ROBUSTMOTION

Provide more precise and reliable motion control systems and electric actuators to the world

RM-GB | Application Cases



3C Electronics

3C Electronics - Clamping and Transferring Light and Soft Electronic Components

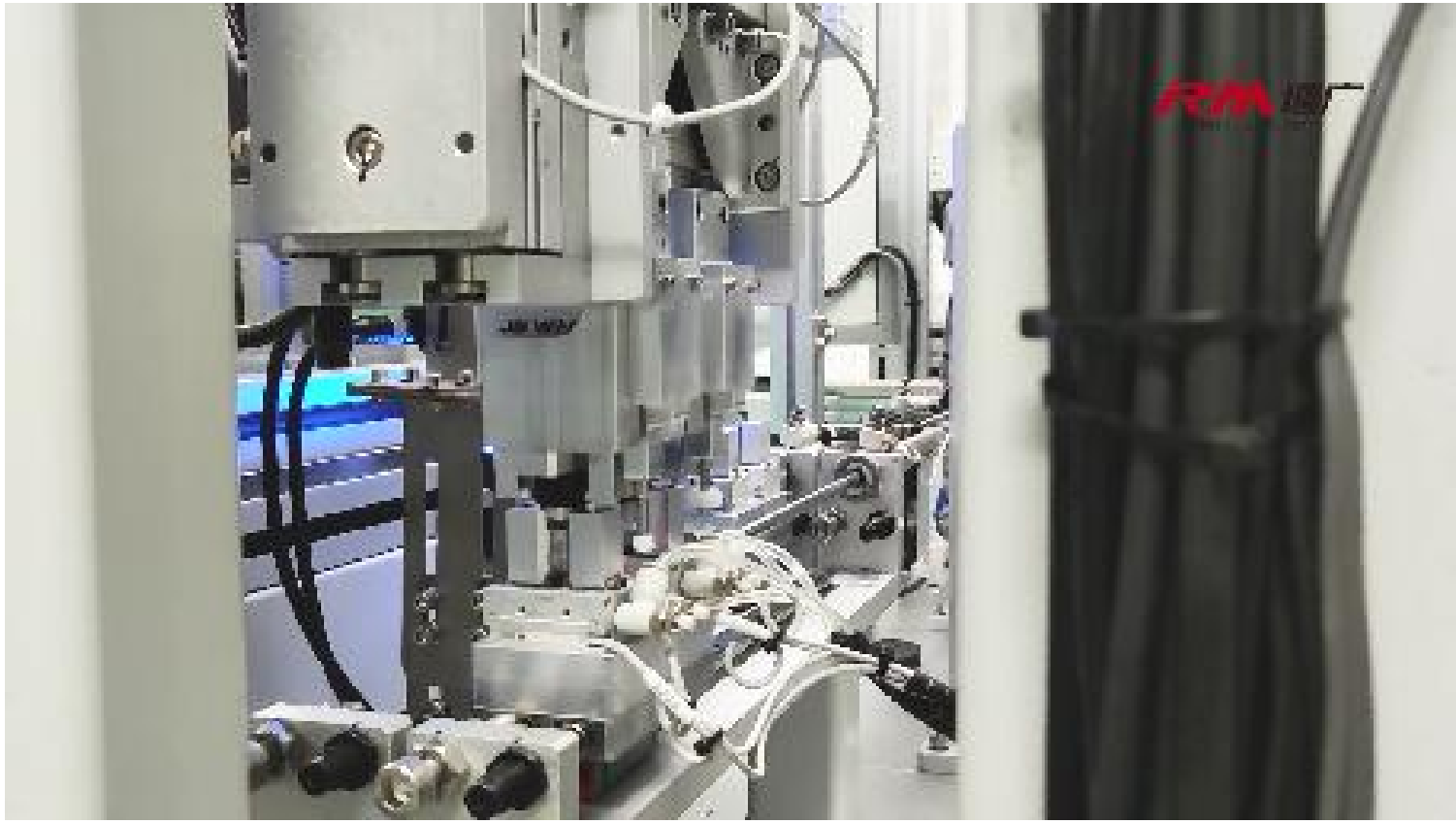


GB-40
Servo Gripper

Reliable strength | Stable clamping
No damage to the workpiece
Compatible Communication
Quick Response

Description:

- Clamps various sizes of light and soft electronic components made of different materials.
- The electric gripper is required to clamp adaptively, and the gripping force output accuracy is within a certain range, so that light and soft electronic components do not deform.



