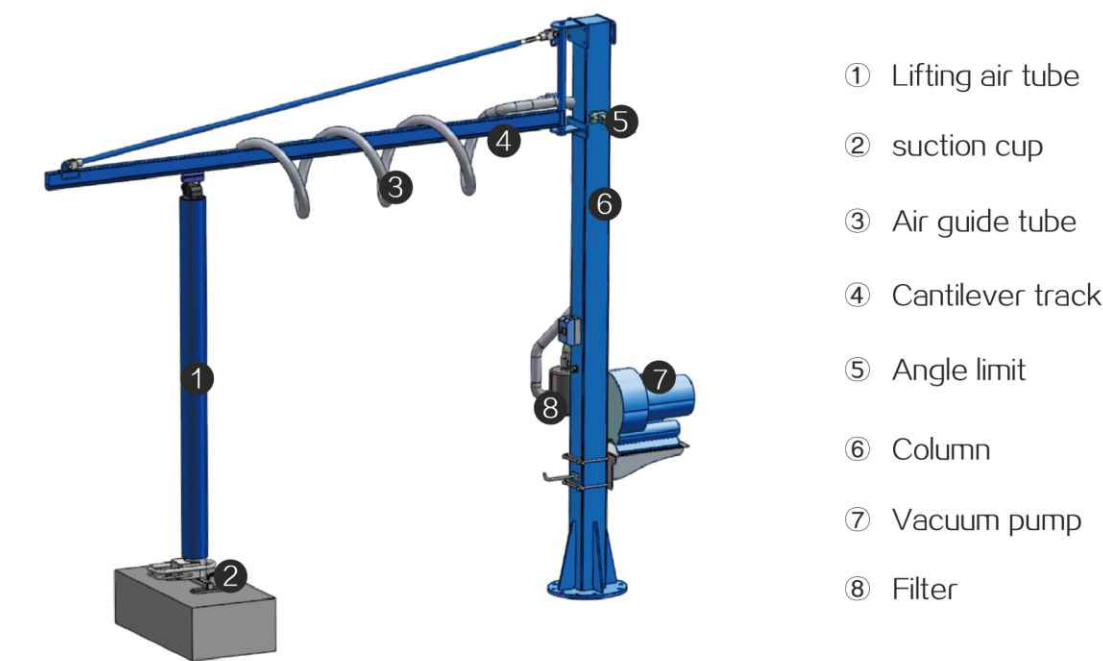


Design and Function

Exploded view



Model parameters

Model	EST100	EST120	EST140	EST160	EST180	EST200	EST230	EST250	EST300
Suction (kg)	30	50	60	70	90	120	140	200	300
Air pipe length(mm)	2500	2500	2500	2500	2500	2500	2500	2500	2500
Air pipe diameter (mm)	100	120	140	160	180	200	230	250	300
Lifting speed (m/s)	appr 1 m/s								
Lifting height(mm)	1800	1800	1800	1800	1800	1700	1700	1500	1500
Vacuum pump	3Kw		3Kw/4Kw		4Kw		4Kw/5.5Kw		

Remarks: The adsorption standard is based on dense workpieces, and in practical applications, we will consider the breathability of different workpieces.

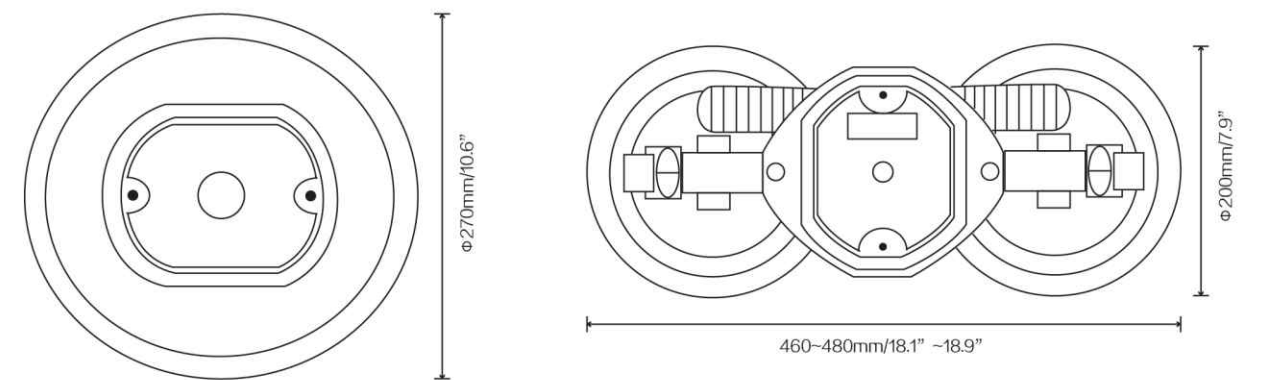
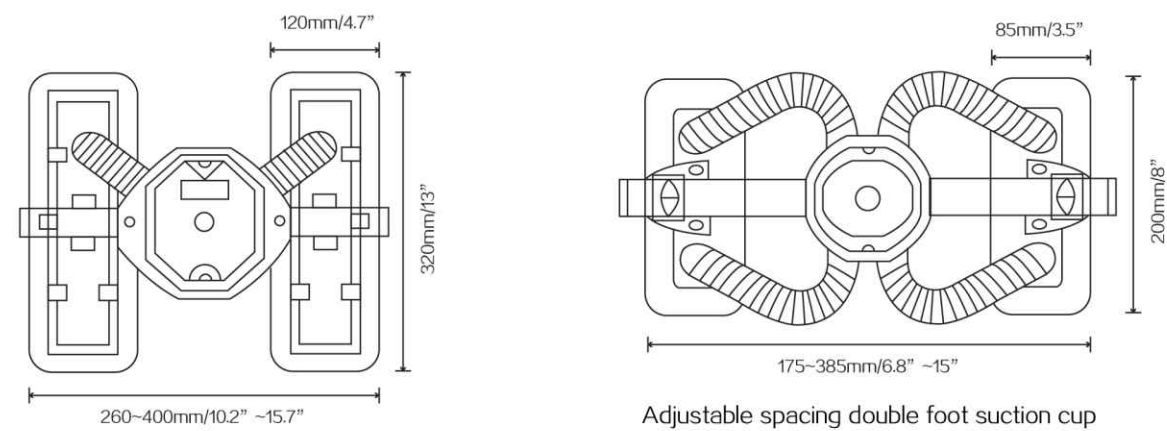
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Box handling / The type and size of suction cups are determined based on the condition of the workpiece



Barrel handling / The type and size of suction cups are determined based on the condition of the workpiece



Suction cranes

Suction cranes are usually composed of columns, guide rails, lifting units and suction cup assemblies. This equipment is a large plate object handling system, which is usually used to carry large-area, heavy objects such as large wooden boards, stone slabs, and metal plates. Especially in laser feeding, it is widely used. Vacuum lifting plates are ideal for making production processes and transportation easier.

It is usually composed of air pump,suction cup,rack,alarm sensor and pressure gauge.

It can be connected to automation equipment through electromagnetic switches, allowing for automated control, making it the best tool for transporting large plate types.



