

**Elevator
reconstruction
instructions**



Engineering Service
Department
Technical Support
Group

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INDEPENDENT 都利

ELEVATOR

Catalogue

- I、 Construction category of elevator repair and transformation (Special Letter of State and Municipal Administration [2019] No.64)**

- II、 Classification of elevator repair and transformation business (Replacement cycle of main parts of elevator)**

- III、 Basic price of elevator repair and transformation package**



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Elevator repair and reconstruction construction category - reconstruction

Construction category	Construction content
Reform	<p>I. Change the rated (nominal) speed, rated load, lifting height, self weight of the lift car (except that the reserved decorative weight or the accumulated increase/decrease of the mass specified by the manufacturer does not exceed 5% of the rated load), explosion-proof grade, driving mode, suspension mode, speed regulation mode or control mode. (Note 1)</p> <p>II. Change the type of car door, increase or decrease the car door.</p> <p>III. Change the stressed structure of the car frame, replace the car frame or replace the car without car frame.</p>

Note 1: Changing the speed regulation mode of elevator refers to changing the AC pole changing speed regulation system of passenger or freight elevator to AC frequency conversion and voltage conversion speed regulation system; Or change the speed control system of escalators and moving walks from continuous operation to intermittent operation. Control mode refers to the way to control the start, stop and running direction of the elevator in response to the signal from the operating device, such as button control, signal control and collective selection control (including single collective selection control, two parallel control and multiple group control).



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Elevator repair and reconstruction construction category - major repair

Construction category	Construction content
Major repair	<p>I. Add or replace the drive host or its main components of different specifications, control cabinet or its control main board or speed regulating device, speed limiter, safety gear, buffer, door lock device, car uplink overspeed protection device, car accidental movement protection device, safety circuit containing electronic components, programmable electronic safety related system clamping device, pawl device, speed limiting cut-off valve (or throttle valve), hydraulic cylinder, step, pedal Handrail, additional brake. (Note 2)</p> <p>II. Replace suspension and termination devices, high-pressure hoses and explosion-proof electrical components of different specifications.</p> <p>III. Change the type of landing door and add landing door.</p> <p>IV. Add automatic rescue operation (power failure automatic leveling) device, energy feedback energy-saving device, etc. to change the original control line of the elevator.</p> <p>V. The identity authentication methods such as adding elevator IC card system to the elevator car control box, landing call box or the peripheral wiring of its buttons shall be adopted. (Note 3)</p>

Note 2: Specifications refer to the marks made by the manufacturer on different technical parameters and performance of products, such as working principle, mechanical performance, structure, component size, installation position, etc. The main components of the driving host refer to: motor, brake, reducer and traction wheel.

Note 3: Identity authentication methods such as elevator IC card system include but are not limited to password, magnetic card, mobile payment, fingerprint, palm, face, iris, vein, etc.



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Elevator repair and reconstruction construction category –general repair

Construction category	Construction content
General repair	<p>I. Repair or replace the lock device, control main board or speed regulator of the control cabinet with the same specification and different models Set. (Note 4)</p> <p>II. Repair or replace the drive host machine or its main components, speed limiter, safety gear, suspension and termination devices, car up overspeed protection device, car accidental movement protection device, safety circuit containing electronic components, programmable electronic safety related systems, clamping devices, speed limit shut-off valve (or throttle valve), hydraulic cylinders, high-pressure hoses, explosion-proof electrical components, additional brakes, etc. of the same specification.</p> <p>III. Replace the sealing ring of the explosion-proof elevator cable inlet.</p> <p>IV. Reduce landing doors.</p> <p>Identity authentication methods such as elevator IC card system can only be installed in the peripheral wiring of elevator car control box, landing call box or its buttons.</p>

Note 4: Model refers to the product code prepared by the manufacturer according to the category, variety and certain rules.



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Service classification of elevator repair and transformation

service classification	Description
Complete elevator replacement	<p>Replace the old elevator with a new one: this scheme is recommended when the actual service life of the elevator exceeds 15 years, the elevator often breaks down and cannot be completely repaired. When it is required to change the load or running speed of the original elevator, it is necessary to confirm whether the on-site civil engineering meets the requirements.</p>
System update	<p>Renewal of electrical system: replace the control cabinet and the whole set of electrical system of the old elevator to improve the operation reliability, energy conservation, safety and convenience.</p> <p>Renewal of traction system: replace the worn out traction machine, reduce the operation energy consumption, and maintain the safety and riding comfort of the elevator</p> <p>Door motor system updating: replace hall car door system that meets the new national standard, improve safety and reduce failure rate;</p> <p>Car system updatng: update the car and decoration to make the riding environment a new look;</p>
Component upgrade	<p>Small upgrade system scheme: Because the service life of the parts in the whole life cycle of the elevator is different, for the elevator that has been used for about 10 years, some parts have reached the design service life, and these parts will be replaced and upgraded according to the service life of the parts and the actual status on site. It is generally carried out in combination with the daily maintenance plan or proposed through the evaluation report.</p>



