ROKAE Collaborative Robot

Intelligent Palletizing Solution

ROKAE Collaborative Robot Palletizing Workstation

Create a 0-programming intelligent palletizing solution for customers ■

- Complete installation and debugging within **1 hour**
- Set a new stack type within **5 minutes**
- **9 to 13** boxes per minute
- Create up to **1,000** palletizing paths for a single recipe

- The maximum supported pallet size is **1,400mm×1,400mm**
- Stack **2 types of** products at a time
- Support **label orientation**
- Achieve free switch between **single mode and double suction** mode

Flexible collaborative robot

Heavy-payload flexible collaborative robot for palletizing, with a maximum payload of 25 kg, which is safe, efficient, and cost-effective

Workstation base

Portable mobile fixed/lifting base
The maximum palletizing height is 1,950 mm/2,550 mm

Palletizing process package

13.3-inch high-sensitivity capacitive touch screen intelligent palletizing package, 0 programming

Pallet positioning system

Pallet detection and mechanical positioning system, with auxiliary positioning accuracy of 1 mm

End suction cup

High-suction sponge/vacuum suction cup
Applicable to products of various sizes, weights, and materials

Control button

One-key start, pause, emergency stop, and reset of the device

Roller line (optional)

Adjustable height 650 mm–730 mm for quick adaptation to the production line

Electric box control cabinet

Integrated electric control cabinet with low-energy consumption and high integration

Safety system (optional)

Partition cooperation mode and safety stop function are available due to optional safety lidar/safety grating

Product Advantages ▬

High Payload and High Takt

- The maximum payload is 25 kg, and the maximum palletizing height is 2,550 mm, meet the stacking needs of industries such as food, beverage, and medicine.
- Five-axis flexible collaborative robot for palletizing to avoid singularity, with a palletizing speed of 9-13 boxes/minute, which significantly improves production efficiency.
- Based on joint multi-sensor fusion vibration suppression technology, the robot runs smoothly without abnormal jitter during high-speed and heavy-payload operations.

Ease of Use

- Self-developed intelligent palletizing process package, featuring graphical guidance, touch screen interaction, and operation process with 0 code and 0 programming, can complete the first deployment through one-time direct teaching, even if zero-basis employees can immediately operate.
- It supports one-click start, and can automatically generate palletizing type and palletizing path based on input product and pallet to quickly adjust the palletizing type when switching different products.

Safety and Reliability

- Equipped with an industrial grade torque sensor, independent certified safety controller, and two-channel redundant monitoring, it will lose the safety function in the event of a single failure.
- It supports more than 21 adjustable safety functions such as collision detection based on the torque sensor, virtual wall, and collaborative mode, and has vacuum detection and anti-drop function.
- It is equipped with multiple safety IO interfaces, and can be externally connected to safety radar and safety grating to provide multiple guarantees for production safety.
- It passes the ISO 13849-1/PLd Cat.3, ISO/TS 15066, ISO 12100, ISO 10218-1, and ISO 10218-2 series standards, and meets CE and UL certifications, with trustworthy safety.

Flexible Deployment

- It adopts high integration and modular design and supports plug and play, with an area of approximately 2 m². Just connected to the power source and air source, it can complete the first deployment in 30 minutes.
- Reserve a fork angle position for easy movement. It can flexibly move between production lines, fast line switch and redeployment within 10 minutes.
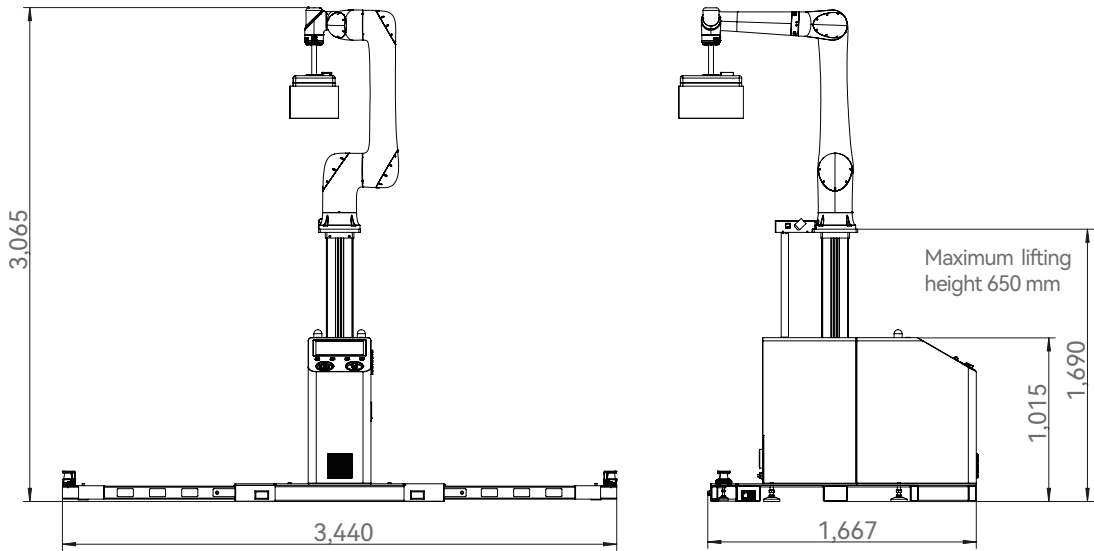
Flexible Production