Suction cup spreaders

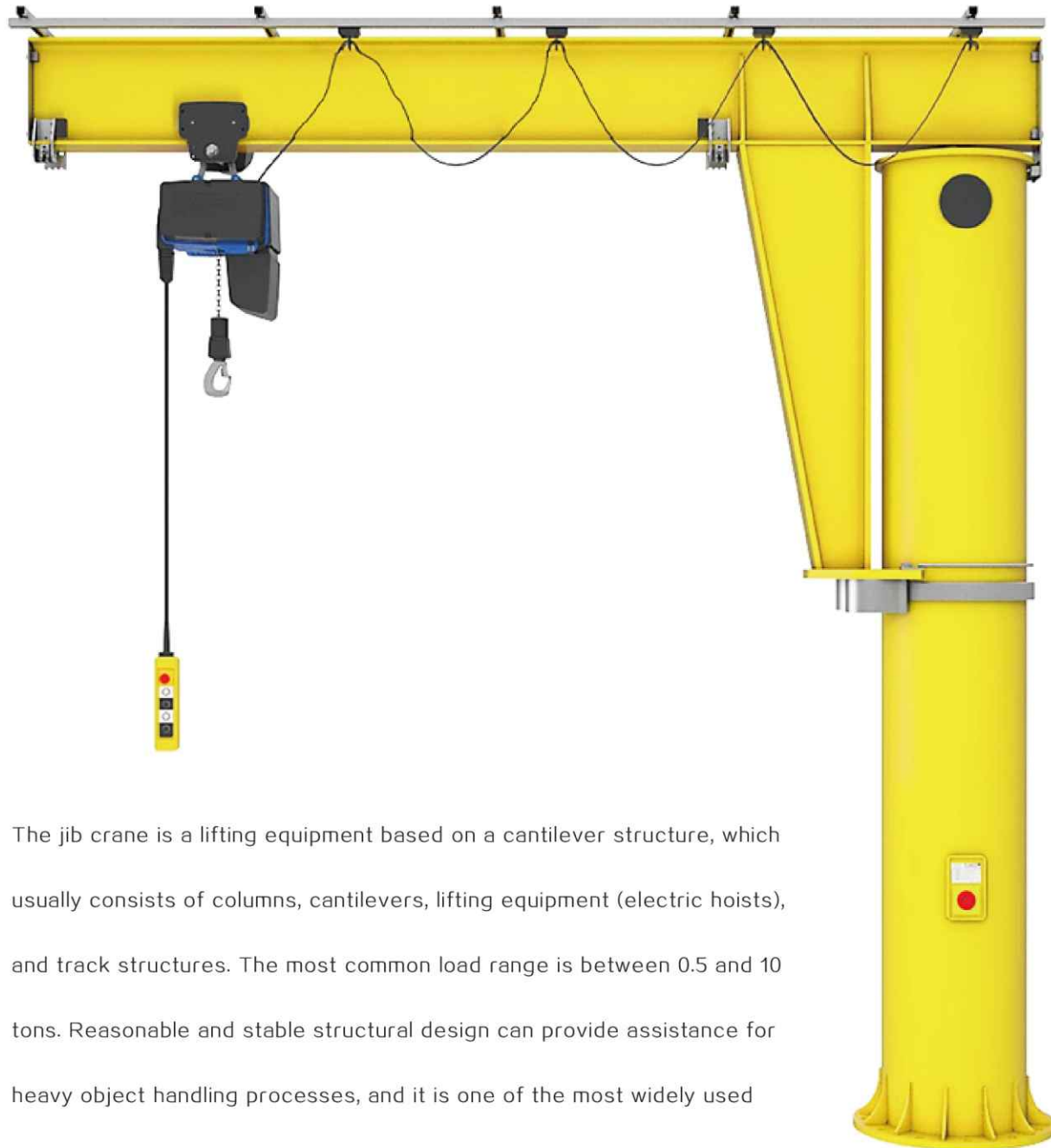
Suction cup types



Model No. & Parameters

Capacity (kg)	Model No.	Suction cup diameter(mm)	Suction power(kg)	Vacuum pump	Power supply			Control method	Self-weight
					voltage	frequency	phases		
250	EST250-4-230	230	125	V4.4	220/380	50/60Hz	1/3	manual	80
250	EST250-6-150	150	45	V4.4	220/380	50/60Hz	1/3	manual	85
400	EST400-8-150	150	60	V4.4	220/380	50/60Hz	1/3	manual	95
500	EST500-6-230	230	125	V4.4	220/380	50/60Hz	1/3	manual	95
800	EST800-8-230	230	125	V4.8	220/380	50/60Hz	1/3	manual	110
1000	EST1000-8-230	230	200	V4.16	220/380	50/60Hz	3	manual/electric	140
1500	EST1500-8-300	300	200	V4.16	220/380	50/60Hz	3	manual/electric	140

Jib crane



The jib crane is a lifting equipment based on a cantilever structure, which usually consists of columns, cantilevers, lifting equipment (electric hoists), and track structures. The most common load range is between 0.5 and 10 tons. Reasonable and stable structural design can provide assistance for heavy object handling processes, and it is one of the most widely used types of handling equipment. For the purpose of structural differentiation, the next section will separately introduce the ultra lightweight design.

Design and Function

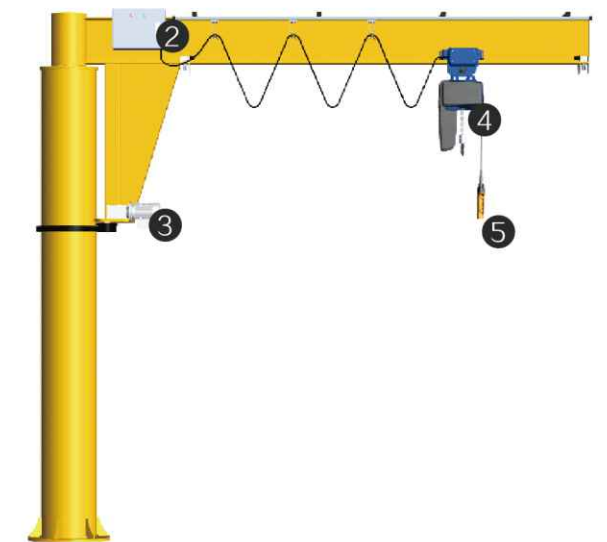
Exploded View

- ① Walking trolley
- ② Electric control box
- ③ Rotating Motor
- ④ Chain hoist
- ⑤ Control pendant



500~2000kg

- 1 Max lifting capacity 2000kg
- 2 Max cantilever length 8m(<1000kg)
- 3 The max rotation angle of the column type is 360°
- 4 The cantilever is made of H-shaped steel as the rail
- 5 The beam rotation is manual or electrical, running on rail can be manual or electrical
- 6 Preburey is needed
- 7 It can be fixed on the wall or factory column without occupying the ground area



1000~5000kg

- 1 Max lifting capacity 5000kg
- 2 Max cantilever length 10m(<1000kg)
- 3 360° full rotation
- 4 The cantilever is made of H-shaped steel or boxed type
- 5 Electric running and electric rotation mechanism is needed mostly
- 6 Preburey is needed
- 7 Structural design varies depending on the load and arm length

Walking Trolleys



Manual



electric

The sliding trolley is the core running component of the jib crane, which is responsible for moving along the jib beam and completing the horizontal handling of goods. The main types are manual sliding trolley, electric sliding trolley, and gear transmission trolley. It can be flexibly positioned in the whole field of the cantilever to expand the operation coverage, and is equipped with safety devices such as limit switches, anti-collision buffer blocks, and overload protection.

