ELECTRIC CHAIN HOIST

MODEL

PRO



FEC PRO

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DISCLAIMERS

- The Company shall not be liable for any damage or loss caused by fire, earthquakes, lightning, other natural disasters, acts of third parties, accidents, intentional misconduct, negligence, misuse, or any circumstances beyond the specified operating conditions of the equipment.

- The Company shall not be liable for any indirect, incidental, consequential, or collateral damages arising from the use of this product or from the inability to use this product, including but not limited to loss of business, interruption of operations, loss of profits, or damage to lifted loads.

- The Company shall not be liable for any damage or loss resulting from failure to comply with the instructions contained in this manual or from operation of the equipment outside its specified scope of application.

- In all such cases, whether individually or in combination, the Company assumes no responsibility or liability for any resulting damage, loss, or injury.

RESTRICTIONS

- This product shall not be used for transporting persons, as it is not designed or manufactured for man-riding applications.

- Do not use the equipment outside its intended application. This product is designed for vertical lifting, lowering, and horizontal handling of loads only, under normal operating conditions.

- Do not use this product as part of non-mechanical systems or applications involving uncontrolled or suspended moving loads.

OPERATION AND USE

- Please read this operating manual and all related user manuals carefully, and ensure that you fully understand their contents before operating or using the product.

- Please wear appropriate personal protective equipment (PPE) before operating or using the product.

SAFETY PRECAUTIONS

- The operation of chain hoists and other lifting equipment involves inherent risks that may result in personal injury or property damage if not properly handled.

- The risk of accidents increases significantly when the equipment is not operated in accordance with the manufacturer's instructions and safety guidelines.

- To ensure safe operation, all operators must be fully trained, qualified, and thoroughly familiar with this manual and all applicable safety instructions before using the equipment.

SAFETY WARNING SYSTEM

Warning symbols used in this manual indicate important safety-related information.

All highlighted or framed instructions identify potential hazards that must be strictly followed.

Non-compliance with these instructions may result in serious injury, death, or property damage.

Operators must read and fully understand this manual before operating the electric chain hoist.



1. DEFINITIONS OF SAFETY MARKS

- The FECPRO Series Electric Chain Hoist is designed for use under normal operating conditions and is intended exclusively for lifting loads in a vertical direction. It is not designed or approved for lifting, supporting, or transporting personnel.

- The following safety marks and signal words are used throughout this manual to identify the level of hazard and to indicate the severity of potential risks.

⚠ Very dangerous status, if it is inevitable, it will lead to human being injury or series human wounded and property loss.

⚠ Potential dangerous status, if it is inevitable, if may lead to human being injury or serious human being wounded and property loss.

DANGER

- Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury, and may also cause significant property damage.

WARNING

- Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury, and may also cause property damage.

    - Depending on the operating conditions, even situations identified by a CAUTION signal word may result in serious injury if safe operating procedures are not followed. Always operate the hoist safely and in accordance with the instructions provided in this manual.

    - Keep this manual in a location that is easily accessible to all operators for future reference

2. SAFETY PRECAUTIONS

2.1 General Safety Rules

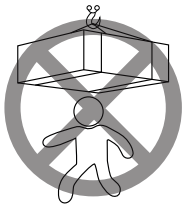
- Improper operation, misuse, or failure to properly inspect and maintain the hoist may result in hazardous conditions, serious injury, death, or property damage. For example, equipment malfunction may prevent a suspended load from being safely lowered.

- Before installing, operating, inspecting, or performing maintenance on t he hoist, read this manual carefully and ensure that all safety precautions and operating instructions are fully understood and followed.



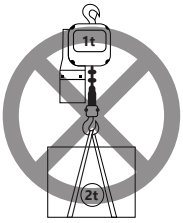
⚠ DANGER

Do not use for lifting or supporting personnel. Material handling only



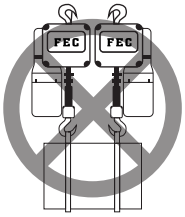
⚠ DANGER

Do not stand or pass beneath suspended loads.
Do not move loads over personnel.