3C Electronics - Assembly of Wearing Parts of Different Specifications



MGBD-11
Micro Gripper-Double Claws



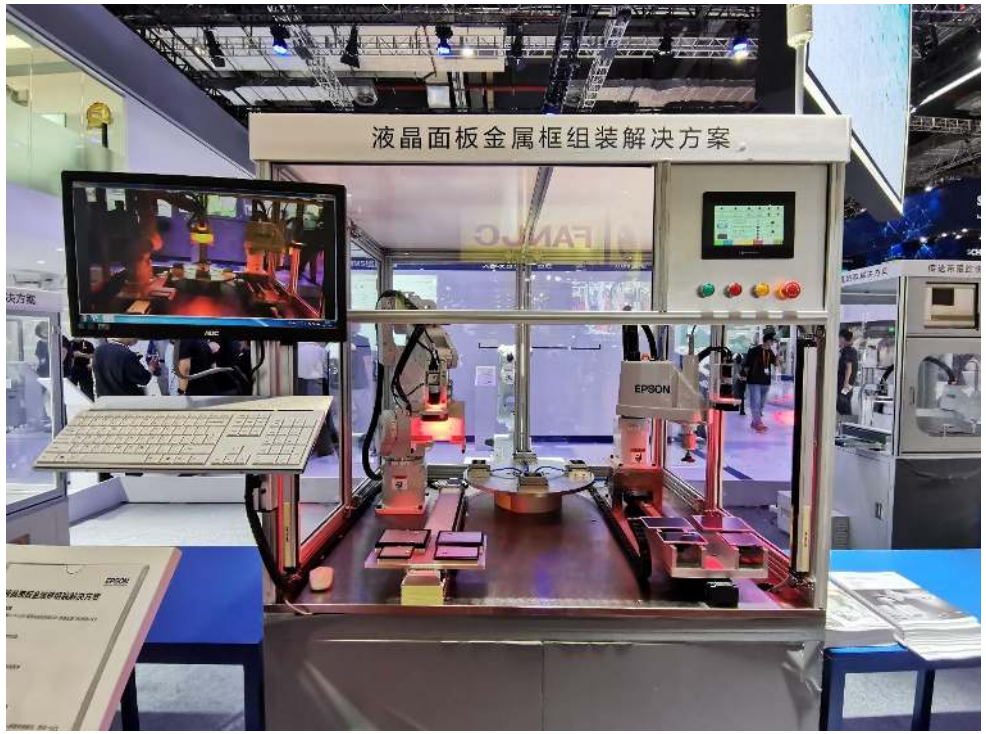
GB-40
Servo Gripper

Description:

- The grippers can be set to different strokes and force to clamp workpieces of various sizes (Quick Changeover)
- Quick clamping
- Approach under constant force (Soft landing)
- Improve overall production efficiency
- Effectively protect products



Cooperate with robot arms to pick up tablets of different specifications



Clamping LCD panel frames of different specifications

3C Electronics - Clamping and Installing Memory Modules



GB-40
Servo Gripper

Reliable strength | Stable clamping
Compatible Communication | Quick Response
No damage to the workpiece

Description:

- Performance, functionality, and control method remain unchanged
- Reducing the occupation of wiring ports on the robotic arm
- Reduce the space occupied by the controller



3C Electronics - Cloud Warehousing System / Automative Feeding for Electronic Product Manufacturing



GB-40
Servo Gripper

Reliable strength | Stable clamping
No damage to the workpiece
Compatible Communication | Fast response
Internal support / external clamping possible

Description:

- In a large 3C electronics production workshop in Wuhan, the tape reel loaded with surface-mount components needs to be stably clamped with inner support and transferred to a specified position to feed the SMT machine.
- RM products are used in SMT intelligent warehousing equipment to realize batch entry and exit of SMT materials. The material tray is lifted and lowered through the cantilever YZ axis and RM-GB-11-20 is used to clamp the material tray to the conveying slide rail, and then the slide rail is sent to the corresponding storage location. When the user needs specific materials during the SMT production process, he only needs to enter the unique code of the material or the corresponding material number, and the cloud warehouse will automatically take out the materials without any manual intervention.



3C Electronics - Transfer Electrical Appliance Components with Scara Robot



GB
Servo Gripper

Reliable strength | Stable clamping

No damage to the workpiece

Compatible Communication | Fast response

Internal support/external clamping possible

Description:

- GB Servo Gripper works with SCARA robots to clamp and transfer various shaped and sized electrical components accurately.
- It features fast response and high-speed operation, enabling agile movement within tiny workspaces.



Biomedical

Biomedical - Applied in Gene Sequencers



GB-40
Servo Gripper

Reliable strength
Stable clamping
Quick response
Compatible communication



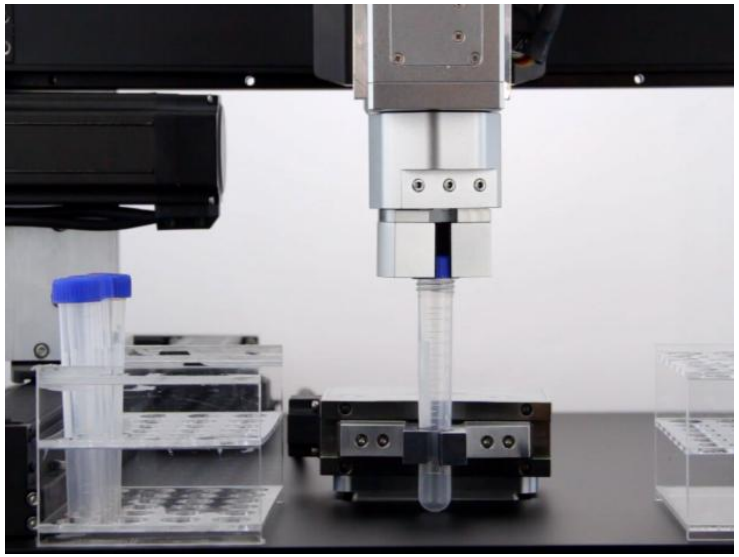
RGM-16
Servo Rotary Gripper

Large torque | Large clamping force
Stable output force | Accurate positioning
Pushing movement can be set



Description:

- They are used for clamping test tubes and for tightening or loosening threaded caps on sample collection bottles, including those on fully automatic sample safety processing workstations and gene sequencers, etc.
- To prevent slipping when twisting the cap, the surface of the clamp is treated.
- It is designed as a caliper to fix the sampling tube. Compared with pure pneumatic machinery, the advantage is that it can adapt to test tubes of different sizes and the output torque is stable.
- High speed, stable and large torque are required.



Biomedical - Automative Testing Machine for Biodegradability



GB-40
Servo Gripper



MGBD-11-14-L
Micro Gripper-Double Claws

Reliable strength | Stable clamping

Fast Response

Compatible communication



Description:

- GB and MGBD, two different models of electric grippers, are used in biological interpretive automated testing equipment, completing the clamping and transfer of different experimental bottles and reagent tubes.
- Large output range and stable adaptive clamping meet the motion performance requirements of the equipment.
- The integrated electric gripper, with a built-in drive and control controller, reduces wiring and additional equipment, making the automation equipment more efficient and smarter.