- It supports multiple production line layouts, peripheral equipment (lifting column, suction cup type) scheme configurations, and fast switch palletizing schemes.
- It supports products of various sizes, weights, and materials, as well as overlapping, forward and reverse staggered, and rotating staggered palletizing types, to meet diverse palletizing needs of all industries.
- It can quickly switch multiple functional scenarios, and adopts human-machine collaboration mode, dual machine collaboration mode, multi-machine collaboration mode for flexible production.

Economic Practicality

- The investment costs can be recovered within 6 to 12 months on average, reducing operational and maintenance costs.

Product Dimension Diagram ▬

Unit: mm

3,065
3,440

Maximum lifting height 650 mm

1,690
1,015
1,667

Technical Parameters ▬

	RKE-PAR14 (fixed)	RKE-PAR14-R ((lifting)	RKE-PAR21 (fixed)	RKE-PAR21-R ((lifting)
Maximum payload* (including suction device)	17 kg		25 kg	
Maximum working radius	2,047 mm		1,798 mm	
Maximum pallet size	1,400 mm×1,400 mm		1,200 mm×1,200 mm	
Maximum palletizing speed*	9-13 boxes/minute		9-13 boxes/minute	
Maximum speed of joint	Axis 1/2/3: 120°/s, axis 4/5: 234°/s		Axis 1/2/3: 120°/s, axis 4/5: 234°/s	
Maximum palletizing height* (including pallets)	1,950 mm	2,550 mm	1,650 mm	2,250 mm
Repeated positioning accuracy	±0.05 mm	±0.05 mm	±0.05 mm	±0.05 mm
Communication mode	TCP/IP，Modbus TCP，EtherCAT，Profinet, Ethernet/IP，DeviceNet，CC-Link，CC-Link IE Field Basic			
IO quantity	32 digital input, 32 digital output			
IP protection level	IP67 for robot body, IP32 for others			
Temperature range	0-50℃			
Air source	0.5 Mpa-0.8 Mpa, air consumption: 400 L/min			
Power source	AC 200-240V，50Hz			
Total power	2.5 kw	3.5 kw	2.5 kw	3.5 kw
Total weight*	About 360 kg	About 400 kg	About 360 kg	About 400 kg
Floor area	1,300 mm×1,667 mm			
Compatible product size	Length (250-550) mm × width (200-500) mm × height (150-400) mm, those of special sizes shall be equipped with a suction device			
Compatible product surface	Ordinary cardboard box surface, various smooth surfaces, various metal surfaces			
Safety function	Support over 21 adjustable safety functions such as collision detection, virtual wall, and cooperative mode			
Certification	ISO 13849-1/PL d, ISO 10218-1, ISO/TS 15066, ISO 12100, EU CE Certification, NSF Certification			

- When equipped with a standard end suction cup, the maximum payload of the product is 14 kg or 21 kg.
- The actual palletizing speed depends on product weight, size, palletizing type, etc.
- The actual palletizing height depends on the product size, palletizing type, and gripper type. When using a pallet of 1,200 mm × 1,200 mm, the maximum palletizing height can generally be achieved.
- The total weight includes the weight of the robot and the end suction cup.

Configuration List ▬

Name	Quantity	Option	Remarks
Collaborative robot	1	Standard configuration	CR25/5-C collaborative robot or CR17/5-C collaborative robot, controller
Electric box control cabinet	1	Standard configuration	Integrated control cabinet
Workstation base	1	Standard configuration	Mobile fixed column/lifting column base, pallet positioning system
Palletizing process package	1	Standard configuration	Programming-free palletizing process package
End suction cup	1	Standard configuration	High-suction pneumatic sponge suction cup
Safety system	2	Optional	Safety radar/safety grating/safety vision/safety fence
Roller line	1	Optional	Length 1,000 mm × width 750 mm × height 650 mm

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