English

Rainbow Robotics
Collaborative Robots

RB Series

RAINBOW ROBOTICS

RB-Weld

www.rb-weld.com

BUILDING THE FUTURE

Our value lies in building robots that coexist and connect with humanity by enriching people's lives.

ROBOT FOR COEXISTENCE AND COOPERATION

Rainbow Robotics

Rainbow Robotics is a robot platforms company founded by a group of experienced researchers at the KAIST Humanoid Robot Research Center (HUBO Lab). From the world's best disaster response robots to cooperative robots (cobots) developed in-house and in Korea, Rainbow Robotics invests its energy and resources in commercializing robots by securing its own technology with relentless research and development, and by providing outstanding robots at reasonable prices.

Using humanoid robotics technology, Rainbow Robotics researches and develops a wide variety of robots, including cobots, autonomous mobile robots, medical robots, quadruped walking robots, and astronomical mounts, and the company is always looking for new opportunities to expand into new areas of business.

'We touch the core'
Moving forward, Rainbow Robotics aspires to leverage its superior technological capacities to become a leader in the global robotics field.

Company History

2011.02	Established Rainbow Robotics Co., Ltd. (Original company name: Rainbow Co., Ltd.)
2011.05	Established an affiliated research institute
2011.07	Mount technical service agreement signed with Korea Astronomy and Space Science Institute
2011.12	Exported six HUBO II units to the MIT of the United States, with support from the US National Science Foundation
2013.09	Exported two HUBO II units to Google Inc., USA
2014.01	Acquired the "Venture Company" certification
2015.06	Participated in the DRC Finals competition hosted by DARPA as TEAM-KAIST (Final Winner)
2015.09	Operated MOUNT, the electronic and optical space object monitoring system of Korea Astronomy and Space Science Institute
2015.12	Exported four units of DRC-HUBO+ to the Naval Research Laboratory, USA
2016.02	Supplied LIG Nexwon with mount drivers
2017.07	Secured KRW 10 billion in investment (venture capital)
2018.02	Service contract for the operation of humanoid robot experience service during 2018 Pyeongchang Winter Olympic Games, the Ministry of Trade, Industry, and Energy, South Korea
2019.07	Launched the RB series (collaborative robot)
2020.04	Acquired the "ISO 9001:2015" Quality
2020.07	Signed a service contract to design a satellite monitoring telescope system for the Korea Astronomy and Space Science Institute
2020.08	Delivered the LIG Nex1 internal gimbal driving assembly, and 1 other product
2021.02	Rainbow Robotics Co., Ltd. listed on KOSDAQ (277810)
2021.03	Acquired NSF certification for the RB-N series (NSF/ANSI 169)

Cobot that works with workers

RB Series

Rainbow Robotics' cobot RB series is a next-generation 6-axis robotic arm.
RB series features multiple products (RB5-850, RB3-1200, and RB10-1300) to suit the user's work environment, and all products have the CE and KCs certifications approved by the global certification body TUV SUD. (ISO 13849-1, Cat.3, PL d, and ISO 10218-1 , ISO/TS 15066)

RB Series Lineup

RB5-850 RB3-1200 RB10-1300 RB3-630 (Scheduled Release) RB16-900 (Scheduled Release)

+ Built-in Pneumatics Option (A1, A2) | + RB-N Series

Key Features

Securing high levels of performance and great price competitiveness by internalizing the production of core components

Rainbow Robotics develops and uses core components required in its cobots, such as actuators, encoders, brakes, and controllers, in-house. With these components, the RB series can deliver high driving speeds, precise controls, and braking performance without any play or instability in the braking system. Moreover, the RB series is much more reasonably priced than the competition (30% cheaper) thanks to Rainbow Robotics' extensive use of in-house developed parts.

Key components of the collaborative robots developed by Rainbow Robotics

Actuator	Encoder	Brake	Controller
			

Cobot with built-in humanoid robotics technology

Rainbow Robotics is the company that developed HUBO, a bipedal robot featuring the best robotics technology available in the market today. Using humanoid robotics technology, Rainbow Robotics has developed the RB series (Rainbow Robotics' dedicated line of cobots). Each RB series cobot is equipped with a collision detection system, a gravity compensation device, and a sophisticated motor control system.

