LIFTING TECHNOLOGY

OPERATING, MAINTENANCE AND SERVICE MANUAL
320 kg to 2,000 kg DC CHAIN HOISTS

Do not use the chain hoist before all operators have carefully read this manual. Failure to operate the equipment as here described may cause injury or even death.

Retain this manual for future reference and use.

Before using the hoist, please fill in the following information (refer to the hoist identification plate).
Such information must be communicated every time that the LITEC maintenance service is called.

Model number	
Instructions for use	
Serial number	
Purchase date	
Voltage	
Nominal capacity	

If you are in doubt or need any further information, please contact LITEC.

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1. INFORMATION

1.1 Preliminary information

Thank you for choosing an Exe-Rise chain hoist of LITEC Italia S.p.A.

This manual contains important information to help you properly install, operate and maintain your chain hoist. To carry out these operations, all safety rules specified therein must be followed. Should some passages not be clear, please contact our Technical Office.

The information reported in this document refers to own use, care, and maintenance of the single hoist; that is to say, the “rigging” process is not included. By the term “rigging” is defined as the process of handling and lifting loads using one or more hoists or other mechanical equipment. The ability acquired through specialised experience and study, is essential to make rigging operations safe. For information on rigging, we recommend that reference be made to the specific documentation on the subject.

Before installing and using the hoist, the instructions and advice mentioned in this manual and attached documents must be carefully read and fully observed. Operating and service personnel must have read and understood the operating instructions, in particular the safety instructions, before commencing work. Protective equipment must be made available for operating and service personnel and worn at all times. These sections should be adhered to and followed to ensure safe reliable and correct function of the product, and to eliminate the possibility of damage persons or equipment.

WARNING !
The information reported in this manual represents important instructions on safety. Non-compliance to such instructions can endanger the safety of persons and/or cause material damages detrimental to you or to others.

The operator or his representative is responsible for supervising operating personnel and ensuring they are aware of the hazards and safety implications of working with the electric hoist.

You should keep this manual clean, complete and in a legible condition for future references. Furthermore, supplementary to the manual, the statutory regulations governing general accident prevention and environmental protection are to be enforced.

This manual and the other documents contained in the packing are an integral part of the hoist supplied to you, and must be carefully kept, protected against humidity and any other deteriorating agents, for all the lifecycle of the hoist. They must follow the hoist in case of transfer to any other user or new owner.

1.2 Replacement policy

The hoist has been checked and performance verified by LITEC Italia S.p.A. or one of its authorised service agents before shipping.

If the correctly maintained hoist should present a performance problem due to faulty material or workmanship, after inspection by LITEC Italia Spa or authorised agent, repairing or replacement of the unit will be made free of charge in favour of the original purchaser.

This repairing/replacement policy only applies to installed, under maintenance and operating Hoists, as highlighted in this manual and does not include the parts subject to normal wear and tear, misuse, improper installation, inadequate and incorrect maintenance, the effects of hostile environments and unauthorised repairing/modifications.

The manufacturer and dealers cannot accept responsibility for any damage or lack of functionality due to the following situations:

- Carrying out inappropriate operations for an electric chain hoist
- Product modification without the express authorization of the manufacturer
- Inappropriate operation of the hoist
- Operational errors
- Failure to use the product as stated in the manual.

LITEC ITALIA SPA DECLINES LIABILITY FOR ANY DAMAGES ARISING FROM A NON-COMPLIANT INSTALLATION AND MAINTENANCE INDICATED IN THIS DOCUMENT.

It is hereby reminded that if the hoist is used in Italy, the user is compelled to follow the provisions of law provided for lifting equipment with load limit over 200kg. When used in other Countries, the possible presence of this kind of provisions must be verified.

1.3 Modes of use

The hoist is an electrically operated lifting mechanism, equipped with a steel chain that acts as a bearing element. The hoist is suitable to be mounted in two ways. Either “body-up”, where the main hoist is mounted upper-most (see Figure 1), or “body-down”, where the hoist body is at low level with chain mounted upper-most. The body travels up the chain as lifting is carried out (see Figure 2).

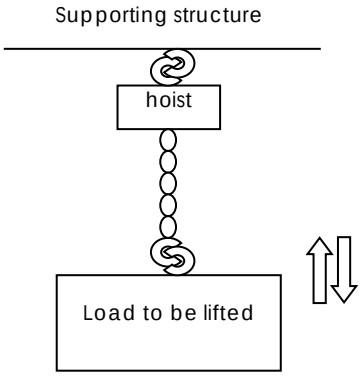


Figure 1: Lifting a load with the hoist positioned upper-most. Known as “body-up”.

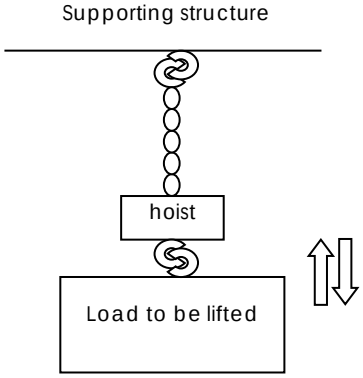


Figure 2: Lifting a load with the hoist positioned at low level and the chain hook upper-most. Known as “body-down” or “self-Climbing”.

Electric chain hoists are designed to lift and lower loads vertically and to travel horizontally with trolleys. Every other use is prohibited. Please ask the producer for any special mode of use in advance.

	**WARNING !** Using the hoist to carry people is strictly forbidden!

The EXE-Rise chain hoists are intended for use in setting up events. Events include concerts, shows, conferences, meetings, exhibitions, presentations, demonstrations, film or television shoots and similar.

The location of such events include, amongst other places, theatres, multipurpose halls, studios, film sets, television and radio broadcasting, concert halls, conference centres, schools, exhibitions, fairs, museums, discotheques, vaudeville, recreational parks, sports facilities, open theatres and meetings.

1.4 Selection and Provision

Electric chain hoists are offered in a multiplicity of designs and feature options, as well as with different safety devices. This means that the choice of chain hoist is extremely important. Here consideration must be given to risks arising from the nature of the operational use and the specific operating conditions. The selection must be based on the hazards arising from the type of use, taking into account the specific conditions of use whilst abiding to the local laws in the country of use.

This standard differentiates between three types of electric chain hoists:" *

D8 Hoist △
Electric chain hoist according to BGV D8/GUV-V D8 (previously GUV 4.2) "Winches, lifting and pulling devices" for use as a chain hoist for lifting loads in construction.

D8 Plus Hoist □
Electric chain hoist based on BGV D8/GUV-V D8 (previously GUV 4.2) "Winches, lifting and pulling devices" for use as a chain hoist for lifting loads in construction with the special characteristic of being able to hold loads statically above personnel, without the use of secondary safety devices.

C1 Hoist (scenery hoist) ○
Electric chain hoist according to BGV C1/ GUV-V C1 (previously GUV 6.15) "Staging and production facilities for the entertainment industry" for holding and moving loads above personnel.

The types of electric chain hoists specified above can be operated both individually and in groups.

The choice of the type of electric chain hoist depends on the operating conditions:

	D8	D8 with secondary safety device	D8 Plus	C1
	Where personnel are under the load			
Holding loads	**not permitted**	**permitted**	**permitted**	**permitted**
Erection / dismantling, rigging operations	**not permitted**	**not permitted**	**not permitted**	**permitted**
Scene movement	**not permitted**	**not permitted**	**not permitted**	**permitted**
Complex Scene movement	**not permitted**	**not permitted**	**not permitted**	**permitted**

Table 1: Selection criteria for electric chain hoists for moving and holding loads above people

Where equipment is permanently installed in locations where events take place, electric chain hoists according to BGV C1/GUV-V C1 should be provided, on account of the mode of operation and the anticipated risks. The use should refer to VPLT standard for information.

* Source: igw SQ P2 – Electric chain hoists

1.5 Technical data

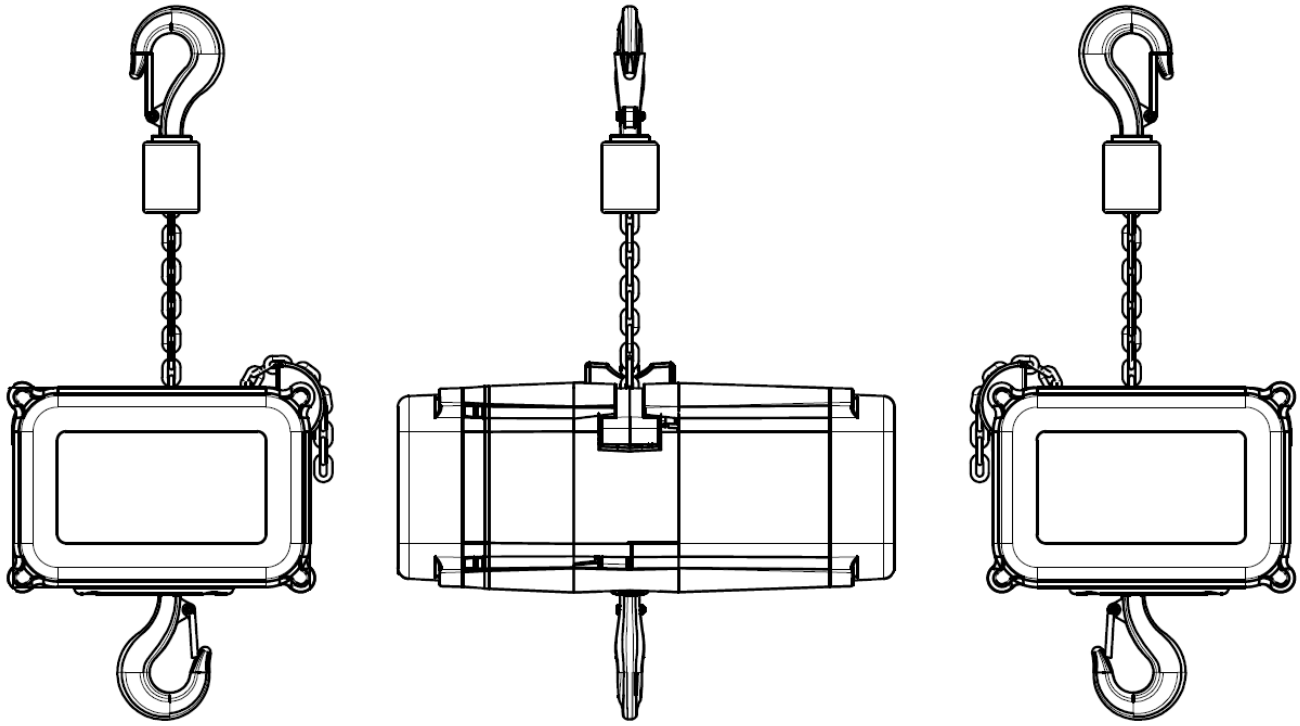


Figure 3: Views of EXE-Rise hoists

Table 2: Comparison chart of the main EXE-Rise chain hoists

Model	EXE-Rise 320 kg D8	EXE-Rise 620 kg D8	EXE-Rise 1,120 kg D8	EXE-Rise 2,000 kg D8
Load capacity	320 kg	620 kg	1,120 kg	2,000 kg
Body dimensions	134x128x339mm	275x188x443mm	275x188x443mm	275x188x443mm
Lifting speed	4m/min	4m/min	4m/min	4m/min
Motor power	0.5 Kw	0.8 kW	1.0 kW	1.5 kW
Body weight	15 kg	31 kg	40 kg	46 kg
Chain weight	0.35 kg/m	0.54 kg/m	1.03 kg/m	1.03 kg/m
Power supply Voltage (V)	230/400 V 50Hz 3-pole + Earthing	230/400 V 50Hz 3-pole + Earthing	230/400 V 50Hz 3-pole + Earthing	230/400 V 50Hz 3-pole + Earthing
FEM class	1Am (2m pending)	1Am (2m pending)	1Am (2m pending)	1Am (2m pending)
Load wheel	5 pockets	7 pockets	5 pockets	5 pockets
Falls of chain	1	1	1	2
Low voltage control	Optional st. 24VAC 50Hz	Optional st. 24VAC 50Hz	Optional st. 24VAC 50Hz	Optional st. 24VAC 50Hz
Suspension with swivel hook	standard	standard	standard	standard
Noise level	67.5 db at full load	67.5 db at full load	67.5 db at full load	67.5 db at full load