⚠ DANGER

Do not exceed the rated load capacity of the hoist



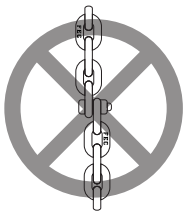
DANGER

Do not use multiple hoists to lift a load beyond the rated capacity of a single hoist



DANGER

Do not weld the hook or the load chain under any circumstances.



DANGER

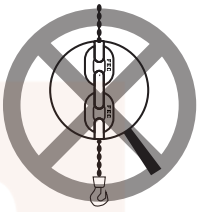
Do not use bolts, screws, screwdrivers, or any other tools to knot, join, or shorten the load chain.

CAUTION

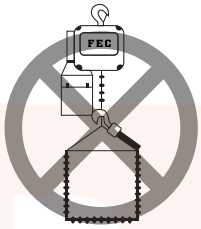
- Before moving a load, ensure that all personnel in the surrounding area are warned and kept clear of the operating zone. If necessary, establish a designated lifting area and restrict access to authorized operators only.

- The hoist shall not be operated by any person who has not read and fully understood this manual and all applicable safety warnings and labels.

2.2 OPERATIONAL CAUTIONS



Do not use the hoist if the load chain is deformed or cracked



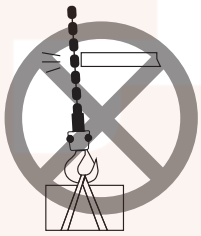
Do not use the load chain as a lifting sling or for rigging purposes



Do not lift loads at an angle greater than 12° from the vertical



Do not suspend a load from the tip of the hook



Do not allow the load chain to pass over or come into contact with obstacles such as steel plates or sharp edges



Do not perform welding or cutting operations while a load is suspended

Don't wave the lifting goods

Don't use hoist which was broken or with abnormal sound don'tdo repeat quick up and down operation when lifting the goods, forbidden to put the weight in the air without supervisor in long time.

Please assure the load was in hook cavity correctly

Before lifting the weight, must assure eliminate the lifting chain clearance, in order to avoid the occurrence of impacting load

Do not swing the load while it is suspended

Do not operate the hoist if it is damaged or produces abnormal noise. Avoid frequent inching or repeated rapid lifting and lowering operations. Never leave a suspended load unattended for an extended period.

Ensure the load is properly seated in the hook saddle before lifting. Do not support the load on the hook tip or latch.

Before lifting, remove all slack from the load chain and apply the load gradually to prevent shock loading.

After operation, please make sure the weight was land on the earth safely to avoid the goods drop.

when the operation finished, cut off the control pendant in order to avoid wrong operations by others.

2.3 AFTER OPERATION

- After operation, ensure that the load has been safely lowered to the ground and secured to prevent accidental dropping.
- When the operation is completed, disconnect the control pendant to prevent unauthorized or accidental operation by other personnel.

Assure special inspector inspect and maintain the hoist regularly according to the rules in chapter 4 and chapter 5, otherweise, please contact our seller or us to make sure the inspect and maintain item.

The load chain was made by special alloy steel, do not weld or refit.

2.4 INSPECTION AND MAINTENANCE

- Ensure that the hoist is inspected and maintained regularly by qualified personnel in accordance with the procedures described in Chapters 4 and 5. Otherwise, contact your supplier or the manufacturer for proper inspection and maintenance support.
- The load chain is made of special alloy steel. Welding, modification, or reconditioning is strictly prohibited.

If you want to use the hoist in special condition (such as salt water, sea water, acid material, basic material, explosive environment), please contact our seller or us to confirm.

Forbidden to use the hoist which has problem or need to be maintained.