Software to boost user's convenience

RB series features a Linux-based, real-time robot operating system developed independently by Rainbow Robotics. The operating system, which uses a supervisory control algorithm, maintains and manages the performance of each cobot, and supports the execution of a given task within a predictable time range. This enables smooth movement (eliminates choppy robot movements), and reduces the time required for each move or action. Furthermore, if a cobot requires any additional functions or upgrades to its system operations, Rainbow Robotics can address the issue with a S/W update.

RB5-850

RB5-850 is the standard model of the RB series, with a max load capacity of 5 kg and a max work radius of 850 mm.
It can be deployed as an all-purpose unit in manufacturing, such as production, assembly, and components fastening, and in service industries such as food and beverage systems, disinfection/sanitizer systems, and robot studios.

Specification		
Payload	5 kg	
Reach	850 mm	
Repeatability	± 0.05 mm	
Footprint	∅ 173 mm	
Materials	Aluminum, plastic, and steel	
Tool connector type	M10 12-pin connector (12/24V, ~2A)	
Cable length (Robot arm)	5 m	
Weight	22 kg	
Operating environment	IP 66 / 0-50 °C	
Wattage	200W with the standard program	
Noise	Less than 65dB(A)	
Joint range	J1 : ± 360 °	± 180 °/s
	J2 : ± 360 °	± 180 °/s
	J3 : ± 165 °	± 180 °/s
	J4 : ± 360 °	± 180 °/s
	J5 : ± 360 °	± 180 °/s
	J6 : ± 360 °	± 180 °/s

※ Specifications may change to improve performance.

RB3-1200

RB3-1200 has a payload of 3kg, and a range of up to 1,200mm. It is the model that boasts the largest working radius among all existing small-load cobots currently on the market. It can perform complex tasks, including welding, grinding, and CNC machine tending, and it can be used in combination with an autonomous mobile robot (AMR).

Specification		
Payload	3 kg	
Reach	1200 mm	
Repeatability	± 0.05 mm	
Footprint	∅ 173 mm	
Materials	Aluminum, plastic, and steel	
Tool connector type	M10 12-pin connector (12/24V, ~2A)	
Cable length (Robot arm)	5 m	
Weight	22.4 kg	
Operating environment	IP 66 / 0-50 °C	
Wattage	200W with the standard program	
Noise	Less than 65dB(A)	
Joint range	J1 : ± 360 °	± 180 °/s
	J2 : ± 360 °	± 180 °/s
	J3 : ± 165 °	± 180 °/s
	J4 : ± 360 °	± 180 °/s
	J5 : ± 360 °	± 180 °/s
	J6 : ± 360 °	± 180 °/s

※ Specifications may change to improve performance.

RB10-1300

RB10-1300 has a payload of 10kg and a maximum range of 1300mm, meaning it has the longest reach among all cobots in the RB series. RB10-1300 is perfectly suited for working with heavy objects from a distance (e.g. logistics and assembly automation).

Specification		
Payload	10 kg	
Reach	1300 mm	
Repeatability	± 0.05 mm	
Footprint	∅ 196 mm	
Materials	Aluminum, plastic, and steel	
Tool connector type	M10 12-pin connector (12/24V, ~2A)	
Cable length (Robot arm)	5 m	
Weight	37.1 kg	
Operating environment	IP 66 / 0-50 °C	
Wattage	350W with the standard program	
Noise	Less than 65dB(A)	
Joint range	J1 : ± 360 °	± 120 °/s
	J2 : ± 360 °	± 120 °/s
	J3 : ± 165 °	± 180 °/s
	J4 : ± 360 °	± 180 °/s
	J5 : ± 360 °	± 180 °/s
	J6 : ± 360 °	± 180 °/s

※ Specifications may change to improve performance.

Built-in Pneumatics Option (A1, A2)

Rainbow Robotics also offers a built-in pneumatic line, which makes its cobots much easier to use (eliminates the need to arrange and organize cables). The built-in pneumatic option is compatible with all RB series products. Users can select either A1 or A2 according to their pneumatic and signal lines.

Model Name	Pneumatics line	Signal line
RB5-850A1	4 EA(4∅ tube)	N
RB5-850A2	4 EA(4∅ tube)	12 Pin(AWG28)
RB3-1200A1	4 EA(4∅ tube)	N
RB3-1200A2	4 EA(4∅ tube)	12 Pin(AWG28)
RB10-1300A1	1 EA(8∅ tube)	N
RB10-1300A2	1 EA(8∅ tube)	12 Pin(AWG28)

※ Specifications may change to improve performance.
※ In addition, when applying the option, it is necessary to check the driving range and operating environment.

