

# MEET YOUR NEW GENERATION OF CO-WORKER



**HANDLING CONCEPTS**  
/// ENGINEERED HANDLING SOLUTIONS

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GORDON  
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DESIGN



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## WELCOME

Handling Concepts is a leading provider of materials and industrial handling equipment. Founded in 1994, you can rely on over 25 years of experience providing manual handling solutions to businesses across the United Kingdom and the globe. You will benefit from pragmatic advice and innovative solutions from a team that is passionate about improving your productivity, efficiency, and safety.

Collaborating with a team of expert engineers, you will receive help in choosing the best handling equipment for your needs, allowing you to focus on the growth of your business. From industrial manipulators to vacuum lifters, you will benefit from an array of handling solutions tailored to suit your needs.

Handling Concepts' vision is to become the UK's leading company in materials handling equipment. With a goal of improving safety and efficiency, you can trust in a commitment to deliver impeccable customer service and outstanding engineering expertise.

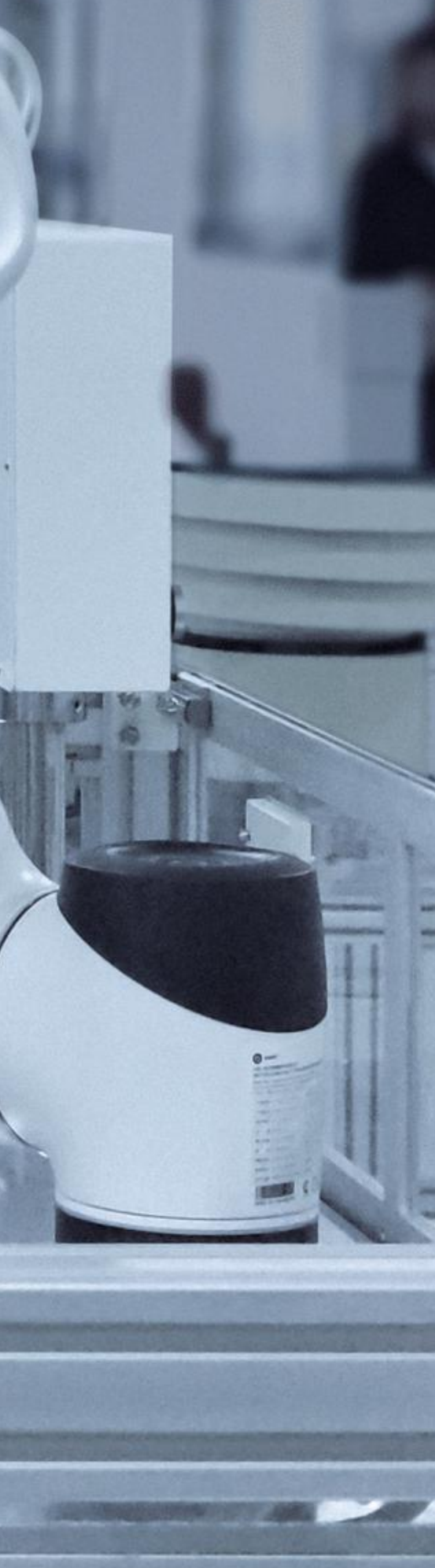
A comprehensive selection of services is available to you to help you boost productivity, avoid downtime, and remain compliant with health and safety legislation. You can depend on a reputable supplier to help you solve your manual handling problems.



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**SAFE, FLEXIBLE, AND  
SELF-LEARNING  
COLLABORATIVE ROBOT SERIES**



The CR series is a collaborative line of robots that DOBOT launched. CR series cobots have payloads of 3kg, 5kg, 7kg, 10kg, 12kg, and 16kg. These cobots are safe to work alongside, cost-effective, and adaptable in a variety of scenarios. CR Cobots offer flexible deployments, hand-guided learning, collision monitoring, trajectory reproduction, and other functions, increasing its suitability for human-robot collaboration scenarios.

## EASY TO USE

### Easy to Learn and Master | Easy to Control

- Graphical programming, intuitive and easy to understand, easy to start and ready to use
- Intelligent interactive terminal panel, hand-guided learning, and system joint debugging are done in a single hand
- Real-time controls on your mobile phone, PAD smart terminal app, low delay and strict disturbance immunity, and wireless interconnection are minimised

## SAFE

### Safe Production | Worry-free Collaboration

- 0.01 s real-time dynamic monitoring, 15cm space pre-touch perception, and advanced perception for preventive measures
- Based on force sense, electromagnetism, vision, multiple active security protection, layers collaborate to achieve the safest environment
- Spatial perception and online planning are perfectly combined to actively select the best trajectory to bypass obstacles, and adapt to random strains intelligently and efficiently

## CONVENIENT

### Flexible Deployment, One Step Ahead

- Fast setup requiring only 20 minutes to set up, 1 hour to initiate. It provides portable deployment in a time-saving and efficient manner
- Wide compatibility with mainstream end-effectors and accessories that meet the needs of flexible manufacturing multi-scenarios, and flexibly expand plug and play
- Intelligent adaptation to tailored needs, fast changeovers perfect for customized & flexible manufacturing

## ECONOMY

### Smart Choice, Cooperation, and Mutual Benefit

- Smaller working space, less protection investment, safe and flexible in limited spaces
- 32,000 hours of service life, advanced energy-feeding technology, 100-watt energy consumption, durable and efficient long-term benefits



# Product Features |

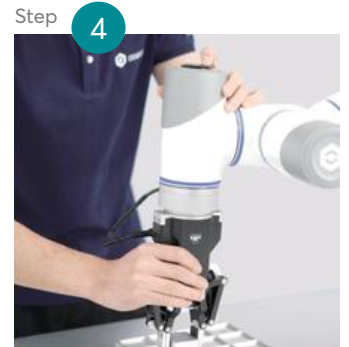
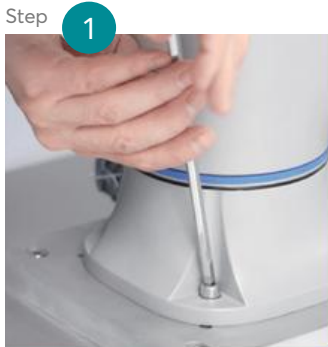
DOBOT CR Series  
Safe, Flexible, and Self-learning Collaborative Robot Series

## FLEXIBLE DEPLOYMENT, ONE STEP AHEAD

DOBOT CR Collaborative Robot Series, simple design and wiring;

Fast setup requiring only 20 minutes, 1 hour to initiate

Flexible deployment, time-saving and efficient.