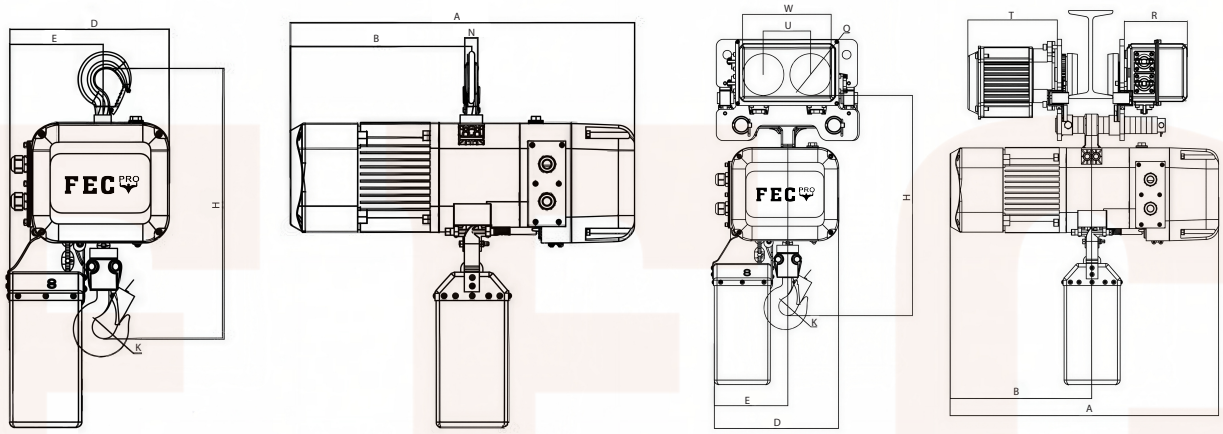
2.5 OTHER CONSIDERATIONS

- If the hoist is intended to be used in special or harsh environments (such as saltwater, seawater, acidic or alkaline conditions, or explosive atmospheres), please contact the supplier or manufacturer for confirmation and approval.
- Do not use the hoist if it is defective or requires maintenance.

3. TECHNICAL DATA

3.1 TECHNICAL SPECIFICATIONS

3.1.1 ELECTRIC CHAIN HOIST

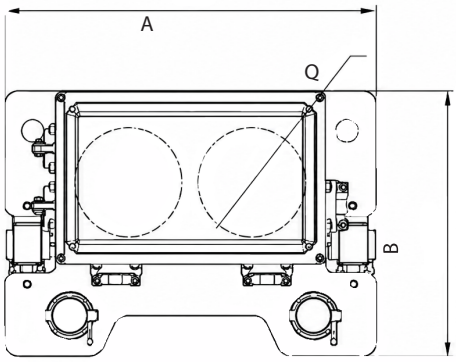


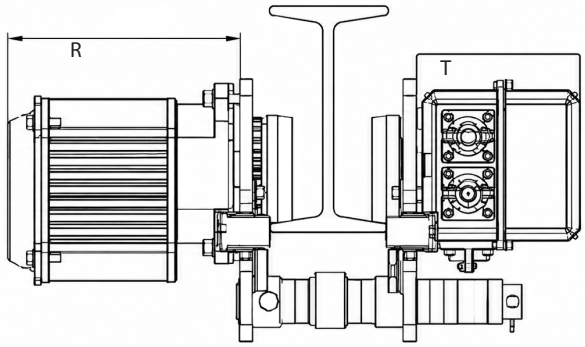
Model	PRO-0.5-01	PRO-01-01	PRO-02-01	PRO-03-01	PRO-05-02
Capacity	0.5T	1T	2T	3T	5T
Hoist Motor	0.8 kW	1.5 kW	3.30 kW	3.30 kW	3.30 kW
Lifting Speed	9.84 m / min	8.64 m / min	8.64 m / min	6.72 m / min	3.96 m / min
Load Chain	6.30 mm	7.10 mm	10.0 mm	11.20 mm	11.20 mm
Load Chain Falls	1 FALL	1 FALL	1 FALL	1 FALL	2 FALLS
Classification FEM / ISO	4M / M5	4M / M5	4M / M5	4M / M5	4M / M5
AntiCorrosion	IP65	IP65	IP65	IP65	IP65
Working Voltage	3 – PHASE 220/440 60HZ				

