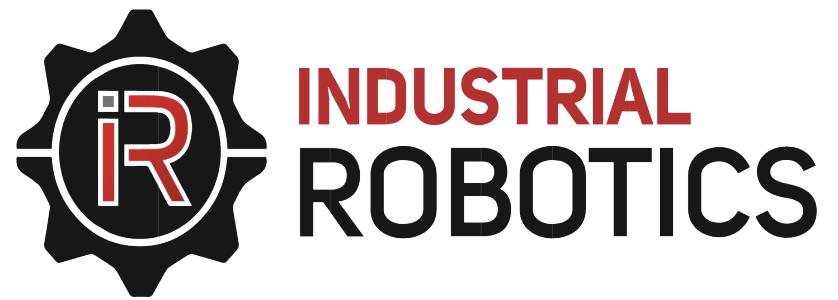




CRA Series Collaborative Robot

Product Brochure

Industrial Robotics Pty Ltd

Unit 5 / 65 Jardine Drive

Redland Bay QLD 4165 Australia

Email: sales@industrial-robotics.com.au

Web: www.industrial-robotics.com.au

ABN: 38 641 120 158 **ACN:** 641 120 158



CRA Series

New Generation High Performance
Collaborative Robots

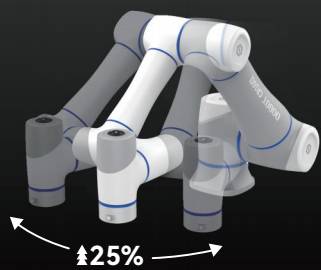
-  www.dobot-robots.com
-  sales@dobot-robots.com
-  [linkedin.com/company/dobot-industry](https://www.linkedin.com/company/dobot-industry)
-  [youtube.com/@dobotarm](https://www.youtube.com/@dobotarm)



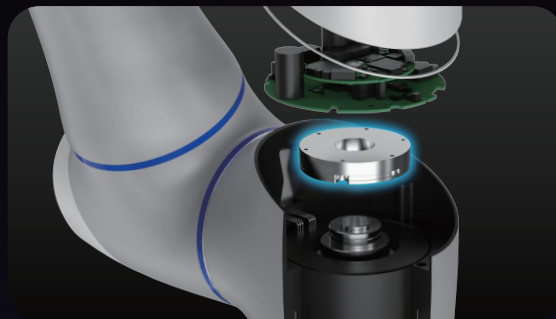
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CONVENTIONS

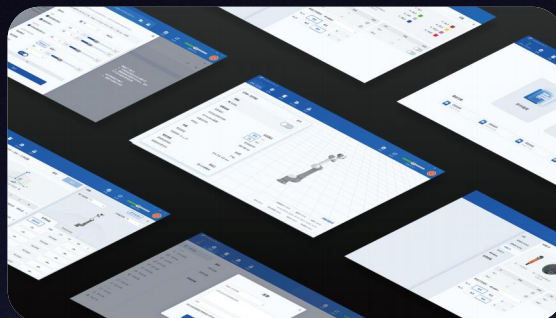
New Generation Collaborative Robots Fully Enhanced Performance



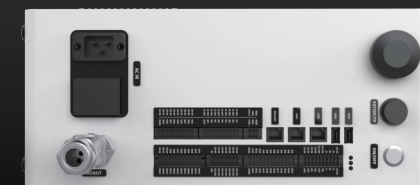
Cycle Time Improved by 25%



Automatic Brake at Power Outage



Simplistic UI Design



24-way PNP/NPN
General Purpose I/O Ports



IP54 Dust & Water Resistance



Dual CPU for Better Safety

CONTENTS



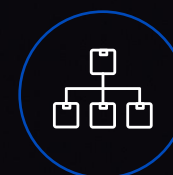
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Why Cobots



Why Collaborative Robots?



Quick Deployment

Compact, lightweight and supports upright and inverted installation.



Simple Operation

Simple coding allows quick adjustments to be made easily, satisfying the needs for small batch and flexible production.



Safe Collaboration

Multiple protection features including machine halt before collision and at power outage to work safely with workers without the need for safety fences.



Cost Reduction

Plug-and-play ecosystem accessories and solutions can greatly lower the cost for automation transformation.



Improved Efficiency

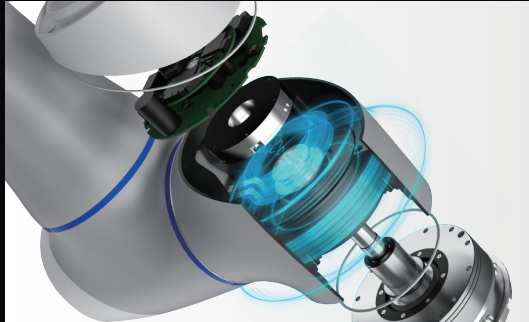
Workers collaborating with high performance cobots can more than double their productivity.



Consistent Quality

Cobots are highly reliable and perform repetitive tasks at high accuracy to deliver consistent production quality.