Control Box



The electric control box is one of the core control systems of the jib crane, which is mainly used to receive and transmit power to ensure the normal operation of various components of the crane. Its functions include: power management, control signal transmission, speed regulation function, remote control box automation.

Rotating Motor



Rotating Motors are a key component in jib cranes that are responsible for rotating movements, especially for crane booms or hooks that need to rotate or turn. It is usually driven by an electric motor and is responsible for converting electrical energy into mechanical energy, thus achieving a rotational function. The main functions and characteristics of rotating machines include: driving rotary action, high power output, stability and reliability, and high efficiency.

Chain Hoist



The chain hoist adopts aluminum shell, light weight and sturdy design, and adopts customized variable frequency drive with special variable frequency motor, which is used to control the lifting of the hoist and realizes the speed arbitrarily adjustable, at low speed it can be lower than 1/2 of the conventional low-speed gear, and at high speed it can be higher than 50% of the conventional high-speed gear, with stable operation, and the lifting and stopping vibration is small, no impact, low failure rate, strong protection ability, long service life of the whole machine, and a variety of control interfaces are reserved for automatic control.

Features

- 1 Customized variable frequency drive, special variable frequency motor.
- 2 The system has a soft limit function to reduce the risk of top impact and flexibly limit the range of workpiece movement.
- 3 The speed range can be customized the low speed can be lower than 1/2 of the conventional low speed gear, and the high speed can be higher than 50% of the conventional high speed gear.
- 4 Low noise, stable and vibration-free high control accuracy.
- 5 Complete and multiple protection functions to ensure safe and stable operation.
- 6 Rich interfaces, flexible configuration can adapt to a variety of control interface signals, and facilitate automatic contro.
- 7 Remote control can be added into system.

Specifications and Dimensions

Model	D2B012	D2B025	D2B050	D2B100	D2B200
Name					
Max load/Kg	125	250	500	1000	2000 Double chain
Standard speed/m/min	1/12	1/12	1/8	1/8	0.5/4
Customized speedm/min	0.5/12	0.5/12	0.5/8	0.5/8	-
Power/kw	0.75	0.75	1.1	2.2	2.2
Vertical max stroke/m	4/5/8/11(customizable)				
Control mode	In-line button/remote button				
Weight/kg	24	24	30	60	67
Chain length/mm	5.0	5.0	5.0	7.1	7.1
Power supply	Standard 380V (optional 220V)				
Work level	3m/M6	3m/M6	3m/M6	2m/M5	2m/M5
Operating temperature/℃	-10℃~55℃				

Note: The above data is for reference only, and the actual data is subject to the customized parameters

Control Handle



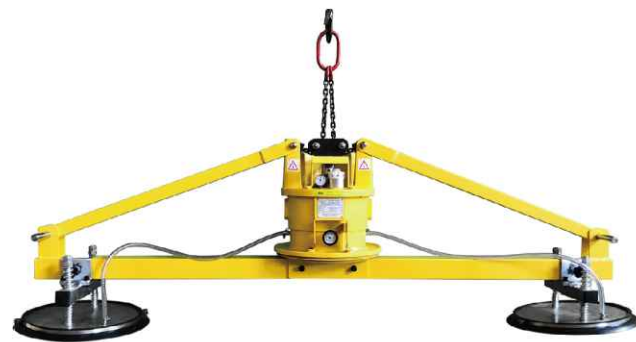
2-key infinite speed control pendant



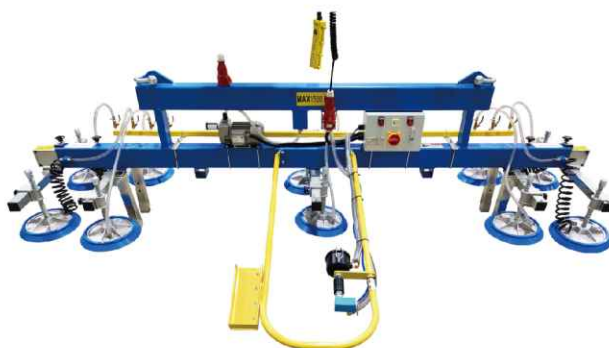
Wireless remote control controller

The control handle can adjust the speed in multiple gears, and the maximum speed range for each gear can be set according to the actual production needs of the customer on site, with real-time speed display; Tablet press control, with obvious micro motion sensation, especially suitable for precise control at ultra-low speeds.

Spreaders can be attached – Magnetic lifting types



Spreaders can be attached – Suction cup lifting types



Applications

Jib cranes / Parameters can be customized base on working requirement



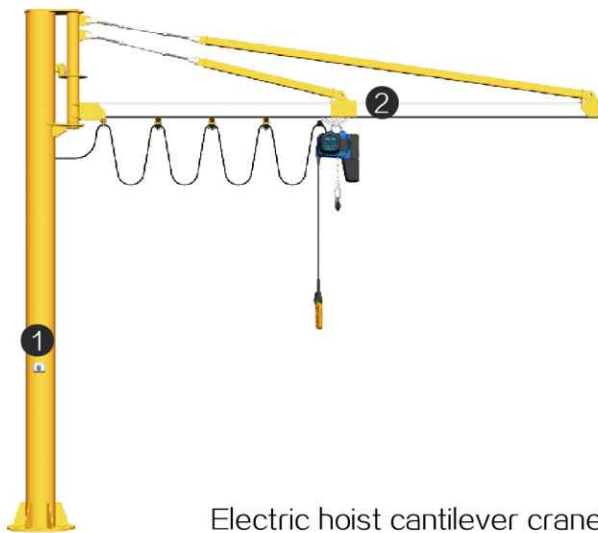
Super light jib cranes



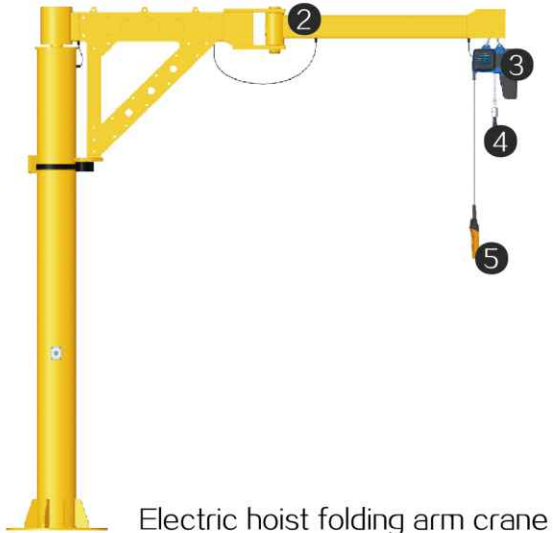
Super light jib cranes are not particularly special in terms of structure, generally consisting of columns, lifting mechanisms, cantilever or folding arms, hooks, or control handles. However, due to their practical application in work, they tend to be more compact and flexible. At the same time, their lifting equipment will have more choices depending on the application field and work efficiency. At the same time, the types of integrated control handles and fixture variants are more diverse, and the expansion functions are more extensive. Therefore, as a separate and important category, their characteristics are: more agile, lighter structure, and more diverse expansion functions.

