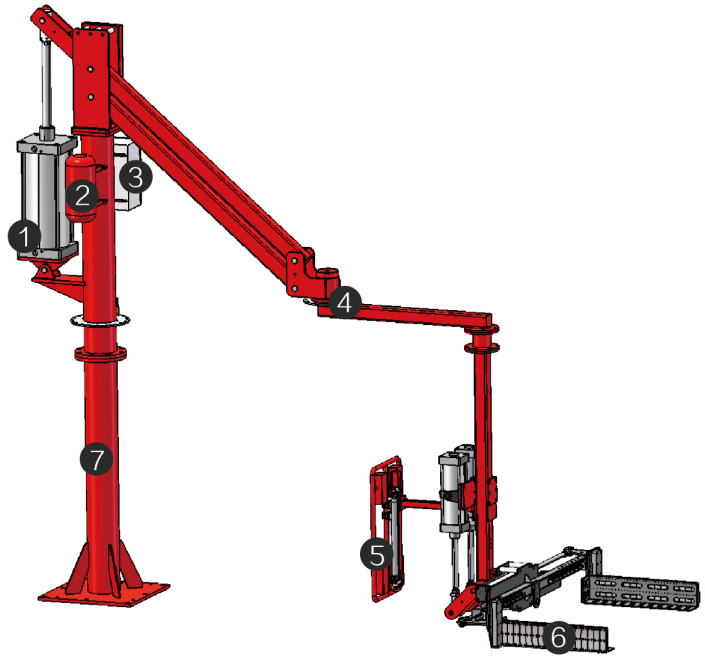
Design and Function

Exploded view



① Cylinder

② Air tank

③ Control box

④ Brake

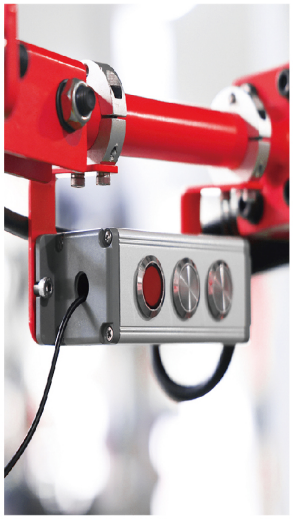
⑤ Control Handle

⑥ Fixture

⑦ Column

Control Handle

The control handle is the main interface for the operator to interact with the manipulator, and is usually equipped with multiple button brakes, levers or handles to control the movement of the manipulator, such as lifting, moving back and forth, rotating, clamping, etc. The modern control handle enables more precise and lightweight human-machine interaction, improving the comfort and safety of the operation.



Cylinder

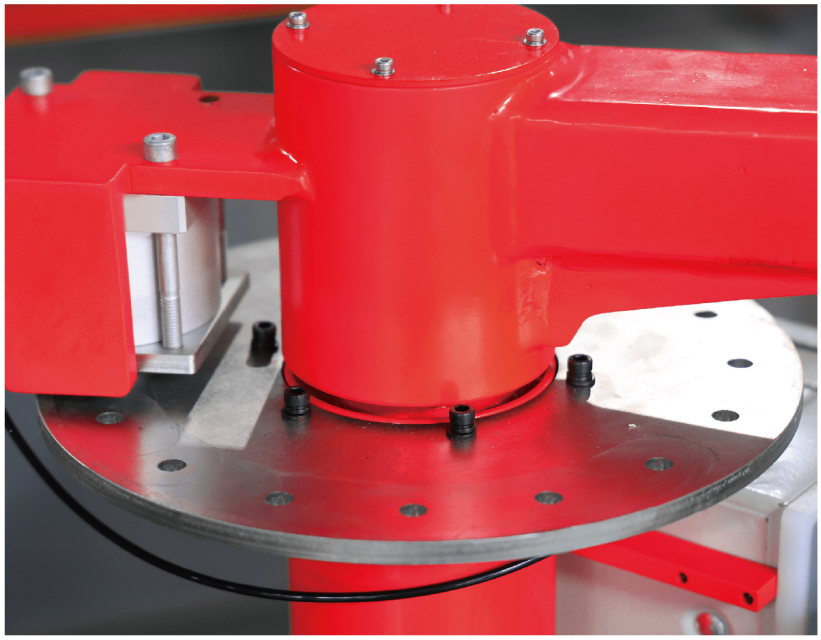
The cylinder is the core executive component of the pneumatic manipulator, which is responsible for converting compressed air into kinetic energy to drive the robotic arm to complete lifting, moving, rotating and other operations. Common types of cylinders include single-acting cylinders, double-acting cylinders, rodless cylinders, etc., which are usually equipped with cushioning devices to reduce shock and improve operational stability.