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Elevator repair and transformation service classification - complete elevator replacement

service classification	Technical description
Complete elevator replacement	<ul style="list-style-type: none">▶ Dismantle all parts of the old elevator, remap the civil engineering dimensions on site, draw civil engineering drawings and business quotations based on customer needs, and implement the new elevator business process for such replacement;▶ In combination with the user's pain points, retain the elevator parts that affect the civil engineering, avoid secondary decoration, and minimize the impact on the building personnel;<ol style="list-style-type: none">1) Keep the bearing steel beam of the machine room host, arrange the new elevator traction host in combination with the customized rack, and do not move the civil engineering;2) When the layout of the old elevator meets the requirements of the new elevator specification, the guide rail in the hoistway shall be retained and the civil work shall not be moved;3) Keep the elevator hall door pocket, customize the civil engineering drawing according to the size of the door opening, and customize the outbound call according to the size of the outbound call box of the old elevator.▶ When the old elevator specifications (load, speed, door opening size, etc.) cannot meet the customer's needs for use and need to be upgraded <p>Surveying and mapping the actual civil dimensions to determine whether the installation requirements of the new elevator are met.</p>



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Elevator repair and transformation service classification - system update

service classification	Technical description
<p>System Update electrical system</p>	<p>► Main parts to be replaced or added: Replace the control cabinet, host encoder (not necessary), main power box (not necessary), car roof maintenance box, pit maintenance box, end station switch frame, customized control box, customized outbound call box, prefabricated flat cable, hoistway prefabricated line, and install door motor frequency converter and limit switch (not necessary).</p> <p>► Cycle of electrical system renovation: The period of technical treatment and factory production is about 10 working days, and the on-site construction is about 3 days (2~3 people * 3 days=6~9 labor)</p> <p>► Price related factors: The main factors that affect the price of the standard electrical system are the lift load, speed and landing, which are converted into component differences It refers to the power (current) of the host machine and the total height of the shaft (number of stations).</p>



Elevator repair and transformation service classification - system update

service classification	Technical description
<p>System update traction system</p>	<p>The traction system is generally updated in the following cases:</p> <p>As a supplement to the electrical system update: when the performance of the on-site traction host implementing the electrical system update is backward or does not meet the requirements of the national standard, it needs to be replaced with a new host, which is generally replaced with a permanent magnet synchronous host;</p> <p>Mandatory options for upgrading the elevator load and speed: when it is necessary to increase the elevator running speed or load, it needs to be updated;</p> <p>Cycle of traction system renovation:</p> <p>The period of technical treatment and factory production is about 15 working days, and the on-site construction is about 3 days (2~3 people * 3 days=6~9 labor)</p> <p>Parts to be replaced:</p> <p>Traction host, customized rack, guide pulley, return sheave, traction main wire rope, rope head device, shock pad, etc.</p>



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Elevator repair and transformation service classification - system update

service classification	Technical description
<p>System update Door motor system</p>	<p>The update of the door motor system basically involves the synchronous update of the hall door system, so the update of the door system includes the hall door update:</p> <p>Main parts to be replaced or added:</p> <p>Replace door machine device, car sill, car door panel, landing door device, landing door sill and bracket, hall door panel, and install enclosure.</p> <p>Renewal and transformation cycle of portal crane system:</p> <p>The period of technical treatment and manufacturing procurement is about 10 working days, and the on-site construction period is different according to different ladder types:</p> <p>The construction of passenger elevator gantry crane is about 1 day (2 people * 1 day=2 labor), the construction of landing door device is about 0.5 days per floor (2 people * 0.5 days=1 labor), the construction of cargo elevator gantry crane is about 1.5 days (3 people * 1.5 days=4.5 labor), and the construction of landing door device is about 1 day per floor (2 people * 1 day=2 labor)</p>