## WIRELESSLY INTERCONNECTED COMPLETELY IN CONTROL

The CR series can be controlled through your mobile phone, PAD smart terminal app, low delay and strict disturbance immunity. Supports Android, iOS, Windows, and other platforms and with a high-performance WLAN card, the transmission velocity can reach up to 433Mbps, far greater than ordinary 150Mbps wireless WLAN cards.



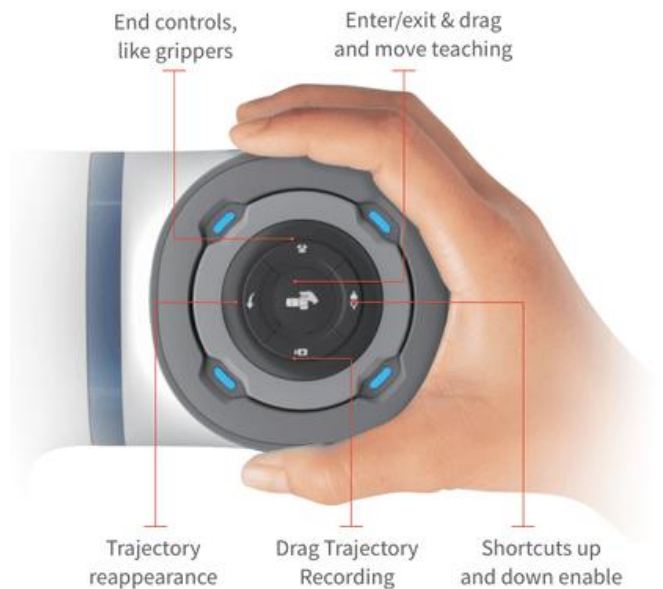
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## EASY TO MASTER & EASY TO CONTROL

The top of the robot sixth axis is equipped with our unique intelligent interactive panel with a proprietary lighting system, which can easily display the robot's status and quickly switch between enabling and disabling states.

With the push of a button, you can obtain drag and move teaching, recording, and reproducing trajectories, while controlling jaws, suction cups, or other custom fixtures and equipment. Users can easily control the system and make joint debugging using only one hand.



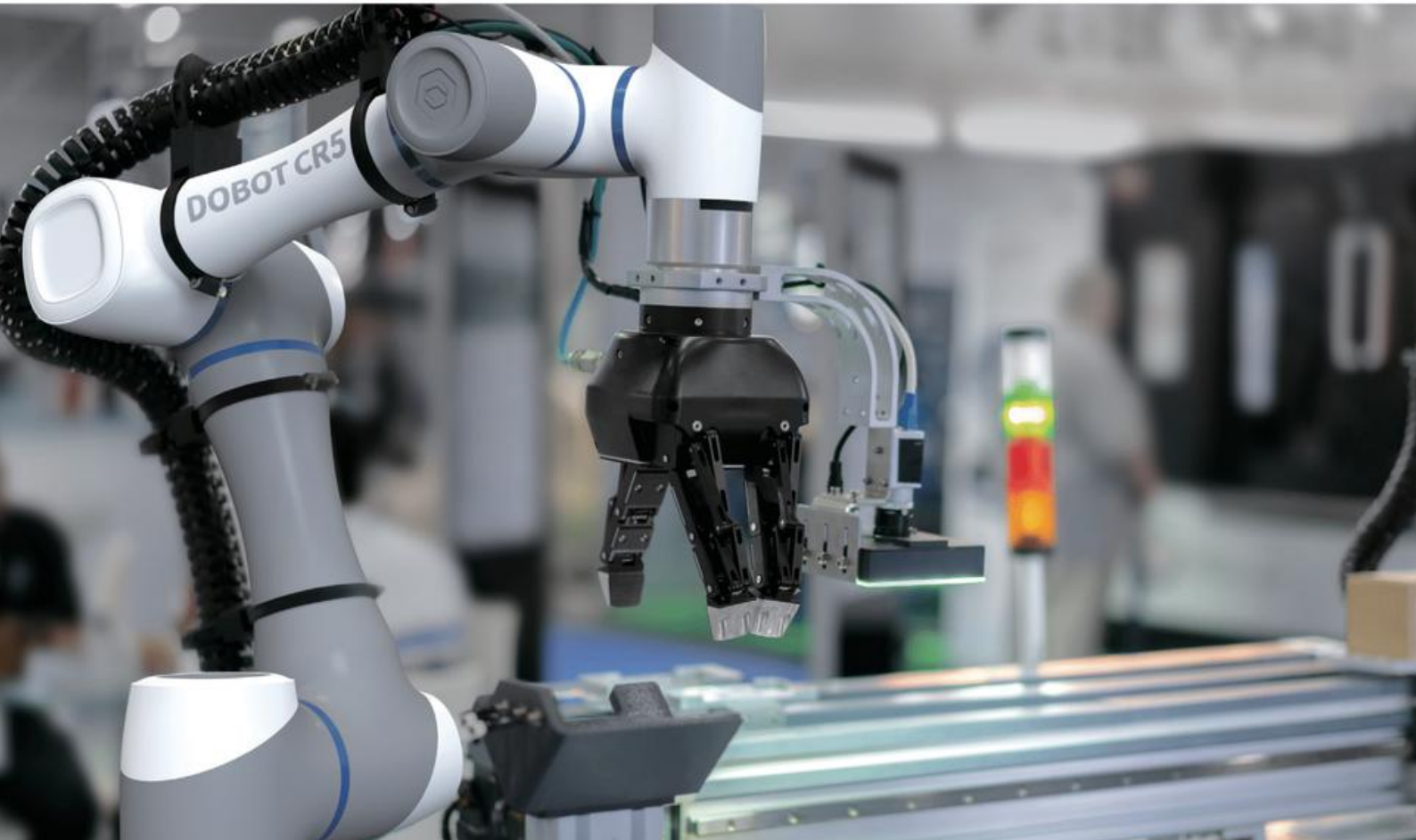
# FURTHER SDK DEVELOPMENT

Provides a ton of application packages, including SDK development packages, helping you quickly implement industrial and commercial application scenarios.

Supplemented by the corresponding software API, DOBOT cobot constitutes an open platform where most system accessories are supported.

Plug and play function meets the needs of flexible manufacturing across multiple scenarios.