Design and Function

Exploded View



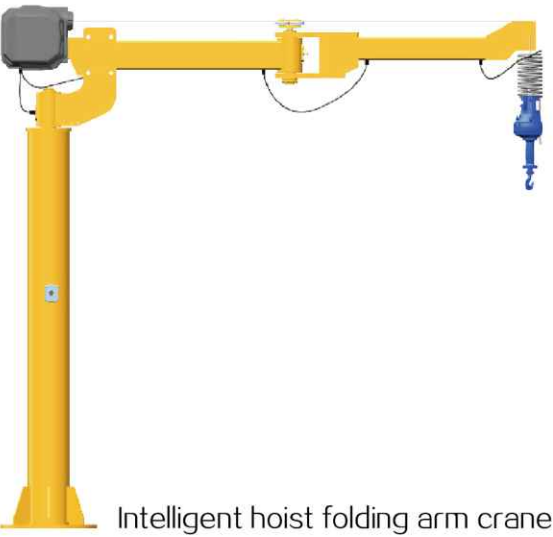
Electric hoist cantilever crane



Electric hoist folding arm crane



Intelligent hoist cantilever crane



Intelligent hoist folding arm crane

- ① Column
- ② Track (cantilever/folding arm)
- ③ Electric/pneumatic hoist
- ④ Hook (expandable integrated clamp)
- ⑤ Control handle
- ⑥ Intelligent hoist

Mounting Types

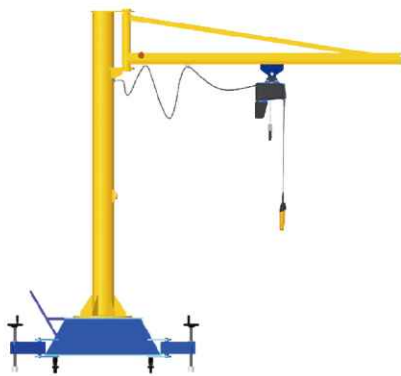
Floor mounted cantilever crane



The floor mounted cantilever crane is supported by a fixed column, usually installed on the ground or foundation. With a stable structure, it can bear heavy loads and is widely used in workshops, warehouses, production lines and other places.



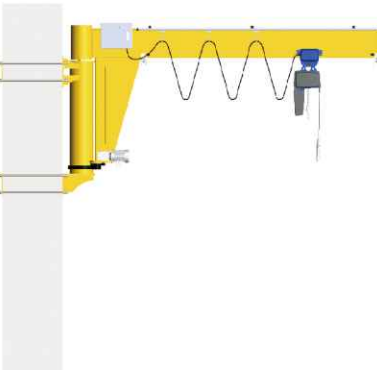
Mobile cantilever crane



The mobile cantilever crane is a flexible lifting equipment installed on a bracket with wheels or rails, allowing it to move freely within the work area. It is suitable for large-area workplaces, especially when materials need to be frequently transported between multiple areas.



Wall-mounted cantilever crane

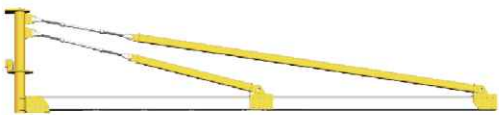


The wall-mounted cantilever crane is installed on the wall or support structure of a building, with the boom extending out from the wall for material handling. This design takes full advantage of the wall's stability while saving floor space, making it suitable for use in narrow or fixed sites. It is ideal for small workspaces such as workshop corners or storage areas.



Structure Introduction

Arms types – cantilever



The cantilever is supported by a column and hangs in a suspended state. The rotating arm has a straight-arm structure, The selection and design of arm materials are determined based on a combination of load and radius.



40-type aluminum alloy track
Max load: 50kg



70-type aluminum alloy track
Max load: 125kg



Common-type track
Max load: 125-2000kg



I-beam
Max load: 500-2000kg

Arms types – folding arm



The folding arm adopts a foldable design, which can bend and retract. When folded, it approaches the column to save space. The working radius is adjusted through the expansion and contraction of the folding arm, The advantages of this structural design are space saving and flexibility.



Pulley usually located at the head of the boom or the end of the main arm, connected to the boom through a shaft. It is composed of components such as wheel sets, bearings, and fixing frames.



The electromagnetic valve brake structure achieves mechanical braking function by integrating the brake button into the control handle

Types of Lifting Device



Electric Hoist

According to the material of the lifting cable, electric hoists are divided into wire rope electric hoists and chain electric hoists. According to the speed, electric hoists are divided into two types: single-speed lifting and double-speed lifting.



Pneumatic Balancer

The working principle of an air balancer is to use the thrust generated by compressed air to balance the gravity of the load. It achieves precise control over the suspension and movement of the load by regulating the supply of compressed air through a control system.



Intelligent Hoist

It is composed of a servo drive, servo motor, reducer, etc., and is controlled by a microprocessor. It can receive the working direction instructions from the operator and generate upward/downward power. Within the rated range, the workpiece can be moved at variable speeds, enabling efficient material handling.

Electric Hoist

1 Basic Features

Our electric hoists can be installed on different structures.

2 Human-Centered Design

The length of the control cable is adjustable. The control handle is designed with human factors in mind, offering a comfortable grip to prevent operational fatigue.

3 Simple Operation

All electrical connections are of plug-and-play type. It can be used on KBK standard rails and quickly connected to trolleys.

4 Unified Maintenance and Test Rear Cover

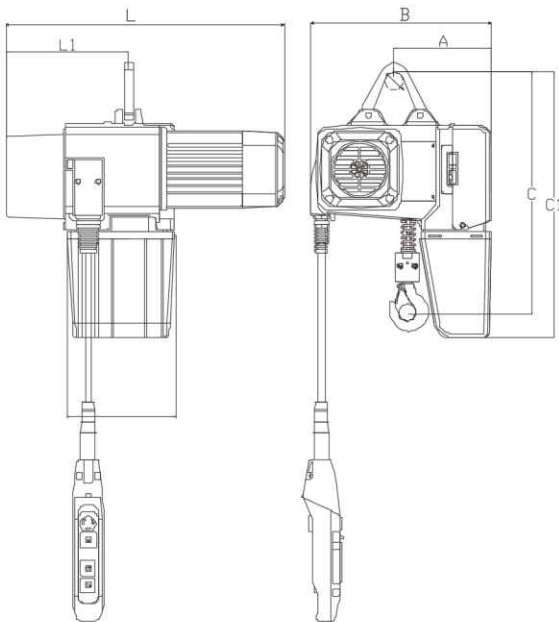
Chain lubrication, no need to disassemble other components, quick replacement of chain guide rails, reducing downtime.