Key Features



Fast & Efficient

- High performance harmonic drive reducers with high load capacity.
- Highly integrated motor, drive reducer and encoder.
- Modular design allows quick disassembly for easy maintenance.



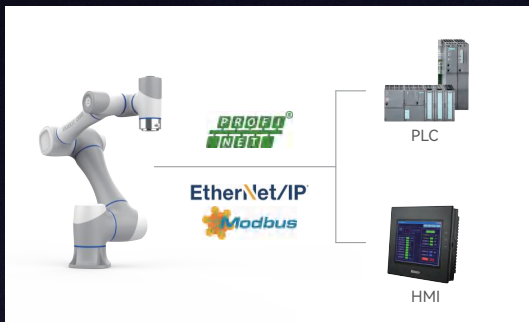
Accurate & Reliable

- By using the micron-level anti-vibration technology, the robot can stop quickly and stably under high speed operation.
- Optimized DH parameters compensation allows for spot on positioning accuracy.
- TrueMotion function ensures trajectory accuracy during complex curved operations.



Safe for Collaboration

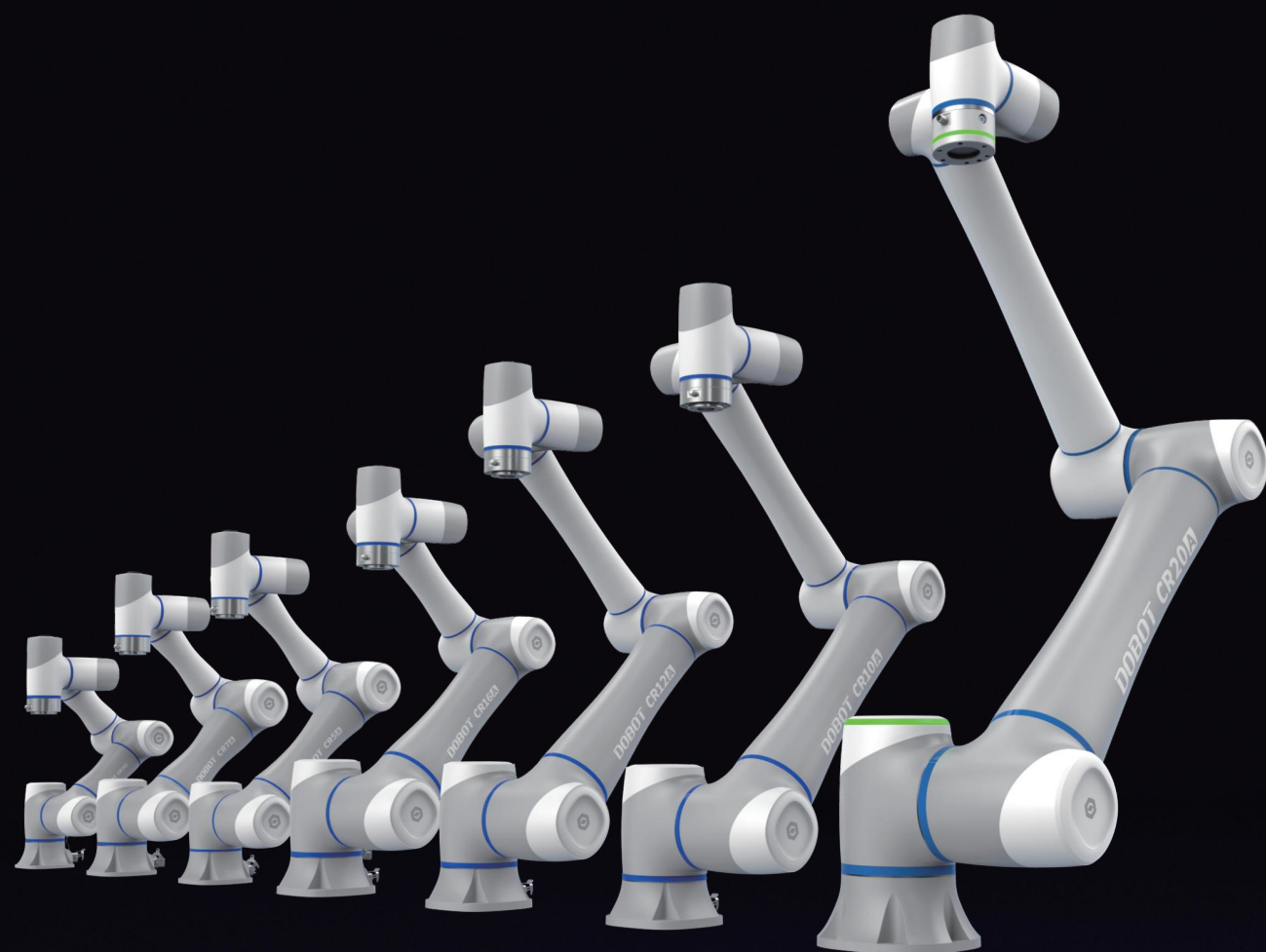
- Dual CPUs monitor the status of robot's position, speed and safety I/O and more.
- Collision detection, SafeSkin and virtual boundaries provide multiple layers of safety.
- The CRA series has 22 safety features built-in and is ISO13849 and TS15066 certified.



