

AUBO-i5

Collaborative Lightweight Robot

Made for Human Centric
Agile Manufacturing

Versatile-Flexible-User Friendly
Low Cost-Lightweight

6 axis
5Kg payload
924mm reach



NRTAC



AUBO



AUBO-i5

Collaborative Robot (Co-Bot)

AUBO Robots work closely within the human environment without the need for safety equipment, depending on risk assessment.

COLLABORATIVE FUNCTION:

- Hand guide-to-teach (inverse kinematics motion planning), this manual operation of the robot enables quick and easy programming by demonstration without any programming skills.
- Robot works side by side with human operator without safety fence, laser or sensors (after a risk assessment is performed).
- Teach pendant user interface for programming (forward kinematics) enables online programming and simulation via a touch screen tablet.
- Lightweight, flexible and easy to re-purpose this lightweight robot.

SAFETY FUNCTIONS:

- Designed in accordance with IEC 61508 and ISO 10218-1 (ISO/TS 15066) safety requirements and with most all specifications for collaborative robots operation.
- Power and force limiting design brings robot to a protective stop if limits are exceeded or a collision is detected. Speed and force can be adjusted to fit and optimize any application easily.
- Sensors embedded in motor drives provide real-time feedback to prevent dangerous situations.
- Emergency stop buttons are positioned on teach pendant and control box with a braking distance less than 1mm.

OPEN SOURCE ARCHITECTURE:

- CAN bus network used in this robot for multiple microcontrollers to communicate with each other.
- ROS (Robot Operating System) compatibility is supported through an API.
- Hardware adopts BUS protocols with open I/O interface extensions.
- Easily integrate robot into existing production systems.

RETURN ON INVESTMENT (ROI):

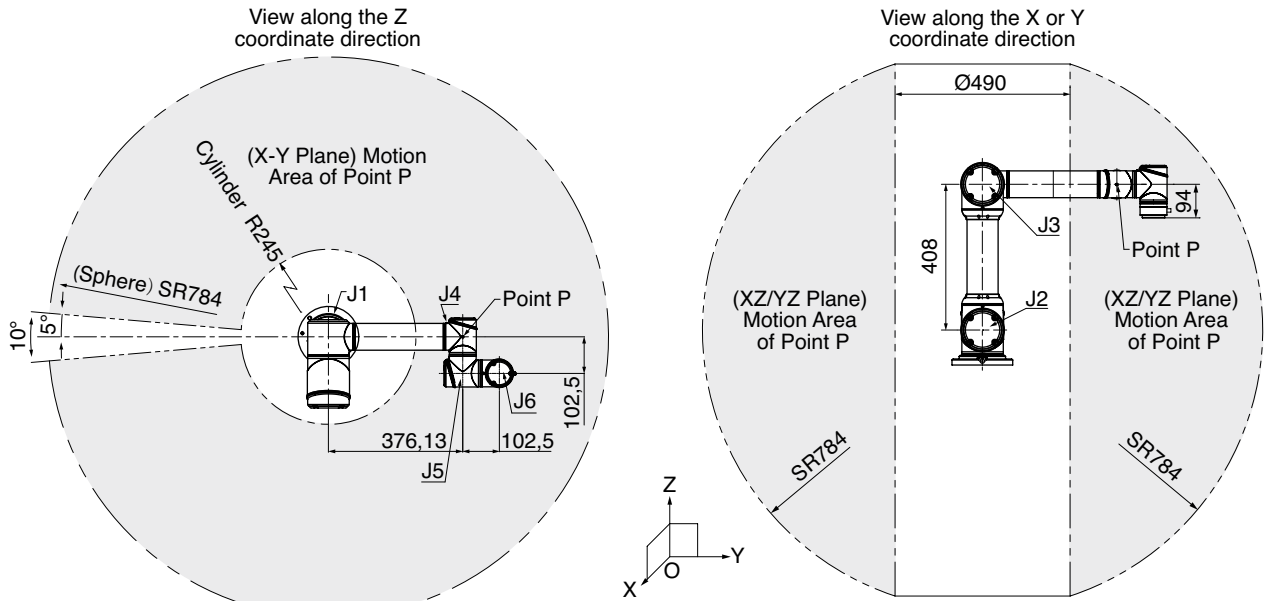
- Low cost of ownership without basic programming skills needed, and ease of integration into a system, all add up to a quick return on your investment.
- Short run, high mix environments like Lab automation or machine tending are prime examples of industries needing fast redeployment.
- Floor space is a premium cost at most companies—usually more than the equipment. A small foot print, lightweight robot will be a huge benefit for any size company's cost of production.
- Repurpose, redeploy and/or reinvent applications with the same robot, fast change over for lean manufacturing.
- Remove human error in a high-mix low-volume (HMLV), this reduces manufacturing time and consequently increases capacity; without adding costly resources so robot acts as a de facto quality inspector.

INTELLIGENCE:

- Vision systems can be easily integrated into controller.
- Control Box communication ports include TCP/IP, Modbus RTU/TCP, and USB 2.0
- This research robot platform is used widely around the world in corporate labs and for academic robotics research.