Biomedical - Transfer Row of Test Tube Trays

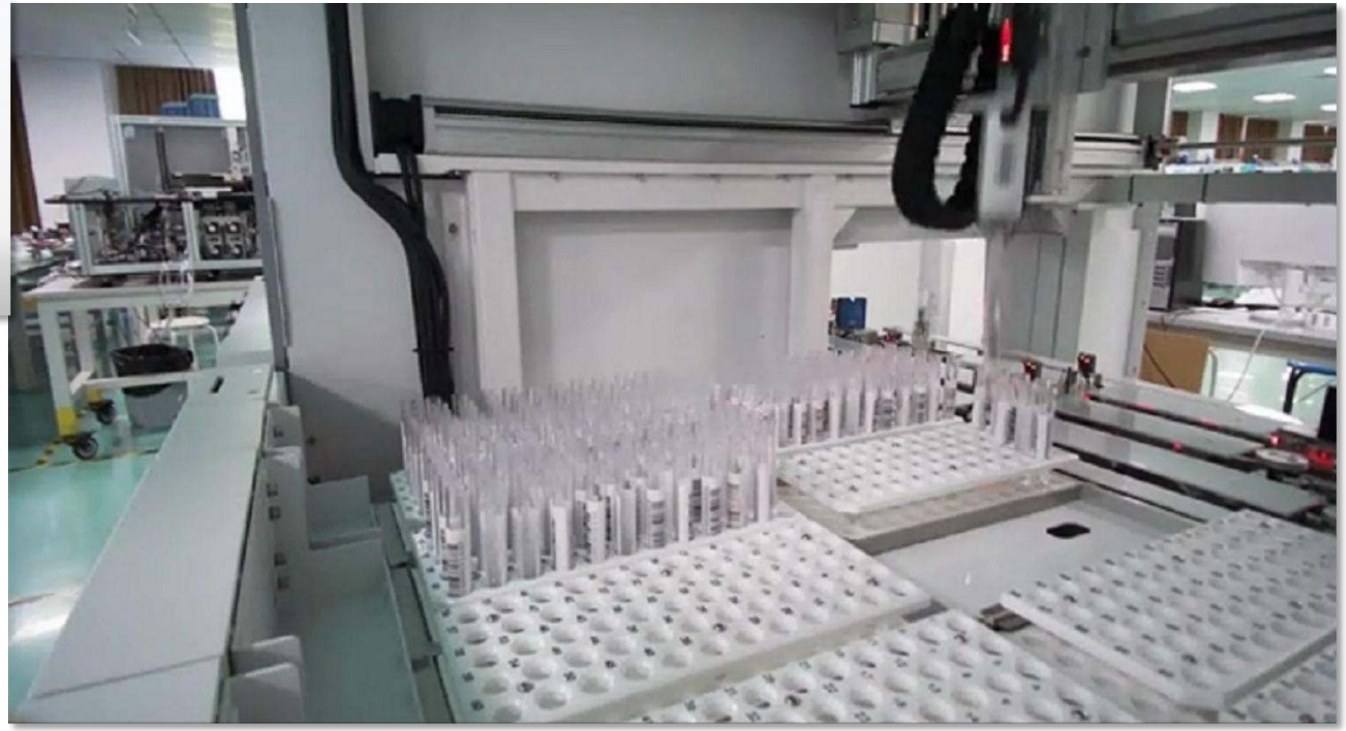


GB-40
Servo Gripper

Reliable strength | Stable clamping

No damage to the workpiece

Compatible communication | Fast response



Description:

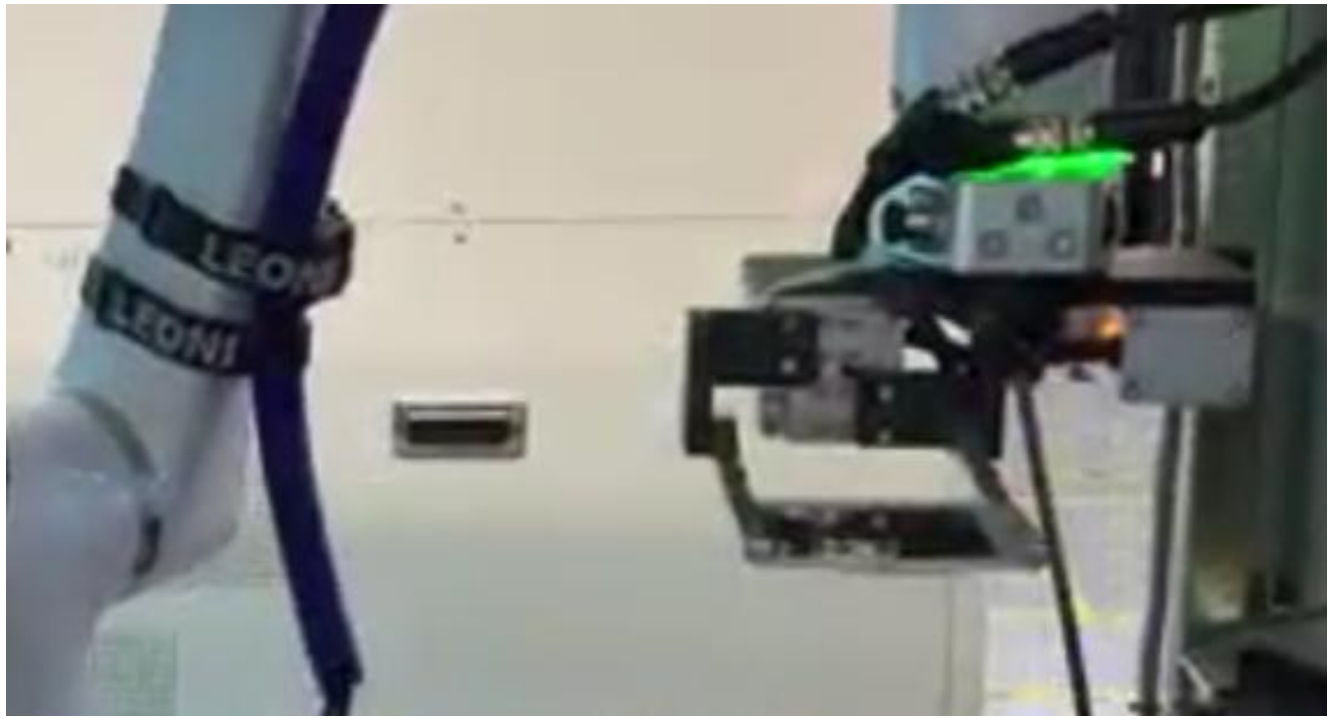
- For testing (virus detection, petri dish biological testing, component analysis and classification, etc.)
- The clamping force is relatively large among similar products, the guide rail is sufficiently rigid, and heavy loads will not affect the guide rail. One load is 2-3kg, which greatly improves work efficiency.
- High-cost performance

Biomedical – Clamping and Transferring of Gene Chips



GB-40
Servo Gripper

Reliable strength | Stable clamping
No damage to the workpiece
Compatible communication | Fast response



Description:

- It is used for gripping a type of gene chip that is thin and easy to crack, which requires high force control.