Expandable

- Integrated EtherCAT for reliable real-time microsecond response.
- Supports Modbus, Ethernet/IP and Profinet communication.
- Connects seamlessly with industrial automation systems including the PC, PLC, HMI and more.





CRA Series

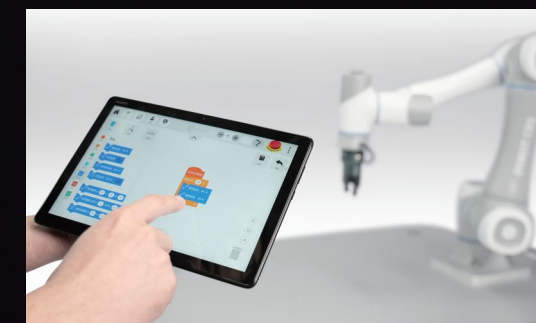
Highly Adaptive & Flexible Productivity

The CRA series is a new generation of high-performance collaborative robots developed by Dobot. It has improved safety, stability, and scalability thanks to the brand new controller and system software and is much easier to operate. It satisfies the performance required by industrial clients, including speed, accuracy and reliability, allowing more efficient human-machine collaboration in industrial scenarios.



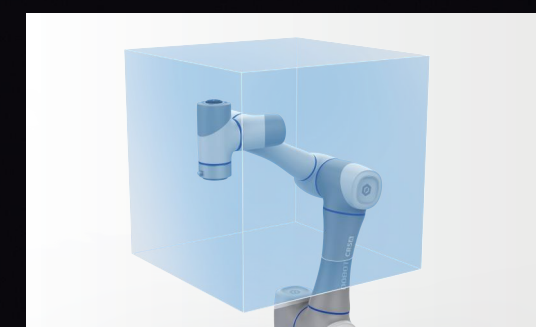
Easy Operation

Intuitive graphical user interface with in-built automation simulation. Control robots with PC, tablets, smartphones, teaching pendant and more. Graphical and script programming are available to accommodate users of diverse background.



Multiple Layers of Protection for Collaboration

The robot has 5 levels of adjustable collision detection settings to meet the safety requirements of different application scenarios. Built-in virtual boundaries to setup operating space. Supports robot halt and deceleration to ensure the safety of nearby workers. With 10-way safety I/O ports, it can meet the needs of most safety control requirements with external devices.



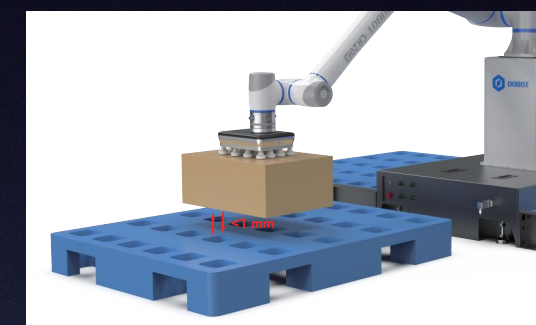
2.5D Vision for Accurate Positioning

Self-developed 2.5D vision positioning feature means that even slanted objects can be picked up accurately. Graphical programming allows users to build solutions quickly. Supports 2D vision feature expansion such as positioning, measurement, detection, and identification.



Electromagnetic Brake Ensures the Safety of Workers and Products

Brakes are auto-engaged 18 ms upon power outage, preventing robotic arms to fall more than 1 mm. No displacement in the case of sudden stops, power on and off.



CRA Series Specifications

Model		CR3A	CR5A	CR7A	CR10A	CR12A	CR16A	CR20A
Weight		16.5 kg	25 kg	24.5 kg	40 kg	39.5 kg	40 kg	70 kg
Payload		3 kg	5 kg	7 kg	10 kg	12 kg	16 kg	20 kg
Working Radius		620 mm	900 mm	800 mm	1300 mm	1200 mm	1000 mm	1700 mm
Maximum Speed of TCP		2 m/s	2 m/s	2 m/s	2 m/s	2 m/s	2 m/s	2 m/s
Range of Motion	J1/J2	± 360°	± 360°	± 360°	± 360°	± 360°	± 360°	± 360°
	J3	± 155°	± 160°	± 160°	± 160°	± 160°	± 160°	± 165°
	J4/J5/J6	± 360°	± 360°	± 360°	± 360°	± 360°	± 360°	± 360°
Maximum Joint Speed	J1/J2	180° /s	180° /s	180° /s	150° /s	150° /s	150° /s	120° /s
	J3	223° /s	180° /s	180° /s	180° /s	180° /s	180° /s	150° /s
	J4/J5/J6	223° /s	223° /s	223° /s	223° /s	223° /s	223° /s	180° /s
End-Effector I/O Interface	DI/DO/AI	2						4
	RS485	Supported						
Repeatability		± 0.02 mm	± 0.02 mm	± 0.02 mm	± 0.03 mm	± 0.03 mm	± 0.03 mm	± 0.1 mm
IP Rating		IP54						
Noise		70dB(A)						
Temperature Range		0°C ~ 50°C						
Power Consumption		120W	150W	150W	350W	350W	350W	500W
Installation Method		Any						
Cable length from main body to control box		5 m						6 m
Materials		Aluminum alloy、ABS plastic						