3.1.2 ELECTRIC CHAIN HOIST WITH ELECTRIC TROLLEY

Model	PRO-05-01 PRO-0.5	PRO-01-01 PRO-01	PRO-02-01 PRO-02	PRO-03-01 PRO-03	PRO-05-02 PRO-05
Capacity	0.5T	1T	2T	3T	5T
Hoist Motor	0.8 kW	1.5 kW	3.30 kW	3.30 kW	3.30 kW
Trolley Traveling Speed	25.2 m / min	25.2 m / min	25.2 m / min	25.2 m / min	25.2 m / min
Lifting Speed	9.84 m / min	8.64 m / min	8.64 m / min	6.72 m / min	3.96 m / min
Trolley Motor	0.4 kW	0.4 kW	0.4 kW	0.75 kW	0.75 kW
Load Chain	6.30 mm	7.10 mm	10.0 mm	11.20 mm	11.20 mm
Load Chain falls	1 FALL	1 FALL	1 FALL	1 FALL	2 FALLS
Classification FEM / ISO	M4 / M5	M4 / M5	M4 / M5	M4 / M5	M4 / M5
Anticorrosion	IP65	IP65	IP65	IP65	IP65
Working Voltage	3 – PHASE 220/440 60HZ				

Model	Capacity	Hmin	A	B	D	E	L	K
PRO-05-01	0.5T	410	568	296	276	163	30	35
PRO-01-01	1T	460	645	326	293	174	32	40
PRO-02-01	2T	540	740	343	395	248	39	47





3.1.3 ELECTRIC TROLLEY

Model	PRO-0.5	PRO-01	PRO-02	PRO-03	PRO-05
Capacity	0.5T	1T	2T	3T	5T
Trolley Traveling Speed	25.2 m / min	25.2 m / min	25.2 m / min	25.2 m / min	25.2 m / min
Trolley Motor	0.4 kW	0.4 kW	0.4 kW	0.75 kW	0.75 kW
Beam Flange	50 – 153 mm	75-178 mm	82-178 mm	100-178 mm	112-178 mm
Minimun Radius of Turn	1.1 m	1.3 m	1.5 m	1.6 m	1.8 m

Model	Capacity	A	B	R	T	Q
PRO-01	1T	325	230	206	142	95
PRO-02	2T	375	245	206	142	110
PRO-03	3T	400	250	206	142	125
PRO-05	5T	420	290	231	142	140

Beam flange configuration is optional.

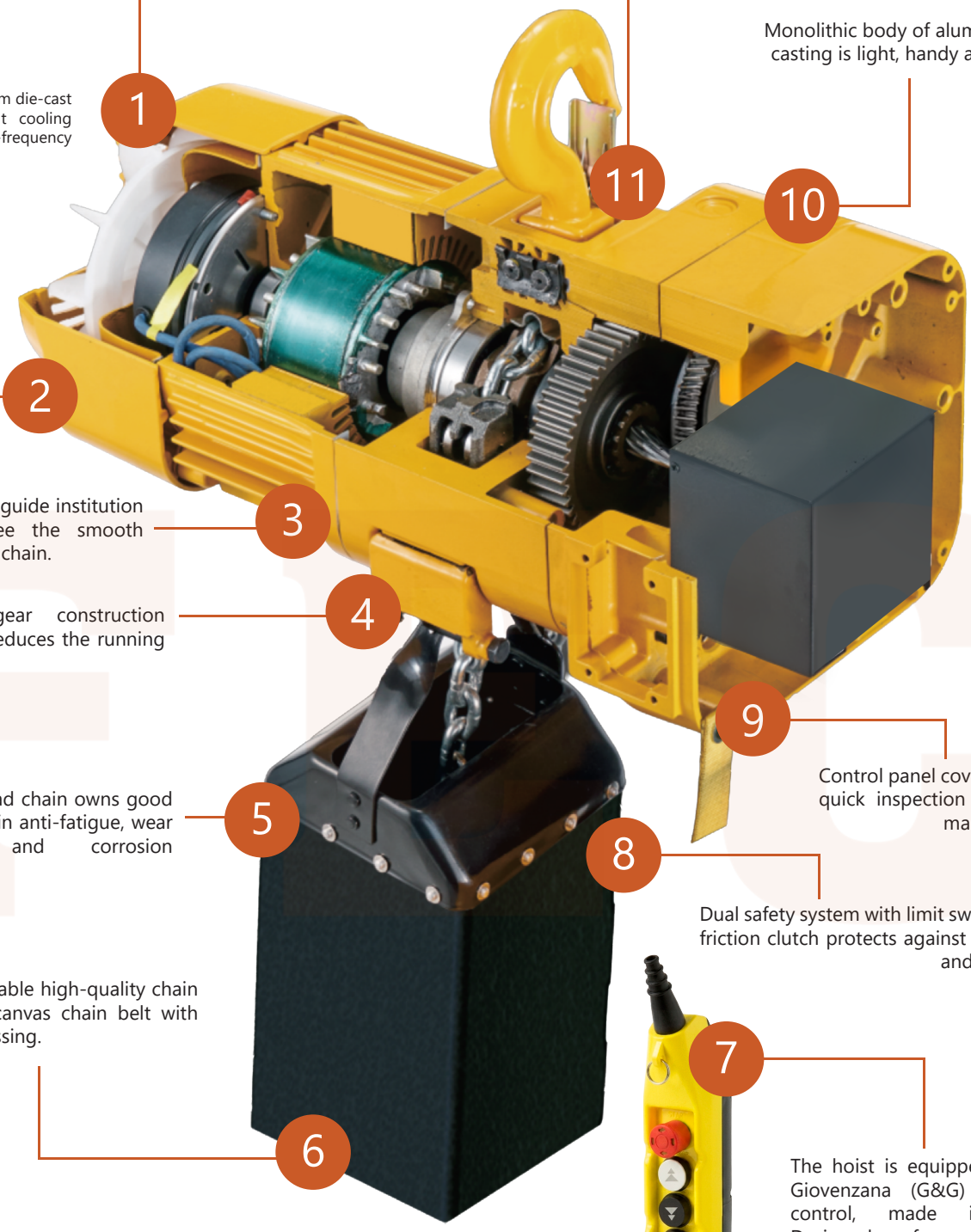
- The above parameters apply to a standard 220/440V, 60Hz, three-phase power supply system.