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Elevator repair and transformation service classification - system update

service classification	Technical description
<p>System update Cabin system</p>	<p>Elevator car system update:</p> <p>The upgrading of passenger elevator cabin system is mainly due to the long service life of the elevator, outdated elevator decoration, damaged car bottom marble, damaged and fallen decoration ceiling, damaged human-computer interface, etc., which need to be replaced as a whole;</p> <p>The carbin system of the freight elevator is updated mainly because the car wall or door panel is seriously deformed and can not be repaired due to the collision of goods entering and exiting the car during daily use of the elevator, and the car bottom is subject to long-term load bearing deformation. The car bottom needs to be replaced or retained as a whole as the case may be;</p> <p>Lift cabin system updating and transformation cycle:</p> <p>The period of technical treatment and factory production is about 7 working days, the on-site construction is about 3 days (3 people * 3 days=9 labor), and the freight elevator is * 2.</p> <p>Parts to be replaced:</p> <p>Car wall, car roof, car bottom, decorative ceiling (passenger elevator), handrails (passenger elevator), and installation accessories.</p>



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Elevator repair and transformation service classification - component upgrade

service classification	Technical description
Component upgrade	<p>Each component of the elevator has a design service life, and the design service life of each component is different.</p> <p>For elevators with a service life of 5 to 15 years, according to the frequency of use and the actual status of the site, it is a practical business development plan to propose an upgrade plan for elevator components through evaluation;</p> <p>The component upgrade business basically belongs to the construction category of general repair, with the same specification and model (or the same specification Different models);</p> <p>The component upgrading business is generally carried out in combination with the daily maintenance plan, according to the component replacement cycle table and according to the actual on-site use</p> <p>The situation shall be submitted to the customer in writing through the evaluation report.</p>



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Classification of elevator repair and transformation service - main parts replacement cycle table

Part name	Technical conditions for replacement	Replacement cycle (All suggestions)	Note
Motor	<ol style="list-style-type: none"> 1.The motor casing or base has cracks that affect safety; 2. The motor bearing is broken, or the wear affects the operation; 3. The motor stator and rotor collide and have caused serious wear; 4. The insulation resistance of the motor drops, and it does not reach 5M Ω in cold state and 0.5M Ω in hot state; 5. The magnetic steel rotor of permanent magnet synchronous motor is severely demagnetized, which cannot meet the full stroke range of 110% rated load <p>Surrounding operation;</p> <ol style="list-style-type: none"> 6. The magnetic steel rotor of permanent magnet synchronous motor falls off. 	10-15 years	Items 1-3 need to be replaced, 4-6 items can be repaired. If the maintenance cost is too high or the performance cannot be guaranteed, replacement is still recommended.
Encoder	Abnormal encoder signal output, elevator emergency stop caused by abnormal speed feedback, large bearing wear clearance, and running swing	3-5 years	Refer to frequency and environmental factors
Reduction box	<ol style="list-style-type: none"> 1. Plastic deformation, fracture and crack of gear teeth affecting safe operation of worm gear pair, helical gear and planetary gear <p>Serious failure of tooth surface in the form of pitting, gluing and peeling;</p> <ol style="list-style-type: none"> 2. The oil temperature of the reduction gearbox exceeds 85 °C during the use of the elevator; 3. Cracks are found on the reducer housing; 4. The oil leakage of the reduction gearbox exceeds the requirements specified in the standard. 	10-15 years	In case of cracks affecting the safety of the gearbox housing, it must be replaced, and the damaged seals and oil leakage can be repaired according to the situation.
Traction sheave	<ol style="list-style-type: none"> 1. The rope groove wear causes insufficient traction force, which cannot meet the standard requirements; 2. The rope groove is damaged or irregularly worn, and there is a risk that the wire rope will be damaged or out of groove; 3. Cracks appear on the wheel body casting; 4. The bearing bore has wear that affects operation. 	5-8 years	Refer to frequency and environmental factors And maintenance standardization



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Classification of elevator repair and transformation service - main parts replacement cycle table

Part name	Technical conditions for replacement	Replacement cycle	Note
Brake	<ol style="list-style-type: none"> When the elevator is running, the brake shoe (disc) of the brake cannot be completely separated from the brake wheel (disc), and No improvement after adjustment; The brake shoe (piece) is seriously worn, and the wear reaches 1/2 of the original thickness, which leads to the brake torque when the brake acts Unable to meet the standard requirements; Brake spring failure; The iron core of brake electromagnetic coil acts abnormally, causing jamming; 	3-5 years	<p>Items 1-3 need to be replaced with corresponding parts</p> <p>4 items can be repaired first as the case may be, none</p> <p>Replacement is required when repairing.</p>
Manual brake release device	<ol style="list-style-type: none"> The brake release handle is severely deformed and cracked; The brake release wrench assembly is severely rusted, deformed or cracked; The brake release wire rope is severely rusted, jammed or broken. 	5-8 years	Refer to frequency and environmental factors
Manual turning gear	<ol style="list-style-type: none"> The turning handwheel is severely rusted, deformed, cracked or damaged; Cracks are found at the welding parts of the structure; The engagement of turning gear pair fails; The gear has cracks or broken teeth. 	5-8 years	Refer to frequency and environmental factors
ARD	<ol style="list-style-type: none"> The battery leaks; The battery cannot be charged or the battery voltage after charging is lower than the normal working voltage; After charging, the battery power does not meet the requirements of lift car moving distance. Inverter circuit functions abnormally or components fail. 	2-3years	Refer to frequency and environmental factors