Python





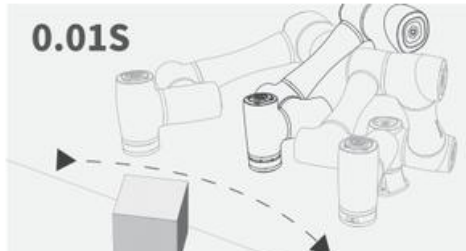
## COLLISION-FREE COLLABORATION

Dobot SafeSkin is a wearable silicone collision detection product specifically tailored for collaborative robots. With electromagnetic induction, a large coverage area, long perception distance, and fast response velocity, DOBOT SafeSkin can react quickly to avoid contact or injuries with electromagnetic objects. Unlike traditional collision detection solutions for collaborative robots, Dobot SafeSkin uses pre-collision and pre-perception technology to provide non-contact proximity perception and collision prevention for collaborative robots, ensuring high productivity and safety solutions for human-robot collaboration.



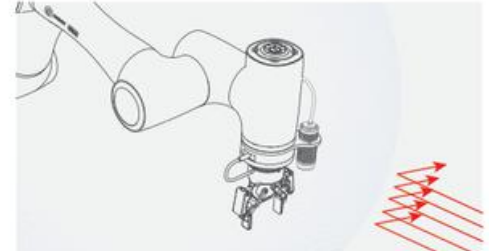
### Long-distance spatial perception

15cm perception distance, effectively protects the operator from the robot arm impacts and injuries



### High sensitivity and rapid response

0.01ms response sensitivity, achieves higher sensitivity and responsiveness for collaborative human-machine security interactions



### Stable anti-interference operations

Shielding technology allows you to resist interference from source signals at worksites and support a good environment for stable robot operations



### Comprehensive safety guaranteed

The sensing ability is unaffected by fabric, plastic gloves, and other shelters and light conditions, creating comprehensive security



### Quick installation

Dobot SafeSkin adopts a humanized design, making it easy to operate and be installed in the fastest way



### Guaranteed robot performance

While in use, the SafeSkin will rarely cause performance losses for the robot, ensuring efficient production

## WEARABLE SILICONE COLLISION DESIGN

In the non-contact safety program, the industry's first silicone SafeSkin, compared to metal, plastic, and other materials, has higher collision cushioning, feels soft, and is maintainable and self-recoverable; it has a wearable integrated design, is quick to install and easy to start, simple to operate, and ready to use.



# NON-CONTACT AND SAFE FEATURE



## CONTROL SOFTWARE FOR CR COBOT SERIES

### DOBOT SCStudio

SCStudio, the Windows control software for CR cobots, supports user-friendly interface programming. It provides users with secondary utilization and a multitude of kinematic algorithms for mechanical structures. SCStudio has a built-in virtual simulation environment for quicker development of various application scenarios.



### CRStudio

CRStudio, the mobile control software for tablets, supports graphical programming. It is intuitive and easy to understand even for users with the insufficient programming experience.

For advanced users, the platform also provides script programming, which can be quickly mastered and seamlessly switched. CRStudio provides multiple programming methods for you to choose from, up to your needs.