- The gripper is not allowed to vibrate and can tolerate a certain amount of accidental impact during operation (high reliability).

Biomedical - “Quick Change of Grippers” of Laboratory Automation



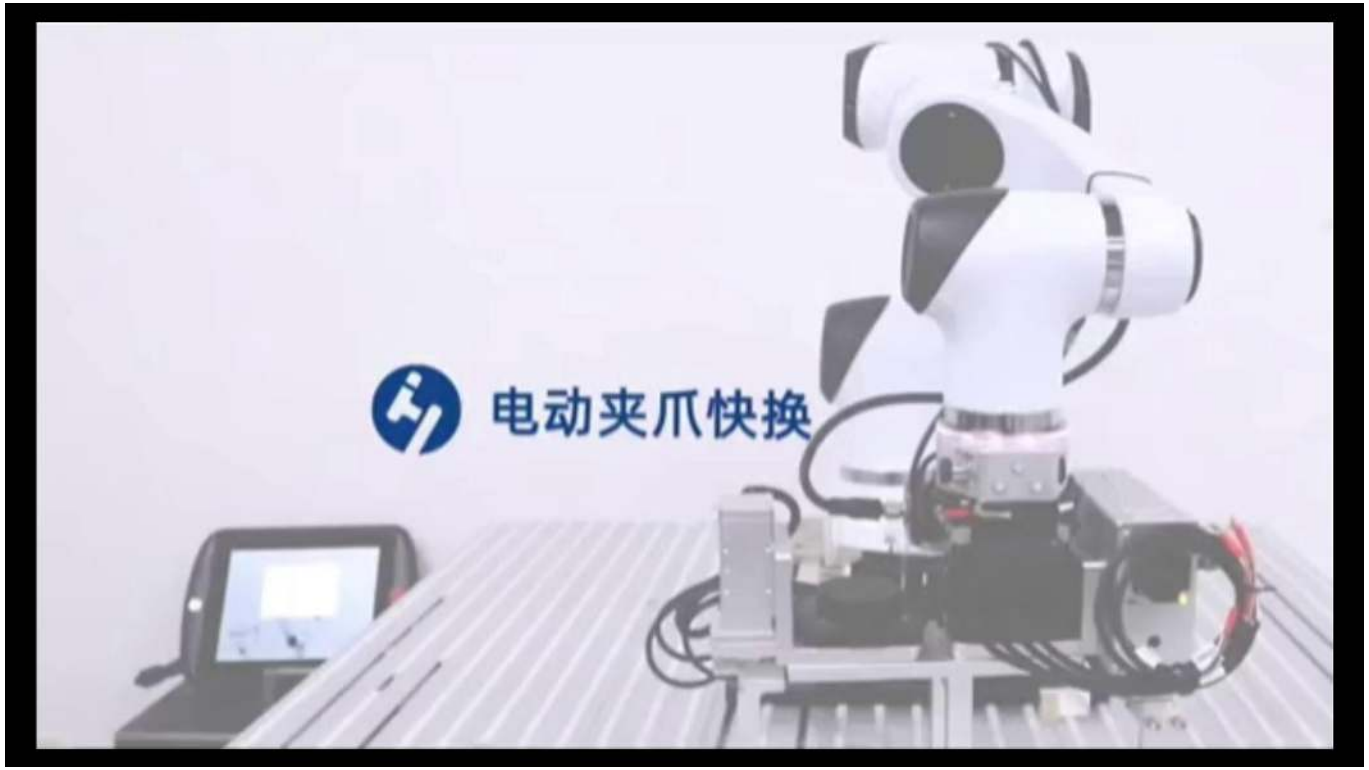
MGBD-11-20
Micro Gripper-Double Claws



GB-60
Servo Gripper



CGBD-11-100
Connecting Rod Gripper-Double Claws



Description:

- They are used for medical research projects in universities. They can stably grip items and quickly change grippers to complete a set of complex actions.

- RobustMotion products support a quick change of gripper function, and the large stroke is compatible with clamping workpieces of different sizes.

New Energy

New Energy - Clamp and Transfer Lithium Battery



GB-170
Servo Gripper

Reliable strength | Stable clamping
Fast response | Large clamping force
No damage to the workpiece
Compatible communication





Description:

- A global large-scale lithium battery production giant has upgraded its production lines in three major factories, using RobustMotion's electric grippers to replace the traditional pneumatic grippers, achieving more flexible production line deployment, more accurate and convenient motion control, and saving energy consumption.
- RobustMotion's electric gripper has a large clamping force and provides a stable and reliable output. It features a self-locking function that prevents the lithium battery from falling during the transfer process, enhancing safety performance.
- With a flat and thin design, multiple electric grippers can be installed side by side for clamping and transfer.

New Energy - Clamp and Transfer Lithium Battery



GB-80
Servo Gripper

Reliable strength | Stable clamping
Fast response | Large clamping force
No damage to the workpiece
Compatible communication

Description:

- Four electric grippers (RM-GB), installed side by side, collaborate with the robotic arm to quickly, stably, and reliably complete the transfer operation of heavy and large lithium batteries.
- The RM series electric grippers have a strong clamping force and stable output, capable of securely clamping multiple batteries at once without causing any damage to them.