Scheduled Release

RB3-630

RB3-630 is a compact, high-precision model with a payload of 3kg and a maximum range of 630mm.
With joints arranged using S-pipes, RB3-630 is efficient when executing contour motions often used in welding and bonding, and can be used for IT, electronics, and bio services applications.

Specification		
Payload	3 kg	
Reach	630 mm	
Repeatability	± 0.05 mm	
Footprint	∅ 128 mm	
Materials	Aluminum, plastic, and steel	
Tool connector type	M10 12-pin connector (12/24V, ~2A)	
Cable length (Robot arm)	5 m	
Weight	11 kg	
Operating environment	IP 66 / 0-50 °C	
Wattage	100W with the standard program	
Noise	Less than 60dB(A)	
Joint range	J1 : ± 360 °	± 180 °/s
	J2 : ± 360 °	± 180 °/s
	J3 : ± 150 °	± 180 °/s
	J4 : ± 360 °	± 180 °/s
	J5 : ± 360 °	± 180 °/s
	J6 : ± 360 °	± 180 °/s

※ Specifications may change to improve performance.

Scheduled Release

RB16-900

RB16-900 has a payload of 16kg and a maximum range of 900mm, meaning it can handle the heaviest load among all cobots in the RB series. RB16-900 is effective when working with heavy loads (e.g. packaging, courier transportation, palletizing, and assembly automation).

Specification		
Payload	16 kg	
Reach	900 mm	
Repeatability	± 0.05 mm	
Footprint	∅ 196 mm	
Materials	Aluminum, plastic, and steel	
Tool connector type	M10 12-pin connector (12/24V, ~2A)	
Cable length (Robot arm)	5 m	
Weight	32 kg	
Operating environment	IP 66 / 0-50 °C	
Wattage	350 W with the standard program	
Noise	Less than 65dB(A)	
Joint range	J1 : ± 360 °	± 180 °/s
	J2 : ± 360 °	± 180 °/s
	J3 : ± 165 °	± 180 °/s
	J4 : ± 360 °	± 180 °/s
	J5 : ± 360 °	± 180 °/s
	J6 : ± 360 °	± 180 °/s

※ Specifications may change to improve performance.

Robot Control Box

Robot control box is a device that controls the movement of the robot arm according to the program written by the user.
Equipped with digital and analog input/output ports. Various equipments and devices can be connected and used.

Standard Control Box

Specification	
I/O ports	Digital input 16 (PNP)
	Digital output 16 (PNP)
	Analog input 4 (0~10V)
	Analog output 4 (0~10V)
	RS-232/422/485
	Ethernet (TCP/IP, MODBUS TCP, Control Script) Siemens S7, OMRON Fins, Mitsubishi MC, etc
	※ I/O expansion modules available
Power source	100-240V AC, 50-60 Hz
Size	454 x 240 x 416.2 mm
Weight	RB3-1200/ RB5-850 20.3 kg
	RB10-1300 22.2 kg
Materials	EGI (electric galvanized steel sheet)

DC Control Box

Specification	
I/O ports	Digital input 16 (PNP)
	Digital output 16 (PNP)
	Analog input 4 (0~10V)
	Analog output 4 (0~10V)
	RS-232/422/485
	Ethernet (TCP/IP, MODBUS TCP, Control Script) Siemens S7, OMRON Fins, Mitsubishi MC, etc
	※ I/O expansion modules available
Power source	19~72V DC
Size	380 x 182 x 270 mm
Weight	11.5 kg
Materials	SUS 304
Remarks	※ Four fixing brackets provided

※ Specifications may change to improve performance.

I/O expansion module

RB series has a total of 40 I/O ports (default configuration). If more I/O ports are required, users can add ports without using additional equipment, such as a PLC, using the I/O expansion module.

Specification	
I/O ports	Digital input 16 (PNP)
	Digital output 16 (PNP)
	Analog input 4 (0~10V)
	Analog output 4 (0~10V)
Power source	100-240V AC single phase, 50-60 Hz
Size	403 x 313 x 110 mm
Weight	500 g
Materials	Aluminum

※ Specifications may change to improve performance.

Teaching Pendant

Rainbow Robotics' cobots are easy to program using the Rainbow Robotics Teaching Pendant.
Moreover, the icon-based GUI allows users to configure the interface to suit their required conditions.
The user-friendly GUI also makes maintenance easier, improves security, and enables intuitive programming.
Teaching Pendant is compatible with Android OS-based smartphones, tablet PCs, and Windows OS-based devices.