Table 1: Technical data of chain hoists

1.6 Technical drawings

Figure 4: Perspective view of a single-fall EXE-Rise hoist

Figure 5: End view of a single-fall EXE-Rise hoist

Figure 6: Perspective view of a double-fall EXE-Rise hoist

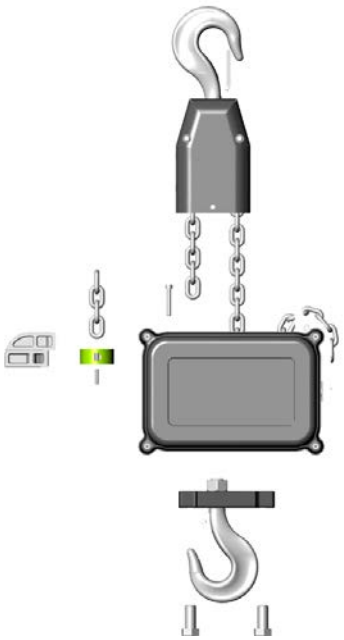


Figure 7: End view of a double-fall EXE-Rise hoist

1.7 Exploded diagrams

1.7.1 320 kg EXE-Rise chain hoist

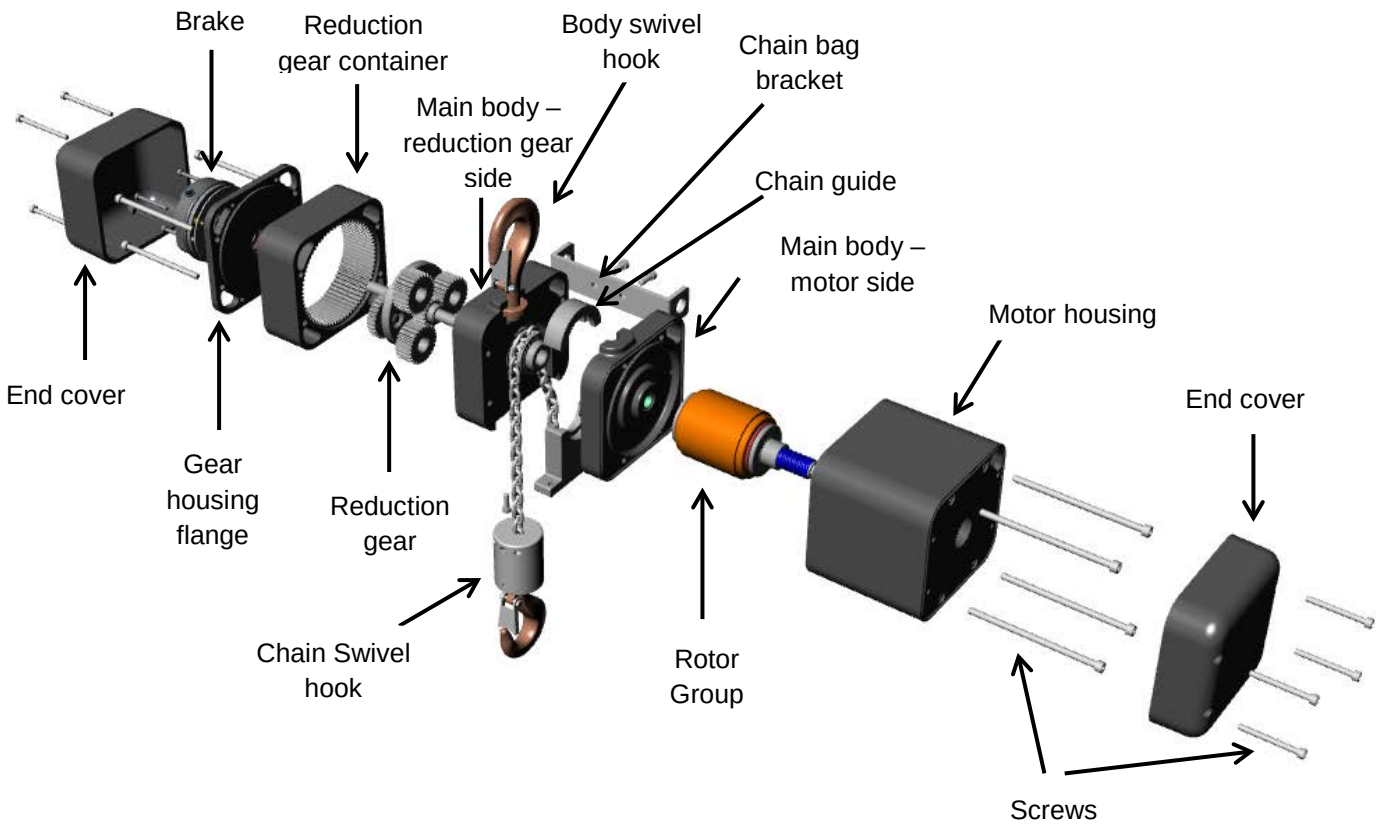


Figure 8: Exploded diagram of 320kg hoist

7.2 620-2,000 kg EXE-Rise chain hoists

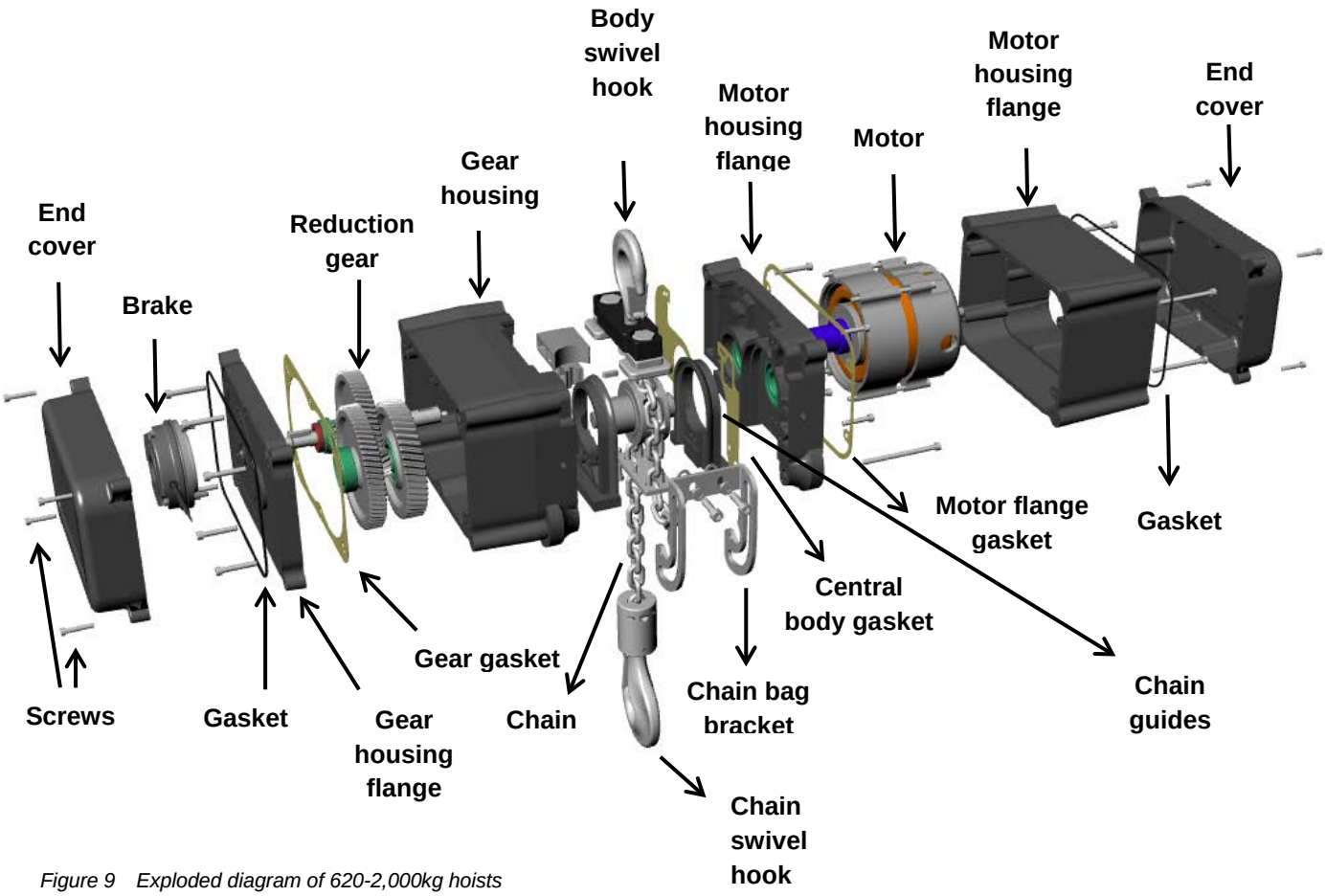


Figure 9 Exploded diagram of 620-2,000kg hoists

1.8 Marking

The hoist was designed and manufactured in compliance with the regulations indicated in the related CE confor

On the hoist is affixed a plate indicating, in an indelible manner, the following information

- Model
- Power supply
- Control supply (in LVC chain hoists)
- Mechanism group
- Load bearing capacity
- Identification number
- Year and month of manufacture (YY/MM)
- Indication of hoist typology (either D8 or D8+).

Figure 10: An example of labels

WARNING !
Removing or covering the labels affixed to the hoist is prohibited. Labels must be kept in good conditions and replaced in case of damaging/loss.

2 SAFETY PRECAUTIONS

2.1 Regulations and standards

EXE-Rise chain hoists are built in accordance with the specifications contained herein, and at the time of manufacture complies with our interpretation of applicable sections of the European FEM or equivalent to American Society of Mechanical Engineers Code B30.116 “Overhead Hoists”, the National Electrical Code (ANSI/NFPA 70) and the Occupational Safety and Health Act (OSHA). Since OSHA states the National Electrical Code applies to all electric hoists, installers are required to provide current overload protection and grounding on the branch circuit section in keeping with the code. Check each installation for compliance with the application, operation and maintenance sections of these articles.

Table 3: FEM classification – Load spectrum

Load spectrum	**Average operating time per day in hours**						
	≤0.25	≤0.5	≤1	≤2	≤4	≤8	≤16
Light				1Bm	1Am	2m	3m
Moderate			1Bm	1Am	2m	3m	
Heavy		1Bm	1Am	2m	3m		
Very Heavy	1Bm	1Am	2m	3m			

Table 4: FEM classification - Class

Class	1Bm	1Am	2m	3m
Duty factor of motor	25%	30%	40%	50%
Starts per hour	150	180	240	300

EXE-Rise chain hoists have 1Am classification (2m pending).

2.2 Operational parameters

EXE-Rise chain hoists are hoists of differing load capacities. They can be installed as stationary or mobile units. Electric chain hoists are manufactured in accordance with the latest technical developments and recognised safety standards, and are tested for safe operation by the manufacturer.
Electrical chain hoists of the above series may only be used when in an acceptable technical condition, in accordance with their operating parameters, by trained personnel in a safe and responsible manner.

The operational parameters of the electric chain hoist also encompass compliance with the predefined operating, service and maintenance requirements laid down by the manufacturer.

The operational parameters do not include:
- exceeding the defined load capacity
- pulling or applying a diagonal load to the chain
- heaving, pulling or dragging the load
- standing under suspended loads
- transporting excessive loads
- pulling on the control cable
- failing to observe the load hook constantly
- running the chain over edges
- failing to observe the load constantly

- allowing the load to fall due to a slack chain
- use at temperatures below -10° C or above +40° C
- use in an explosive environment.

Inching operations, ground mooring and driving against the limit switches should be avoided. The manufacturer accepts no responsibility for damage to equipment and third parties ensuing from such action.

2.3 Safe operating instructions and procedures

Assembly, disassembly, and operation of the hoist must be carried out according to the procedures specified in this document. In addition, only the accessories specified by LITEC Italia Spa must be used. When choosing a hoist for use, always check the lifting capacity is adequate for the load being moved. It is good practice not to run the hoist to against its limits. Experience proves that it is an advantage to work at 10 / 15% below the extreme limit. Use individual safety devices.

Protect the hoist and its components against possible welding jets, corrosive substances, mechanical damages, or severe weather conditions. Keep the hoist clean and efficient by carrying out the suggested maintenance program. Do not use the hoist in case of defective, anomalous functioning, in doubt of breakage, incorrect movements, anomalous noises.

In addition to the indications mentioned in this document, the user must follow the rules on accident prevention and safety that are in force in the country where the hoist is being used.

Follow these operating instructions:

- Only competent persons are permitted to use the equipment.
- When preparing to lift a load, be sure that the attachments to the hook are firmly seated in hook saddle. Avoid off centre loading of any kind, especially loading on the point of hook.
- Before lifting load, check for twists in the load chain. On single reeved chain hoist used in conjunction with head blocks and ground support systems, check for twists between the hoist and head block. Twisted load can result in a jammed liftwheel.
- On double reeved units a twist can occur if the lower hook block has been upturned between the strands of chain. The hook should be reversed to remove the twist from the chain before operation.
- Do not load hoist beyond the rated capacity shown on hoist identification plate or the hoist covers. Overload can cause immediate failure of some load-carrying part or create a defect causing subsequent failure at less than rated capacity. When in doubt, use the next larger capacity EXE-Rise hoist.
- Warn personnel of your intention to lift a load in the area. Where possible, secure the load with a secondary device before entering the area beneath the suspended items.
- Take up a slack load chain carefully and start load gently to avoid shock and jerking of hoist weight chain. If there is any evidence of overloading, immediately lower the load and remove the excess load.
- When lifting, raise the load only enough to clear the floor or support and check to be sure that the attachments to the hook and load are firmly seated. Continue to lift only after you are certain the load is free of all obstructions.
- Arrange periodic maintenance to ensure the hoist is functioning correctly, according to the modes indicated in paragraph 5.3
- STAY ALERT! Watch what you are doing and use common sense. Do not use the hoist when you are tired, distracted or under the influence of drugs, alcohol or medication causing diminished control.

	**WARNING !** Use of the hoist under conditions other than those described in this document, can result in accidents that may cause injuries and/or material damages.

2.4 Safety precautions

- Do not use the hoist if it is damaged, malfunctioning, or functioning in an unusual way.
- Do not use the hoist if the chain is distorted, corroded, damaged, or worn out.
- Do not make modifications nor apply accessories other than those provided by LITEC Italia S.p.A.
- Accessories causing dynamic overstressing or leading to accidental unexpected overloads or limiting the free handling of the load, are not allowed. Therefore, only the lifting accessories that interpose in a passive way between the equipment and the load are allowed.
- Do not try to lengthen the lifting chain or repair it if damaged.
- Do not hit, deform, or crush the hoist chain: danger of cracks or broken links may occur.
- Do not weld. Keep the chain away from open fire or flame.
- Do not use the lifting chain as sling and do not wrap the chain around the load.
- Do not put tools or foreign bodies in the links of the chain.
- Do not place the load on the point or on the spring latch of the hook.
- Do not operate the hoist beyond the limits of the chain.
- Do not use the lifting chain or the hook as earthing for welding.
- Do not connect the lifting chain or the hook to an energised welding electrode.
- Do not use the hoist if this is not perfectly efficient, even if it can work.
- Do not use the hoist with worn out, open hook or with missing spring latch.
- Do not use the hoist to lift, support or transport people.
- Do not lift loads exceeding the maximum load limit of the hoist (in body-down mode, the weight of the hoist must also be taken into consideration).
- Do not allow the load to swing or twist while hoisting.
- Do not handle the load above people or do not leave hanging loads without the operator's control.
- Do not use the hoist outdoors or anyway in places with water jets or environmental conditions without adequate protection.
- The use in explosive, aggressive atmosphere or with high concentration of powders or oily substances suspended in the air is prohibited. Electrical devices produce arcs or sparks that can cause a fire or explosion.
- Do not operate hoist at unusual extreme of ambient temperatures above +40°C or below -10°C.
- In general, use of the hoist with materials, adjustments or modifications not envisaged in this document, is prohibited.
- It is prohibited to tamper with the hoist in order to modify its performances.
- Do not remove or tamper with the protections and safety devices (described in paragraph 2.7).
- Use of the hoist is prohibited to unauthorised operators, who are not adequately trained in use of the hoist and the associated dangers.
- Use of the hoist outside the limits indicated in this document is expressly prohibited.

2.5 Operators' requirements

Requirements for installation, assembly and disassembly of hoist

The hoist must be assembled and disassembled only by authorised and qualified experts*.
The necessary qualifications for planning, assembly, disassembly, and activation, depend on the risk degree of the locations (that must be previously assessed).

This manual gives the necessary information for a safe installation, use, and maintenance generic working environment. Since it is not possible to foresee all the risk conditions working environments in which the hoist will be used, the person responsible for the management and supervision of the installation, assembly and disassembly must produce their own risk assessment for the specific use and environment in which the hoist will be used.

Testing the hoist

The hoist must be tested only by authorised and qualified experts*.
The person in charge of management and supervision is liable to give his approval to the use of electric chain hoists. Such approval can only be given on condition that the occurred carrying out of the tests, as laid down under paragraph 3.7, is duly proved.
Every possible transfer to other users must be documented in writing. (See E DIN 15 750 rules.)

Using the hoist

The hoist can be used only and exclusively by authorised and qualified experts*.

***) By authorised and qualified expert,** it is intended a person who, by virtue of his/her training and professional experience, has a specific competence in the field of safety and mechanical equipment and is familiar with the related national rules on health protection and safety at work and with the rules of good technical practice (technical regulations issued by the Country in which the hoist is used).

The expert must be able to verify the safety and mechanical equipment and give the related evaluation.

2.6 Structural and environmental requirements

CAUTION !
Below are indicated the structural and environmental requirements that must be checked by the user for guaranteeing safe use of the hoist.