5 High-Efficiency Operation

It features flexible movement, precise positioning, and a long service life.



Parameter



Model	Load/kg	Lifting speed m/min	Motor power Kw	Motor speed r/min	Work voltage V	Control voltage V	Working class FEM/ISO
EST0.125-01M	125	8/2	0.4/0.1	2880/720	220-460	24	2M/M5
EST0.125-01M	125	13/3.2	0.75/0.2	2880/720	220-460	24	2M/M5
EST0.25-01M	250	8/2	0.4/0.1	2880/720	220-460	24	2M/M5
EST0.5-01M	500	8/2	0.75/0.2	2880/720	220-460	24	2M/M5
EST0.5-01M	500	12/3	1.5/0.37	2880/720	220-460	24	2M/M5
EST0.5-02M	500	4/1	0.4/0.1	2880/720	220-460	24	2M/M5
EST01-01M	1000	8/2	1.5/0.37	2880/720	220-460	24	2M/M5
EST01-01M	1000	6/1.5	1.5/0.37	2880/720	220-460	24	2M/M5
EST01-02M	1000	4/1	0.75/0.2	2880/720	220-460	24	2M/M5
EST0.2-02M	2000	4/1	1.5/0.37	2880/720	220-460	24	2M/M5
EST02-02M	2000	3/0.75	1.5/0.37	2880/720	220-460	24	2M/M5

Model	L/mm	L1/mm	A/mm	B/mm	C/mm	C1/mm
EST0.125-01M	440	194	160	288	400	425
EST0.125-01M	464	197	170	315	420	450
EST0.25-01M	440	194	160	288	400	425
EST0.5-01M	464	197	170	315	420	450
EST0.5-01M	548	260	182	343	560	640
EST0.5-02M	440	194	160	288	470	425
EST01-01M	548	260	182	343	560	640
EST01-01M	464	197	170	345	490	450
EST01-02M	548	260	182	343	630	640



- 1 Gearbox**
Maintenance-free, working class M6. The electric chain hoist can run for up to 1900 hours at full load. The helical gear transmission of the gearbox reduces working noise and runs more stably.
- 2 Brakes**
Maintenance-free, no adjustment required due to minimal wear; fast and smooth braking. The brake housing is double-sealed to work in adverse climates or working environments.
- 3 Friction clutch**
Maintenance-free, integrated at the rear end of the brake, can effectively protect against overload. There is a speed detector inside to ensure that the chain will never slip under abnormal circumstances.
- 4 Height adjustment of the flashlight switch**
Within the range of hook travel of 2-5m and 5-8m, the control cable length and the flashlight switch hanging height can be infinitely changed. Excess control cables can be accommodated in the maintenance area.
- 5 Control mode**
24V low voltage control mode, upper and lower limit switches
- 6 Chain**
High-strength, anti-aging special chain. Galvanized and additional surface treatment protects it from corrosion in harsh environments.
- 7 Housing**
Strong, lightweight die-cast aluminum housing, compact, modern industrial design. Automotive grade paint, providing longer protection.
- 8 Hoist motor**
The durable high-performance motor has a large safety reserve even in high temperature and long-term operation. It adopts two-stage lifting speed and has frequency conversion control to provide multiple speed changes.
- 9 Sprocket**
The plug-in connection facilitates quick replacement of the entire sprocket without removing the motor or gear components, greatly reducing downtime. Highly wear-resistant materials are used for long service life.
- 10 Chain box**
Made of strong, tough and impact-resistant special plastic; can hold 8-meter chain, and can also provide chain boxes that can hold chains up to 40m or 120m in length.
- 11 Hook assembly**
The hook device is comfortable to hold and conforms to the principle of ergonomics. The hook is forged and has excellent strength. The hook can rotate 360° and the specially designed safety tongue ensures safe operation.



Pneumatic Balancer

The pneumatic balancer conforms to the principles of ergonomics and has a full suspension function to meet the needs of industrial safety transfer and assembly workplaces. It is widely used in automobile manufacturing, parts processing, electronic product manufacturing, biochemical medicine, ceramic sanitary ware and other industries.

● Self-balancing characteristics

- Intuitive speed control for loads of different weights within the load control range
- No repeated adjustments are required for loads of different weights within the load range
- The same device improves production efficiency and saves costs
- Improved safety and ergonomics

● Integrated control box

● Less than 1% of the load traction

● Integrated button control joystick

● Low operating cost, silent operation, fast response

● Can match a variety of fixtures to meet the needs of different working conditions

● Interlocking function

- Controlled release of parts
- Increased release flexibility



Pneumatic balancer features

Full suspension:

It has full suspension function within the free stroke, which can realize the precise positioning of workpiece transfer and assembly;

Simple operation:

Slightly lift the workpiece and wait for the balance valve to sense the air pressure in the air chamber to realize the full suspension function of the workpiece;

Low air consumption:

The minimum air consumption per working cycle is only 1/8cfm (50 times less than that of pneumatic chain hoist), with extremely low energy consumption;

Clean and oil-free operation:

The unique pre-lubrication design eliminates air line lubrication and oil mist emission, making it the preferred equipment for food processing and clean manufacturing environments;

Sturdy and reliable:

Continuous long-term load operation with little maintenance;

Natural explosion-proof:

Ideal for high-risk environments.

Safety standard

Built-in overload protection:

Relative to the given air pressure, the lifted load must not exceed the maximum lifting capacity of the pneumatic balancing hoist;

Safety protection:

Unique spring centrifugal brake (Z-brake), when the load is accidentally lost, the cable only needs a small amount of winding, and the Z-brake can automatically stop the cable from moving upward quickly.

Multi-function configuration

Wide capacity range:

The rated lifting capacity of the pneumatic balancer is 50~2000lbs (22~909Kg);

Air cut-off protection:

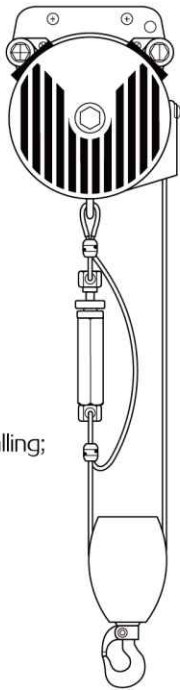
When the air source is accidentally cut off, the Z-axis stop device can prevent the workpiece from falling;

Cable stroke:

The maximum lifting stroke is 114in. (2890mm);

Controller:

Functional modular design, quick disassembly and assembly and module upgrade and replacement;



Intelligent Hoist

Intelligent control is the core of our intelligent hoist series. The combination of industry-leading servo motor drive system and precision planetary gear reducer achieves high-speed, precise and safe material handling and assembly, providing a real choice for companies to significantly improve production efficiency and reduce labor costs.