# CR3

Weight

16.5kg

Rated Payload

3kg

Reach

620mm

Repeatability

$\pm 0.02\text{mm}$

Max Reach

795mm

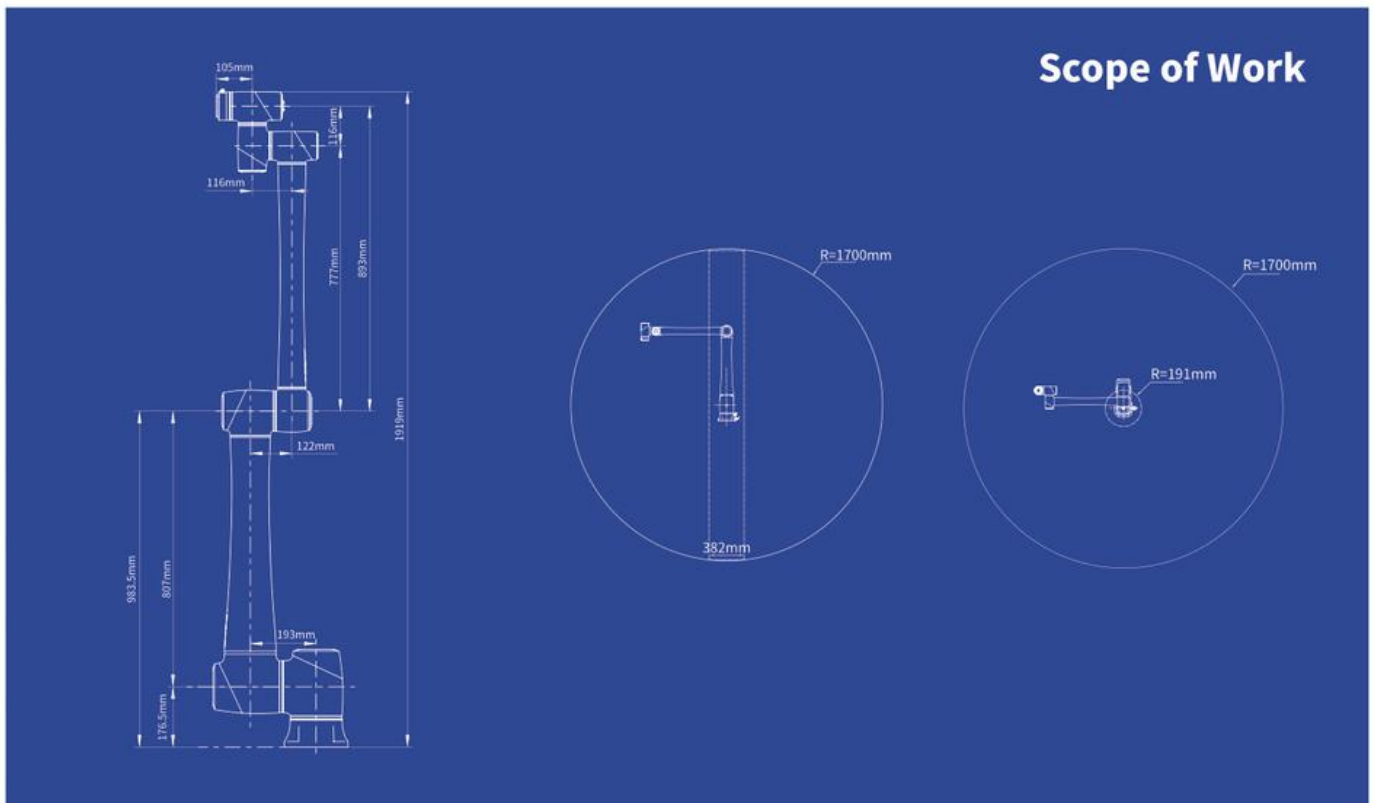
Max. Speed of TCP

2m/s



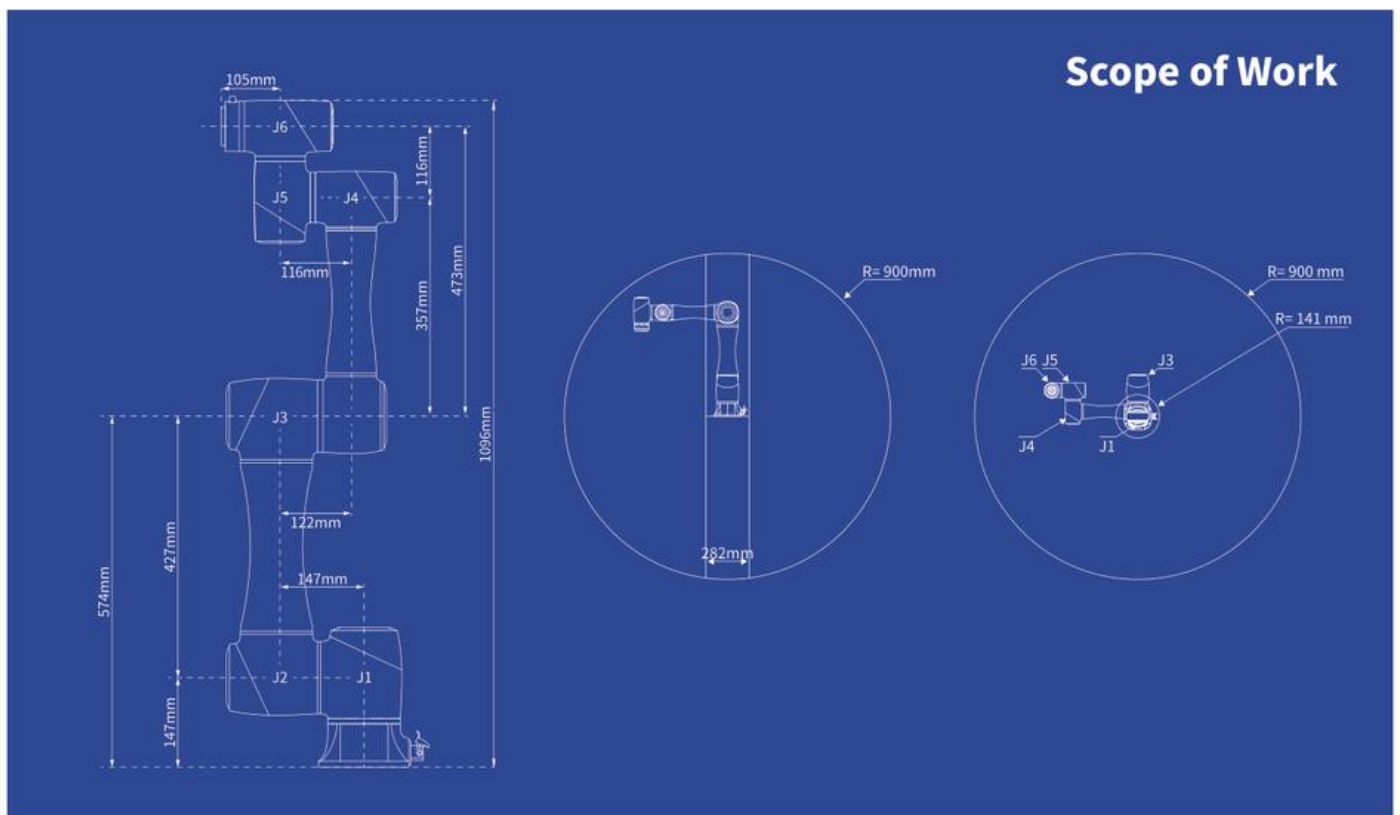
# CR3L

Weight	Rated Payload
39.5kg	3kg
Reach	Repeatability
1700mm	±0.05mm
Max Reach	Max. Speed of TCP
1919mm	4m/s