New Energy - Clamping and Installation of Battery Cover and Battery Pack Side Beam

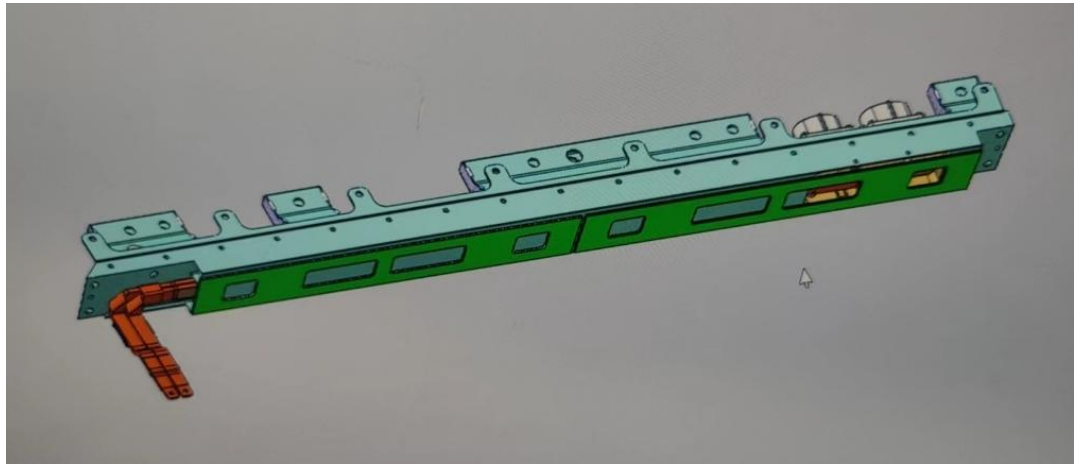


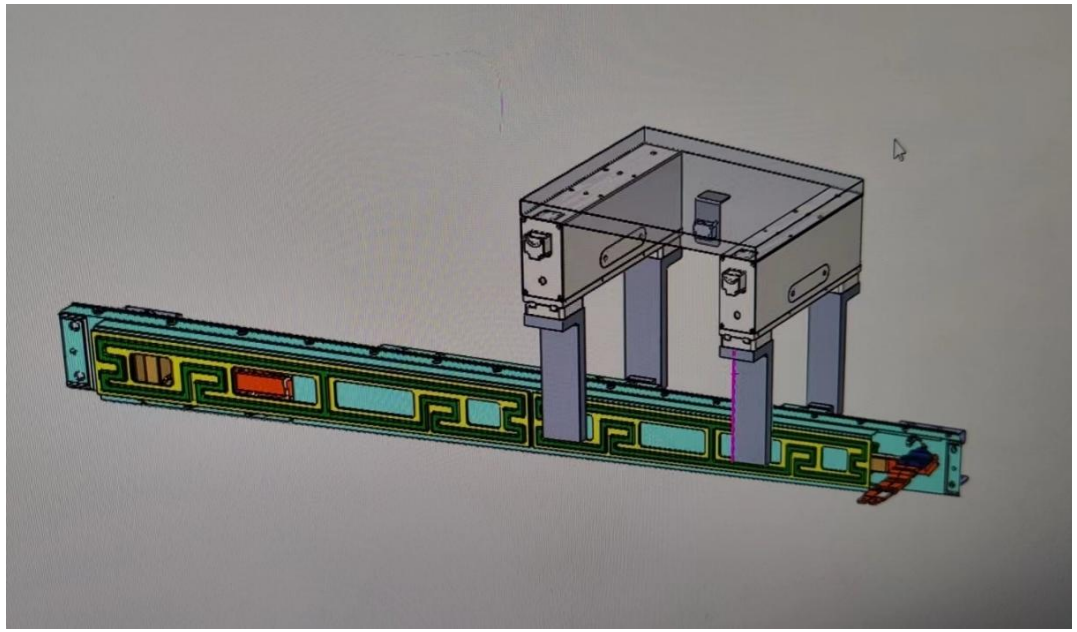
GB-170
Servo Gripper

Reliable strength | Stable clamping
Fast response | Large clamping force
No damage to the workpiece
Compatible communication

Description:

- The space where the workpiece can be subjected to force is limited, and the clamping position is subject to interference.
- The overall weight of the workpiece is up to 8.5kg, and the width ranges from 20-140mm.
- The electric gripper is required to have a large gripping force, large stroke, and stable output.