2.6.1 Structural resistance

The operator is responsible for the construction method used for the set-up structure, the related load capacity and the conditions of the connection points (load suspension points) arranged in the place of use. In addition to the risk evaluation and the previously mentioned operating procedures, project documentation (calculation reports, drawings, etc.) related to such aspects, must therefore also be prepared.
The set-up structure and the related elements involved (hoist anchoring point, hoist and related accessories and the load thereof) must be able to bear the imposed loads (during the handling and suspension of the load) with a suitable safety factor.
In the overall analysis, the dynamical forces (for ex. impact factors) that intervene in the reasonably foreseeable use of the hoist must also be considered.

2.6.2 Electrical requirements

Check that the electrical supply system to be used is adequate and conforms to local standards.
The hoist must be used with a control system that meets local electrical safety regulations.

2.6.3 Environmental conditions

To ensure the hoists function correctly, the following environmental conditions should be observed.

Table 5: Environmental conditions

Temperature	Temperatures ranging between -10°C and +40°C.
Humidity	The relative humidity must not be higher than 50% with maximum temperature of +40°C. A higher relative humidity is allowed at lower temperatures (ex. RH. 90% at 20°C).
Altitude	Maximum altitude of 3,000 m
Electromagnetic environment	The hoist is designed to work correctly in an industrial type electromagnetic environment, falling within the emission and immunity limits provided by the harmonised rules currently in force.

2.6.4 Lighting

During the set-up and maintenance phases, the lighting of the working place must meet the provisions indicated by Directive EEC 89/654. Nevertheless, it is opportune that the diffusion intensity has not a value lower than 300 lux.
In case of use in environments with poor lighting (typical of the entertainment sector), the localised lighting of the control devices and the intervention area must be arranged.

2.7 Hoist safety devices

The hoist is equipped with various guards and devices designed to prevent accidents and to ensure the product complies with various safety standards.

WARNING !
The guards and devices listed below must not be removed by the user. Before operation the user should ensure all guards and devices are present and in place.

Removal of these guards and safety devices should only be allowed during maintenance by competent persons and in controlled conditions.

2.7.1 Metal housing

The metal housing carries out various safety functions:

- Prevents accidental contact with the internal moving parts.
- Prevents accidental contact with the internal parts that could reach high temperatures.
- Chain protection plate prevents wear between the chain and entry port of the hoist, and prevents jamming of the chain.
- Protection from electrical shock.

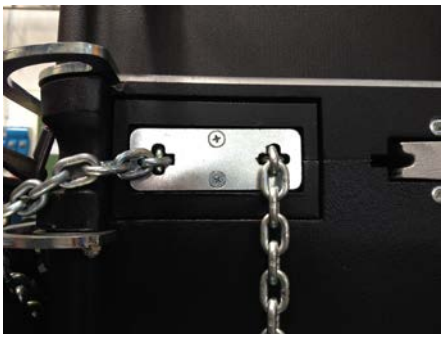


Figure 11 Aluminium chain guide

WARNING !
Removal of the metal housing covers should only be allowed during maintenance by competent persons and in controlled conditions.

2.7.2 Hooks

The hooks are equipped with a sprung safety latch that prevents accidental release of loads when applied correctly to the hook.

Figure 12 The two hooks of the hoist are equipped with a sprung safety latch.

2.7.3 Clutch

The clutch is designed to slip in the case of excessive load. If overloaded, the hoist will not lift.

WARNING !
If the clutch is subject to prolonged slipping it can overheat and become damaged. The clutch should not be allowed to slip continuously for more than 2 seconds.

Considering the above statements, these hoists should not be used in an application where a suspended load can be increased by adding additional weight. For example food lifts etc.

In addition, if the hoist is used in extreme temperatures, (above 65 or below -10 degrees C), the slipping properties of the clutch can be affected, allowing heavier loads than normal, resulting in possible damage, accident or injury.

2.7.4 Electrical connectors

The electrical plug must be used to disconnect the power supply to the hoist, in case of maintenance or emergency.

2.8 Residual risks

Residual risks related to a machine are accident risks that remain after the carrying out of all the safety measures taken by the manufacturer (and which, therefore, must be managed by the user).
The most serious residual risks, to which the safety signs installed on the hoist are associated, are listed hereunder.

Table 6: Residual risks

Residual risk, dangerous zone and person exposed	**Course of action to eliminate or reduce risk**
Malfunction or falling load due to overload	Do not exceed the hoist load limit
Various types of risks owing to the wrong installation and use of the hoist.	Read the instructions before installing or using the hoist
Fall risk to people being lifted by the hoist	It is prohibited to lift people by means of the hoist
Damage to hoist due to dry chain	Chain should be kept lubricated
Risks of structural collapse	Check structure is able to support the proposed load. Check all components in the lifting system are suitably rated and able to bear the proposed load
Risk of injury from malfunction hoist or manoeuvre error	Working area should be managed and access controlled
Fall risks (of the installer or serviceman) from the load or structure	Appropriate PPE should always be used. Climbing the load or structures should be avoided if possible. When possible carry out all maintenance at ground level
Various types of risks owing to the illegibility of the labels	Do not remove or cover labels
Various types of risks owing to the lack in periodical maintenance	Check that the annual periodical maintenance has been carried out.
Various types of risks when used in severe weather conditions	Check the environment conditions before using the hoist.
Malfunctioning risks owing to wrong power supply	Make sure that the power supply is correctly in phase and voltage ranges between 230 and 400V.
Chain fall due to damaged chain bag	Check bag for damage before use. Do not fill bag over 75% capacity
Various types of risks owing to (electrocution, malfunctioning, etc.) non-sectioning before any maintenance intervention.	Before any maintenance intervention, disconnect the power supply from the hoist.
Sudden start owing to the insertion of the plug into a normal socket (that is to say, other than that of the controller or a suitable power unit).	It is prohibited to insert the plug into a socket other than that of the controller or the suitable power control unit.
Various types of risks owing to tampering or removal of the safety devices.	It is prohibited to tamper or remove the safety devices

2.9 Secondary safety components

WARNING !
When operating a system according to D8, or if maintenance is required on a hoist that is still suspended, a secondary safety device should be used.

A secondary safety component is a second, independent equipment element, suited to prevent the fall of the load. Some application examples are illustrated here below.

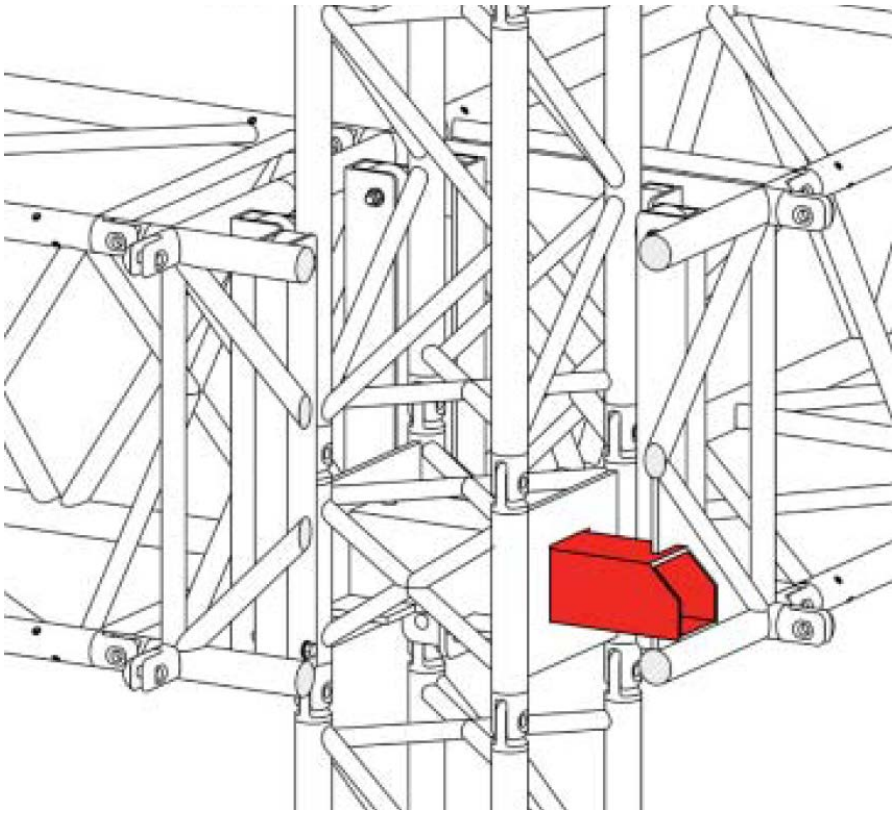


Figure 13: Example of securing a load suspended from a tower by means of a locking bar

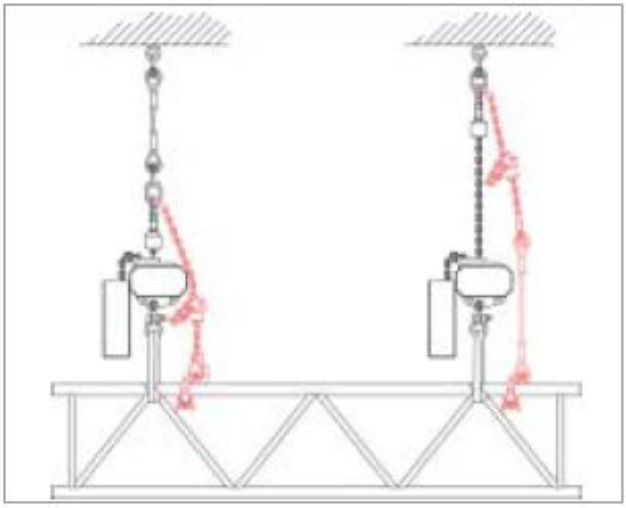


Figure 14: Example of a secondary safety component attached directly to the load that is being lifted (front view)

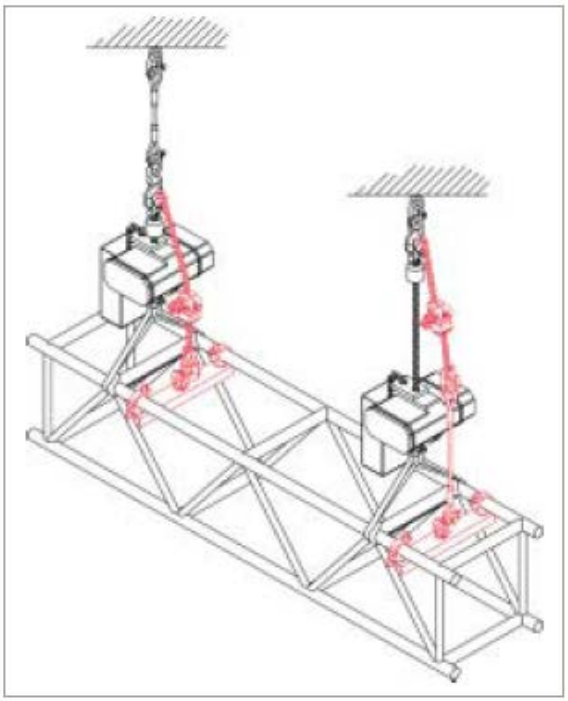


Figure 15: Example of a secondary safety component attached directly to the load that is being lifted (perspective view)

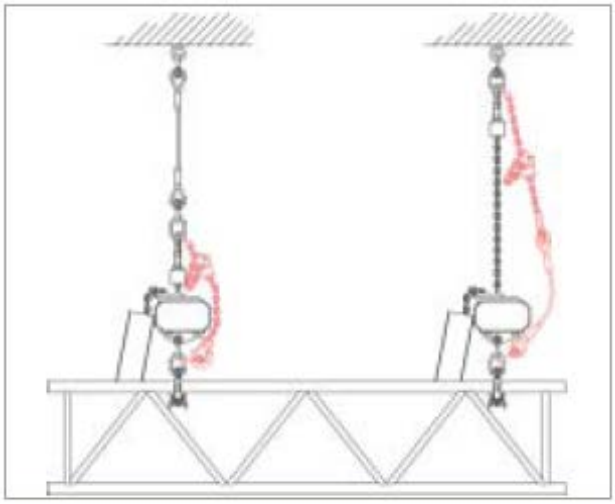


Figure 16: Example of a secondary safety component attached below the hoist, bypassing the hoist lifting mechanism (front view)

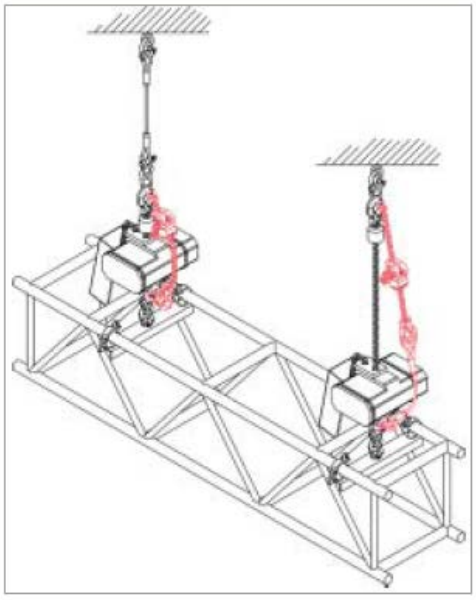


Figure 17: Example of a secondary safety component attached below the hoist, bypassing the hoist lifting mechanism (perspective view)

3 INSTALLATION

When handling and unpacking the hoist you should use safe handling techniques.

Electric chain hoists must be assembled by qualified staff, always bearing in mind the accident prevention directions in chapter 2. Before assembly the electric chain hoist must be stored in an enclosed room or covered area.

Should the electric chain hoist be destined for operation outdoors, then it is recommended that a protection cover is erected to shield it from the effects of the weather.
Wherever possible, the electric chain hoist should be transported in its original packaging. The goods delivered should be checked for completeness and the packaging disposed of in an environmentally sound manner.

3.1 Handling & transportation

The customer must carefully check the goods for damage upon delivery. Any damage in transit is the responsibility of the carrier.

Ensure all routes and areas are intended for handling are free from obstacles.

WARNING !
Lifting, shifting and handling operations must be carried out by trained personnel, duly equipped. Do not halt, for any reason, below suspended loads during lifting operations.

During transport with trolleys or cranes, the presence of a suspended load must be audibly and visually signalled.

A Banksman should be present when moving goods with machinery such as lift trucks.

Packaging elements, such as plastic bags, expanded polystyrene must not be released to the environment but must be kept in order to pack again the hoist after using it.
When working at height the user should employ relevant and suitable access and safety equipment.

3.2 Packaging storage

The goods are packaged in a way that offer protection from damage. This packaging should be stored in a dry environment away from damp and heat.

Should the hoist not be operated immediately, it is recommended to store it inside its packaging, in a covered, possibly dry and clean area, far from heat sources that might jeopardise its integrity.

3.3 Packaging transport

Packing must be transported up to the envisaged installation point for the hoist.
The flight-case is equipped with translation wheels; therefore, if possible, it must be simply hand-pushed.
On the contrary, the cardboard box must be transported by lifters or equivalent equipment.

3.4 Unpacking and ground handling of the hoist

The hoist must be removed manually from the packing.

Check that the hoist has not suffered damage arising from an inadequate transport. Check the hoist frame for dents, the external cables for damaged or cut insulation, the controller for cut or damaged housing and inspect the load chains for dents or notches. If a damage arising from shipment has been detected, refer to the accompanying document envelope on the box for the claim procedure.