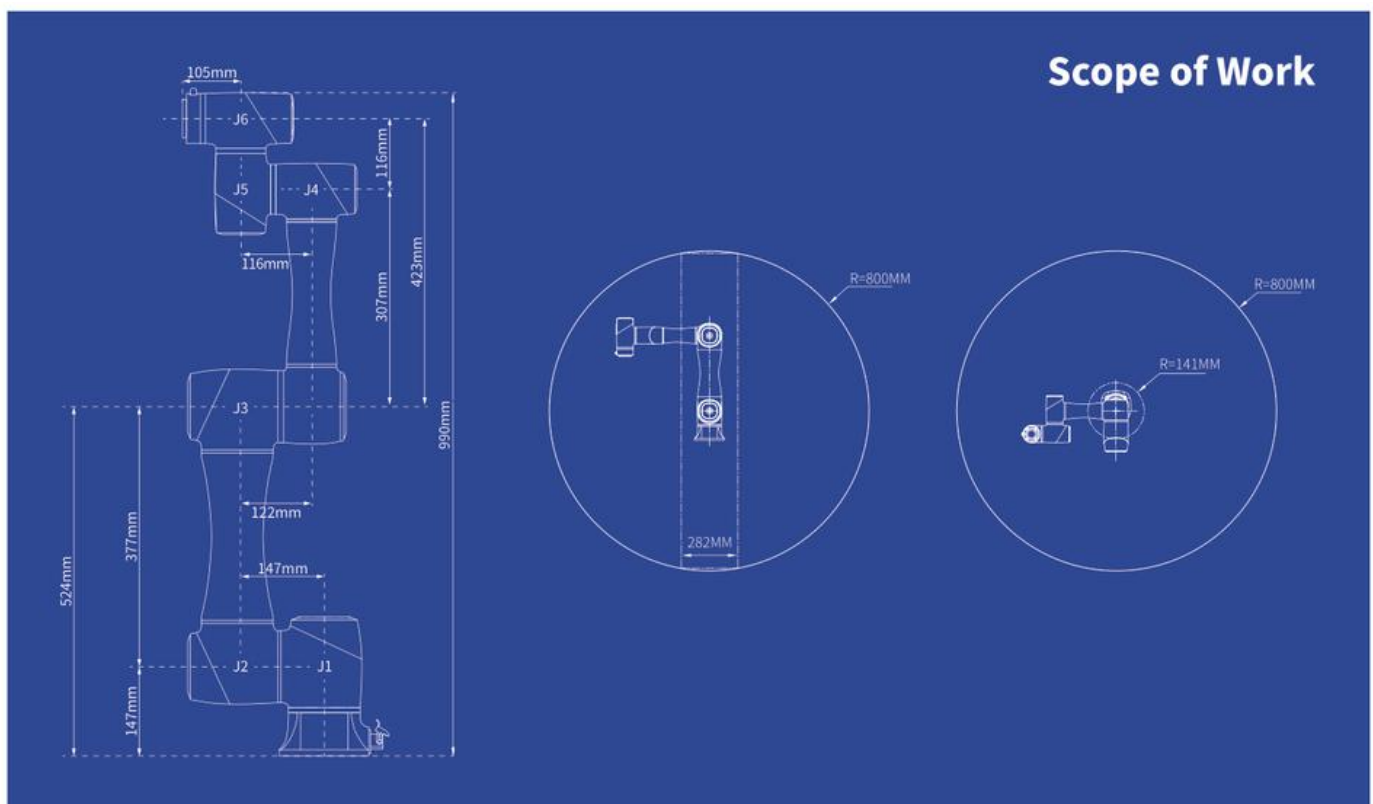
# CR5

Weight	Rated Payload
25kg	5kg
Reach	Repeatability
900mm	±0.02mm
Max Reach	Max. Speed of TCP
1096mm	3m/s



# CR7

Weight	Rated Payload
24.5kg	7kg
Reach	Repeatability
800mm	±0.02mm
Max Reach	Max. Speed of TCP
990mm	3m/s



# CR10

Weight	Rated Payload
40kg	10kg
Reach	Repeatability
1300mm	±0.03mm
Max Reach	Max. Speed of TCP
1525mm	4m/s