Air Tank

Storage tanks are used to store and stabilize compressed air, ensuring that the pneumatic system has a sufficient supply of air in a short period of time to cope with load changes and sudden demand. At the same time, it reduces the frequent start of the compressor, stabilizes air pressure, reduces pulsation and improves system efficiency. The air tank is usually made of pressure-resistant steel and is equipped with a safety valve, pressure gauge and pressure holding device.

Brake

The braking system is used to provide a locking function when the manipulator is stopped or needs to hold a certain position, preventing accidental movement or sliding. Brakes usually use pneumatic or mechanical braking devices, such as pneumatic clamp brakes, spring return brakes, etc. Some braking systems are equipped with an automatic locking function, which can quickly lock the manipulator arm in the event of an air supply interruption or emergency shutdown to ensure safe operation.



Control box

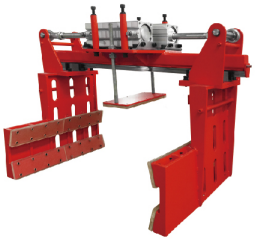
The control box is the "command center" of the manipulator, which is responsible for receiving operating signals and controlling the actions of various pneumatic components. Common control methods include electrical control solenoid valve control, etc. The controller usually integrates multiple sensor interfaces to monitor parameters such as air pressure, position, and load to ensure the safe and precise operation of the manipulator.

Fixture

The fixture is the end effector of the manipulator that directly contacts and grabs the object, and its structure and type are designed according to the shape, material, weight and other factors of the item to be handled. Common types of fixtures include external grippers, suction cups, magnetic grippers, internal supports, etc. Grippers are often designed with adaptive capability in order to meet the handling needs of a wide range of workpieces, while sometimes being equipped with detection sensors to ensure gripping stability.

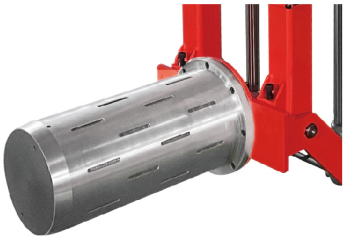
Clamp types / Can clamp drums, round bars, square pipes and other workpieces



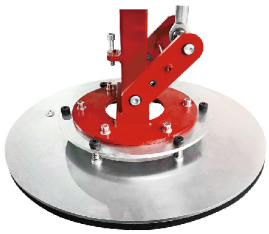
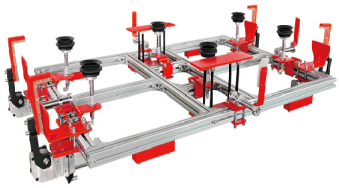
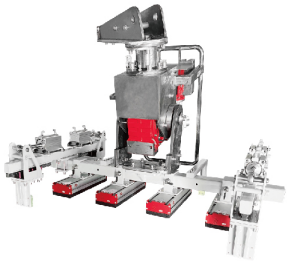