It is an advanced lifting equipment that combines modern intelligent control technology, sensor technology, and mechanical transmission system, mainly used in scenarios such as material handling, production line assembly, and precision positioning. It significantly improves operational efficiency, safety, and human-machine collaboration experience through intelligent functions, and is suitable for multiple fields such as industrial manufacturing, logistics, and healthcare.



The core technology



Servo motor



Servo drive



planetary reducer



Sliding handle

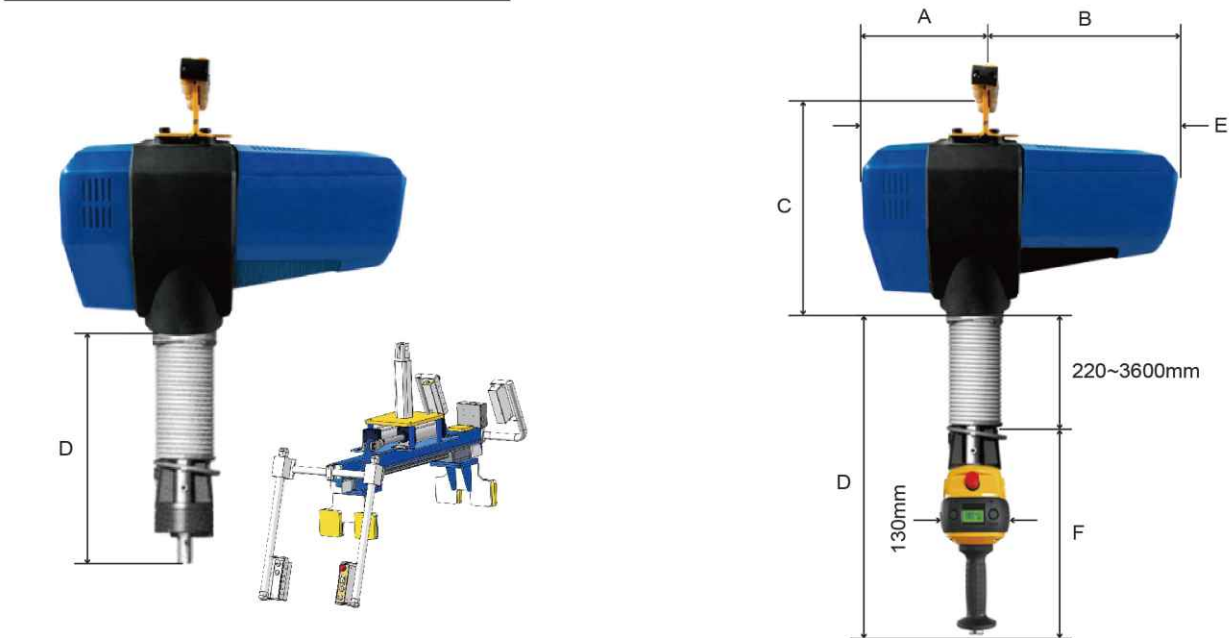


Photoelectric sensor



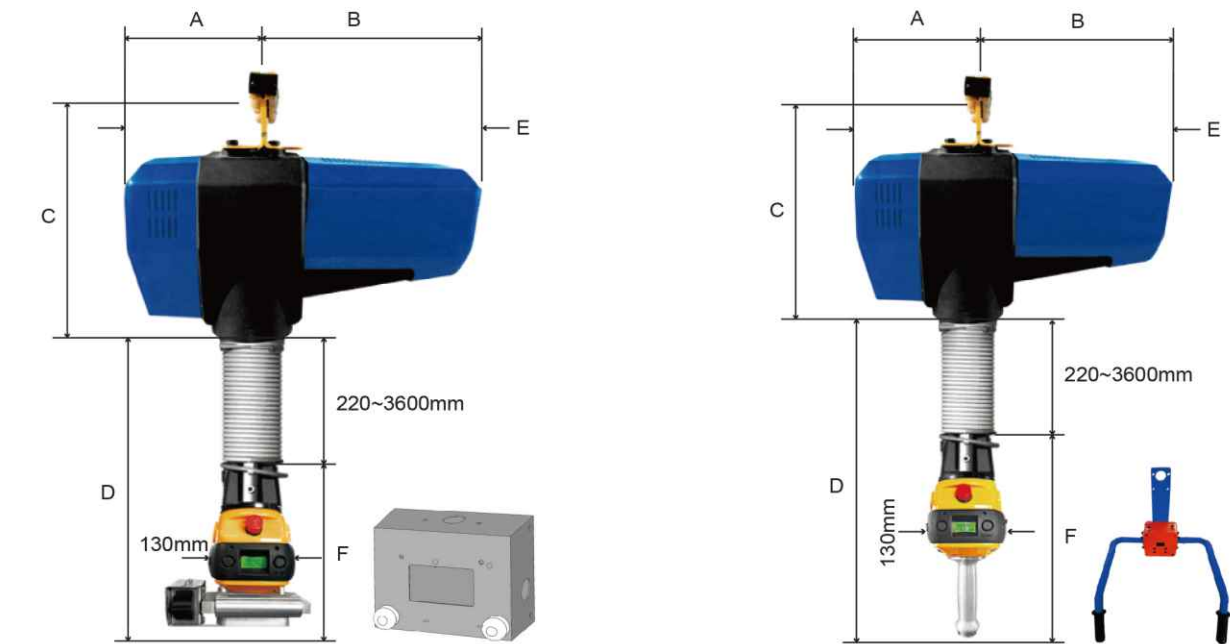
Control motherboard

Handle type



1 Integrated handle
Integrating functional buttons into one interface based on the required actions can achieve more complex functions and be more practical.

2 Vertical handle
When using the handle, the load moves with the movement of the human hand. This handle allows the operator to get close to the load for precise control.



3 Wire control handle
The operation control of the handle is connected separately through the signal wire, so that the load and handle are separated in structure, which is convenient for operation.

4 Suspension handle
Any part of the handle can sense gravity changes, and the load will move up and down according to the gravity change to achieve the handling process.

Specification

Lifting capacity	80Kg	150Kg	300Kg	600Kg
A	219mm	260mm	260mm	260mm
B	365mm	381mm	381mm	381mm
C	432mm	432mm	432mm	432mm
D	depends on design	depends on design	depends on design	depends on design
E	584mm	641mm	641mm	641mm
F	depends on design	depends on design	depends on design	depends on design

Model Function

Model	ESI-80	ESI-150	ESI-300	ESI-600
Max lifting capacity (load and tool)	80kg	150kg	300kg	600kg
Max lifting speed no-load	60m/min	30m/min	15m/min	7.5m/min
Max lifting speed full-load	40m/min	24m/min	13m/min	6.5m/min
Max lifting speed in floating mode	30m/min	20m/min	11m/min	5.5m/min
Max lifting range	3.5mm	3.5mm	3.5mm	1.75mm
Standard lifting stroke	2.5mm	2.5mm	2.5mm	1.25mm

Power Parameters

Model	ESI
Main power voltage (VAC)	220+/-10%(maximum)
Max current (Ampere)	10
Working class	A8
Operating temperature range	-10~50 ℃
Operating humidity range (non-condensing)	35~90%
Motor power	1.3kW