# CR12

Weight

39.5kg

Rated Payload

12kg

Reach

1200mm

Repeatability

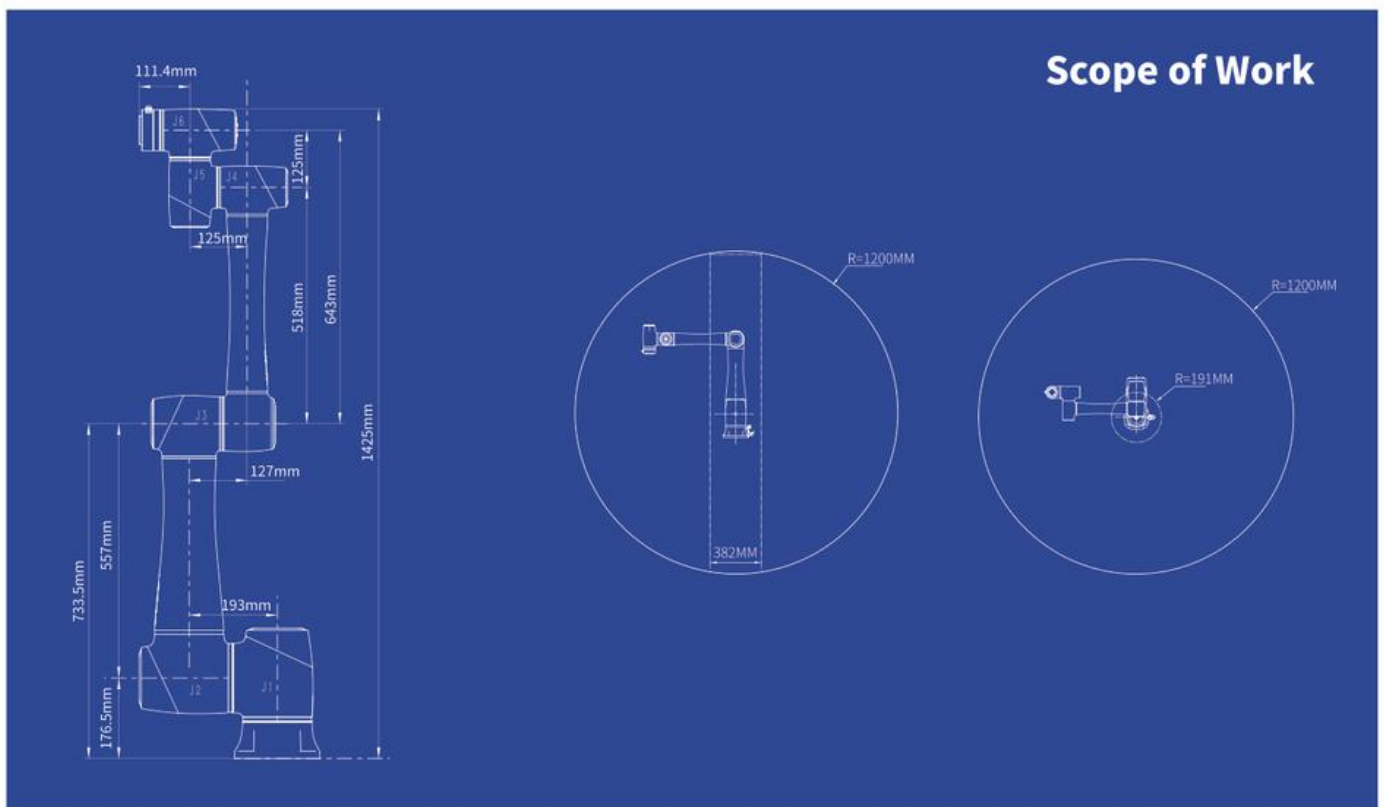
$\pm 0.03\text{mm}$

Max Reach

1425mm

Max. Speed of TCP

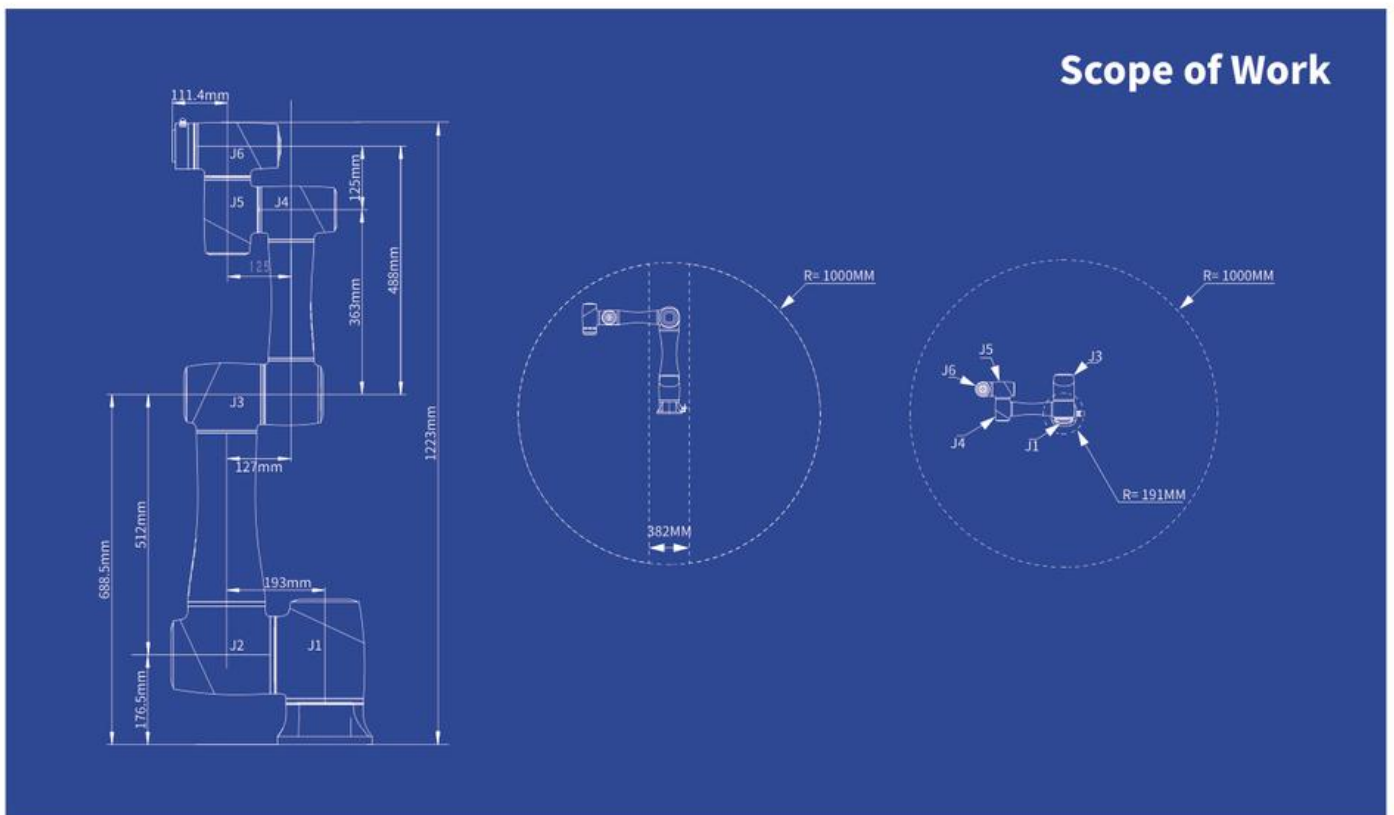
4m/s





# CR16

Weight	Rated Payload
40kg	16kg
Reach	Repeatability
1000mm	±0.03mm
Max Reach	Max. Speed of TCP
1223mm	3m/s



# CR SPECIFICATIONS



Product Name		CR3	CR3L	CR5	CR7
Weight		16.5kg	39.5kg	25kg	24.5kg
Rated Payload		3kg	3kg	5kg	7kg
Reach		620mm	1700mm	900mm	800mm
Max. Reach		795mm	1919mm	1096mm	990mm
Rated Voltage		DC48V	DC48V	DC48V	DC48V
Max. Speed of TCP		2m/s	4m/s	3m/s	3m/s
Joint Ranges	J1	±360°	±360°	±360°	±360°
	J2	±360°	±360°	±360°	±360°
	J3	±155°	±170°	±160°	±160°
	J4	±360°	±360°	±360°	±360°
	J5	±360°	±360°	±360°	±360°
	J6	±360°	±360°	±360°	±360°
Max. Speed of Joints	J1/J2	180° /s	120° /s	180° /s	180° /s
	J3/J4/J5/J6	180° /s	180° /s	180° /s	180° /s
End-Effector I/O Interface	DI/DO/AI	2			
	AO	0			
Communication Interface	Communication	RS485			
Controller I/O	DI	16			
	DO/DI	16			
	AI/AO	2			
	ABZ Incremental Encoder	1			
	Cable length from body to cabinet	5M			
Repeatability	±0.02mm	±0.05mm	±0.02mm	±0.02mm	
Communication	TCP/IP, Modbus TCP, EtherCAT, WIFI				
IP Rating	IP54				
Temperature	0°C -45°C				
Power Consumption	120W	300W	150W	150W	
Materials	Aluminum alloy, ABS plastic				





Product Name		CR10	CR12	CR16
Weight		40kg	39.5kg	40kg
Rated Payload		10kg	12kg	16kg
Reach		1300mm	1200mm	1000mm
Max. Reach		1525mm	1425mm	1223mm
Rated Voltage		DC48V	DC48V	DC48V
Max. Speed of TCP		4m/s	4m/s	3m/s
Joint Ranges	J1	±360°	±360°	±360°
	J2	±360°	±360°	±360°
	J3	±160°	±160°	±160°
	J4	±360°	±360°	±360°
	J5	±360°	±360°	±360°
	J6	±360°	±360°	±360°
Max. Speed of Joints	J1/J2	120° /s	120° /s	120° /s
	J3/J4/J5/J6	180° /s	180° /s	180° /s
End-Effector I/O Interface	DI/DO/AI	2		
	AO	0		
Communication Interface	Communication	RS485		
Controller I/O	DI	16		
	DO/DI	16		
	AI/AO	2		
	ABZ Incremental Encoder	1		
	Cable length from body to cabinet	5M		
Repeatability	±0.03mm	±0.03mm	±0.03mm	
Communication	TCP/IP, Modbus TCP, EtherCAT, WIFI			
IP Rating	IP54			
Temperature	0°C -45°C			
Power Consumption	350W	350W	350W	
Materials	Aluminum alloy, ABS plastic			



