auto Parts, 3C Electronics, Advanced manufacturing, Medical devices Household appliances, Chemical & synthetic fibers, Food packaging, Education, New business, etc..



Automobile and Auto Parts



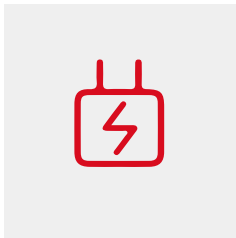
3C Electronics



Advanced Manufacturing



Medical Devices



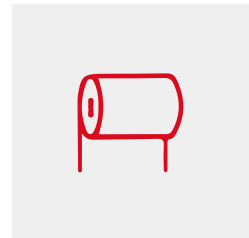
Household Appliances



Food packaging



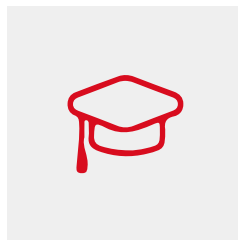
New Energy



Chemical & synthetic fibers



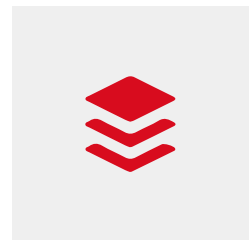
Household appliances



Education



New business



Etc



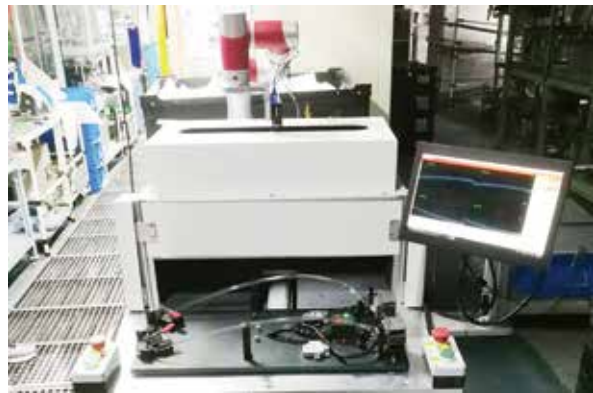
## Automobile and Auto Parts

Automobile and Auto Parts are with high level of automation, but due to the complex assembly process and flexible procedures, traditional robots are not applicable. JAKA Cobots are with benefits of safe, flexible and Tri-co interactions, which can not only deal with complicated processes, but also improve the overall production efficiency of the factory.

### ■ Industry Application



Loading and Unloading



Inspection



Visual Grasping



Screw Locking

## 3C Electronics

Because of 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 compact and light, suitable for flexible production mode, and can be easily deployed on the production line. Nowadays, JAKA Cobots are already widely applied in 3C electronics industry worldwide

### ■ Industry Application



Welding and Dispensing



Inspection



Handling



Loading and Unloading

## Advanced Manufacturing

Advanced manufacturing is a relatively labor-intensive and technology-intensive industry with many processes such as polishing, loading and unloading and assembly. JAKA Cobots are compact and light, 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



Palletizing



Palletizing



Handling and Grasping



## New Business

As companies look for solutions to cut costs, those low-tech, repetitive jobs are being replaced by robots with more efficient, lower own and management cost. JAKA Cobots can work with people, and the high technology can bring novel service experience, deeply popular among enterprises and young people. JAKA Cobots have already widely appeared in cafes, restaurants, buildings, supermarkets and so on as a super waiter.

### Industry Application



Cobot Station



House



House



Restaurant

## More Application Cases



Medical Devices: Loading and Unloading, and so on



New Energy: Inspection and Welding, and so on



Household Appliances: Inspection and Laser Marking, and so on



Textile: Sorting and Cartonning, and so on



Food Packaging: Filling and packing, and so on



Advanced Manufacturing: Inspection, and so on

## Parameter of JAKA Cobots

### JAKA Zu<sup>®</sup> 3      JAKA Zu<sup>®</sup> 7      JAKA Zu<sup>®</sup> 12      JAKA Zu<sup>®</sup> 18

<b>Character</b>	<b>Payload</b>	3kg	7kg	12kg	18kg
	<b>Weight (W cable)</b>	12kg	22kg	41kg	35kg
	<b>Work radius</b>	626mm	819mm	1327mm	1073mm
	<b>Repeatability</b>	±0.03mm	±0.03mm	±0.03mm	±0.03mm
	<b>Axis</b>	6	6	6	6
	<b>Programming</b>	Graphical programming, free-drive			
	<b>Teach pendant</b>	MT (PAD/Mobile) APP			
	<b>Collaborative operation</b>	Accordance with GB11291.1-2011			