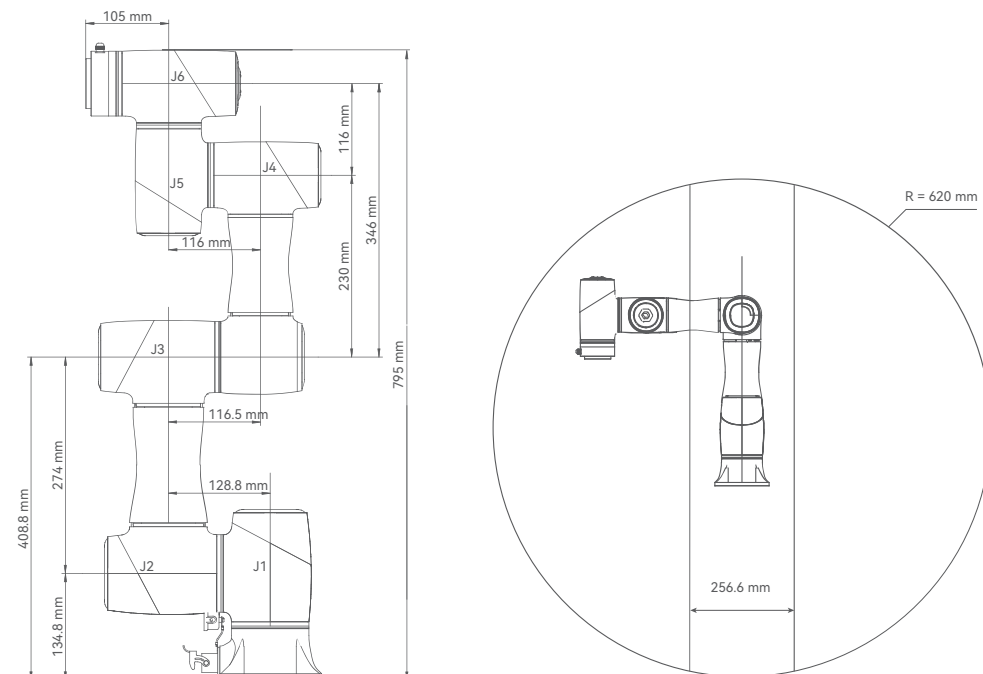
CRA Series Control Box Specifications

Product Name		CC262	CC263
Control Box Dimensions		345 mm x 345 mm x 145 mm	400 mm x 400 mm x 175 mm
Weight	AC Version	9.5 kg	15 kg
	DC Version	8.5 kg	/
Input Power	AC Version	100 ~ 240V, 47 ~ 63Hz	
	DC Version	30 ~ 60V	/
I/O Power		24V, Max 3A, Maximum 0.5A for one way	
I/O Ports	DI/DO	24 Way (NPN/PNP)	
	AI/AO	2 Way, 0 ~ 10V, 4 ~ 20mA	
Remote On/Off		Supported	
Communication	WAN	2, for TCP/IP, Modbus TCP, Ethernet/IP communication	
	USB	2, for document import and export	
	485 Port	1, for RS485, Modbus RTU communication	
	Encoder	1, for ABZ incremental encoder	
Environments	Temperature	0 ~ 50°C	
	Humidity	≤ 95%, Non-condensing	
IP Rating		IP20 (IP54 available upon choice)	
Cooling Method		Fan cooling	
Teaching Method		PC, App (Android/ iOS), teaching pendant	
Compatible Models		CR3A ~ CR16A	CR20A