# CONTROLLER SPECIFICATIONS



**CC16X**

Model	
Size	360mm (Length)*160mm (Width)* 402.4mm (Height)
Control Cabinet Weight	12kg
Controlled Axes	6 Axes + External Expansion Axes
Power Input	Single Phase 110V/220V AC, 7.5A, 50/60HZ
Power Output	48V, 20A
Supported Motor Power (Max)	-
Braking Resistors	Four, 17W, 10Ω
Supported Encoder Types	-
Communication Interface	EtherCAT (for External Axes), Ethernet
I/O Interface	16 Digital Outputs
	16 Digital Inputs/Outputs (Multiplexing)
	2 Analog Outputs (Voltage: 0V-10V, Current: 4mA-20mA)
	2 Analog Inputs (Voltage: 0V-10V, Current: 4mA-20mA)
	1 Incremental Encoder ABZ Input
Teaching & Playback Method	Hand-Held Teaching Pendant/APP
Programming Language	Script
	Graphical Programming (Blockly)
Installment	Floor
Environment	Temperatures: 0°C ~45°C , Humidity: ≤ 95%, No Condensation
Protection Rating	IP20
Cooling Method	Forced-Air Cooling
Safety Features	Emergency stop function, reserved external security interface that can be controlled by I/O interface
Indicator	The indicator light remain red when the power is on and be off when the power is off.
Maintenance	Diagnostic Software Tool
	Power-off Zero Save
	Reserve Remote Service





# MG400 ULTRA-SMALL DESKTOP ROBOT ARM

DOBOT MG400

DOBOT MG400 is an ultra-small desktop robot arm that occupies space smaller than A4 paper. The MG400 is designed for diverse mini-batches of automation with a maximum load of 750 grams and a 440 mm arm that meets the needs for lightweight desktop applications, conversion teaching, collision detection, and other human-machine collaboration features. They allow the MG400 to apply rapid deployment of production line applications, providing a highly competitive choice for automated intelligent production.

## SMALL SPACE OCCUPATION

To fully utilize production space and easily integrate existing production environments, the MG400 has adopted a controller, the body integrated structure design, and the base frame area of only 190mm X 190mm that can fit A4 paper space.

## PROFESSIONAL PERFORMANCE

The M400 is equipped with a high-precision absolute encoder integrated into servo motors. Coupled with a self-developed servo drive and controller, the robot's repeatability can be measured up to  $\pm 0.05\text{mm}$ .

With the vibration suppression algorithm in the controller and ensured trajectory accuracy of multi-axis motion, the repeatability bandwidth stabilization time is accelerated by 60% and residual vibration by 70%.

## SIMPLICITY MEANS PRODUCTIVITY

Simplicity is integrated into every dimension of the robot, fully reducing the difficulty of deploying automation in small and medium-sized enterprises.

Shorter deployment time: integrated & compact design, flexible & easy to deploy, plug and play.

More programming options: trajectory reproduction, graphical programming, and Lua script programming, which are ideal for applications of different complexities and developers with different programming skills.

Higher programming efficiency: an intuitive programming interface and guided interactive design can greatly improve efficiency and lower the barriers for robot applications.

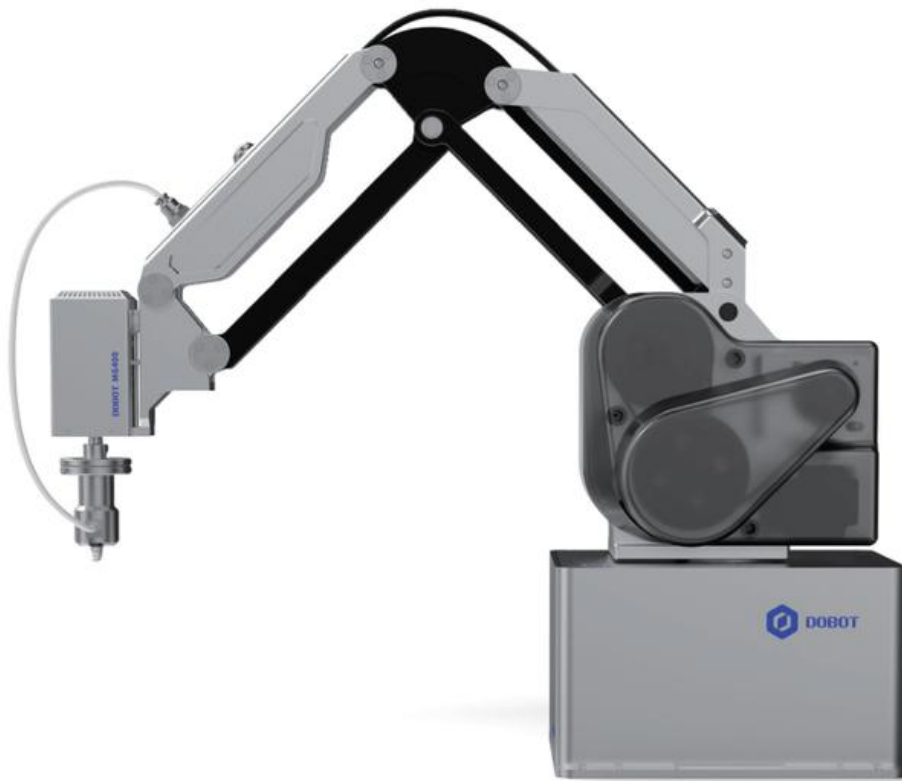
Higher debugging efficiency: when resetting the robot for debugging, lighter and smoother pre-teaching combined with robot power compensation algorithms reduces point teaching time by more than 80%.