Internally supported / Gripping workpieces such as film rolls

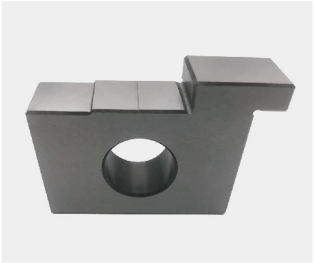


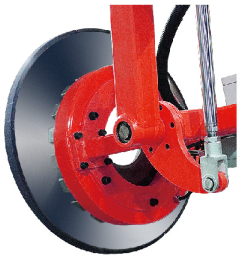



Suction cup types / Can suck up iron plates, glass boards and other workpieces

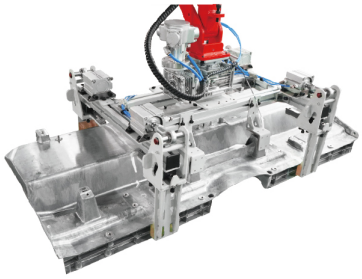





Magnet types / It can clamp workpieces such as iron blocks and cast iron



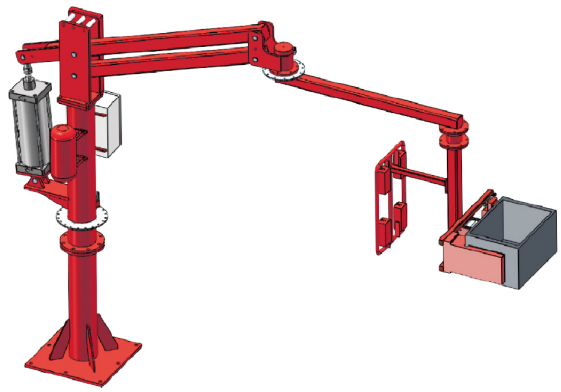



Non-standard customized types / Customized fixtures for special workpiece

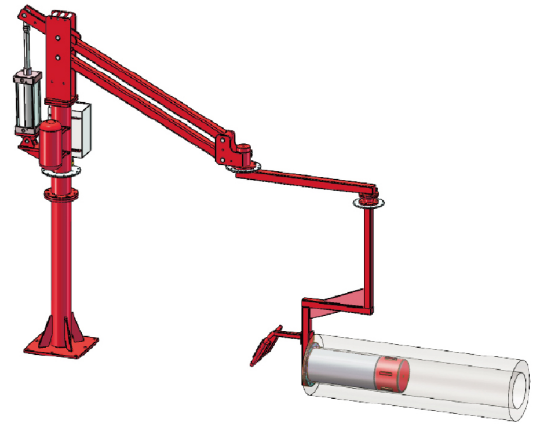



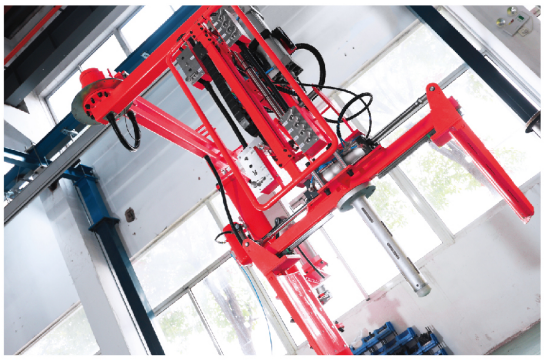

Applications

External clip types / Clamping size and types can be customized base on work piece

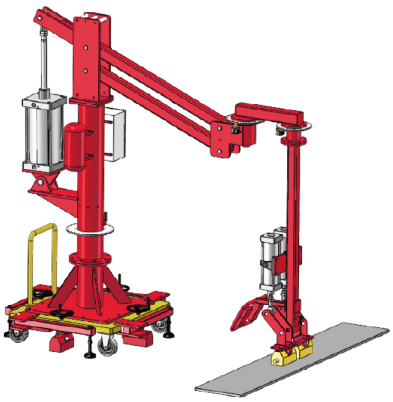


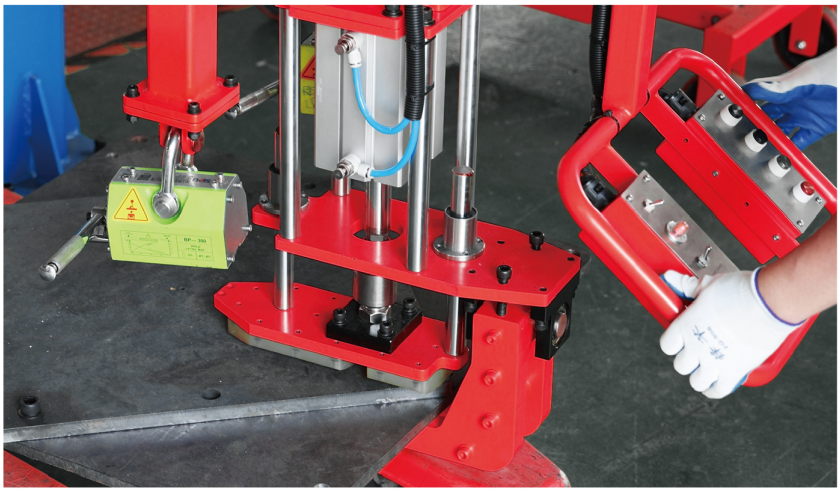
Internal support types / Shank length & supporting interface can be customized