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Classification of elevator repair and transformation service - main parts replacement cycle table

Part name	Technical conditions for replacement	Replacement cycle	Note
Five-call device	<ol style="list-style-type: none"> 1. The shell of the telephone is damaged, the function is invalid or the voice is unclear; 2. The battery cannot be charged or discharged for less than 1 hour. 	2-3years	Refer to frequency and environmental factors
Traction wire rope	<ol style="list-style-type: none"> 1. Broken wires: Broken wires are scattered in the whole wire rope, and the number of broken wires in a single strand within any lay length is more than 4; Broken wires are concentrated in a part or a strand of wire rope, and the total number of broken wires in a lay length is more than 12; 2. Reduction of rope diameter: the diameter of steel wire rope is less than or equal to 90% of the nominal diameter; 3. Deformation or damage: cage distortion, rope strand extrusion, kinking, partial flattening and bending of wire rope; 4. Rust: the steel wire rope is severely rusted, with pitting, internal rust and rust filling the rope strand gap. 	5-8 years	<ol style="list-style-type: none"> 1. Refer to the use frequency, environmental factors and maintenance specifications; 2. If one wire rope of the traction wire rope is scrapped, the traction wire rope of the whole elevator should be replaced.
Traction steel belt	<ol style="list-style-type: none"> 1. The steel strip has cracks, indentation, bending, puncture, depression or bulge 2. Any rope strand in the steel belt is broken; 3. The steel strip surface exposes the internal steel wire due to wear or external force damage; 4. The steel strip is severely rusted; 5. The traction capacity of the steel belt cannot meet the requirements of 9.3 in GB7588-2003 due to insufficient friction. 	5-8 years	<ol style="list-style-type: none"> 1. Refer to the use frequency, environmental factors and maintenance specifications; 2. If one wire rope of the traction wire rope is scrapped, the traction wire rope of the whole elevator should be replaced
Rope combination	<p>The rope head combination shall be scrapped in any of the following cases:</p> <ol style="list-style-type: none"> 1. Cracks on taper sleeve and pull rod; 2. Cracks on wedge rope sleeve; 3. The rope sleeve cannot lock (or fix) the wire rope, and the wire rope slips in the rope sleeve; 4. Thread failure of rope head screw and nut; 5. Permanent deformation or insufficient tension of spring; 6. The metal is severely rusted; Aging and cracking of composite elastic parts. 	5-8 years	Refer to frequency and environmental factors



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Classification of elevator repair and transformation service - main parts replacement cycle table

Part name	Technical conditions for replacement	Replacement cycle	Note
Sheave sheave guide pulley	<ol style="list-style-type: none"> 1. The rope groove is seriously worn; 2. The rope groove is damaged or irregularly worn, and there is a risk that the wire rope will be damaged or out of groove; 3. Wheel hub and bearing, shaft and bearing slip, clearance or obvious displacement 4. The pulley casting has cracks; 5. The non-metallic material wheel is severely deformed, aged and cracked. 	5-8 years	Refer to frequency and environmental factors And maintenance standardization;
Compensation chain Cable Guide device	<ol style="list-style-type: none"> 1. The coating material on the surface of the fully covered compensation chain (cable) is cracked, peeled off and severely worn; 2. The roller of the compensation chain (cable) guide device is deformed, damaged, severely worn or jammed; 3. The surface of the chain link is severely rusted and desoldered, with a risk of breakage. 	3-8 years	Refer to frequency and environmental factors And maintenance standardization;
Compensating rope and tensioning device	<ol style="list-style-type: none"> 1. The technical conditions for scrapping of compensation wire rope shall be as specified for traction wire rope; 2. The technical conditions for scrapping of compensation rope head combination shall be in accordance with the rope head combination regulations; 3. The technical conditions for scrapping the tensioning pulley shall be as specified for the pulley. 	5-8 years	Refer to frequency and environmental factors
Car frame	<ol style="list-style-type: none"> 1. The car platform inclines more than 5% of its normal position due to the deformation of the car frame; 2. The car frame is severely deformed, causing the guide shoe or safety gear to fail to work normally; 3. The car frame is desoldered, cracked and severely rusted, which affects the safe operation of the elevator. 	10-15 years	Refer to frequency and environmental factors