## INTEGRATED COLLABORATION HELPS AUTOMATION

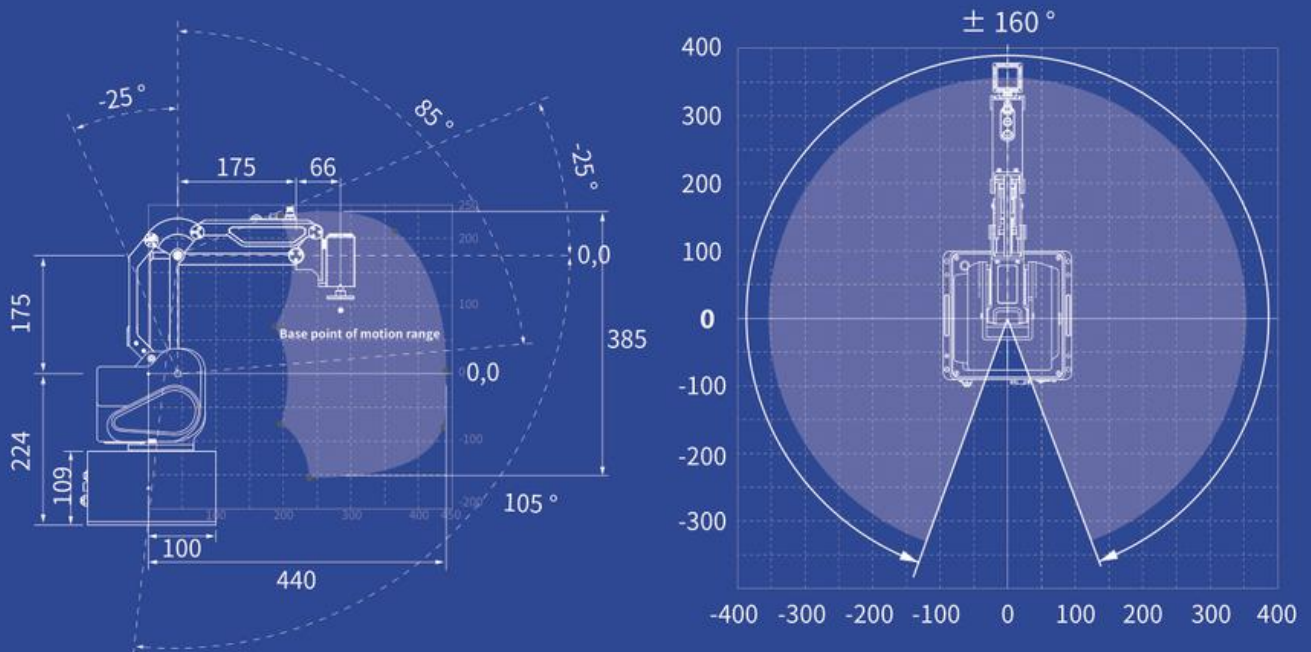
The collision detection function ensures safety. MG400's replacement of highly repetitive, standard procedures enables high-efficiency configurations of human-machine collaboration. MG400 can make desktop collaboration possible that will reduce costs and improve the quality of manufacturing for enterprises.



# MG400



## Scope of Work

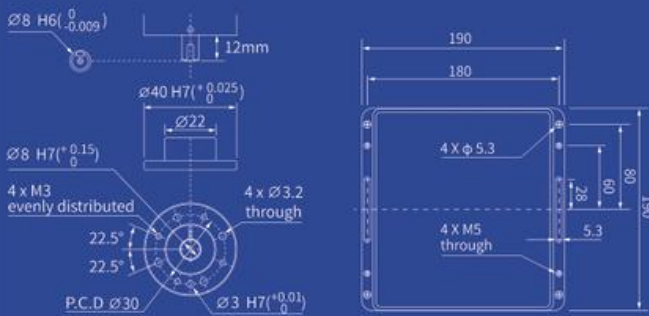


# SPECIFICATIONS



Product Name	MG400	
Product Model	DT-MG400-4R075-01	
Number of robot axes	4	
Payload	500g (Max 750g)	
Reach	440mm	
Repeatability	±0.05mm	
Range of joint motion	J1	±160°
	J2	-25° - 85°
	J3	-25° - 105°
	J4	-360° - 360°
Max. Speed of Joints	J1	300° /s
	J2	300° /s
	J3	300° /s
	J4	300° /s
Power Supply	100-240 V AC, 50/60 Hz	
Rated Voltage	48V	
Rated Power	150W	
Communication	TCP/IP, Modbus TCP	
Installment	Table Installation	
Weight	8kg	
Base Size	190mm × 190mm	
Working Environment	0 °C -40 °C	
Application Software	DobotStudio 2020, SCStudio	

## Base Mounting Holes



	Interface	Digital Input	16
		Digital Output	16
		Ethernet	2
		USB 2.0	2
		Encoder Input	1

	Terminal Interface	Digital Input	2
		Digital Output	2
		Airway	1





# MEET YOUR NEW GENERATION OF CO-WORKER

Meet your new generation of co-workers! You can increase flexibility, quality, speed of production and enhance your employees' efforts by deploying a Collaborative Robot. With over 25 years of experience in automating production operations, Handling Concepts can help you to integrate leading edge robotic arm solutions in your workplace.

## Consistent Results

Robots never get tired. A Cobot will consistently and accurately complete your repetitive tasks.

## Faster Payback Period

Easy programming and flexible automation enable Cobots to provide value quickly and effectively.

## Increased Productivity

Speed and precision increases output consistently and reduces the risk of product defects.

## Handling Concepts' Cobot Solutions

Handling Concepts is passionate about elevating British Engineering by enabling UK manufactures to increase productivity safely.

- ✓ Affordable
- ✓ Intuitive
- ✓ Flexible

As your West Midlands and UK integrator, you can rely on Handling Concept's 25 years of materials handling problem solving to help you find the right Cobot solution for your business. You can unlock more value by investing in a machine assisted workforce. Contact us to learn more.



Contact Us



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# BENEFIT FROM A RANGE OF SERVICES

Handling Concepts' vision is to become the UK's leading company in materials handling equipment. With a goal of improving safety and efficiency, you can trust in a commitment to deliver impeccable customer service and outstanding engineering expertise. You can benefit from a range of services tailored to your needs, including:

- ✓ Providing materials handling equipment
- ✓ Bespoke manufacturing solution planning
- ✓ Full installation services
- ✓ Machine inspections and maintenance services
- ✓ Continued post-project support
- ✓ Sales of critical spares packages
- ✓ Equipment training help

## Committed to You

You can be confident that your satisfaction and worker safety will be at the forefront of every project. Take confidence from the power of working closely with a dedicated team, founded on professionalism, collaboration, innovation, flexibility, and a prime focus on helping you find the right handling solution that addresses your pain points and remains within your constraints.

Reach out today to discover how you can solve your manual handling headache.



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- 
- Autonomous Construction Equipment
  - Balance Trolley
  - Balanced Manipulator Arm
  - Bespoke Lifting Equipment
  - Collaborative Robots
  - Critical Spares Package
  - Hydraulic Gripper
  - Jib Crane
  - Lifting and Rotate Column
  - Light Crane System
  - Manual Clamp Gripper
  - Mobile Manipulator
  - Overhead Cranes
  - Overhead Telescopic Mast
  - Pneumatic Gripper
  - Pneumatic Rope Balancer
  - Scissor Grab Gripper
  - Scissor Lift Table
  - Service Plans
  - Special Purpose Machinery
  - Stacker Trucks
  - Travelling Slewing Jib Crane
  - Trolley for an Electric Tug
  - Turning Gripper
  - Vacuum Gripper
  - Vacuum Lifting Beams
  - Vacuum Tube Lifter



# **HANDLING CONCEPTS**

**ENGINEERED HANDLING SOLUTIONS**

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