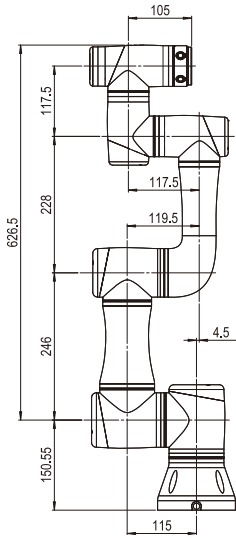
<b>Scope and speed</b>	<b>Robot</b>	Work scope	Max speed	Work scope	Max speed	Work scope	Max speed	Work scope	Max speed
	<b>Joint 1</b>	±270°	180°/s	±270°	180°/s	±270°	120°/s	±270°	120°/s
	<b>Joint 2</b>	-85°, +265°	180°/s	-85°, +265°	180°/s	-85°, +265°	120°/s	-85°, +265°	120°/s
	<b>Joint 3</b>	±175°	180°/s	±175°	180°/s	±175°	120°/s	±175°	180°/s
	<b>Joint 4</b>	-85°, +265°	180°/s	-85°, +265°	180°/s	-85°, +265°	180°/s	-85°, +265°	180°/s
	<b>Joint 5</b>	±270°	180°/s	±270°	180°/s	±270°	180°/s	±270°	180°/s
	<b>Joint 6</b>	±270°	180°/s	±270°	180°/s	±270°	180°/s	±270°	180°/s
	<b>Max speed</b>	/	1.5m/s	/	2.5m/s	/	3m/s	/	3.5m/s

<b>Specifications</b>	<b>Rated power</b>	150W	350W	500W	600W		
	<b>Temperature range</b>	0-50°C	0-50°C	0-50°C	0-50°C		
	<b>IP Specification</b>	IP54	IP54	IP54	IP54		
	<b>Installation</b>	Installation at any Angle					
	<b>Tool I/O</b>	Digital input	2	Digital input	2	Digital input	2
		Digital output	2	Digital output	2	Digital output	2
		Analog input	1	Analog input	1	Analog input	1
	<b>Tool I/O power</b>	24V	24V	24V	24V		
	<b>base diameter</b>	129mm	158mm	188mm	188mm		
	<b>Materials</b>	Aluminum、PC					
<b>Tool I/O size</b>	M8	M8	M8	M8			
<b>Cable length</b>	6m	6m	6m	6m			