Applications

Pneumatic Balancer / Can be integrated into various situations like jib cranes, overhead cranes

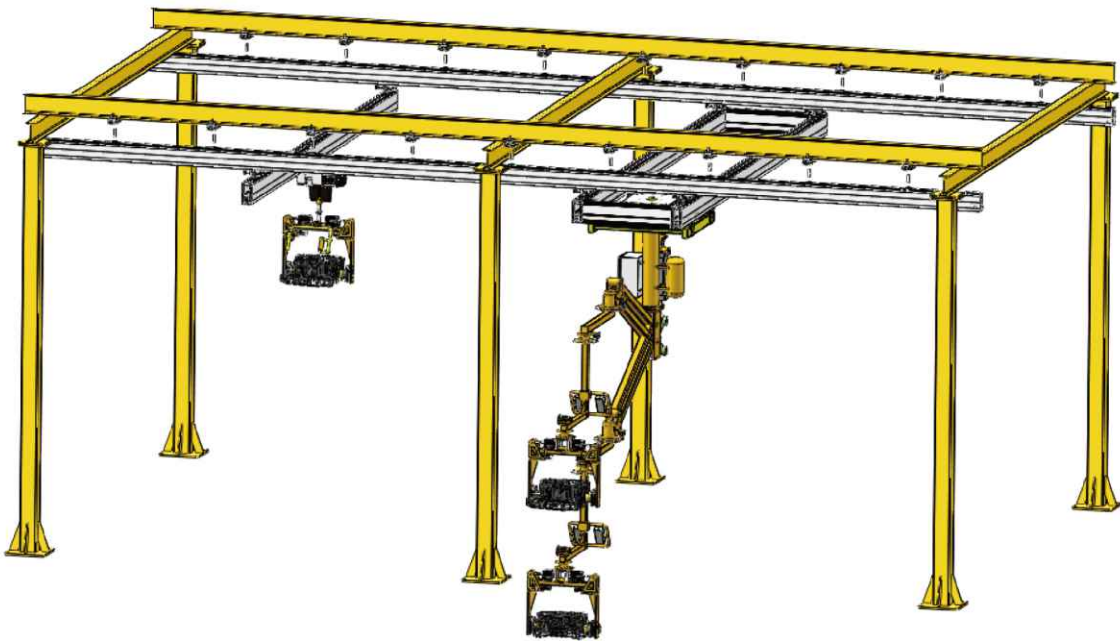


Cantilever cranes / Functional parameters can be customized





Overhead cranes

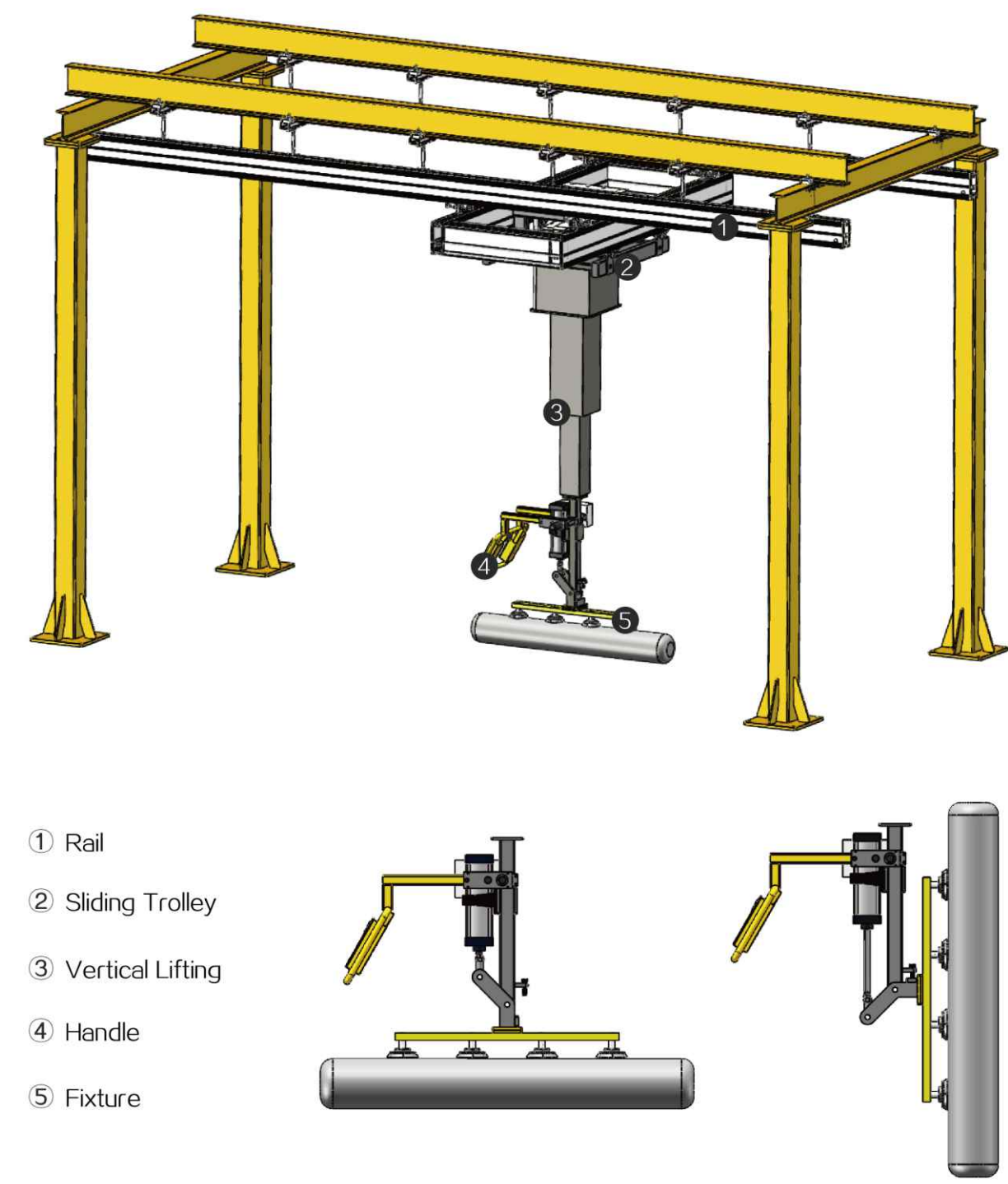


The overhead mounted crane is a device commonly used for handling, assembly or loading/unloading in semiautomated production lines, featuring stable structure, high positioning accuracy and strong load-bearing capacity. The truss manipulator is built with a steel structure frame to form a truss system (usually a three-axis XYZ configuration), on which components such as sliding trolleys, servo motors and transmission systems are installed. Its core characteristics are high rigidity, large stroke and high precision, usually supported by aluminum alloy or steel truss tracks, It is widely used in such scenarios as loading/unloading of CNC machine tools, part picking of injection molding machines, handling of automatic assembly lines, and warehousing and palletizing etc.