Possible claims related to hoist damages, must be presented within 8 days from receipt of the goods; in any case, it must be pointed out that the hoist is subject to an accurate inspection in every part before being packed and shipped to the customer.

Never throw packing materials away: they are the ideal containers for transporting the hoist to another place of use. In case of transfer to another place, or non-use for a long time, pack it again and keep it in a dry place.

Place the hoist on the ground and hook the bag again; make sure that the screw closures of the bag have been correctly closed.

3.5 Checks before use

- Check integrity of the plug and wires.
- Check integrity of the hoist metal housing
    - No cracks or dents must be present
    - All casing screws should be present and tight
    - Check for water ingress.
- Check that the sprung latches on the hooks are present and functioning correctly.
- Check chain bag for damage.
- Check brakes are working correctly.

3.6 Suspending the hoist

It is user's responsibility to ensure all fixing points, fixing hardware and control systems are visually inspected.

Cables must be placed in such a way that they do not come into contact with sharp edges and do not run the risk to be cut off. Cables must not be placed under tension.

3.6.1 Mounting the hoist "Body-down" (self-climbing mode)

It is common to position the hoist in the required location whilst still in the flight case. Power is connected to the hoist, and the hook end of the chain is taken to the fixing point at height. The hoist can then be operated to a working height position allowing the load to be connected.

This method of rigging is most commonly used in entertainment applications.

Figure 18: The hoist mounting in self-climbing mode.

3.6.2 Mounting the hoist “Body-up” (chain-climbing mode)

In certain applications it may be more useful to mount the hoist body-up. Use an appropriate method of lifting the hoist body and attach the anchorage hook to the point of the structure.

Figure 19: Mounting the hoist “body-up”

3.7 Connections

WARNING !
Before connecting the hoist to the power supply, check that voltage and power of the electric line correspond to those reported in Table 1; check also that the earthing system of the factory is sufficient.

Installers must equip the branch circuit with an earthing system and a protection against current overloads that comply with the requirements of the laws on safety and health protection on work place of the Country where the hoist is installed.
Check that the cables powering the hoist are protected against possible external damages (risk of electrocution and malfunctioning).

WARNING !
Do not insert the plug of the hoist directly into a power socket: the hoist would suddenly start. Insert the plug of the hoist into that of the mobile controller.
Insert the other plug of the controller into the power socket.

WARNING !
Dangerous voltage drop can be caused by using excessively long extension cables.

The following chart should be used to determine the size of the wires in the extension cord in order to minimize the voltage drop between the power source and the hoist.

Length of extension cord	Minimum wire size
Up to 15.2 m.	1.6 mm.
24.4 m.	1.6 mm.
36.7	2.0 mm.
61.0	2.0 mm.
91.4	2.7 mm.

Table 7: Minimum wire size

3.8 Testing

WARNING !
The following test should be carried out prior to each new use of the hoist.

The purpose of the following test and inspection is to ensure the hoist has been correctly assembled, is not damaged in any way and is safe to use. In addition the user should refer to the local laws regarding use of lifting equipment.

3.8.1 Visual inspections

Visual inspections should be carried out on the following elements to check for any damage or faulty parts:

- Connection to power supply
- Power and control cables from the hoist
- Body work
- Chain hook
- Chain bag connection
- Load chain
- Identification labels on the hoist
- Any visible damage to the hoist.

3.8.2 Tests without load

- Operate the hoist in both directions to check phasing is correct
- Check E-stop is working correctly
- Check the chain runs smoothly through the hoist
- Listen for any strange noises from the hoist while chain is running
- Chain should run smoothly into the chain bag
- Ensure chain is not allowed to bunch up while entering or exiting the hoist. Chain should be allowed to run clear of the hoist.

4 USE OF HOIST

Improper operation of the hoist can create a potentially hazardous situation which, if not avoided, could result in death or serious injuries. Permit only authorised and qualified personnel to operate unit. Do not use the hoist or any other overhead materials handling equipment for lifting persons.

WARNING !
STAY ALERT! Watch what you are doing and use common sense. Do not use the hoist when you are tired, distracted or under the influence of drugs, alcohol, medication causing diminished control.

- Do not use the hoist unless it is perfectly efficient, even if the hoist still operates.
- Do not use the emergency stop button to habitually stop hoist motion.
- Do not carry out operations or manoeuvres on one's own initiative that do not fall within one's area of expertise and can compromise the safety of everyone.
- Do not wear loose fitting clothes as these can get entangled in moving parts.
- Do position the controller so it is safe and comfortable to use.
- Do pay attention at all times when operating the hoist.
- Do ensure the chain container is not obstructed in any way.
- Do stay clear of moving chains.
- Do ensure chain is lubricated at all times. Please see paragraph 5.4.7 for chain lubrication guidelines.
- It is prohibited to warm equipment with flames, hot air or with other instruments if they are stiffened or blocked.
- Call your EXE-Rise supplier if the hoist does not work properly.

WARNING !
If damaged or worn parts are detected do not use the hoist. Seek assistance for service of the unit.

4.1 Attaching and moving the load

Insert the hoist hook (intended for load lifting) into the load anchoring point.

- Do not load hoist beyond the rated capacity shown on hoist identification plate.
- Make sure hook travel is in the same direction as shown on the controls.
- Check to be sure that the attachments to the load hook are firmly seated. Make sure the hook latches are closed and not supporting any part of the load.
- Check to ensure that the load point is in line with the hoist head. WHEN APPLYING A LOAD, IT MUST BE DIRECTLY IN LINE WITH THE HOIST. AVOID OFF CENTRE LOADING OF ANY KIND.
- Make sure the load has enough room to be free to move: no obstructions must be present along its travel.
- Do not allow the hook to swing (risk of collision against things or people).
- Do not wrap the hoist chain around the load or use it to carry out operations other than those indicated. The loss of the swivel effect of the hook could result in twisted chain and a jammed lift wheel.

Handle the load by using control buttons with a man present. Motion stop occurs upon release of the activated button.

- Move the load by operating the go button of the associated controller.
- Maintain a firm footing or be otherwise secured when operating the hoist.
- Before moving the load check for twists in the load chain.
- Make sure the load is free to move (it must not be fixed to the ground, entangled, etc.).
- Raise the load only enough to check the attachments to the hook and load are firmly seated.
- Move the load slowly to avoid shock and jerking of load chain. If there is any evidence of overloading, immediately lower the load and remove the excess load.
- Do not allow the load to swing.

During the movement of the load always appoint a responsible person to monitor and ensure the load is safe. If the load encounters any obstruction stop movement immediately. If the load is being moved on multiple hoists a safe operating procedure must be pre-defined.

4.2 Power Supply

EXE-Rise chain hoists are available in both direct and low voltage control. They must be connected to a power and control system that is suitably designed to operate the chain hoists and handle the power consumption of the motor.
EXE-Rise chain hoists are standard wired for 400V-3ph-50Hz operations. For other voltages the chain hoist motor must be re-wired internally.

WARNING !
Electrotechnical adjustments may only be performed by authorised specialists.

4.2.1 Mechanical bypass of hoist

Should the hoist stop due to anomaly, overload, etc. and the load must be lowered (for example, a structure,) proceed as follows:

The operations mentioned below must be carried out by qualified technical personnel.
During mechanical bypass, do not operate the hoist if the area surrounding the suspended load is not, and does not remain, cleared from persons. The User, from his control place, must be able to be sure of the absence of persons in the risk area.

Clear the underlying area. Tie off the load by applying a mechanical safety device that by-passes the lift mechanism from hook to hook (refer to the examples of secondary safety components (see paragraph 2.9).
Lower the load.

4.3 Shutdowns for long periods

In case of prolonged downtime, the hoist must be stored according to the precautions related to the place and times of storage:

- Grease the chain
- Pack the hoist again
- Keep packaging in a safe, covered place (protected against shocks or contamination of corrosive substances), protected against humidity or high differences in temperature (maximum temperatures: -10°C to 40°C).

5 MAINTENANCE OF HOIST

Simple inspection of the hoist and lubricating of the chain, are the only interventions that should be undertaken by the user of the hoist.

All other maintenance, replacement, adjustment interventions that involve the opening of the hoist housing, are allowed only to maintenance service authorised by LITEC.

The hoist must therefore be delivered to LITEC authorised centre that will issue special control and maintenance reports.

WARNING !
Maintenance and service are preventive measures designed to preserve the full functionality of electric chain hoists. Non-compliance with maintenance and service routines can result in reduction in the useful function of and/ or damage to chain hoists.

Maintenance work encompasses visual checks and cleaning routines. Service work includes additional functional checks. During the functional checks, all securing elements and cable clamps must be checked for secure seating.

During maintenance and service work, general accident prevention directions, special safety directions as well as hazard protection instructions (paragraph 2.3) should be followed.

5.1 General Safety rules

- Working inside or near powered equipment can result in electric shock: before carrying out any work on the hoist, always disconnect power supply and make sure that no one can insert the plug again until the task is complete.
- When possible, maintenance must be carried out without suspended load; failing this, the area must be enclosed and monitored and the load must be held by means of a secondary safety component (see paragraph 2.9).
- Do not clean the hoist using a pressure washing device.
- Keep control and maintenance reports issued by LITEC together with the manual.
- All maintenance, repair, adjustment, cleaning operations must be carried out only by qualified personnel duly trained and competent, who has looked over this document.
- Maintenance must be carried out in a safe area whilst using proper tools and safety equipment.
- In case of poor ambient lighting, install a lamp for local lighting for maintenance interventions or use adequate portable devices.
- Replace any cable or wire with like for like items.
- Use only spare parts identical to those to be replaced or previously authorised by the manufacturer.
- Follow industrial hygiene rules during cleaning of the machine.
- In the instance of maintenance work being carried out at height, please ensure the correct access equipment is employed, and local safety regulations are taken into consideration.
- No makeshift repairs with the aid of extra pieces or taping are allowed. It is prohibited to warm equipment with flames, hot air or other instruments in case they are stiffened or blocked.
- Always wait for parts to cool if the hoist has been running intensively before maintenance.

5.2 Safety procedure

Before carrying out any kind of maintenance, repair, cleaning or any activity that requires a manual intervention on the machine, disconnect the power supply to the hoist.

Ensure the power can not be re-connected to the hoist be securing or clearly marking the plug “do not connect”.

WARNING !
Before restarting the working cycle, make sure all protections and protection devices in case removed, are operating and properly functioning.

5.3 Summary of periodic maintenance

In order to keep a continuous and satisfactory operation, a regular inspection procedure must be initiated to replace worn or damaged parts before they become unsafe. Inspection intervals must be determined by the individual application and are based on the type of service to which the hoist will be subjected and the degree of exposure to wear, deterioration or malfunction of the critical components.
Check periodically that all the labels are present and readable on the hoist.

In addition to the suggested maintenance program below, please also refer to the local regulations relating to lifting machinery.

The type of service to which the hoist is subjected can be classified as "Normal", "Heavy", or "Severe".

Normal Service: Involves operation with randomly distributed loads within the rated load limit, or uniform loads less than 65 percent of rated load for not more than 25% of the time.

Heavy Service: Involves operating the hoist within the rated load limit which exceeds normal service.

Severe Service: Normal or heavy service with abnormal operating conditions.

Two classes of inspections – frequent and periodic – can be performed

Frequent Inspections: These inspections are visual examinations by the operator or other designated personnel. Records of such inspections are not required. The frequent inspections are to be performed monthly for normal service, weekly to monthly for heavy service, and daily to weekly for severe service, and they should include those items listed in Table 9.

Periodic Inspections: These inspections are visual inspections of external conditions by an appointed person. Records of periodic inspections are to be kept for continuing evaluation of the condition of the hoist. Periodic inspections are to be performed yearly for normal service, every six months for heavy service and quarterly for severe service, and they are to include those items listed in Table 10.

WARNING !
Any deficiencies are to be corrected before the hoist is returned to service. Also, the external conditions may show the need for more detailed inspections, which, in turn, may require the use of non-destructive type testing.

In addition to the above inspection procedure, a preventive maintenance program should be established to prolong the useful life of the hoist and maintain its reliability and continued safe use.

The program should include the periodic and frequent inspections with particular attention being paid to the lubrication of the various components using the recommended lubricants. For reduction gear please use **LITEX-EP/1 lubricant** on 320kg D8/160kg D8+ chain hoists and **Mobil Gear 600xP460** on all other chain hoists.

Table 8: Minimum frequent inspections

TYPE OF SERVICE			**ITEM**
Normal	Heavy	Severe	
Monthly	Weekly to monthly	Daily to weekly	a) Brake for evidence of slippage. b) Control functions for proper operation. c) Hooks for damage, cracks, twists, excessive opening, latch engagement and latch operation d) Load chain for adequate lubrication, as well as for signs of wear, damaged links or foreign bodies e) Load chain for proper reeving and twists.

Table 9: Minimum periodic inspections

TYPE OF SERVICE			**ITEM**
Normal	Heavy	Severe	
Yearly	Every six months	Every three months	a) All items listed in Table 9 for frequent inspections. b) External evidence of loose screws, bolts, nuts. c) External evidence of worn, corroded, cracked or distorted hook block, suspension screw, bearings and dead end block and chain pin. d) External evidence of damage to hook retaining nut and pin. e) Check the operation of the controller making sure the buttons operate freely and do not stick in either position. f) Check the electrical cords and cables and controller for damaged insulation. l) Inspect for signs of lubricant leaks.

5.4 Maintenance assistance

5.4.1 Hook inspection

Hooks damaged from chemicals, deformations, or cracks, or that have a 10° twist from the hook's unbent plane, excessive opening must be replaced.

Also, hooks that are opened and allow the latch to not engage the tip must be replaced. Any hook that is twisted or has excessive opening indicates abuse or overloading of the unit. Inspect other load sustaining parts, hook block screws, load pins and chain block body for damage.

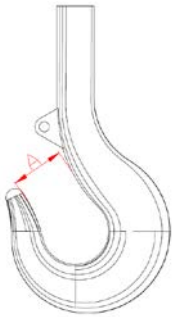


Figure 20: To measure the opening, the sprung latch must be pushed against the body of the hook

On latch type hooks, check to make sure that the latch is not damaged or bent and that it operates properly with sufficient spring pressure to keep the latch tightly against the tip of the hook and allow the latch to spring back to the tip when released.

If the latch does not operate properly, it should be replaced. If the opening is greater than 5% the normal value.

5.4.2 Chain inspection

Chain should feed smoothly into and away from the hoist or hook block. If chain binds, jumps or is noisy, first clean and lubricate it (see below). If trouble persists, inspect chain and mating parts for wear, distortion or other damage.

WARNING !
Use of commercial or other manufacturers' chain and spare parts to repair the hoist may cause load loss. Use only chains and spare parts supplied by the manufacturer.

5.4.3 Clutch maintenance

Any intervention on the clutch is prohibited. Only LITEC authorised maintenance service is allowed to carry out possible maintenance interventions.

5.4.4 Brake maintenance

Any intervention on the Brake is prohibited. Only LITEC authorised maintenance service is allowed to carry out possible maintenance interventions.

5.4.5 Limit switch maintenance

The device is calibrated in a standard way at the factory. Operators can adjust it according to their specific needs.