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Part name	Technical conditions for replacement	Replacement cycle	Note
Car wall, car roof and car bottom	<ol style="list-style-type: none"> 1. The car wall and roof are seriously rusted and perforated or damaged, and the diameter of the perforation is greater than 4mm 2. The car wall and roof are seriously deformed and damaged, and the stiffeners fall off; 3. The car platform is severely deformed, cracked, rusted and perforated; 4. The glass car wall and car roof have cracks. 	8-12years	Refer to frequency and environmental factors
Counterweight frame	<ol style="list-style-type: none"> 1. The counterweight frame is severely deformed, causing the guide shoe or counterweight safety gear to fail to work normally; 2. The straight beam of the counterweight frame and the bottom beam are deformed, which cannot ensure the reliable fixation of the counterweight block in the counterweight frame; 	10-15 years	Refer to frequency and environmental factors
Counterweight block	<ol style="list-style-type: none"> 1. The metal counterweight is broken; 2. The non-metallic counterweight is cracked or severely deformed; 3. The external material of counterweight block is damaged and the internal material may leak out. 	10-15years	Refer to environmental factors
Door leaf	<ol style="list-style-type: none"> 1. The door leaf is severely rusted and perforated, and the back reinforcement falls off; 2. The door leaf is seriously deformed and does not meet the standard requirements; 3. The glass door leaf has cracks, or the edge of the glass door leaf has sharp gaps due to abrasion and impact; 4. The outer layer of the door leaf is detached (fallen), causing the door opening and closing blocked, or the strength of the door leaf does not meet the standard requirements. 	8-12years	Refer to frequency and environmental factors



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Classification of elevator repair and transformation service - main parts replacement cycle table

Part name	Technical conditions for replacement	Replacement cycle	Note
landing door jamb	<ol style="list-style-type: none"> 1. The landing door jamb is seriously deformed, collides with the door leaf, or the clearance between the door jamb and the door leaf does not meet the standard requirements; 2. The landing door jamb is severely rusted. 	8-12years	Refer to frequency and environmental factors
Sill	<ol style="list-style-type: none"> 1. The sill is deformed, and the gap between the sill and the door leaf cannot be guaranteed to meet the standard requirements; 2. The distance between landing door sill and car sill is more than 35mm due to sill deformation; 3. The chute on the sill surface is deformed, affecting the normal operation of the door leaf or causing the door guide shoe to derail; 4. The sill is fractured, open welded, severely worn or corroded, which seriously affects the normal operation of the landing door and car door. 	8-12years	Refer to frequency and environmental factors
Sill support	The sill support is severely deformed and corroded, affecting the normal use of the sill	8-12years	Refer to frequency and environmental factors
Door linkage	<ol style="list-style-type: none"> 1. Cracks or inflexible moving parts; 2. It is severely deformed, desoldered and cannot be adjusted. 	5-8 years	Refer to frequency and environmental factors



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Classification of elevator repair and transformation service - main parts replacement cycle table

Part name	Technical conditions for replacement	Replacement cycle	Note
Door motor	<ol style="list-style-type: none"> 1. The outgoing line of motor winding is damaged and leakage occurs; 2. The bearing of the machine is broken, or the wear affects the operation; 3. The force to open the car door does not meet the requirements of the standard. 	5-8 years	Refer to frequency and environmental factors
Door operator controller	<ol style="list-style-type: none"> 1. The shell is damaged, the electric leakage occurs, the printing plate is corroded or burnt; 2. The function fails and cannot be repaired or the repair cost is too high. 	3-5 years	Refer to frequency and environmental factors And maintenance standardization;
Door guide shoe	Door parallelism>1-2mm due to unilateral wear	6 months	Refer to frequency
Gantry crane wheel	<ol style="list-style-type: none"> 1. Wear and abnormal bearing cause door opening and closing shaking or abnormal noise; 2. The plastic wheel film is damaged or the bearing is damaged; 3. The nylon wheel is aged and deformed, the wheel edge is damaged or the bearing is damaged. 	2 years	Refer to frequency and environmental factors
Synchronous pulley of portal crane belt	Rack wear and abnormal bearing	3 years	Refer to frequency and environmental factors
Door motor belt	Local cracking and rack wear	2 years	Refer to frequency



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Classification of elevator repair and transformation service - main parts replacement cycle table