External main body of connecting shaft. Since the connecting shaft is outside the product, it is very convenient to disassemble the top hook and connecting shaft.

Electric flow electromagnetic brake structure of safe and reliable brake device owns powerful brake to ensure the brake requirements upon usage.

Monolithic body of aluminum die casting is light, handy and solid.

Air-cooled aluminum die-cast motor for efficient cooling and reliable high-frequency operation.



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Unique chain guide institution can guarantee the smooth lifting of load chain.

Low-noise gear construction helical gear reduces the running noise.

Alloy steel load chain owns good performance in anti-fatigue, wear resistance and corrosion resistance.

Solid and durable high-quality chain bag adopts canvas chain belt with special processing.

Control panel cover enables quick inspection and easy maintenance.

Dual safety system with limit switches and friction clutch protects against overtravel and overload.

The hoist is equipped with a Giovenzana (G&G) pendant control, made in Italy. Designed for industrial applications, it operates with a 24 V control voltage and features an emergency stop button for enhanced operator safety. The control system complies with no-voltage protection requirements.

GIOVENZANA INTERNATIONAL B.V.

3.2 MAIN FEATURES

- The hoist is equipped with an overload limiting device to prevent damage caused by overloading.
- The lifting hook is fitted with a safety latch to prevent rigging slippage.
- The electric motor is equipped with a thermal protection device that activates when the motor temperature rises excessively due to overuse.
- This protection system automatically shuts off the motor to prevent burnout.
- The hoist is equipped with upper and lower limit switches to prevent over-travel of the hook.
- The hoist is equipped with an emergency stop button that immediately cuts off power in case of an emergency.

3.3 DUTY CLASSIFICATION AND SERVICE LIFE

- Safe operation and maximum service life of the hoist can only be ensured when the equipment is operated in accordance with its specified duty rating. The SHH Series electric chain hoist is designed in compliance with ISO, JIS, and FEM classification standards.