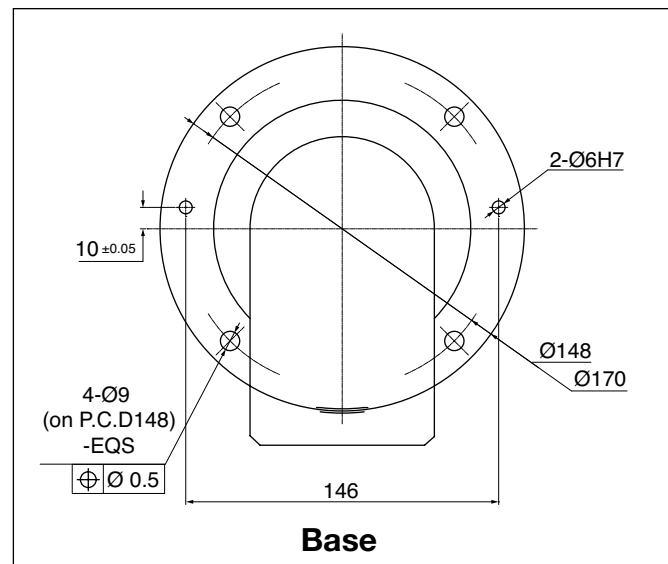
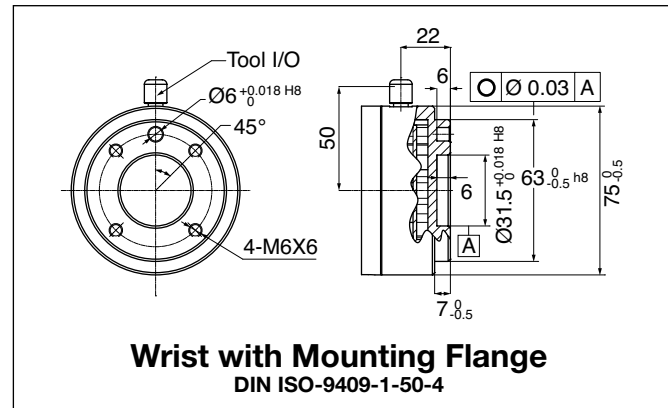
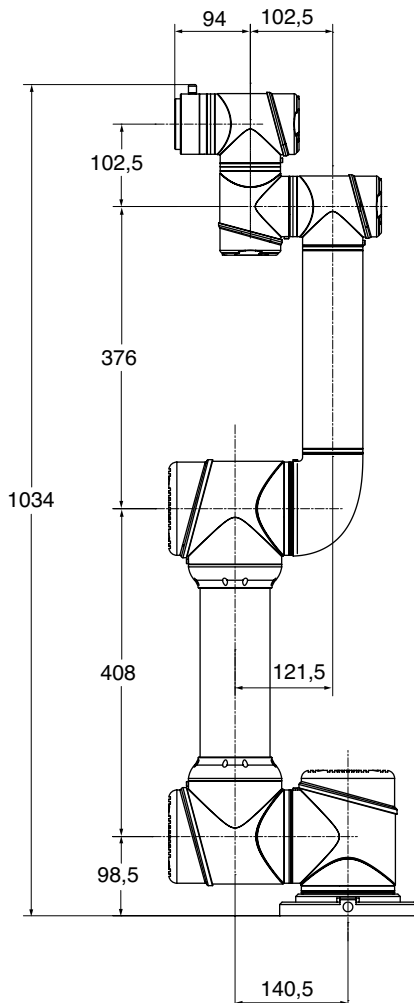
AUBO-i5 Collaborative Robot (Co-Bot)

Work Envelope-Range of Motion of the Point P



NOTE:

1. Double dotted line means regional boundaries
2. The trajectory of Point P may exceed the space area which contained by the double dotted line