5.4.6 Periodic testing

The hoist must be tested at least once a year by an expert authorised for the purpose. In case of heavy services or intensive use, the user must carry out additional extraordinary testing based on his own risk evaluation. In case of heavy services or intensive use, the user must carry out additional extraordinary testing based on his own risk evaluation. Periodic testing must be required and carried out by the LITEC maintenance service.

5.4.7 Load chain lubrication

Contact your dealer for details on the correct lubricant as it will certainly differ from country to country.
Before lubricating the chain, secure the hoist.
To assure extra long life and top performance, be sure to lubricate the chain using the lubricants specified below. A small amount of lubricant will greatly increase the life of load chain. Do not allow the chain to run dry.
Keep it clean and lubricate at regular intervals with chain oil. Normally, weekly lubrication and cleaning is satisfactory, but under hot or dirty conditions, it may be necessary to clean the chain at least once a day and lubricate it several times between cleanings. When lubricating the chain apply sufficient lubricant to obtain natural run-off and full coverage, especially in the interlink area.

WARNING !
Used motor oil contains known carcinogenic components.
TO AVOID HEALTH PROBLEMS: Never use used motor oil as a chain lubricant.
Only use chain oil lubricant as specified by LITEC or its distributors.

Keep load chain well lubricated.

WARNING !
Lubricants must not be ingested and must be handled with care; in case of contact with delicate parts, immediately call a doctor. Follow safety indications mentioned in the safety reports of the product used.

CAUTION !
Used operating materials (oil, lubricants, etc.) should be safely collected and disposed of in an environmentally friendly manner.

5.4.8 Decommissioning criteria for bearing elements

The hoist bearing elements must be decommissioned when:

a) inspection of chain or load hooks shows deformation or wear beyond the allowed limits
b) chain or load hooks show sign of severe damage.

5.4.9 Replacing the fuse

Before replacing a fuse, the hoist must be secured. The new fuse must have the same characteristics as the replaced fuse.

5.4.10 Extraordinary testing

In case of extraordinary events which can jeopardise the safety of the working equipment, extraordinary testing must be carried out. In particular, extraordinary events include accidents, modifications to the hoist, prolonged downtime periods and natural phenomena.

Testing must be carried out only by qualified personnel, duly authorised for the purpose.

5.5 Extraordinary maintenance

The following operations:

- replacement of equipment structural parts;
- adjustments, repairs or replacement of parts for the electrical system;
- other operations not envisaged in this document

are not included in the normal ordinary maintenance operations, therefore, an intervention request for qualified and authorised personnel is necessary, by calling the manufacturer.

5.6 General overhaul

The provisions on industrial hygiene and safety provided by EC Directive 98/37 require the exclusion of all the risks deriving from fatigue and ageing of machinery. Furthermore, this request is contained in the 3rd updating of UW/BGV D8 (VBG8) industrial injuries rules of April 1, 1996. In compliance with these rules, the user of serial lifting equipment is compelled to determine the real use of the chain hoist based on the working hours, load profiles and/or recording coefficients. For this purpose, reference is made to FEM 9.755/06.1993 standard that defines measures for achieving safe periods of use for serial motorised chain hoists (S.W.P.). Please see paragraph 2.1.

From the mentioned FEM 9.755 standard, the following points referring to the electric chain hoist have been extrapolated:

1) the definition of the real use calculated based on the operating time and load, must be documented at least once a year.
2) the operating time T (daily use hours) can be estimated or recorded through an hour meter. The load K (duty factor) must be estimated.
3) When the operating time T is recorded by an hour meter, the read value must be multiplied by the recording coefficient 1.1.
4) When the operating hours and duty factor are estimated values, they must be multiplied by the recording coefficient 1.2.
5) The real use S is calculated with the formula: S = k x T x f.
6) Upon reaching the theoretical life, a general servicing must be carried out.
7) All the verifications and general servicing are at the chain hoist user's charges. General servicing includes the overhaul of the machine in order to detect structural elements and/or particulars which are already defective or ready to become defective, and replace them. After general servicing, for what concerns the operation and performance, the machine is in the same conditions as a new one.

Please consider the calculation of the duty factor, the additional factor and theoretical period of use.

6 TROUBLESHOOTING

Table 10: Troubleshooting based on hoist behaviour

TROUBLE	PROBABLE CAUSE	CHECK AND REMEDY
1) Hoist does not respond to the controller or control device	a) No voltage at hoist main line or branch circuit switch open; branch line fuse blown or circuit breaker tripped.	a) Close switch, replace fuse or reset breaker
	b) Phase failure – open circuit, grounded or faulty connection in one line of supply system, hoist wiring, reversing contactor, motor leads or windings.	b) Check for electrical continuity and repair or replace defective part.
	c) Open control circuit-open or shorted winding in transformer, reversing contactor coil or loose connection or broken wire in circuit; mechanical binding in contactor control station contacts not closing or opening.	c) Check electrical continuity and repair or replace defective part.
	d) Wrong voltage or frequency.	d) Use the voltage and frequency indicated on hoist identification plate.
	e) Low voltage.	e) Correct low voltage condition.
	f) Brake non releasing-open or shorted coil winding; armature binding.	f) Correct low voltage condition.
	g) Excessive load.	g) Reduce loading to the capacity limit of hoist as indicated on the identification plate.
2) Hook moves in wrong direction	a) Phase reversal.	a) Refer to installation instruction in chapter 3.
3) Hook lowers but will not raise.	a) Excessive load mechanical load protector slipping.	a) Refer to installation instruction in chapter 3.
	b) Open hoisting circuit-open or shorted winding in reversing contactor coil loose connection or broken wire in circuit; control station contacts not making; upper limit switch contacts open.	b) Check electrical continuity and repair or replace defective part.
	c) Phase failure.	c) See item 1b
4) Hook raises but will not lower.	a) Open lowering circuit-open or shorted winding in reversing contactor coil, loose connection or broken wire in circuit; control station contacts not making; lower limit switch contacts open.	a) Check electrical continuity and repair or replace defective part.
5) Hook lowers when hoisting control is operated.	a) Phase failure	a) See item 1B
	b) Phase reversal.	b) Refer to installation instruction in chapter 3.
6) Hook does not stop promptly	a) Brake slipping.	a) Check brake.
	b) Excessive load.	b) See item 1H
7) Hoist operates sluggishly	a) Excessive load	a) See item 1H
	b) Low voltage	b) Correct low voltage condition.
	c) Phase failure or unbalanced current in the phases.	c) See item 1b.
	d) Brake dragging.	e) Check brake.
8) Motor overheats.	a) Low voltage.	a) Correct low voltage conditions.
	b) Excessive load.	b) See item 1H.
	c) Extreme external heating.	c) Above an ambient temperature

		of 40°C (104°F) the frequency of hoist operation must be limited to avoid overheating of motor. Special provisions should be made to ventilate the space or shield the hoist from radiation.
	d) Frequent starting or reversing.	d) Avoid excessive inching, jogging or plugging. This type of operation drastically shortens the motor and contactor life and causes excessive brake wear.
	e) Phase failure or unbalanced current in the phase.	e) See item 1B.
	f) Brake dragging.	f) Check brake.
9) Hook fails to stop at either or both ends of travel.	a) Limit switches not opening circuits.	a) Check switch connections, electrical continuity and mechanical operation. Check the switch adjustment.
	b) Limit switch shaft not rotating.	b) check for damaged Limit Switch gears.
	c) Travelling nuts not moving along shaft-guide plate loose; shaft or nut threads damaged.	d) Tighten guide plate screws. Replace damaged part.
10) Hook stopping point varies.	a) Limit switch not holding adjustment.	a) see item 9.
	b) Brake not holding.	b)check the brake.
	c) binding of Limit Switch Shaft.	c) Check Limit Switch Bearing for proper seating.

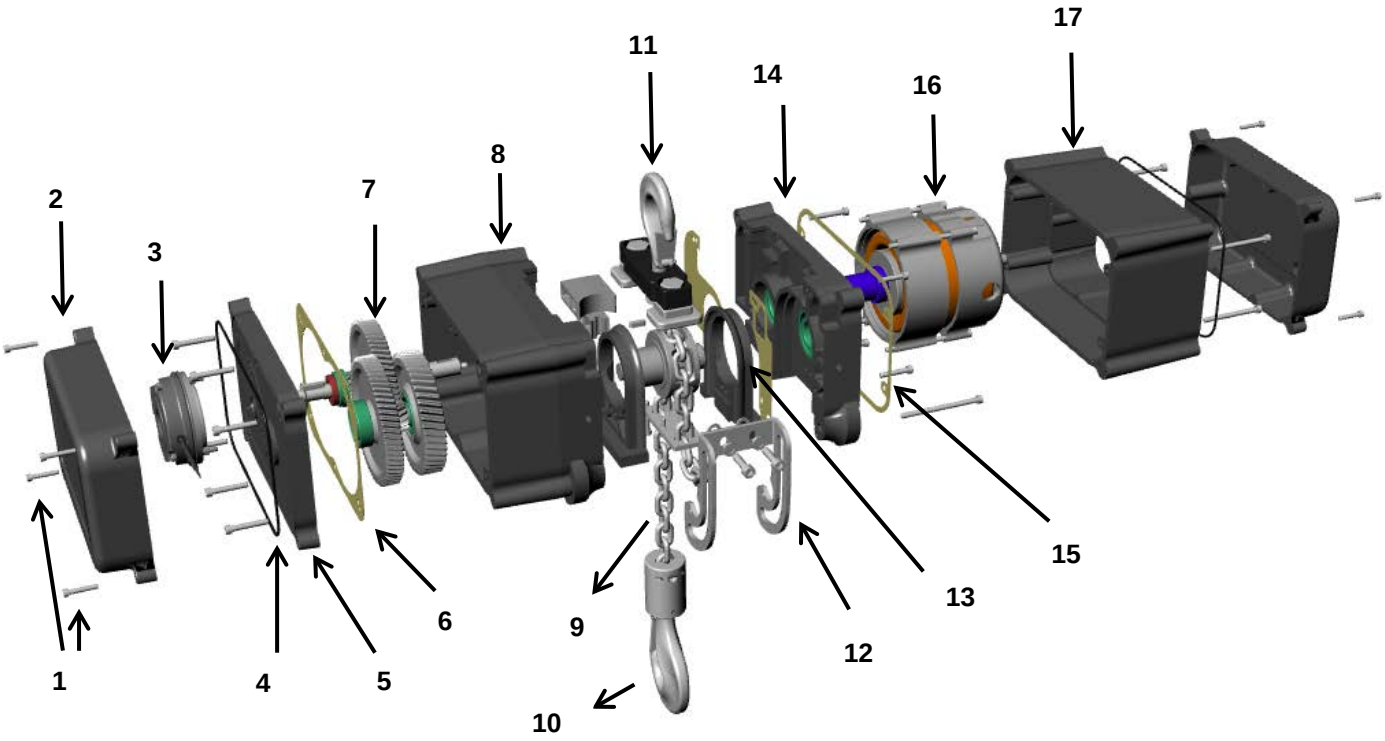
7 RECOMMENDED SPARE PARTS

To insure continued service of the EXE-Rise chain hoists, the following is a list of parts that are recommended to be kept on hand at all times to replace parts that have worn or failed.

WARNING !
USE ONLY ORIGINAL SPARE PARTS.

7.1 620-2,000kg EXE-Rise Hoists – perspective view

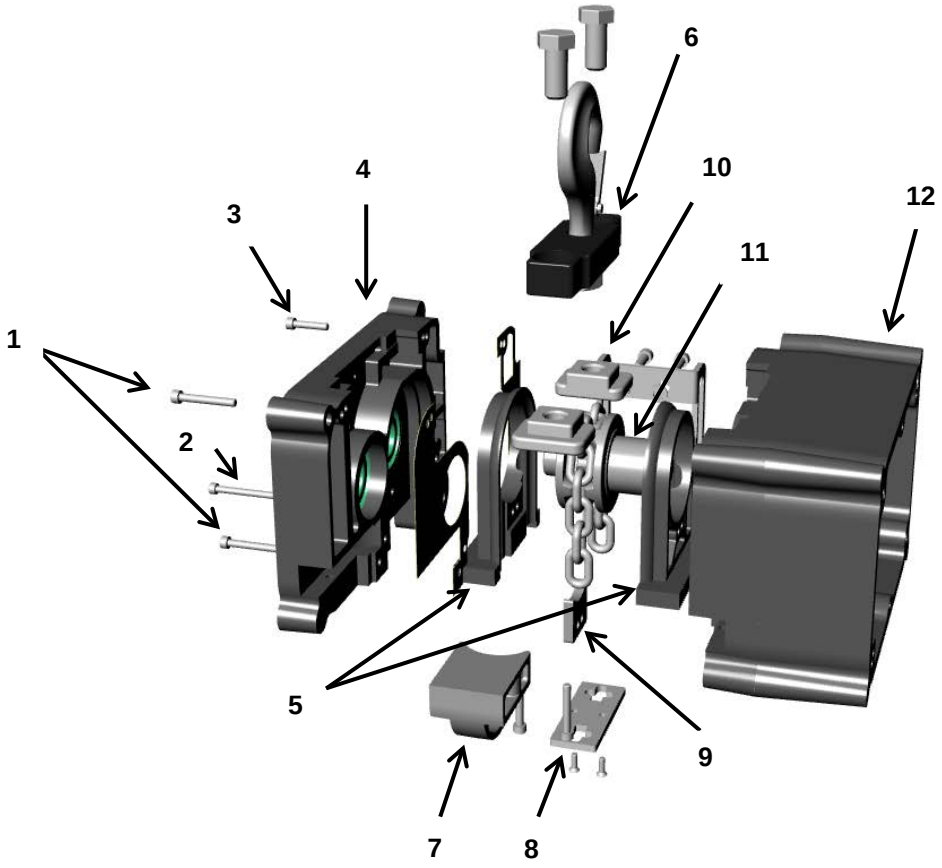
7.1.1 620-2,000 kg EXE-Rise chain hoists



Parts list required for 620-2,000kg EXE-Rise Hoists

Ref. no.	Description
1	Screws
2	End cover
3	Brake
4 / 18	Gasket
5	Gear housing flange
6	Gear gasket
7	Reduction gear
8	Gear housing
9	Chain
10	Chain swivel hook
11	Body swivel hook
12	Chain bag bracket
13	Chain guide
14	Motor flange
15	Motor flange gasket
16	Motor
17	Motor housing
19	End cover