Automobile Assembly

Automobile Assembly - Clamping, Transferring and Pushing Workpieces



GB-40
Servo Gripper

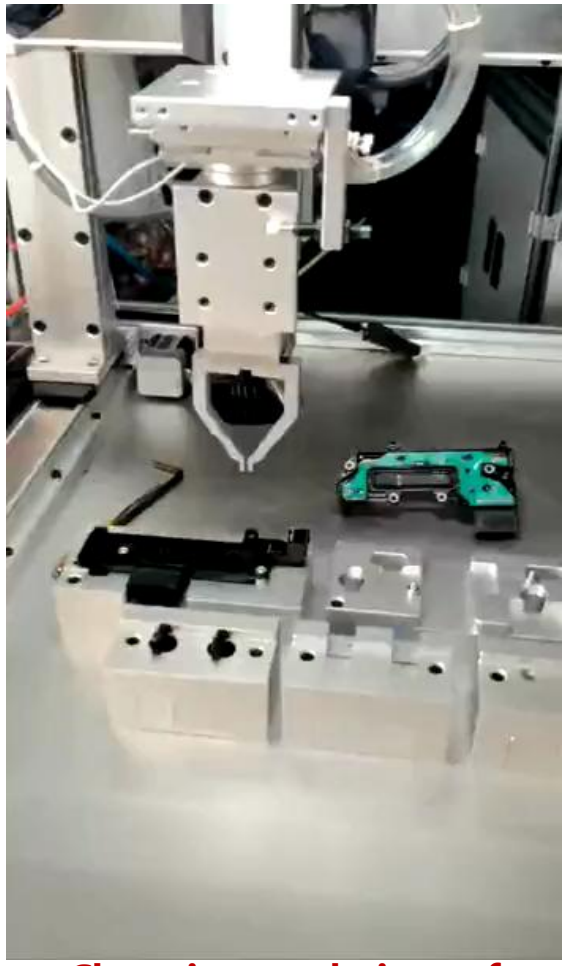
Reliable strength | Stable clamping

Compatible communication

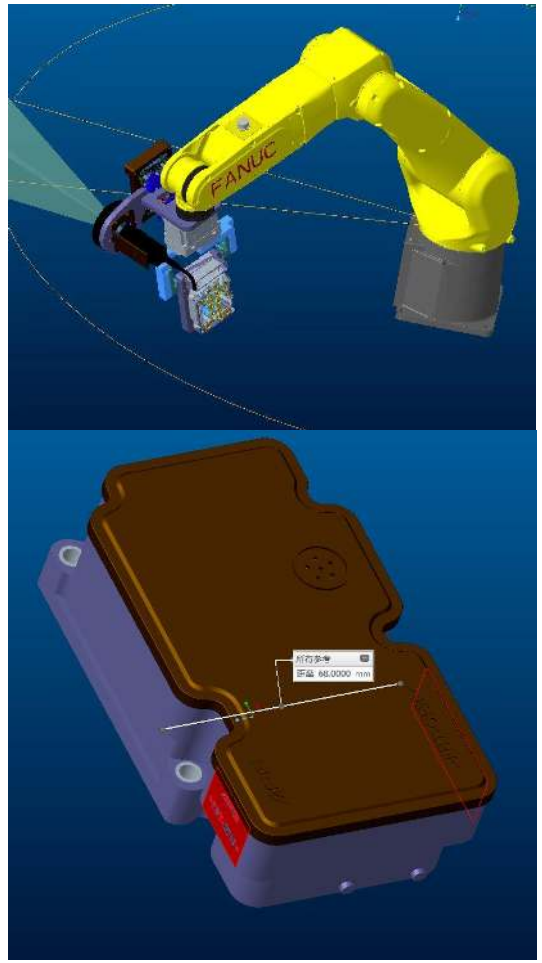
Fast response

Description:

- Quick clamping
- Approach under constant force (Soft landing)
- Improve overall production efficiency
- Effective protect products
- Large clamping force
- Stable output
- Self-locking after power failure
- Support access to mainstream industrial control networks



Clamping workpiece of different sizes



Clamping and transferring car ECU (Electronic Control Unit)

Automobile assembly - Collaborating with Industrial Robots for Transferring Automotive Parts



GB-80
Servo Gripper

Reliable strength | Stable clamping | Drop detection
Compatible Communication | Fast response
Self-locking after power failure

Description:

- Quick clamping
- Approach under constant force (Soft landing)
- Improve overall production efficiency
- Effectively protect products
- Requires stable communication and stable output
- It has a large stroke and can adaptively clamp different car lights to complete the automatic dust removal process.
- Requires regional signal output function to determine the type of car light based on the clamping position
- Programmable required



Collaborating with industrial robots for transferring automotive parts



Cooperate with collaborative robots to adaptively clamp car lights of different sizes for dust removal

Automobile Assembly - Production and Manufacturing of Automotive Electronic Components



GB-17-30
Servo Gripper

Reliable strength | Stable clamping | Drop detection
Compatible communication | Fast response
Self-locking after power failure



Description:

- Use an electric gripper to clamp copper bars (positive and negative poles of automotive electronic components) for loading and unloading
- After clamping the copper bar, a signal feedback of "clamping in place" needs to be given to the upper computer. At the same time, it is required to have functions such as self-locking after power failure and automatic detection of dropped parts.
- Customer feedback that the software debugging interface is simple and easy to use.



Automobile assembly - Precise Positioning, Picking and Placing with 3D Vision



GB-60 / GB-80
Servo Gripper

Reliable strength | Stable clamping

Compatible communication

Fast response







Description:

- The gripper works with the robotic arm's 'AI + 3D vision' to pick and place various internal and external automotive parts at the automotive parts feeding and assembly workstation.

- It features an internal support that prevents damage or scratching to the workpieces.

Automobile Assembly - Connection Power to the Automotive Battery Pack



GB-20
Servo Gripper

Large clamping force

Reliable strength | Stable clamping

Self-locking after power failure

High rigidity | Fast response

Description:

- The RM-GB Servo Gripper clamps the power pack, ensuring stable fitment at the specified position. The gripper connects the power pack to the battery pack, allowing for various inspection and testing operations.

- It enhances the precision and safety of operations, and significantly improves production efficiency through automation.



Precision Manufacturing / Intelligent Automation

Precision Manufacturing - Clamp Braided Ultra-fine False Eyelashes



GB-40
Servo Gripper

Reliable strength | Stable clamping

Drop detection | Fast response

Self-locking after power failure

Compatible communication



Description:

- The grippers are fixed with a long fixture to clamp small and long false eyelashes.
- Requires the action beat to be synchronized and coordinated with other devices

Precision Manufacturing - Strength Tensile Testing of Metal Gasket



GB-60
Servo Gripper

Reliable strength | Stable clamping

Drop detection | Fast response

Self-locking after power failure

Compatible communication

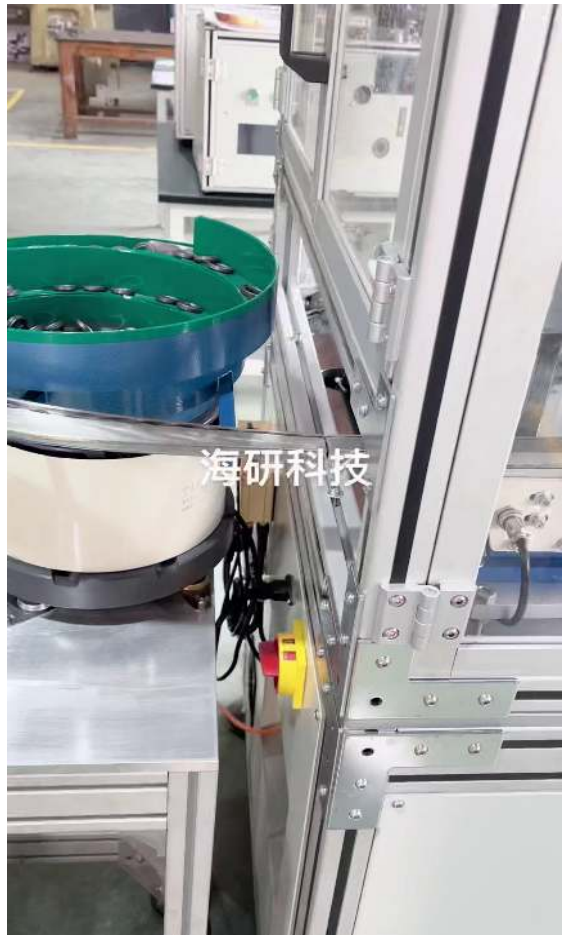
Description:

- The electric gripper has a large clamping force, which can apply a constant force to expand the workpiece for testing the strength of metal gaskets.