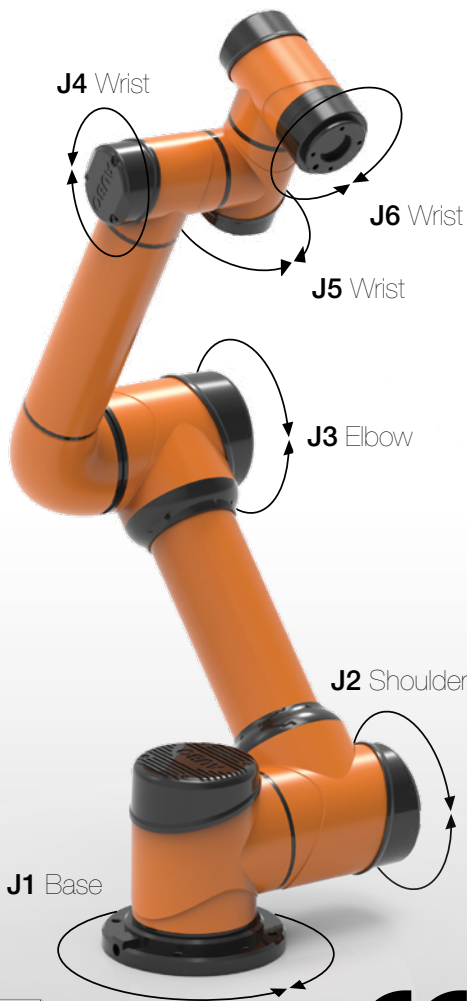


AUBO-i5

6 axis

5Kg payload

924mm reach



ROBOT SPECIFICATIONS

| | |
|--------------------------|---|
| Degrees of Freedom | 6 axes |
| Reach | 924 mm |
| Payload | 5 Kg |
| Weight | 24 Kg |
| Lifetime | 30000 h |
| Collaboration | Collaborative operation according to ISO 10218-1 :2001 |
| Certification | Compliance with EU CE certification, North American certification, Korean KCs certification |
| Repeatability | +/- 0.05 mm |
| Linear Velocity | ≤ 2.8 m/s |
| Power Consumption | 200 W (under normal working conditions) |
| Materials | Aluminum, Steel, Plastic |
| Ambient Humidity | 25% - 85% |
| Ambient Temperature | 0 - 45° C |
| IP Classification | IP54 |
| Programming | Teach pendant with user interface |
| Communication | CAN bus |
| Motor Type | DC 48 V |
| Installation Orientation | Any Ceiling, Floor, Wall |

AXIS MOVEMENT

| | WORKING RANGE | MAXIMUM SPEED |
|---------------------------|---------------|---------------|
| J1 axis rotation base | (+/-) 175° | 150°/sec |
| J2 axis rotation shoulder | (+/-) 175° | 150°/sec |
| J3 axis rotation elbow | (+/-) 175° | 150°/sec |
| J4 axis wrist rotation | (+/-) 175° | 180°/sec |
| J5 axis wrist swing | (+/-) 175° | 180°/sec |
| J6 axis wrist rotation | (+/-) 175° | 180°/sec |

I/O PORT ON WRIST

| Voltage | Current | Digital In | Digital out | Analog In | Analog Out |
|-----------|---------|------------|-------------|-----------|------------|
| 0/12/24 V | 0.8 A | 4 | 4 | 2 | 0 |

CONTROL BOX

| | |
|-------------------------|--|
| Dimensions (LxWxH) | 727x623x235 mm |
| Weight | 20 Kg |
| Cabling | 5 mm |
| Color | Black |
| Communication Interface | Ethernet, Modbus - RTU/TCP SDK (supports C/C++/Lua/Python) Supports ROS, API |
| Power supply | 100 - 240 VAC, 50 - 60 Hz |
| IP Classification | IP54 |



I/O PORTS

| | General I/O | Safety I/O |
|--------------|-------------|------------|
| Digital in | 16 | 16 |
| Digital out | 16 | 16 |
| Analog In | 4 | - |
| Analog out | 4 | - |
| Power input | 24 V | |
| Power output | 3 A | |

TEACH PENDANT

| | |
|--------------------|------------------------|
| Dimensions (LxWxH) | 355x235x54 mm |
| Weight | 1.8 Kg |
| Display Screen | 30 cm Touch LCD Screen |
| Cabling | 4 m |
| IP Classification | IP54 |
| Color | Orange |



About Aubo Robotics

Aubo Robotics was established in collaboration between professors from the USA and China to make a lightweight intelligent collaborative robot. This robot arm was specially designed with important functions from the start, combining state of the art technology with user friendliness to make this a collaborative robot (Co-bot). The open source architecture enables the Robot Operating System (ROS) to be supported through an API for both industrial and academic uses.

The Aubo i Series of robots use the CAN bus networks to communicate between joints. Low cost of ownership and high positional repeatability are some of the other criteria that makes up the outstanding features of this robot. Aubo Robotics holds several core patents and has strategic cooperation with several public companies leveraging the best of all new technologies.

Robotic automation is no longer out of range for small to midsize companies. The user-friendly setup facilitates ROI in real production environments so employees without programming skills can adapt these robots for most high mix or small batch applications. Aubo looks forward to helping companies make use of this new technology and gain competitive advantage in manufacturing environment while reducing the dangerous and repetitive tasks performed by workers today.

Some places where you may see AUBO Robots:

Assembly, Packaging, Welding, Pick and Place, Inspection, Machine Tending, Pharmaceutical and Medical Labs, Research and Development, and Academia.



AUBO co-bots work closely within human environments without safety equipment, depending on risk assessment.

Applications for Collaborative Robots



Assembly



Case Polishing



Product Testing



Education



Machine Tending



Dispensing



Load/Unload



Aubo Robotics USA

2704 Cherokee Farm Way, Suite 203
Knoxville, TN 37920 USA
P: 001-865-500-7144
www.aubo-robotics.com

Aubo Robotics China

3rd Floor, Shilong Sunshine Building
No.98 of Lianshihu West Road, Beijing, China
Tel: +86 10 8859 5859 • Fax: +86 10 6086 9515
www.aubo-robotics.cn