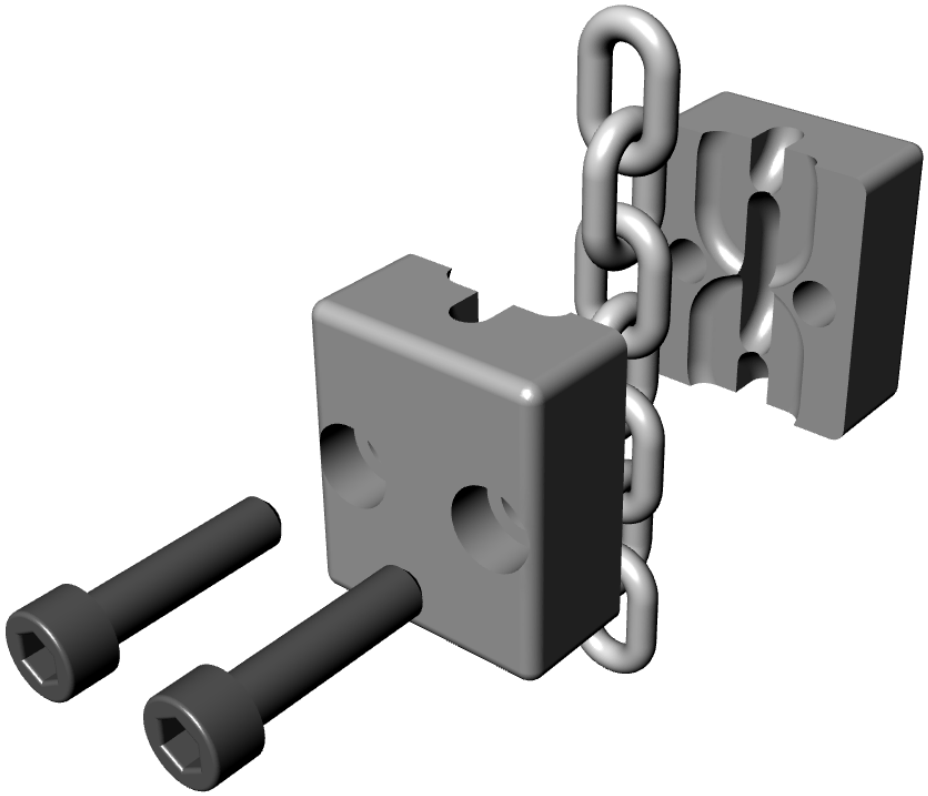
7.1.2 Main body (620-2,000kg EXE-Rise Hoists)



Parts list required for main body

Ref. no.	Description	Part no.
1	Screws	Screw Tcei 6x40
2	Screws	Screw Tcei 6x35
3	Screws	Screw Tcei 6x30
4	Motor flange	RWL 1120-0201
5	Chain guide	RWL 1120-0218
6	Suspension assembly	RWL 1120-0059
7	Dead end block	RWL 1120-0213
8	Guide plate	RWL 1120-0011
9	Chain connector	RWL 1120-0012
10	T nut for suspension hook	RWL 1120-0058
11	Lift wheel	RWL 1120-0020
12	Reduction unit housing	RWL 1120-0202

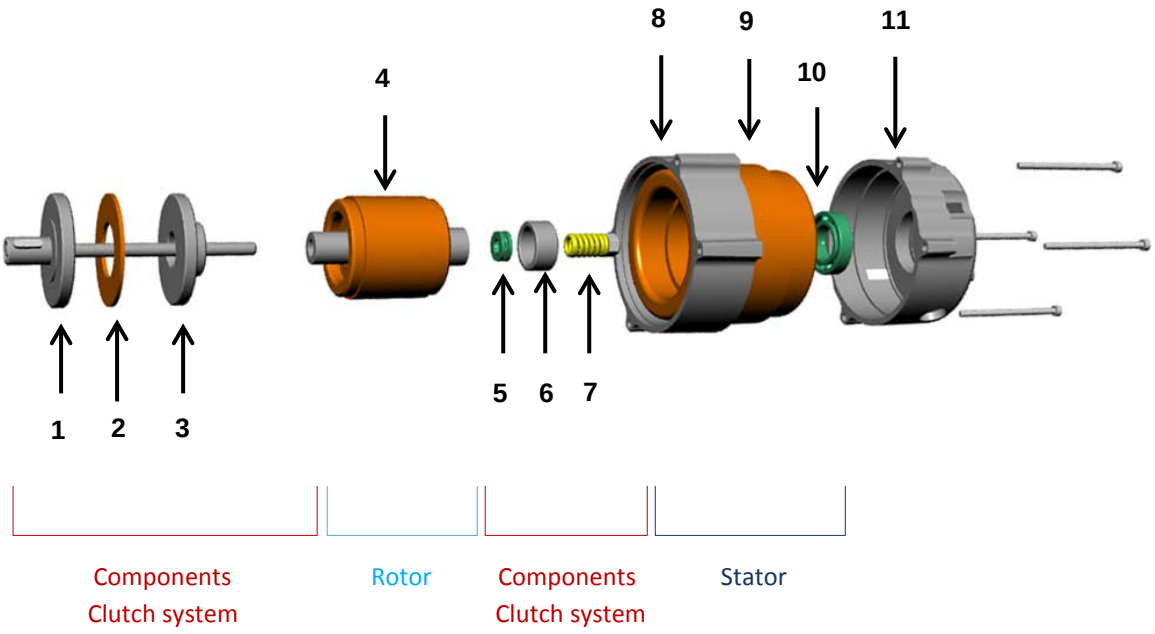
7.1.3 Chain fasteners (620-2,000kg EXE-Rise Hoists)



Parts list required for chain fasteners

Description	Part no.
Chain fastener for D8 620kg & D8+ 310kg	Chain fastener EXE-Rise 5x15
Chain fastener for D8 1,120kg – 2,000kg & D8+ 560kg	Chain fastener EXE-Rise 7x22

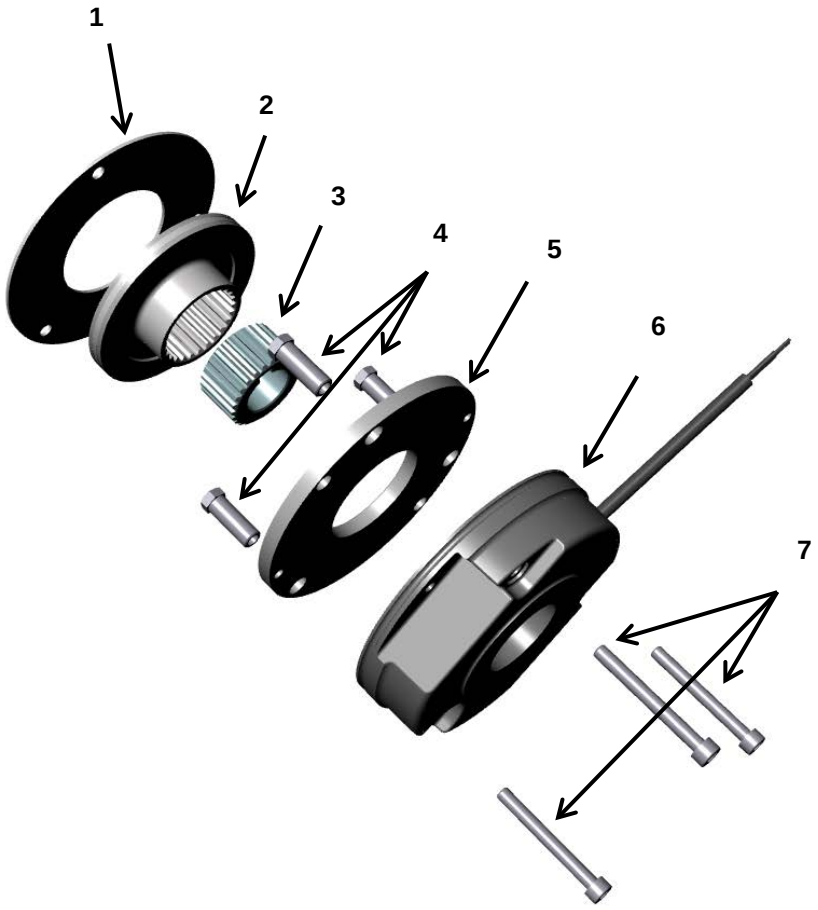
7.1.4 Clutch – Rotor – Stator (620-2,000kg EXE-Rise Hoists)



Parts list required for the Clutch – Rotor - Stator

Ref. no.	Description	Part no.
1	Clutch lower support	RWL 1120-0003
2	Bakelite clutch	RWL 1120-0005
3	Upper clutch support	RWL 1120-0006
4	Rotor shaft 1120	RWL 1120-0007
5	Bearing for H60 shaft	51100
6	H60 Rotor bush	RWL 1120-0008
7	Yellow spring for H60 rotor	RWL 1120-0217
8	Motor ring	RWL 1120-0203
9	H60 Stator	RWL 1120-0214
10	H60 Bearing	6006
11	Motor guard	RWL 1120-0204

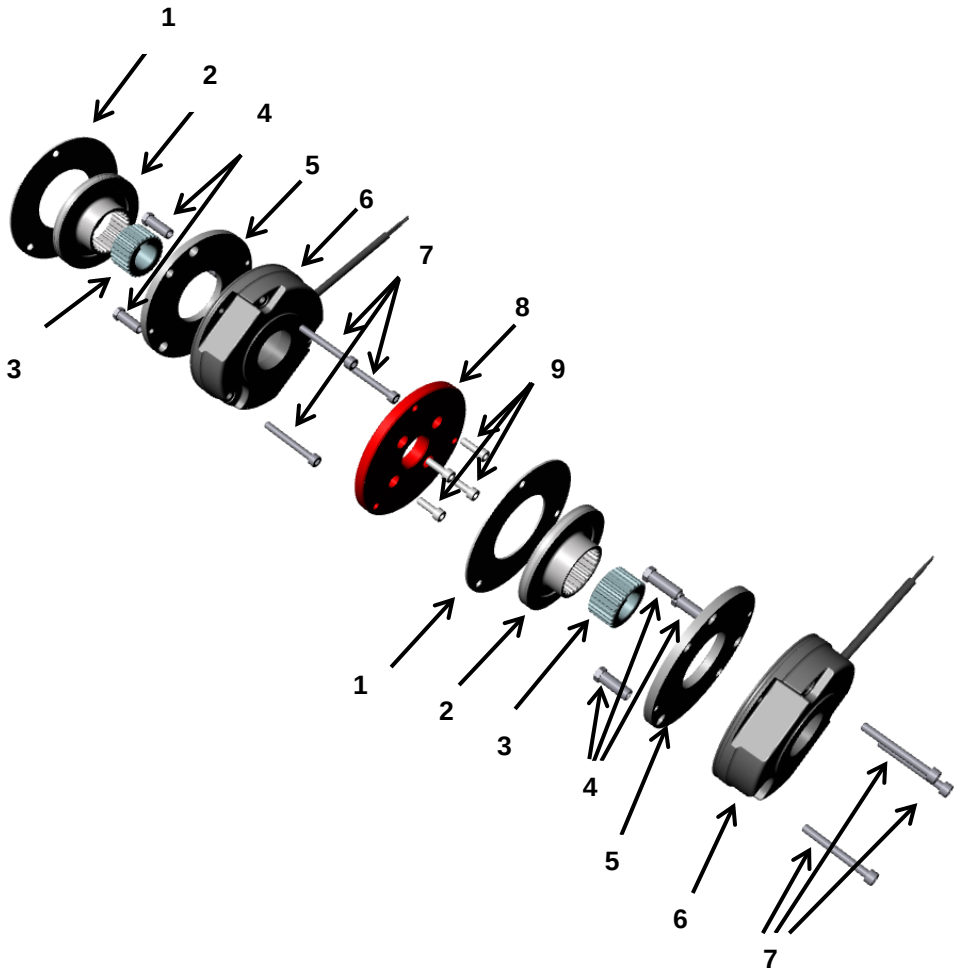
7.1.5 Single Brake Unit (620-2,000kg EXE-Rise Hoists)



Parts list required for single brake unit

Ref. no.	Description	Part no.
1	Brake disk	RWL 1120-0027
2	Brake disk with shoes	RWL 1120-0218
3	Disk hub	RWL 1120-0219
4	Adjustment pins	RWL 1120-0220
5	Brake anchor	RWL 1120-0221
6	BFK458-08 Electromagnet	RWL 1120-0222
7	Screws	Tcei 50x50

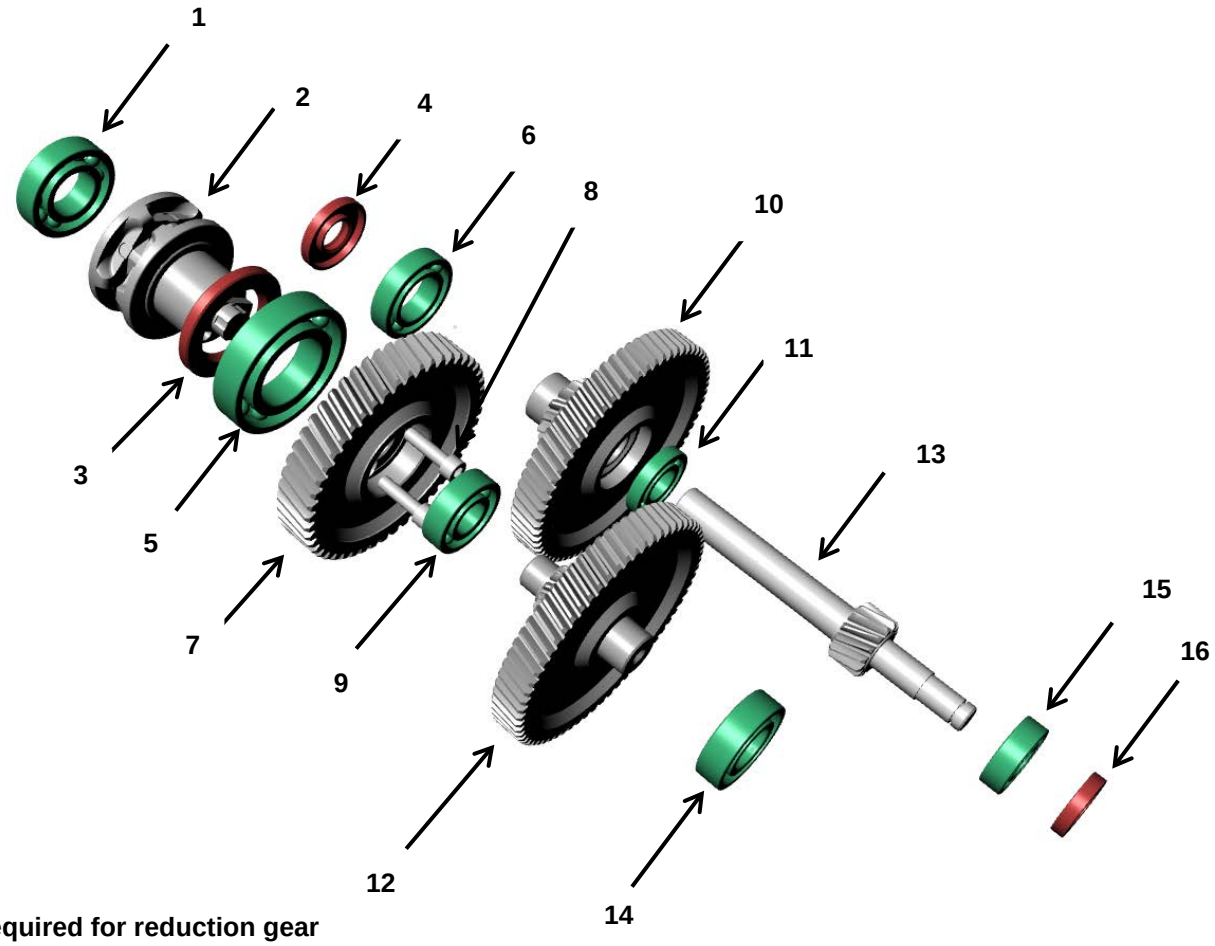
7.1.6 Double Brake Unit (620-2,000kg EXE-Rise Hoists)