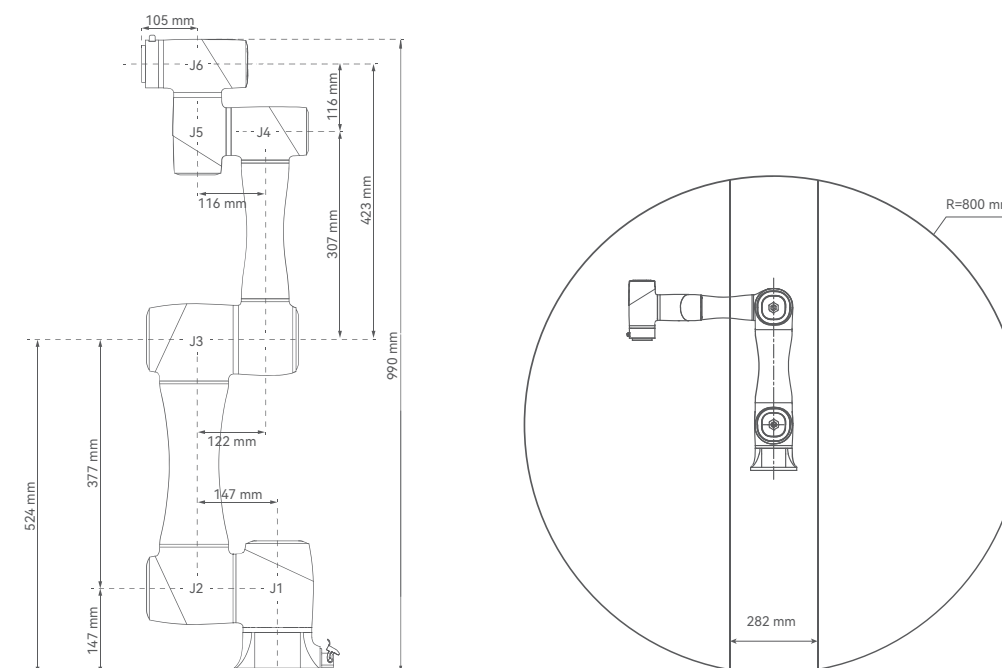
Device Dimensions



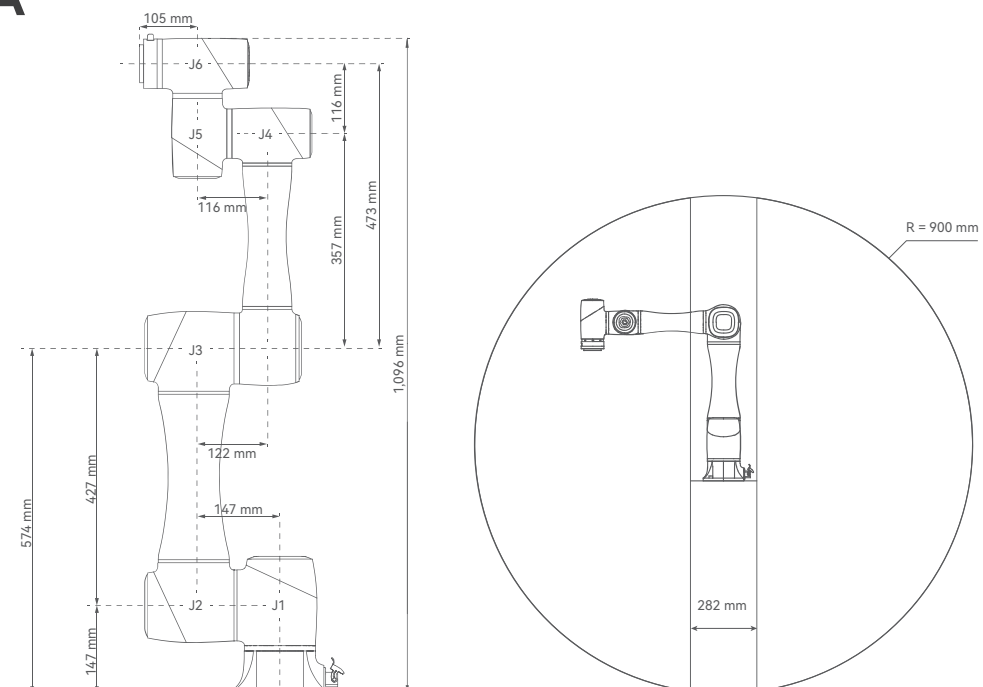
CR3A



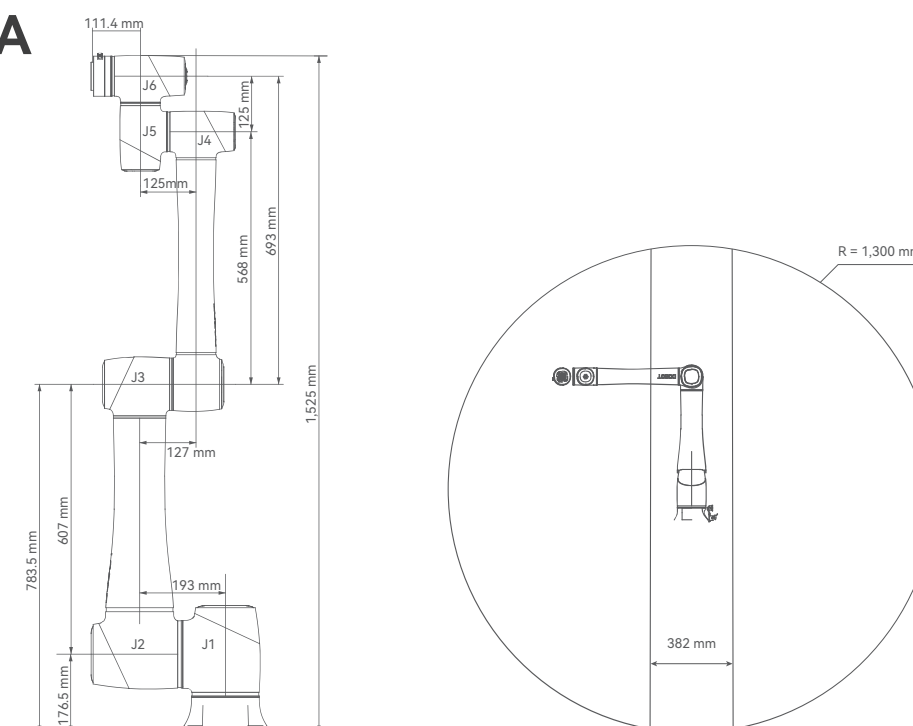
CR7A



CR5A



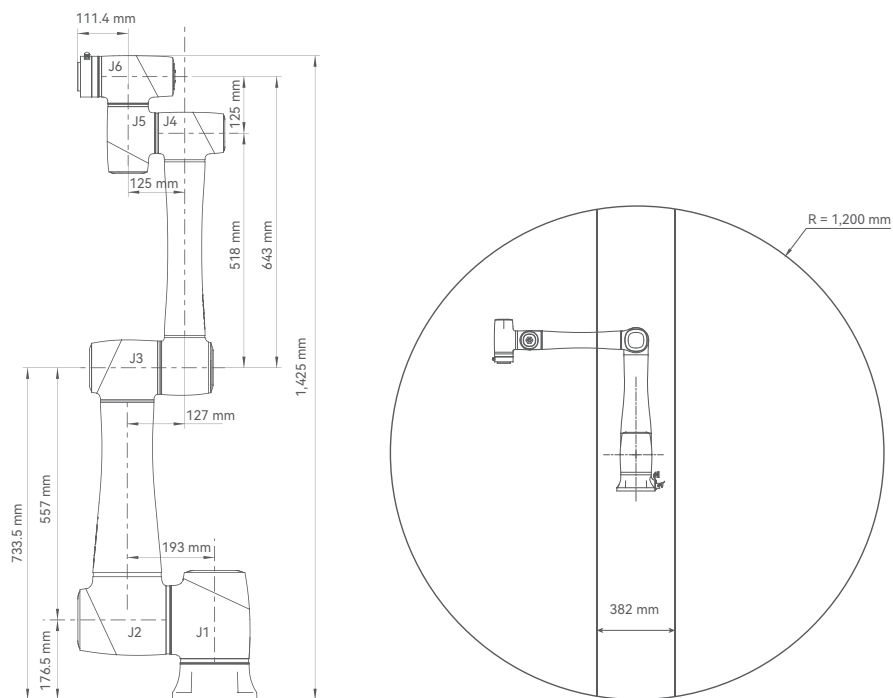
CR10A



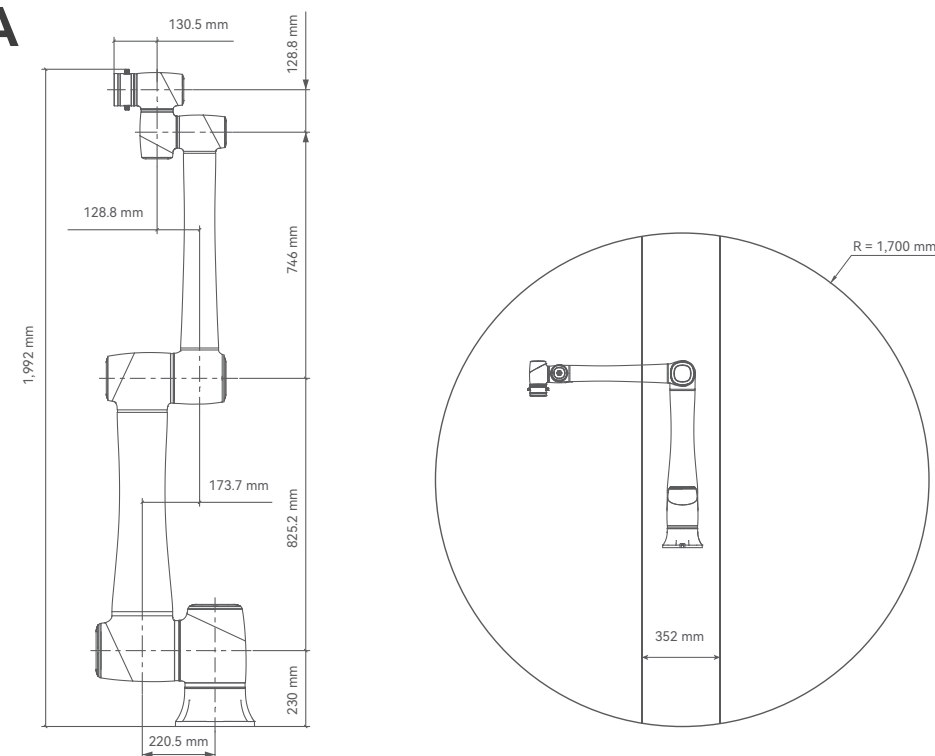
Device Dimensions



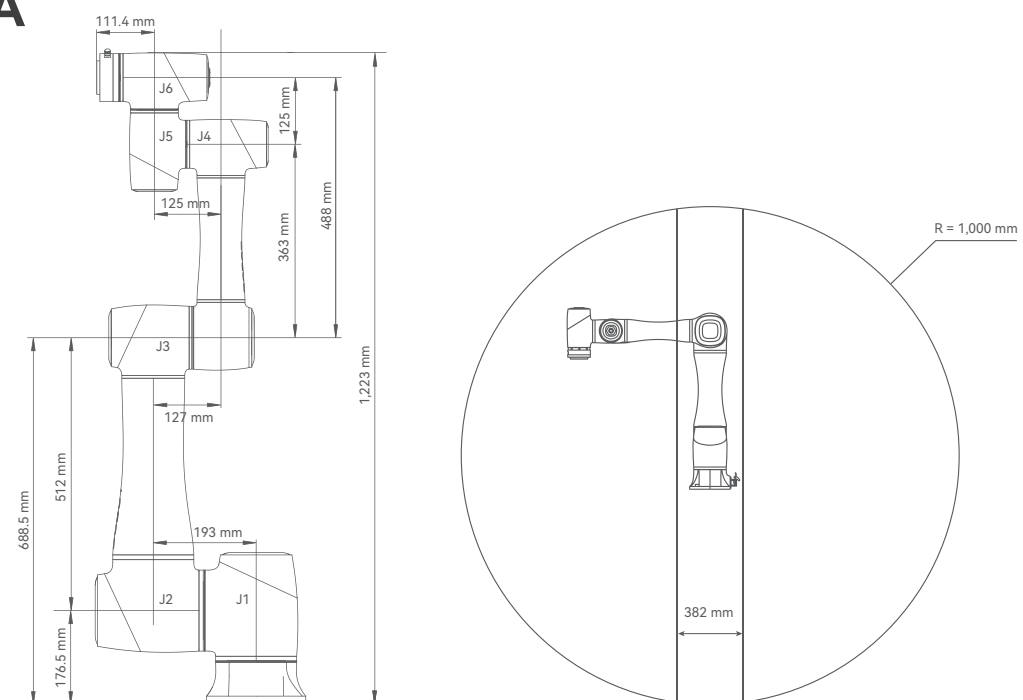
CR12A



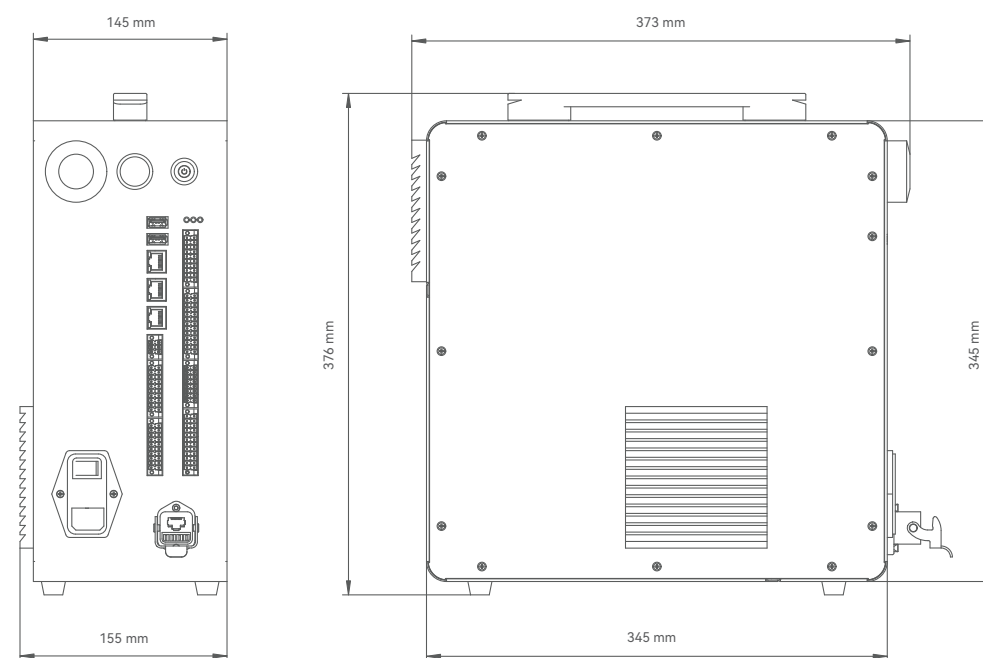
CR20A

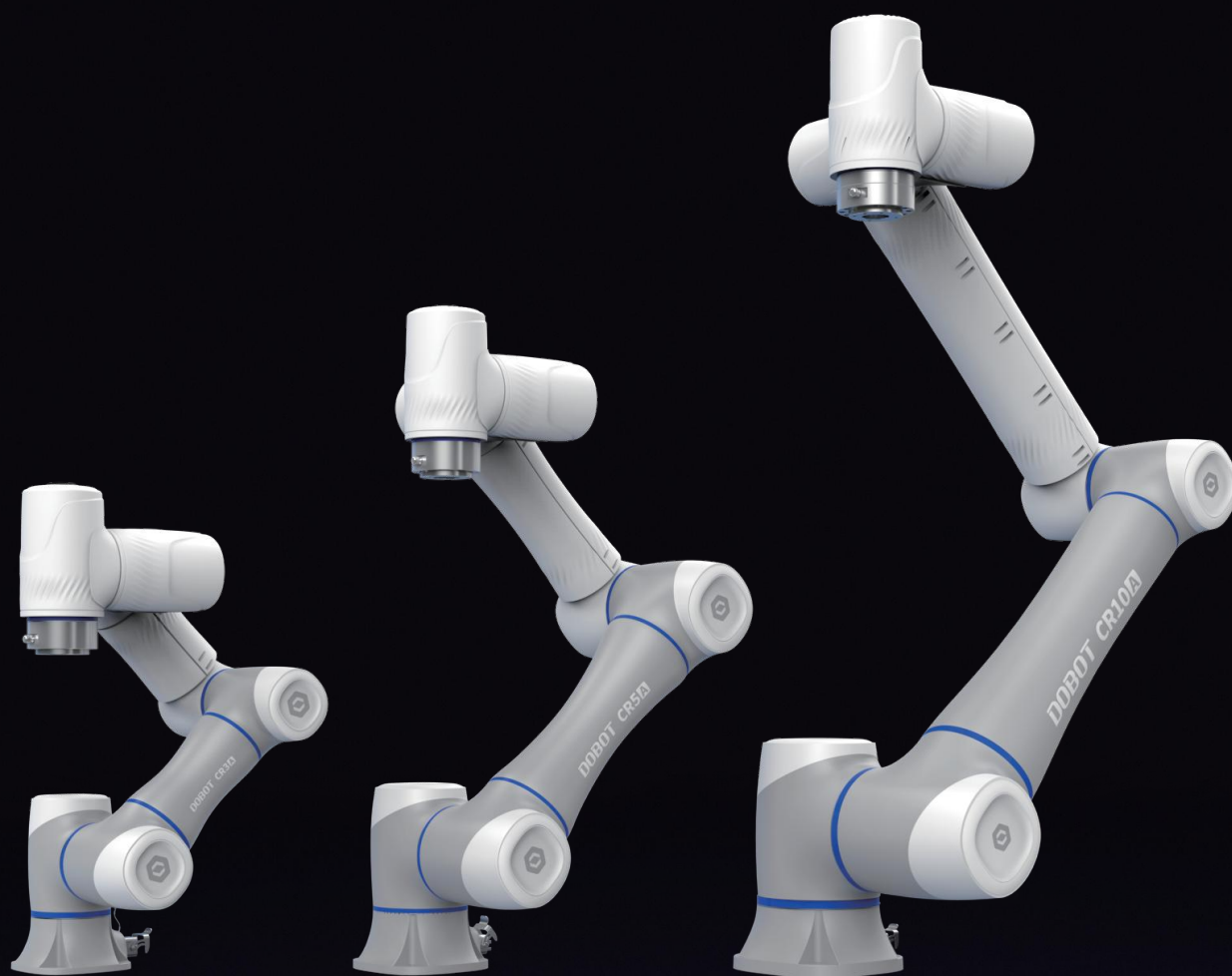


CR16A



Control Box





CRAS Series

Pre-collision Detection for Efficiency and Safety

The CRAS series is the upgraded version of the CRA series. It has the same characteristics and performance of the CR series, and is further improved by the addition of the SafeSkin for pre-collision detection to achieve better safety and collaboration efficiency. The CRAS series has 3 kg, 5 kg and 10 kg payloads to offer both safety and efficiency to end users.

15 cm Proactive Protection Range

The CRAS series senses obstacles that come within 15 cm, and performs emergency stop or automatic evasion to avoid damages caused by collisions.



10 ms Instant Response Time

Within 0.01 second after sensing obstacles, it automatically activates reaction procedures predetermined by the users, whether it is to stop or evade. The result is a highly responsive and safe interaction.



360° Safety Protection

The SafeSkin is industry's first wearable accessory made of silicon. It is soft on contact to reduce collision impact. With excellent anti-interference characteristics, the SafeSkin's performance is not affected by intermediate materials such as clothes and plastic gloves. It is wrapped around the robotic arm to offer all-round safety protection.



4 Times Efficiency Gains

With fewer collisions and operation halts, human-machine collaboration speed can be increased to 1 m/s, four times the international standard of 0.25 m/s.