- It is equipped with a mounting base plate and does not require a foundation.
- It can be easily expanded along with the expansion of the work cell center.
- It can be installed on any ordinary reinforced concrete floor with a thickness of 15cm, without exerting pressure on the roof structure of the building.
- It can be tailor-made according to your requirements to provide the required strength, speed and precision.
- It is easy to install and convenient to relocate.

Design and Function

Exploded view



Supporting Rail

The rail truss, as the supporting and guiding structure of the manipulator, determines the movement range and stability of the manipulator, provides a movement path for the sliding trolley, and realizes linear guidance. It is mostly made of high-strength aluminum alloy or steel to ensure anti-deformation ability. Some can be matched with drive forms such as gear racks and timing belts, which are suitable for large-span scenarios such as machine tool loading and unloading and logistics warehousing.

Overview of Aluminum Alloy Tracks

Comprehensive planning for aluminum alloy tracks with a load capacity of up to **2000 kg**
Provide general configurations including single-girder and double-girder cranes as well as basic single-rail and double-rail solutions.

single girder — double girder — single rail — double rail ➤ General configuration

Performance Advantages

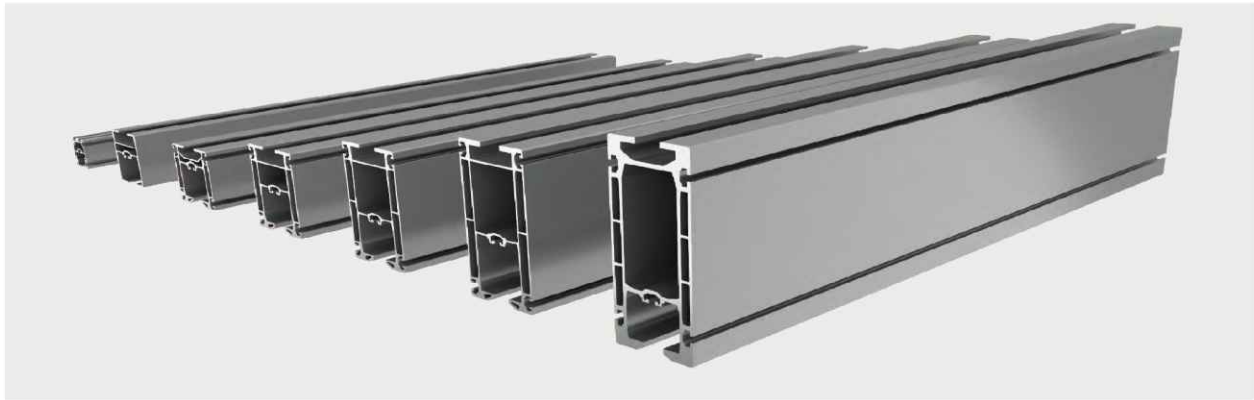
- ① Produced in required lengths
- ② Bolted connections for easy disassembly and assembly
- ③ Anodized aluminum surface for long-term durability

Configuration Solutions for Aluminum Alloy Track Systems

- ① Main beams or hoists can be equipped with electric or manual trolleys
- ② Multiple configurations to meet diverse load requirements
- ③ Available options for power and air transmission systems
- ④ Self-supporting structure design

Ergonomic Design

- ① Compared with traditional steel rails, the operating force is reduced and the rolling resistance is decreased by more than 50%.
- ② The track system runs smoothly with towing resistance as low as 0.3%.
- ③ Lightweight yet with strong load-bearing capacity, in line with ergonomic principles.



Aluminum alloy rails

Mono rail



Curved rail



Single beam expansion rail



Frame high single beam rail



Double beam upper rail



Double acting rail




Sliding Trolley

The sliding trolley carries and drives the vertical lifting system along the guide rail. It consists of a drive unit, a transmission mechanism and guiding components . It operates smoothly with high positioning accuracy, bears the weight of the end-effector, and most are driven by servo motors for rapid response.

- ① Aluminum alloy trolley with a maximum load capacity of 600 kg
- ② Rubber anti-collision heads at both ends of the trolley to extend the service life of the track and trolley
- ③ High-strength wear-resistant nylon wheels for lightweight and smooth operation
- ④ Unique high-low wheel design for bidirectional load-bearing with excellent anti-eccentricity capability, ensuring precise positioning of the lifting device

Overhead Trolleys


SLJ-C-TT600



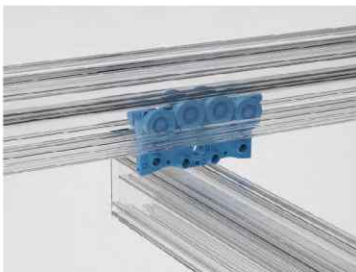
installation diagram



SLJ-C-TS600



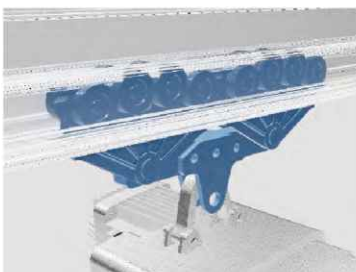
installation diagram




SLJ-C-TT1200



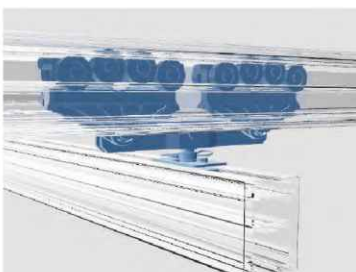
installation diagram



SLJ-C-TS1200



installation diagram



Model	EST-C-TT600	EST-C-TT120	EST-C-TS600	EST-C-TS1200
Main Material	Die-cast Aluminum	Aluminum Alloy	Die-cast Aluminum	Aluminum Alloy
Max Load	600kg	1200kg	600kg	1200kg
Self-weight	1.6kg	4.6kg	1.6kg	4.6kg

Vertical Lifting Assembly

Vertical lifting – Rigid type

The vertical lifting mechanism realizes the up-and-down movement of the Z-axis to complete the lifting action of workpieces. Its control modes are as follows: Expansion column, mechanical arm body, lifting equipment (including hoist, cylinder, etc.), choose according to the situation. It is often equipped with braking devices or buffers to prevent falling during power cut off, featuring fast lifting speed and high repeat positioning accuracy. Anti-slip devices (such as brakes or air springs) can be integrated.



Vertical Lifting – Soft cable type

Flexible rope lifting systems have emerged as a crucial solution for modern lifting operations, leveraging their advantages in flexible buffering, high-precision control, and modular design. These systems are particularly well-suited for engineering scenarios requiring smooth, efficient, and safe operations. Looking ahead, advancements in intelligent and automation technologies will continue to enhance the performance and expand the applicability of flexible rope lifting systems.



Handle Assembly

The handle integration serves as a transitional component connecting the vertical lifting mechanism and the end effector. It features standardized interfaces (such as flanges) for quick clamp replacement. The functions of the equipment can be integrated into the handle, and the handling action can be completed by controlling the buttons.



Fixture Assembly

The fixture tooling is a key component that directly contacts workpieces to achieve grabbing and handling. It allows selection of different types based on workpiece characteristics, using negative pressure suction cup structures, magnetic fixtures, and pneumatic internal or external clamping jaws to achieve the gripping and handling of various objects.