Part name	Technical conditions for replacement	Replacement cycle	Note
Guide shoe	<ol style="list-style-type: none"> 1. The component body is cracked; b) Permanent deformation occurs, affecting the normal operation of the elevator or there is a risk of derailment. 	5-8 years	Refer to frequency and environmental factors
Door locking device	<ol style="list-style-type: none"> 1. The mechanical structure of the door lock is deformed, causing that the minimum engagement depth of 7mm cannot be guaranteed; 2. Cracks, rust, or inflexible rotating parts occur. 	2-3 years	Refer to frequency and environmental factors and maintenance standardization;
Door entrance protection device	<ol style="list-style-type: none"> 1. Protection function failure; 2. The protective device is damaged or severely deformed. 	3-5 years	Refer to frequency and environmental factors
Speed limiter	<ol style="list-style-type: none"> 1. The wear of the governor bearing causes damage to the shaft and bearing sleeve; 2. When the governor acts, the tension of the governor rope does not meet the standard requirements; 3. The electrical action speed and mechanical action speed of the speed governor can not meet the design requirements, and still can not be checked <p>Meet the design requirements.</p>	8-12 years	According to the acceptance requirements, the speed governor shall be calibrated every 2 years. If the calibration fails to meet the design requirements, it shall be replaced
Tension device	<ol style="list-style-type: none"> 1. The tensioning wheel is deformed or cracked; 2. The tensioner bearing is damaged, resulting in wear of the bearing hole; 3. The tensioning pulley rope groove is damaged or severely worn; 4. The mechanical structure of the tensioning device is severely deformed or corroded. 	8-12 years	Refer to frequency and environmental factors
Safety gear	<ol style="list-style-type: none"> 1. Cracks or severe plastic deformation of the body and clamping parts (wedge or roller, etc.) of the safety gear; 2. The clamping parts are worn and rusted, and the lift car or counterweight cannot be stopped effectively; 3. Plastic deformation of elastic parts leads to excessive clearance between clamping parts and working surface at guide rail side, which cannot be effectively controlled <p>Stop the lift car or counterweight.</p>	8-12 years	Refer to frequency and environmental factors



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Classification of elevator repair and transformation service - main parts replacement cycle table

Part name	Technical conditions for replacement	Replacement cycle	Note
Overload device	When the elevator car is overloaded, the overload device cannot send the correct signal, resulting in failure to prevent the elevator from starting normally And re leveling shall be replaced.	3-5 years	Refer to frequency and environmental factors
Limit switch	1. The switch roller falls off or breaks; 2. The return spring fails; 3. The contact is burnt or poorly contacted.	3-5 years	Refer to frequency and environmental factors
Rope Gripper	1. The triggering linkage mechanism is damaged; 2. Plastic deformation and crack of caliper body or brake spring; 3. Clamping parts are severely worn and rusted, resulting in failure to meet design requirements; 4. The reset device is damaged.	8-12 years	Refer to frequency and environmental factors
Energy storage type buffer Punch	1. The spring is severely rusted or cracked; 2. Permanent deformation or damage affecting normal operation after buffer action 3. The non-metallic materials appear cracking, peeling and other aging phenomena; 4. Permanent deformation or damage affecting normal operation after compression.	5-8 years	Refer to environmental factors
Energy consuming buffer	1. The cylinder block has cracks; 2. The normal working liquid level cannot be guaranteed due to oil leakage; 3. The plunger is rusted, affecting normal operation; 4. The return spring fails, and the return of buffer cannot meet the design requirements; 5. Permanent deformation or damage affecting normal operation after buffer action	8-12 years	Refer to environmental factors



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Part name	Technical conditions for replacement	Replacement cycle	Note
Leveling electro-optical switch	<ol style="list-style-type: none"> 1. The shell damage may cause short circuit hazard; 2. The switch signal is easy to be lost or stuck, causing layer drop, crash and other failures; 3. The switch contact is corroded due to moisture and water ingress, and the contact is unreliable. 	2 years	Refer to frequency and environmental factors And maintenance standardization;
Functional relay implement	<ol style="list-style-type: none"> 1. Damage of shell may cause electric shock hazard; 2. When the coil circuit is disconnected or connected, the contact cannot be correctly and reliably disconnected or closed. 	3-5 years	Refer to frequency and environmental factors
Contactor	<ol style="list-style-type: none"> 1. Damage of shell may cause electric shock hazard; 2. The electrical clearance is less than 5.5mm, or the creepage distance is less than 6.3mm; 3. When the coil circuit is disconnected or connected, the contactor cannot be disconnected or closed correctly and reliably. 	3-5 years	Refer to frequency and environmental factors
Inverter	<ol style="list-style-type: none"> 1. Damage of shell may cause electric shock hazard; 2. The copper skin of the input and output main circuit board is broken; 3. DC bus capacitor bulges, leaks or is obviously burnt; 4. The cooling fan is dirty and cannot be cleaned, and the rotor is blocked; 5. Input/output, braking unit and braking resistor terminal block, copper bar overheating, deformation, arcing oxidation, corrosion Serious;	5-8 years	Refer to frequency and environmental factors
printed circuit plate	<ol style="list-style-type: none"> 1. The circuit board via is blocked due to water ingress due to damp or serious corrosion caused by acid, alkali, etc; 2. The copper foil of the circuit board is oxidized by arcing, and the component bonding pad is damaged or falls off; 3. External force fracture; 4. Large area burning and carbonization. 	5-8 years	Refer to frequency and environmental factors