Main Features

User's convenience
Rainbow Robotics' Teaching Pendant is a lightweight, highly responsive product, and it can be connected via wired or wireless options. Also, a single Teaching Pendant can control multiple robots.

Program configuration
Users can confirm and load previously created programs through the SubProgram and Template functions. The loaded program is automatically grouped so that the user can check the full overview.

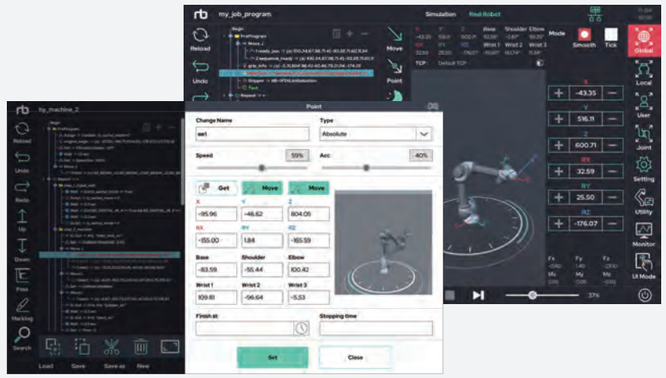
Jog-based interface
When writing a program, a robot often has to be repositioned or relocated. RB series cobots have a jog dial next to the programming window. Users can use the jog dial to move the robot and add the desired commands.

Digital output
Users can control the entire port by selecting either ON or OFF. Furthermore, various options such as a bit combination output and pulse output are available for digital output.

Program tree viewing & processing
Users can access the program summary through the program tree, and functions such as zoom/scroll can help view the content with greater accuracy.

Real-time monitoring
Teaching Pendant has debugging and monitoring functions to check the value of each selected variable. While the program is running, users can check the selected variable via a pop-up, and check variables in real-time using the monitoring function.

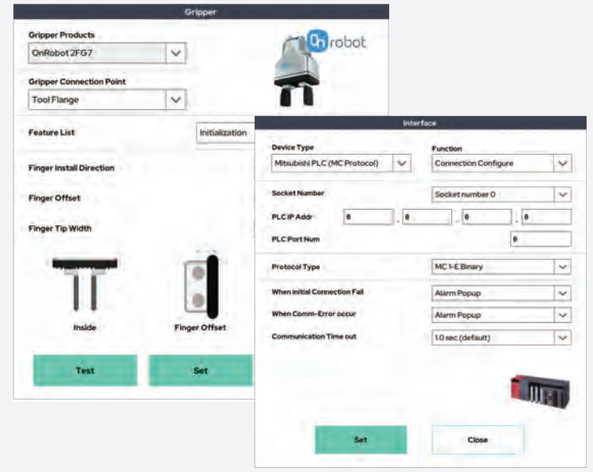
UI

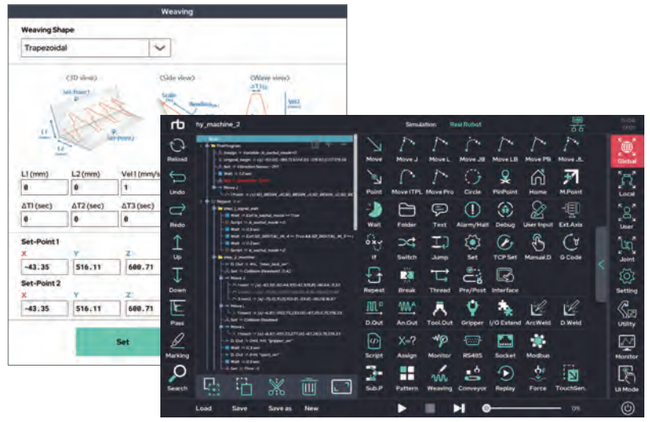


Easy to Handle
The operation and movement of the robot is easy with its simple and intuitive UI.
Using a touch screen and/or joystick, operate the robot intuitively and quickly.

Various Accessories
Our robots support various gripper and sensors such as Robotiq/OnRobot (simply plug-and-play).
The robot and various accessories can be used without having to install a separate program.

Connectivity
Our robots can communicate with various PLC / Sensor / Welder / HMI using its built-in communication function. They can exchange data with various devices without any additional programming.





Various Functions
The Rainbow Robotics program offers a variety of built-in functions. Users can quickly access available functions by inputting a few setting values.