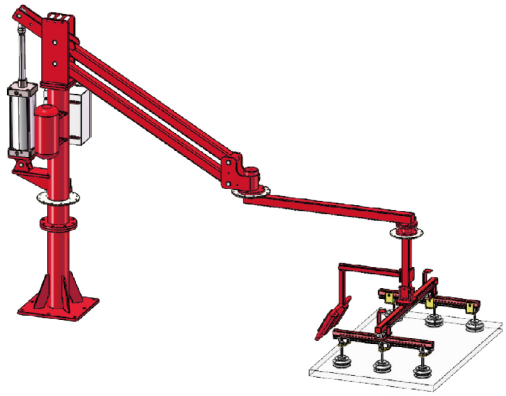


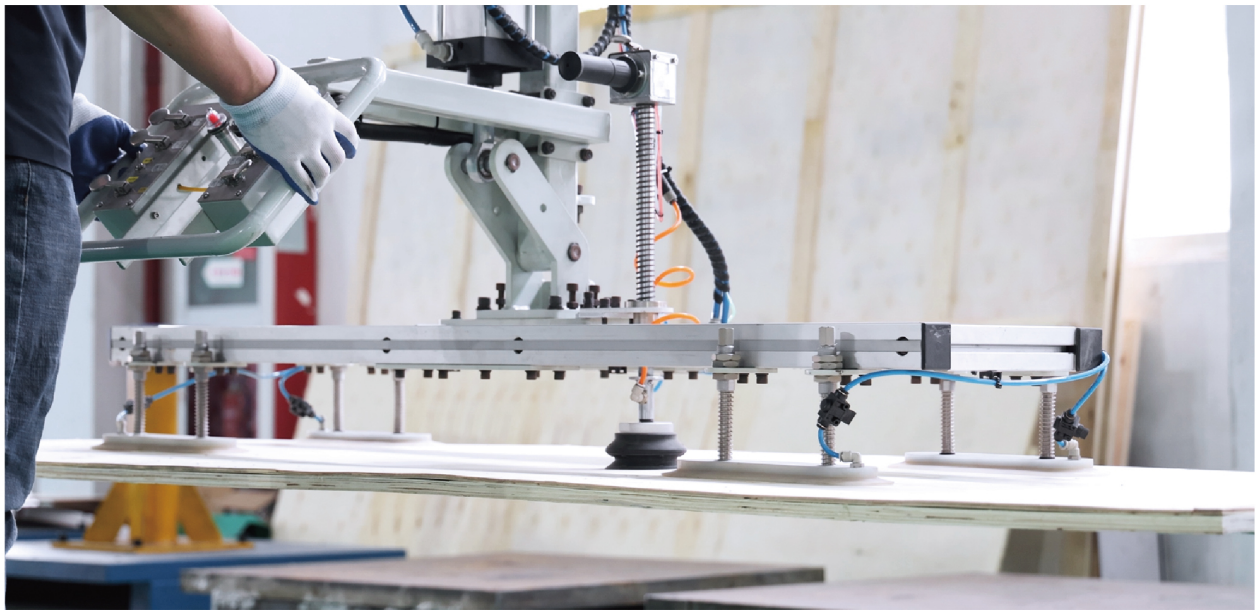
Magnetic types / Permant magnet and electromagnet,size and capacity can be customized





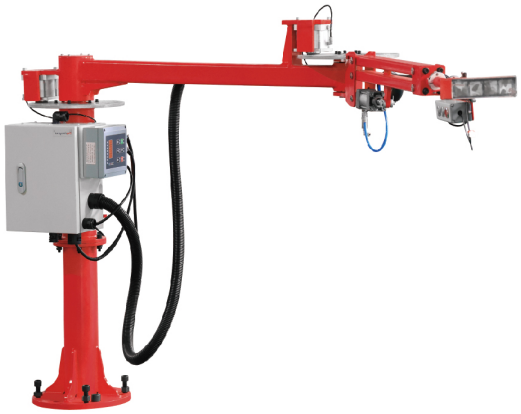
Suck cup types / Foam or rubber pads,suction pads spread,dimensions can be customized





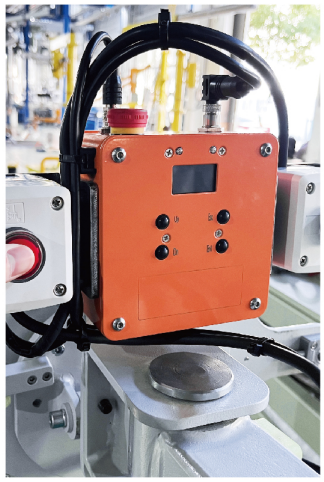
Non standard customization / Based on actual handling needs, we can customize more handling solutions

Compact type



According to the needs of material circulation in the production line, we have a type of portable compact type, which has a smaller structure and more flexible joints, which can realize fast and flexible moving operations on some working stations.

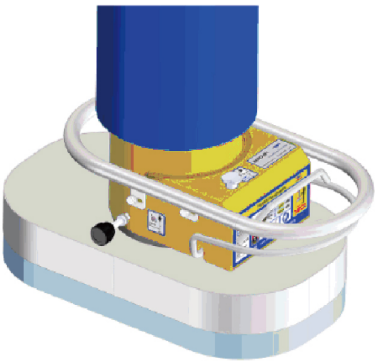
Complex function integration



Combined with the production line structure, we can use the characteristics and advantages of our equipment itself, to meet the special needs of the production line, and customize personalized and more outstanding products, which requires more complex integration technology and design solutions

Vacuum lifters

The vacuum lifter EST series use the principle of vacuum to adsorb and transport workpieces. It uses an efficient vacuum pump to extract air from the tube, creating negative pressure and thus generating suction power. The suction, lifting, lowering, and releasing of workpieces are all achieved through a manual lever, which can achieve flexible one handed transfer of objects and improve handling efficiency. For application industries, we particularly recommend it for stacking boxes and bags, as well as work scenarios that require efficient material feeding.



Standard handle

Extended handle