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Classification of elevator repair and transformation service - main parts replacement cycle table

Part name	Technical conditions for replacement	Replacement cycle	Note
hydraulic cylinder	<ol style="list-style-type: none"> 1. The plunger is seriously rusted, worn and damaged, resulting in oil leakage; 2. The plunger is deformed due to external force; 3. The cylinder barrel is severely rusted and deformed; 4. Connection failure of butt plunger; 5. Connection failure of butt joint cylinder barrel; 6. Buffer brake failure; 7. The built-in hydraulic synchronization mechanism of multi-stage hydraulic cylinder fails. 	15-20 years	Refer to frequency and environmental factors And maintenance standardization;
Hydraulic hard pipe	<ol style="list-style-type: none"> 1. Serious corrosion, deformation and oil leakage; 2. The pipe joint leaks oil. 	15-20 years	Refer to environmental factors
Hydraulic hose	<p>The hydraulic hose shall be scrapped in case of any of the following conditions:</p> <p>The pipe joint leaks oil;</p> <p>The hose surface is damaged, aged and cracked, the steel wire braid is damaged, and the steel wire goes through the rubber layer.</p>	15-20 years	Refer to environmental factors
Hydraulic pump station	<ol style="list-style-type: none"> 1. The motor coil shall be replaced in case of short circuit, open circuit, grounding and burning 2. The screw pump shell of the submersible pump is broken, the main screw is broken, and the inner cavity of the shell is worn, so it should be replaced. 3. If the function of the valve group fails, the valve body should be replaced due to cracks and oil leakage; 4. The manual pump fails and should be replaced. 5. The handle of the stop valve is broken, and the valve core is worn, causing leakage, so it should be replaced. 	10-15 years	Refer to frequency and environmental factors
Hydraulic oil	<ol style="list-style-type: none"> 1. Water inflow, turbidity and emulsification of hydraulic oil; 2. High temperature oxidation results in oil blackening and sludge precipitation. 3. The oil tank shall be scrapped due to serious corrosion, deformation and damage. 	3-5 years	Refer to frequency and environmental factors



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Basic price of elevator repair and transformation package

For the following types of most common elevator repair and transformation projects, the combined pricing in the form of transformation package is used for quick quotation:

- 1. Upgrading of electrical system;**
- 2. Add intermediate floor station (add hall door);**
- 3. Add through doors;**



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Basic price of elevator repair and transformation package - electrical system

► **Passenger elevator electrical system upgrade package:**

Replace control cabinet, car roof box, pit box, hoistway information, prefabricated cable, standard COP (G2113), standard HOP (G2251), excluding encoder.

(Note: The elevator specifications are for reference only, and the host specifications are taken as the pricing benchmark when quoting; the prices in the list include packaging but not transportation.)

Basic quotation of passenger elevator electrical system transformation (materials)													
Elevator specifications Load/speed	Host specifications	2 th floor	4 th floor	6 th floor	8 th floor	10 th floor	12 th floor	14 th floor	16 th floor	18 th floor	20 th floor	22 th floor	30 th floor
630/1.0	Power ≤ 5.5KW Current ≤ 10.8A	19999	21438	23028	24468	25908	27498	28938	30678	32418	34158	36048	43158
800/1.0	Power ≤ 7.5KW Current ≤ 15A	20299	21499	23089	24529	25969	27559	28999	30739	32479	34219	36109	43219
1150/1.0 630/1.75	Power ≤ 11KW Current ≤ 22.5A	20775	21975	23565	25005	26445	28035	29475	31215	32955	34695	36585	43695
1350/1.0 1000/1.75 1150/1.5 800/2.0	Power ≤ 15KW Current ≤ 27.5A	21272	22472	24062	25502	26942	28532	29972	31712	33452	35192	37082	44192
1000/2.0 800/2.5	Power ≤ 18.5KW Current ≤ 32.5A	23218	24418	26008	27448	28888	30478	31918	33658	35398	37138	39028	46138
1350/1.5 1600/1.75 1250/2.0 1000/2.5	Power ≤ 22KW Current ≤ 41A	24760	25960	27550	28990	30430	32020	33460	35200	36940	38680	40570	47680
1350/2.0 1250/2.5	Power ≤ 30KW Current ≤ 52A	26846	28046	29636	31076	32516	34106	35546	37286	39026	40766	42656	49766
1350/2.5 1600/2.5	Power ≤ 37KW Current ≤ 62.5A	32847	34047	35637	37077	38517	40107	41547	43287	45027	46767	48657	55767