Parts list required for double brake unit

Ref. no.	Description	Part no.
1	Brake disk	RWL 1120-0027
2	Brake disk with shoes	RWL 1120-0218
3	Disk hub	RWL 1120-0219
4	Adjustment pins	RWL 1120-0220
5	Brake anchor	RWL 1120-0221
6	BFK458-08 Electromagnet	RWL 1120-0222
7	Screws	tcei 50x50
8	Joint double brake flange	RWL 1120-0010
9	Screws	Tcei 5x45

7.1.7 Reduction Gear (620-2,000kg EXE-Rise Hoists)

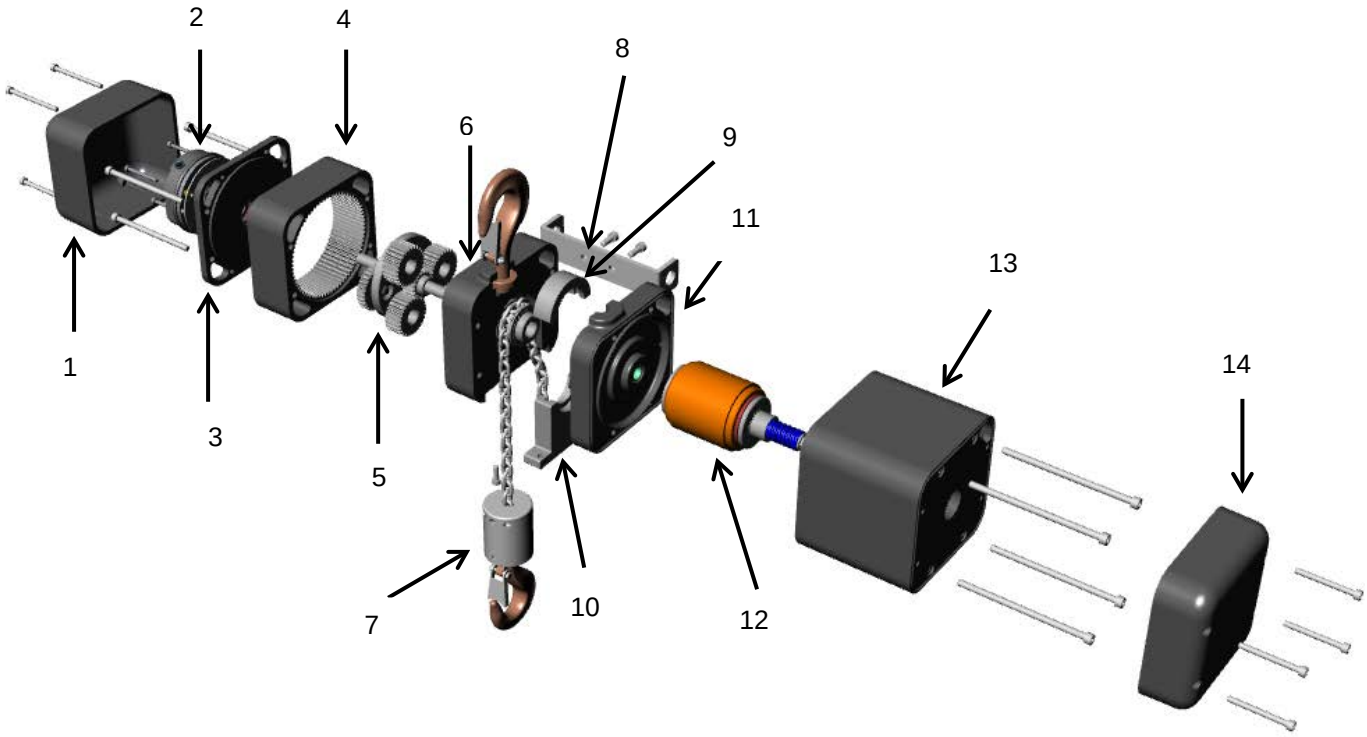


Parts list required for reduction gear

Ref. no.	Description	Part no.
1	Bearing	6206
2	Load wheel 7x5x22	RWL 1120-0020
3	Oil seal	45-72-8
4	Oil seal	20-47-7
5	Bearing	6209
6	Bearing	6006
7	Spiral bevel ring gear	RWL 1120-0021
8	Screws	Tcei 8x25
9	Bearing	6204
10	Spiral bevel ring gear	RWL 1120-0022 (middle)
11	Bearing	16004
12	Spiral bevel ring gear	RWL 1120-0024 (main)
13	Pinion gear	RWL 1120-0029
14	Bearing	6205
15	Bearing	6203
16	Oil seal	20-35-7

7.2 320kg EXE-Rise Hoist – perspective view

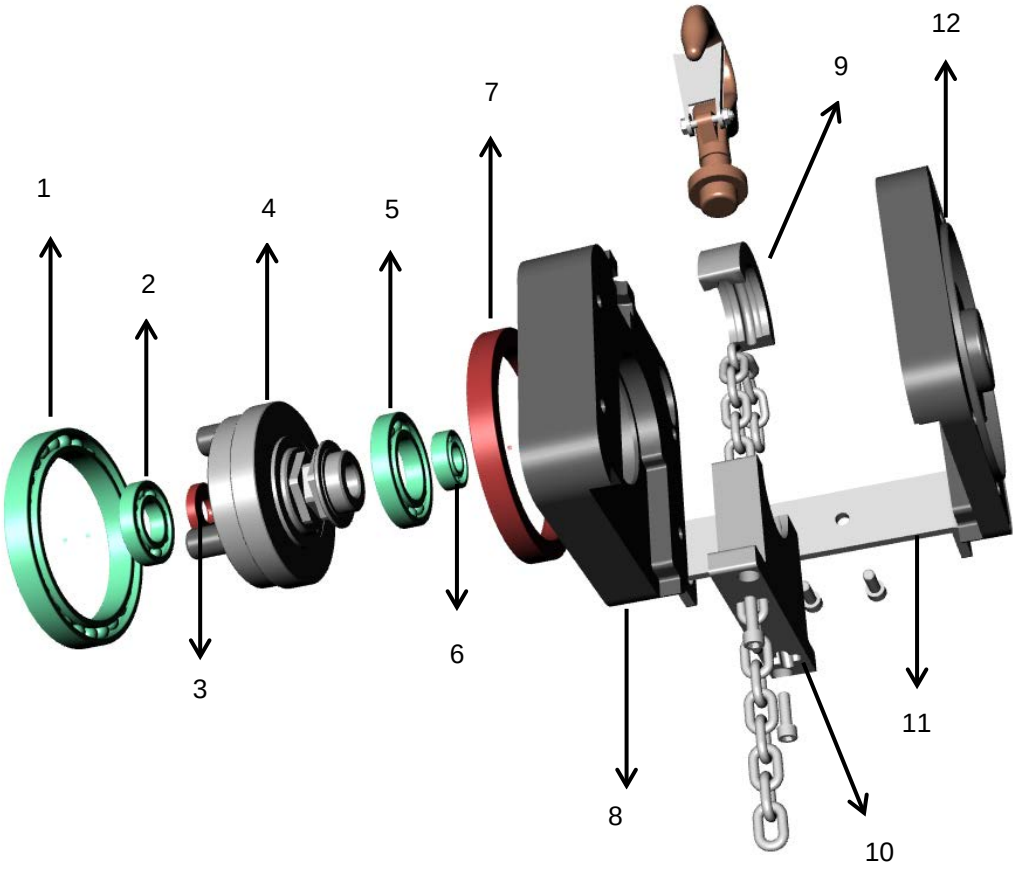
7.2.1 Exploded diagram (320kg EXE-Rise Hoist)



Parts list required for 320kg EXE-Rise Hoist

Ref. no.	Description
1	End cover
2	Brake
3	Reduction flange
4	Reduction housing
5	Reduction unit
6	Main body from reduction unit side
7	Suspension hook
8	Chain bag bracket
9	Chain guide
10	Guide plate
11	Main body from motor side
12	Rotor assembly
13	Motor housing
14	Cover

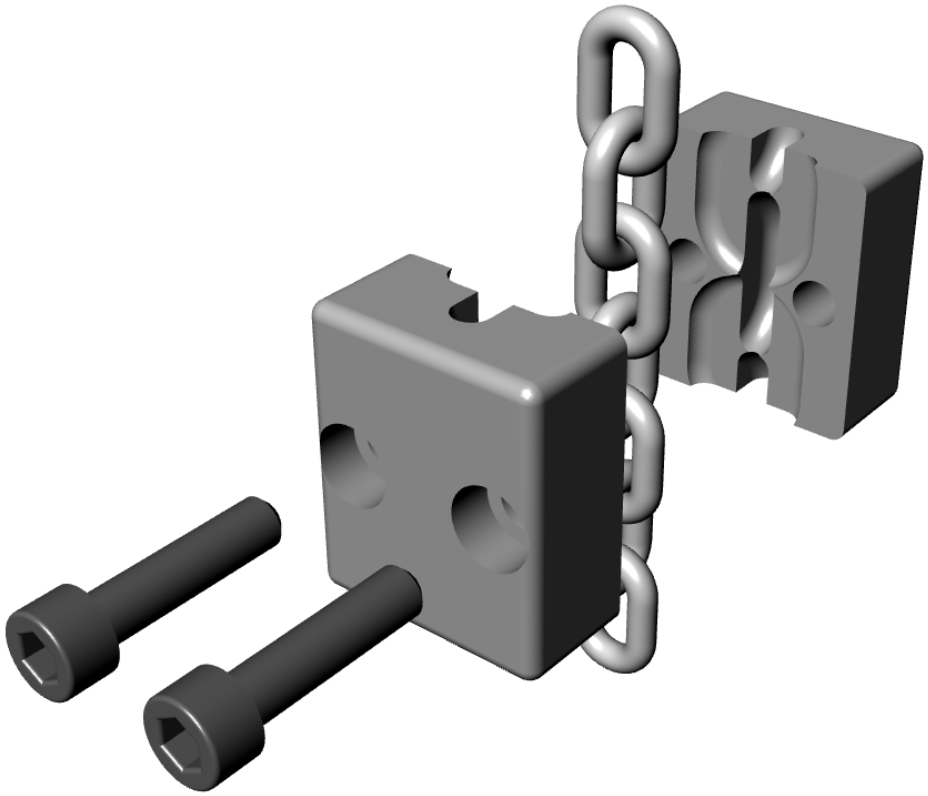
7.2.2 Main body (320kg EXE-Rise Hoist)



Parts list required for main body

Ref. no.	Description	Part no.
1	Bearing	Bearing 61817
2	Bearing	Bearing 16004
3	Oil seal	Oil seal 12-28-5
4	Lift wheel	RWL 320-0022
5	Bearing	Bearing 16006
6	Bearing	Bearing 6001
7	Oil seal	Oil seal 90-110-12
8	Main body from reduction unit side	RWL 320-0004
9	Chain guide	RWL 320-0009
10	Guide plate	RWL 320-0008
11	Chain bag bracket	RWL 320-0027
12	Main body from motor side	RWL 320-0003

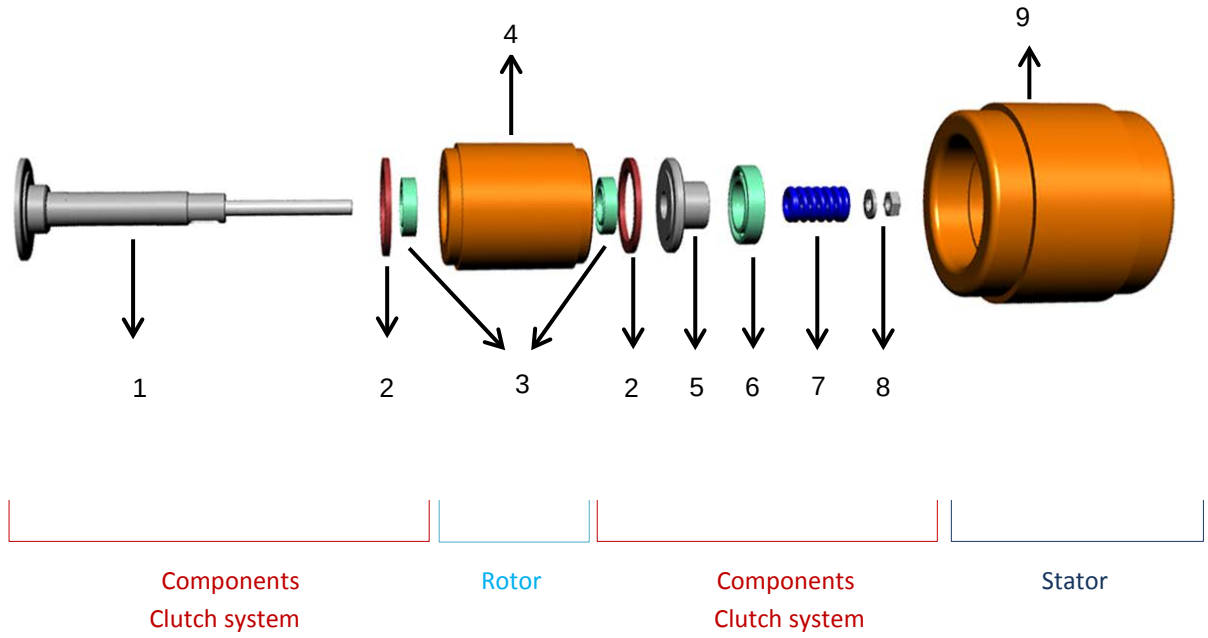
7.2.3 Chain fastener (320kg EXE-Rise Hoist)



Parts list required for chain fastener

Description	Part no.
Chain fastener for D8 320kg & D8+ 160kg	Chain fastener EXE-Rise 4x12