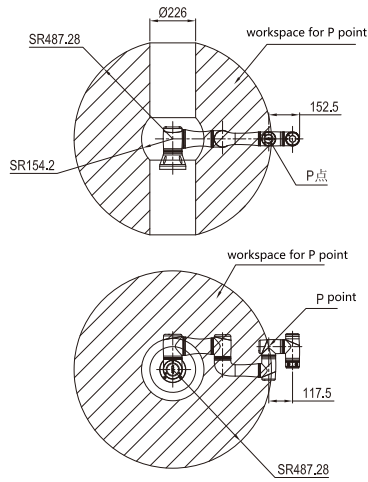


# JAKA Cobots Layout

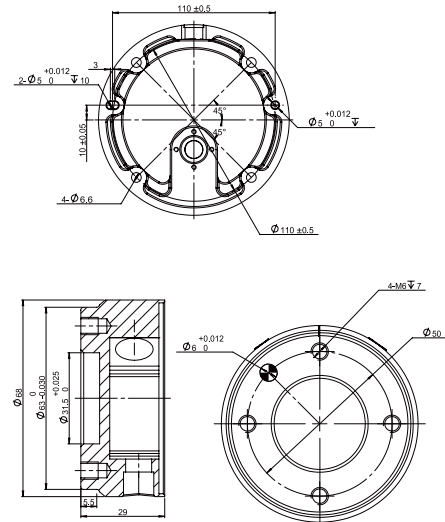
## JAKA Zu 3 Layout



JAKA Zu 3 work radius

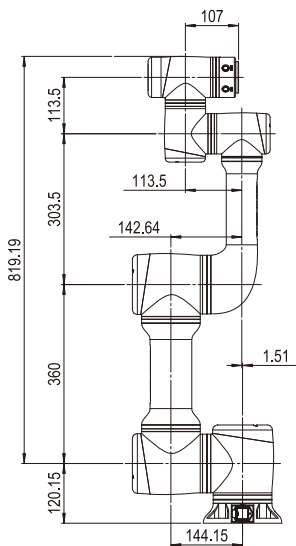


JAKA Zu 3 P point front view / top view

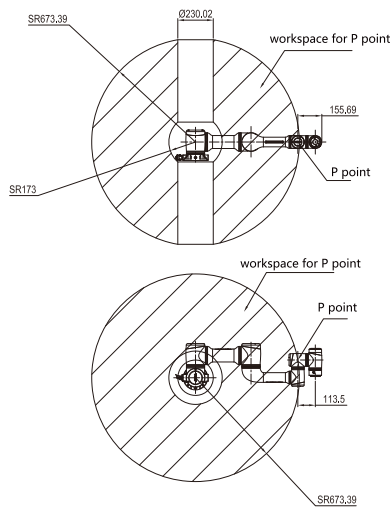


JAKA Zu 3 base / flange

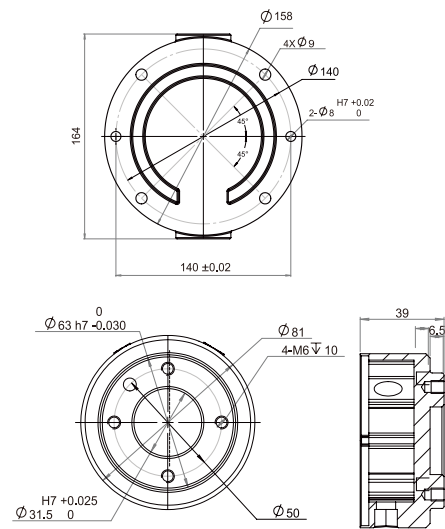
## JAKA Zu 7 Layout



JAKA Zu 7 work radius

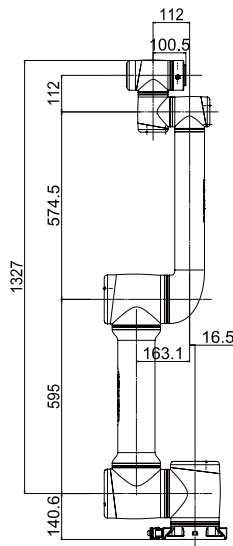


JAKA Zu 7 P point front view / top view

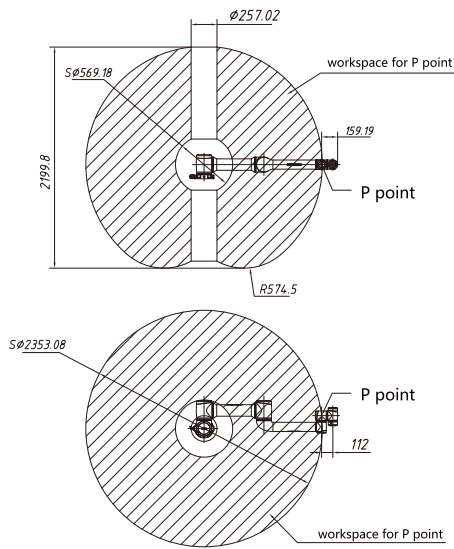


JAKA Zu 7 base / flange

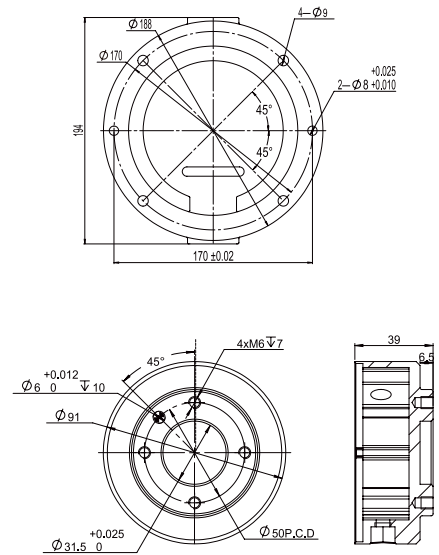
## JAKA Zu 12 Layout



JAKA Zu 12 work radius

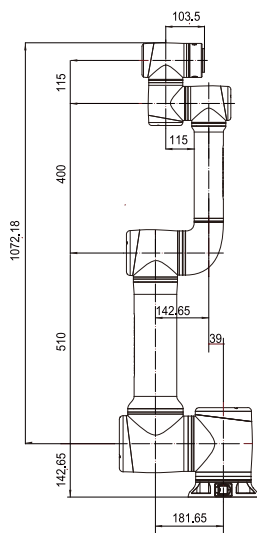


JAKA Zu 12 P point front view / top view

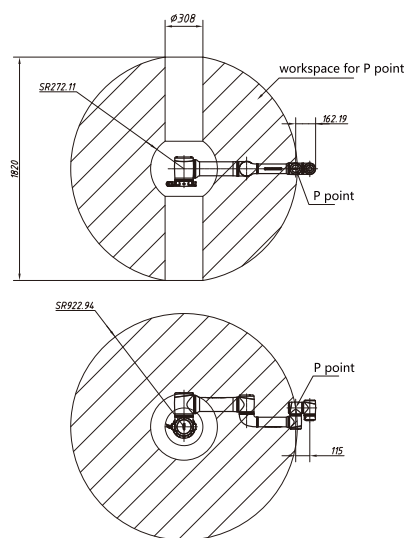


JAKA Zu 12 base / flange

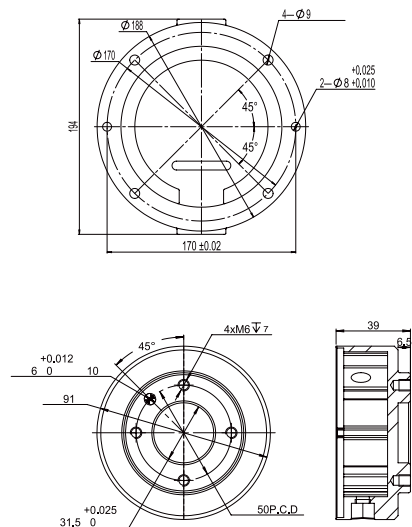
## JAKA Zu 18 Layout



JAKA Zu 18 work radius



JAKA Zu 18 P point front view / top view



JAKA Zu 18 base / flange

[www.jaka.com](http://www.jaka.com)



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