- Using the force-position curve provided by the RM software platform, it is possible to monitor the deformation of the metal gasket under constant tensile force. The metal's strength qualification rate can be judged based on the set allowable error range.



Calibrate with a sensor to measure force before use



Perform X and Y direction tensile testing within the equipment

Precision Manufacturing - Assembly and Screw Locking of Electronic Components



GB-40
Servo Gripper

Reliable strength | Stable clamping

Drop detection | Fast response

Self-locking after power failure

Compatible communication



Description:

- The grippers pick up workpieces for assembly and screw locking.
- It is applied to specialized equipment for electronic component processing.

Precision Manufacturing - 3D Printers



GB-17-60
Servo Gripper

Reliable strength | Stable clamping

Drop detection | Fast response

Self-locking after power failure

Compatible communication



Description:

- The customer uses 3D printers for light-curing. The RobustMotion electric gripper is applied in HeyGears' most advanced equipment, a desktop-level fully automatic light-curing 3D printing mass production machine. The printer's material tray needs to be automatically and unmannedly replaced to achieve fully automated continuous printing performance.

- The tray is quite heavy and it needs to be clamped by the RM-GB-17-60 large-load gripper and to be transferred to the cutting area, where the processed finished products are cut off. After that, the tray is placed back into the light-curing device to continue production.

- The gripper is also required to have stable output, fast response, and complete actions within a limited CT.



Precision Manufacturing - Automatic Transportation and Inspection Robot in Substation

Model:

- **Servo Gripper（RM-GB-17-60）**

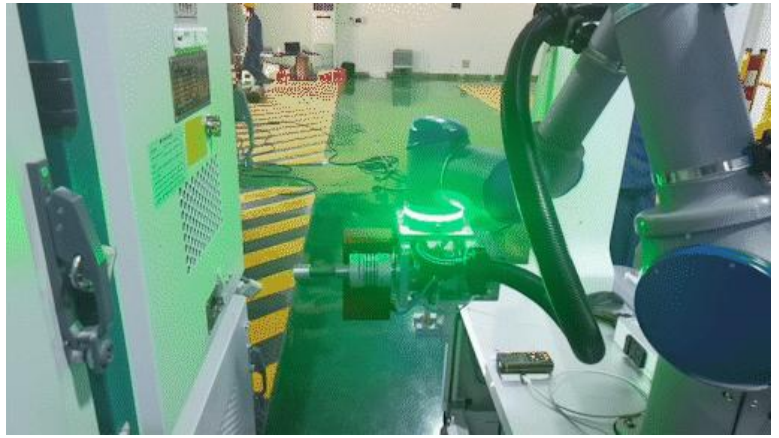
Description:

- The mobile intelligent operation and inspection platform "Kui Niu" used in the substation automatically identifies the position of the hand hole through the 3D depth camera configured at the end, and guides the end integrated tooling to smoothly screw into the operating hand hole, and completes the operation under the control command of the monitoring system. During the rocking-out and rocking-in operation of the car, the torque value and stroke are fed back in real-time.

- The multifunctional end effector composed of RM electric grippers and linear actuators, combined with a six-degree-of-freedom collaborative manipulator and a vision camera, can simulate human hands to achieve predetermined actions accurately. The operating height reaches 2100mm, the operating accuracy is controlled within 1mm, and the overall performance reaches International leading level.

- When a switchgear fails, there is no need for operation and maintenance personnel to take risks to emergency open the equipment. They only need to issue emergency opening instructions to the robot in the main control room, and the robotic arm can press the emergency opening button to remove faulty equipment according to the preset action.





Intelligent Equipment Industry - Bag Suction Action of the Packaging Machine

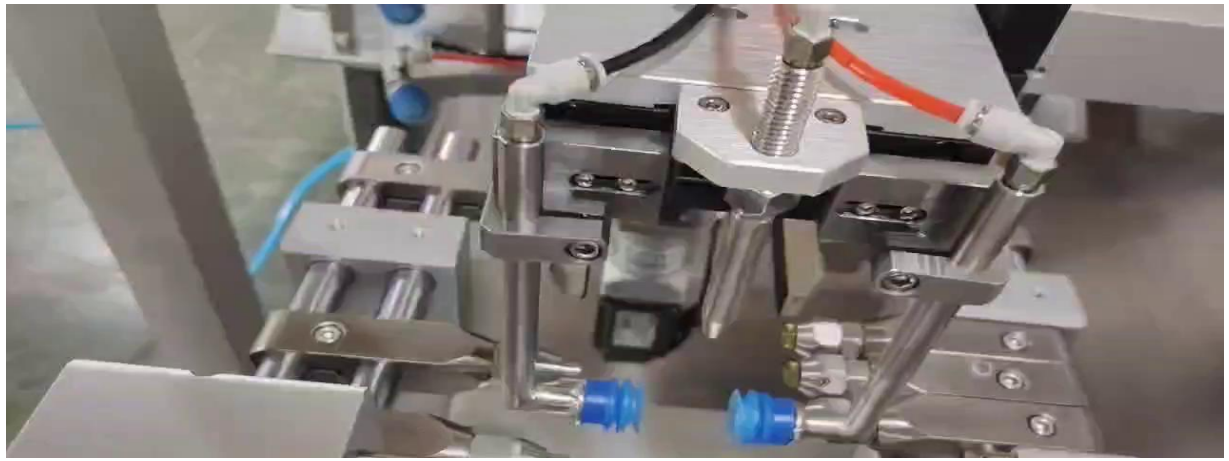


GB-11-40-2
Servo Gripper

Reliable strength | Stable clamping

Drop detection | Large load | Fast response

Self-locking after power failure



- **Description:**

Structure: Installed on the newly developed automated packaging machine equipment

Working scenario: The packaging bag, sucted by the pneumatic cylinder, achieves the opening and closing action by the electric gripper to complete a repetitive cycle action. The action is required to reach 60 times of openings and closings within 1 minute. The packaging bag is light, with no need for any precision requirements.