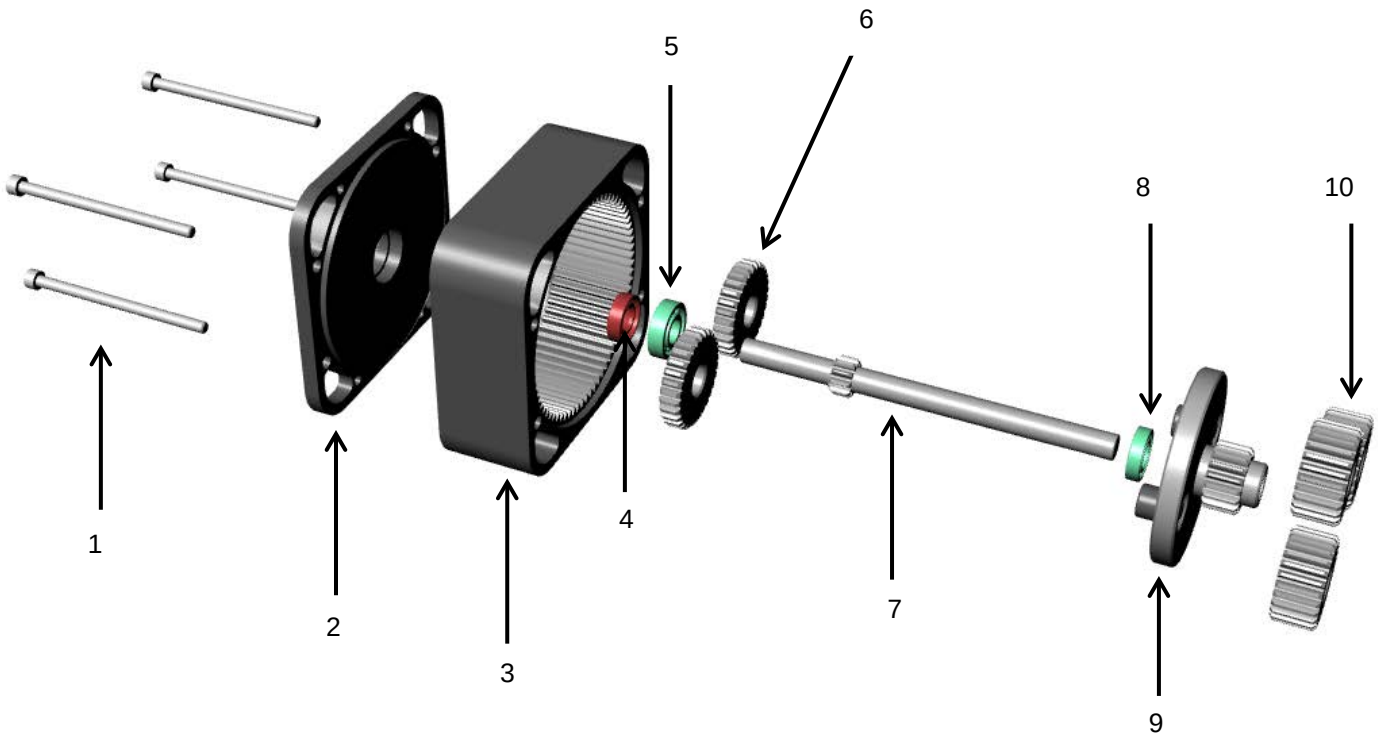
7.2.4 Clutch – Rotor – Stator (320kg EXE-Rise Hoist)



Parts list required for the Clutch – Rotor - Stator

Ref. no.	Description	Part no.
1	Motor shaft	RWL 320-0010
2	Bakelite	RWL 320-0012
3	Bearing	Bearing 61903
4	Rotor	Rotor 66-60
5	Pressure spring	RWL 320-0011
6	Bearing	Bearing 61905
7	Blue Spring	Blue spring 20x30
8	Self-blocking D8 nut	M8 nut
9	Stator	Stator 110-60-66 4P.

7.2.5 Reduction Gear (320kg EXE-Rise Hoist)

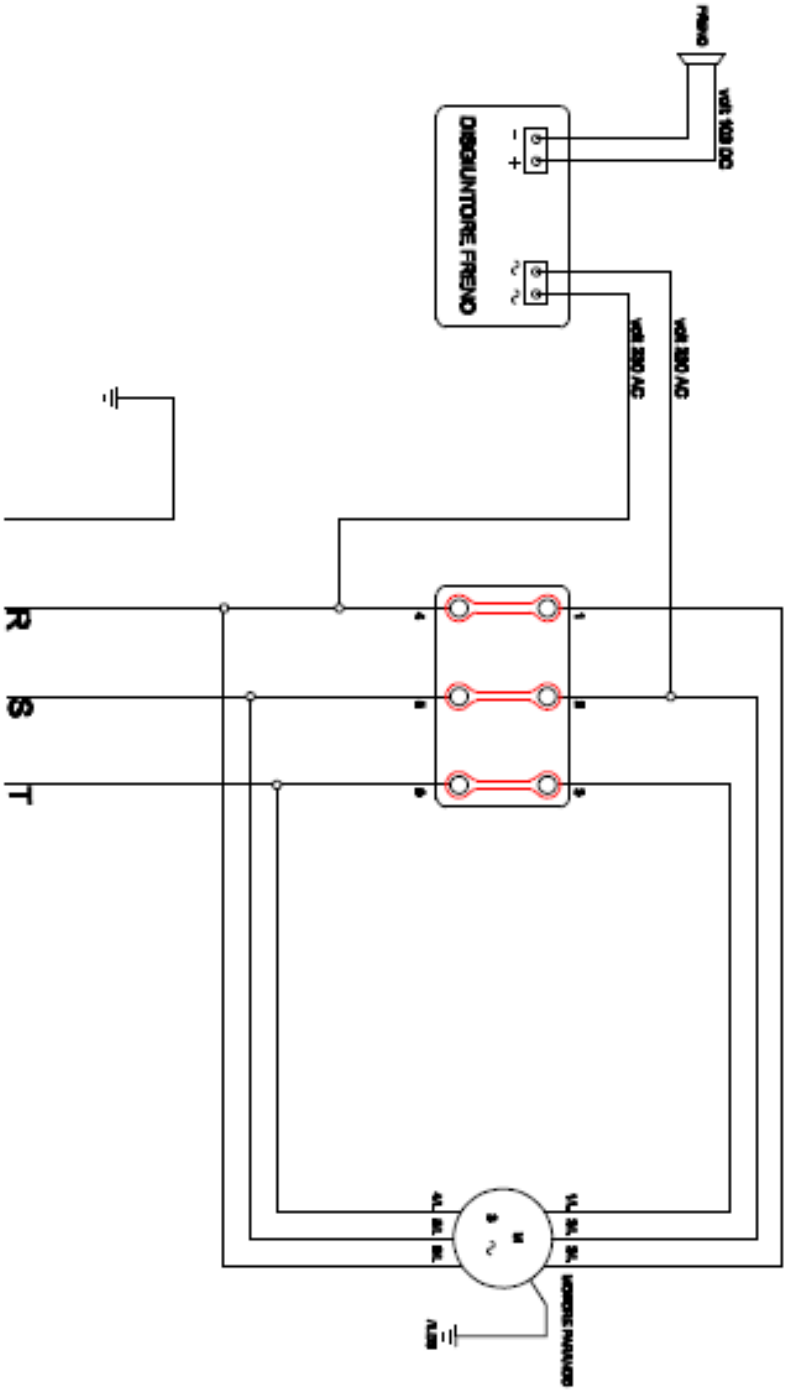


Parts list required for Reduction gear

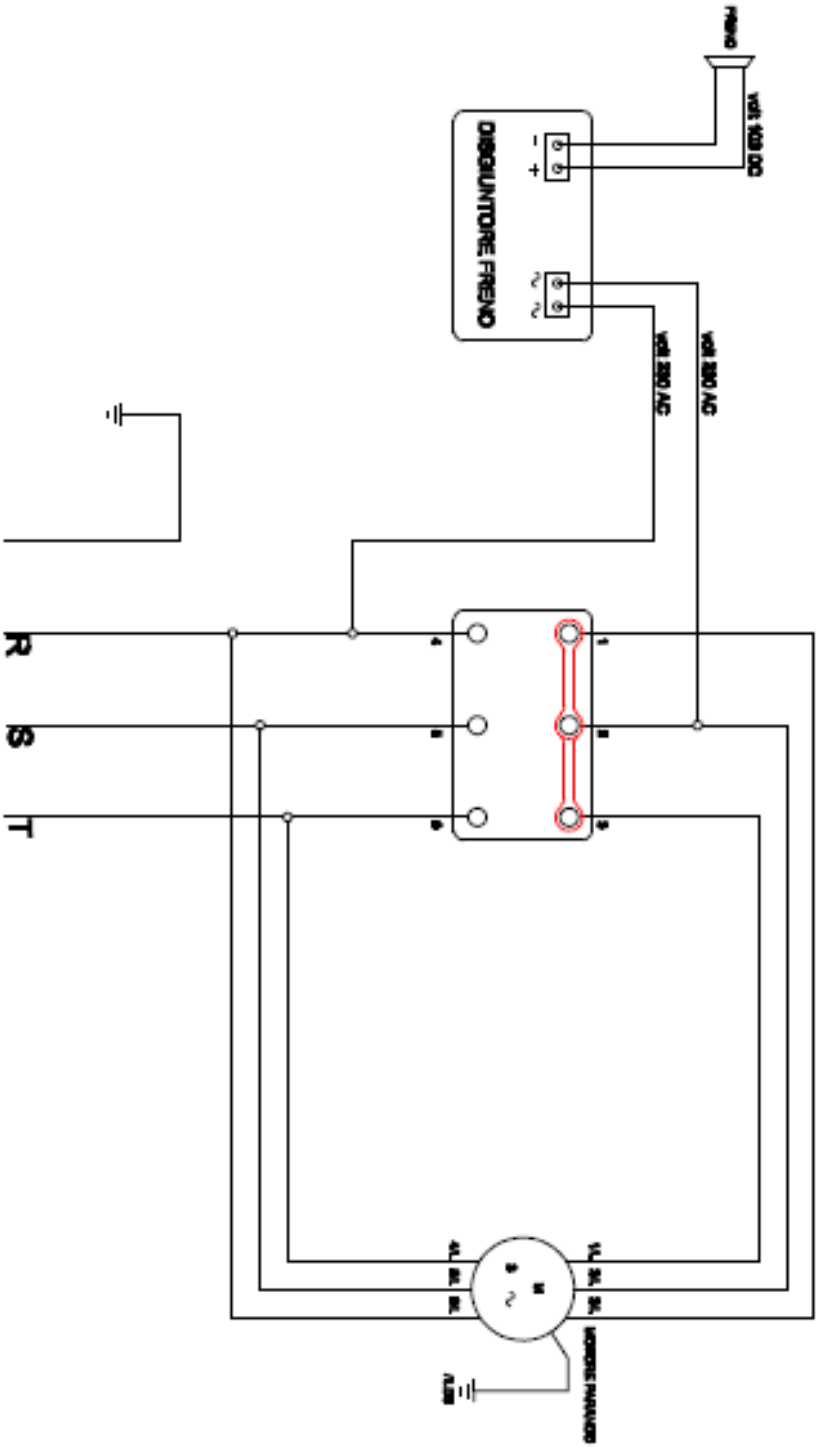
Ref. no.	Description	Part no.
1	Screws	Screw-Tcei 6x100
2	Reduction flange	RWL 320-0006
3	Main body from reduction unit side	RWL 320-0005
4	Oil seal	Oil seal 12-24-7
5	Bearing	Bearing 6001
6	Primary pinion	RWL 320-0018
7	Gear shaft	RWL 320-0019
8	Bearing	Bearing 61901
9	Toothed flange	RWL 320-0017
10	Secondary pinion	RWL 320-0015

7.3 Wiring Diagrams

7.3.1 Wiring Diagram For Direct Control Chain Hoists V 230 Hz 50/60



7.3.2 Wiring Diagram For Direct Control Chain Hoists V 400 Hz 50/60



8 DEMOLITION AND DISPOSAL

Before carrying out demolition and disposal of the hoist, complete the working cycle and disconnect power.

Upon demolition, plastic parts must be separated from electric components and must be sent to selective collections according to regulations in force.
With regard to metal housing, for a correct forwarding to melting recycling, its splitting in aluminium parts and parts in other metals or alloys is sufficient.

To dispose hydraulic oil, refer to what indicated in the product safety report.
It is prohibited to pour rejected liquids such as oils, circuit liquids, etc. on the ground or into draining piping. Dispose health and environment hazardous components or fluids in compliance with regulations in force on the matter.

During operations of hydraulic oil replacement and disposal, the operator must wear gloves and protective overalls indicated in the product safety report.

9 WARRANTY

The complete chain hoist comes with a 12 month manufacturer's limited warranty from the date of purchase. A 24-month warranty covers the mechanicals parts excluding electrical and wear parts (brake disc, pendant with cable, safety catch, plastic box).

9.1 Warranty limitations, remedies and damages

This warranty does not apply where normal wear, abuse, improper or inadequate maintenance, eccentric or side loading, overloading, chemical or abrasive actions, excessive heat, or unauthorised modifications or repairs cause deterioration of the hoists. This warranty does not apply to products which LITEC Italia has determined to have been misused or abused, connected to voltages other than those recommended, improperly maintained by the user, or where the malfunction or defect can be attributed to the use of non-genuine LITEC Italia parts.

This expressed warranty is in lieu of all other warranties, expressed or implied, of marketing, fitness for a particular purpose, or in any other manner, no promise or assertion of fact declared by any vendor's agent or representative shall constitute a vendor's warranty or shall determine any liability or obligation.

The vendor guarantees that at the delivery date to the forwarding agent the goods are free from defects in workmanship and materials. The sole obligation of possible breach of the warranty or contract for negligence or in any other manner concerning the goods sold, shall be exclusively limited to repair or replacement, f.o.b. vendor's shipping point of any part that the vendor determines to be faulty, or, should the vendor determine that such repair or replacement cannot be undertaken, to a reimbursement of the purchase price upon return of the goods to the vendor.

Any action against the vendor for breach of contract, negligence or others must be initiated within one year from the occurrence of such trial action.
No claim for damages to the vendor for any defects of the goods shall be deemed valid or applicable without the written notification of the purchaser if it is not received by the vendor within one year from the shipping date.

The vendor is not liable for any damage, injury or loss due to improper use of the goods if, before such damage, injury or loss, such goods are (1) damaged or used in an improper manner following the delivery of the vendor to the forwarding agent (2), not serviced, inspected or used in compliance with the applicable laws and vendor's written instructions and advices; or (3) installed, repaired, tampered or modified without

compliance with such law, instructions or advices. Under no circumstance the vendor shall be liable for accidental or consequential damages since these terms are defined in section 2-715 of the uniform commercial code.

9.2 Compensation and use under safety

The purchaser must follow and request his labour force to follow the provisions indicated in the instructions and manuals supplied by the vendor, and must use them and request his labour force to follow such instructions and manuals and take suitable care in the maintenance of such products. The purchaser must not remove, or allow anyone to remove, any warning plates or instructions on the product. In the event of personal injury or damages to property or the Company resulting from the use of the product, the Purchaser must give a written notification of such injury or damage to the vendor within 48 hours.

The Purchaser must cooperate with the Vendor in the inquiries on such injury or damage and in defence of any claim for damages.
If the Purchaser fails to follow this section or if the injuries or damages are caused, totally or partially, by the Purchaser‘s non-observance of the federal or state laws on safety, the Purchaser must indemnify and keep harmless the Vendor from any claim, loss or expense for injuries or damages connected to the use of the product.

10 MAINTENANCE REGISTER

Date	Activity	Result	Signature	Notes

MAINTENANCE

Date	Activity	Result	Signature	Notes

MAINTENANCE

Date	Activity	Result	Signature	Notes

MAINTENANCE

Date	Activity	Result	Signature	Notes

Note

The information contained in this publication is correct at the time of printing, but can be modified without prior notice or compulsory notification, when necessary, in compliance with the continuous improvement policy of the LITEC Italia Spa products.

LITEC Italia spa
Via Martin Luther King, 70
31032 Casale sul Sile (TV) Italy
Tel. +39 0422 997300
Fax +39 0422 997399
www.litectruss.com
info@litectruss.com

Follow us also on
Facebook https://www.facebook.com/litecitalia
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