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Basic price of elevator repair and transformation package - electrical system

► Cargo elevator electrical system upgrade package:

Replace control cabinet, car roof box, pit box, hoistway information, prefabricated cable, standard COP (G2124), standard HOP (G2217), excluding encoder.

(Note: The elevator specifications are for reference only, and the host specifications are taken as the pricing benchmark when quoting; the prices in the list include packaging but not transportation.)

Basic quotation of freight elevator electrical system transformation (materials)											
Elevator specifications Load/speed		Host specifications	2 th floor	3 th floor	4 th floor	5 th floor	6 th floor	7 th floor	8 th floor	9 th floor	10 th floor
Synchroniza tion host	Asynchronou s host										
2000/0.5 1000/1.0		Power ≤ 7.5KW Current ≤ 15A	20750	21568	22385	23203	24170	24988	25805	26623	27440
2500/0.5 1000/1.5	1000/0.5	Power ≤ 11KW Current ≤ 22.5A	21227	22044	22862	23679	24647	25464	26282	27099	27917
1600/1.0 3000/0.5	2000/0.5 4000/0.25	Power ≤ 15KW Current ≤ 27.5A	21723	22541	23358	24176	25143	25961	26778	27596	28413
2000/1.0 4000/0.5	3000/0.5 5000/0.25	Power ≤ 18.5KW Current ≤ 32.5A	23669	24487	25304	26122	27089	27907	28724	29542	30359
2500/1.0	4000/0.5	Power ≤ 22KW Current ≤ 41A	25211	26029	26846	27664	28631	29449	30266	31084	31901
3000/1.0 5000/0.5	5000/0.5	Power ≤ 30KW Current ≤ 52A	27296	28113	28931	29748	30716	31533	32351	33168	33986
4000/1.0 1600/2.0	3000/1.0	Power ≤ 37KW Current ≤ 62.5A	33299	34116	34934	35751	36719	37536	38354	39171	39989



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Basic price of elevator repair and transformation package - increase of middle floor

► **Add middle floor reconstruction package:**

Add landing door device, landing door sill, sill bracket and mounting bracket, landing door panel, door pocket, toe guard, leveling information, outbound call box and cable, and add floor button (on-site opening) to the control box

(Note: The following quotation is based on the mid split double fold 2-meter open door goods elevator plus layer.)

No	Material name	Model	Unit	Qty	Unit-P	Total
1	Landing door device	Doublen fold center EW=2000	Set	1	1955	1955
2	Landing door		Pcs	4	689	2754
3	Door jamb		Set	1	287	287
4	Landing door sill		Pcs	1	1369	1369
5	Sill bracket and support		Set	1	437	437
6	installation package		Set	1	102	102
7	Toe guard		Pcs	1	162	110
8	Magnetic isolator arm assembly			1	26	26
9	Magnetic separator			1	10	10
10	External call		Pcs	1	510	510
11	COP button		Pcs	1	36	36
12	Wooden box		Set	1	500	500
					Total	8095



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Basic price of elevator repair and transformation package - increase through door



Add through door reconstruction package:

Replace the rear car wall of the car, add the front wall panel, add the door operator, sill, sill bracket, car door, light curtain, and add the counterweight.

(Note: The addition of through doors increases the number of car entrances, which belongs to transformation, and the specific transformation project needs to be verified.)

No	Material name	Model	Unit	Qty	EXW-P	Total	Note
1	Door motor	Double fold center EW=2000	Pcs	1	5365	5365	
2	Cabin door	Painted	Pcs	4	618	2472	
3	Car door sill		Pcs	1	1163	1163	
4	Sill bracket		Pcs	1	500	500	
5	Toe guard			1	491	491	
6	Light curtain		Pcs	1	464	464	
7	Installation package		Set	1	102	102	
8	Car wallboard		Pcs	2	563	1125	
9	Anterior wall		Pcs	2	298	595	
10	Up square		Pcs	1	309	309	
11	Front car roof		Pcs	1	561	561	
12	Counterweight		kg	130	8	1014	
					Total	14161	



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Thank you