Intelligent Equipment Industry - Wire Stripping



GB-17-30-2
Servo Gripper

Reliable strength | Stable clamping

Large load | Quick response

Self-locking after power failure

Drop detection



Description:

- The stripping operation is a critical process, which is removing the insulation or protective layer from the surface of the wire to facilitate subsequent connection or assembly work.
- The RM-GB servo gripper is used for removing the cut outer layer. With precise motion control, the gripper can securely hold the wire and apply force at the appropriate position to strip off the wire's outer layer.
- Efficiently removing the wire's outer layer ensures that the exposed part of the wire meets the specified standards and requirements.

Precision Inspection -
Performance Testing of High-precision RTK Measuring Device



GB-11-40-2-ITG
Servo Gripper(Controller Built-in)

Reliable strength | Stable clamping

Large load | Quick response

Self-locking after power failure

Drop detection



Description:

- This gripper is used with a robotic arm for the precision testing process of products manufactured by satellite navigation testing equipment manufacturers.
- The gripper combined with the robotic arm can clamp and transfer the measurement device, enabling for a comprehensive automatic performance test to be conducted at various positions and speeds.

Advantages:

- With the integrated structure, greatly saves the space occupied by the product and simplifies wiring, etc.
- With a built-in driver, supports a quick change function at the end. It is convenient for customers to quickly change the gripper to adapt to devices of different sizes.
- With power-off self-locking function, effectively preventing the risk of falling during transfer（especially the high-value equipment）
- High rigidity with a large and reliable gripping force. The devices being gripped can have a maximum weight of up to 2 KG. There is no situation of the workpiece falling off or the output force decreasing after actual test that RM-GB is shaken quickly during clamping the device.
- Compact and lightweight (Self-weight: 1 Kg), it remains within the safe load range of the combined robotic arm that has a maximum load capacity of 5 Kg, even with the consideration of the extension of the force arm.

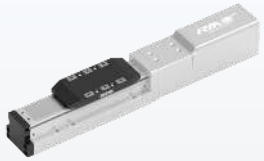
* RTK measuring device(Real-time kinematic) is advanced high-precision, and high-value measuring equipment. It process signals from the Global Positioning System (GPS) or the BeiDou Satellite System (BDS) at high speeds to perform real-time positioning and attitude measurement, achieving centimeter-level positioning accuracy. These devices also support visual targeting and GPS surveying. Widely used in the fields of land surveying, construction engineering, and mining exploration, RTK measuring device typically have a market price of around 3,000 USD each.

Educational Equipment Industry

Educational Equipment - Simulation of Loading and Unloading on a Production Line



GB-11-40-2 Servo Gripper



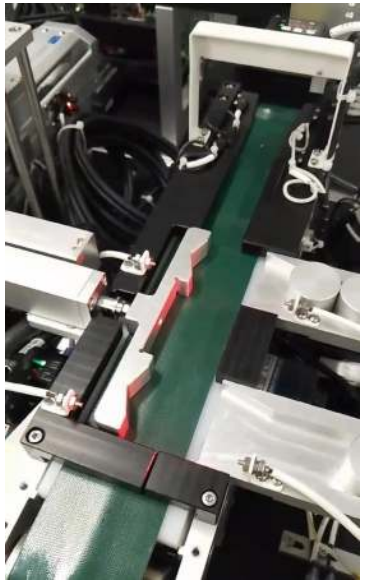
SLD-17-100-5 Straight Linear Slider

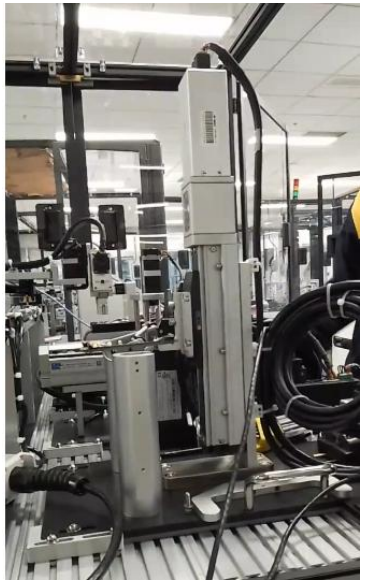


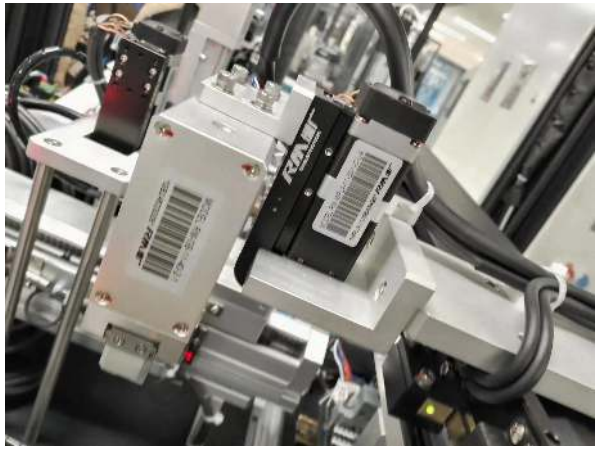
NPLA-11-30 Micro Platform-type Linear Actuator



RLA-08-50 Folding Linear Actuator







Description:

- The SLD moves upward to lift the material in the metal barrel to the specified position. Then NPLA and GB gripper cooperate. NPLA lowers the GB gripper to clamp the material, place it on the conveyor belt, and transport it to the specified position. Then RM-RLA pushes it to the other side.
- The GB gripper uses a 485 control method, while the SLD, MPLA, and RLA utilize a pulse control method, with IO for coordinated output.
- The entire production line involves common material loading, unloading and transportation. The self-developed controller and various control methods facilitate teaching.