3.3.1 LOAD SPECTRUM FOR ELECTRIC HOIST (M5 DUTY CLASS)

Load Range	Technical Description	Classification FEM / ISO	Application in Continuous Operation
0.5T	Light-duty load within full rated capacity range	M4 / M5	High-frequency material handling with maximum efficiency
1T	Standard light industrial load	M4 / M5	Continuous operation in production lines and repetitive processes
2T	Medium industrial load under normal operating conditions	M4 / M5	Sustained operation in demanding industrial environments
3T	Heavy industrial load	M4 / M5	Frequent lifting under high-demand working conditions
5T	Maximum rated load capacity	M4 / M5	Controlled lifting at full rated capacity within reinforced structural design

4. SAFE OPERATION

4.1 GENERAL STATEMENT

- Operating the hoist beyond its rated load capacity may result in hazardous conditions. Before operation, carefully read this entire chapter and ensure compliance with the safety requirements described in Section 1.2.
- Before operating the hoist, ensure that the working environment meets the following requirements:
  - The working area must be stable and suitable for safe hoist operation.
  - Ensure sufficient visibility during operation and assign a designated signal person if necessary.

4.2 INSTALLATION AND TESTING

- Install the hoist securely on a suitable and reliable supporting structure. Connect the power supply according to the rated specifications. Then operate the control pendant by pressing the UP or DOWN buttons and observe the operation of the hoist.
- If the hook moves in the correct direction (up and down), the electrical connection is correct. If the hook does not move when operating the control pendant, the power supply phase connection may be incorrect. In this case, interchange any two phase wires to correct the rotation direction.

4.3 LOADED OPERATION

- When the hoist is used for the first time, or after a long period of non-use, it must be operated under no-load or light-load conditions for approximately 15 minutes. During this period, observe the operation of the hoist carefully.
- If no abnormal conditions are detected, the hoist may then be put into normal loaded operation.

5. INSPECTION AND MAINTENANCE

- To ensure safe and reliable operation, the hoist must be inspected at regular intervals. Any damaged or worn parts shall be replaced immediately to prevent potential safety hazards.
- Inspection intervals shall be determined based on the operating conditions, duty classification, and working environment. Special attention shall be given to the condition of critical components, including wear, damage, and ageing.
- Inspection is generally classified into:
  - Daily inspection
  - Periodic inspection

DAILY INSPECTION

- Performed before each use by the operator through visual and functional checks.

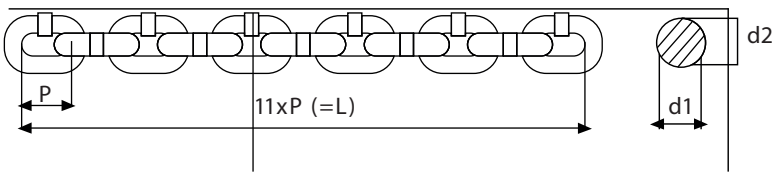
PERIODIC INSPECTION:

- Performed by qualified technical personnel or engineers according to the operating conditions and usage frequency.

5.1 FREQUENT INSPECTION

Component	Method	Judge Standard	Solution
Label / Warning Mark	Visual Inspection	Labels are clean, clearly visible, and legible	Replace if damaged
Control Pendant	Visual Inspection	No damage or malfunction	Repair or replace if abnormal
	Press STOP button without load	Hoist stops; correct direction of motor rotation after pressing UP/DOWN buttons	Repair or replace if abnormal
	Press START button without load	Lower hook operates correctly (up/down movement)	Repair or replace
Brake	Lift and lower 2–3 times without load	Brake performance is normal	Repair or replace
Upper / Lower Limit Switch	Operate hook to limit positions without load	Motor stops when reaching upper/lower limits and reverses direction correctly	Repair or replace
Load Chain	Visual inspection	Proper lubrication, no deformation, cracks, or wear	Clean, lubricate, or replace if necessary
Hook	Visual inspection and functional check	No deformation; free rotation and movement	Replace if damaged
Position Limit Spring	Visual inspection	No deformation or damage	Replace

5.2 PERIODIC INSPECTION PROJECT

Project	Method	Judge Standard	Solution
Control Pendant	Press STOP button function test	Button operates correctly and stops hoist	Repair if abnormal
Power Supply	Measure with voltmeter	Within ±10% of rated voltage	Check power supply and wiring
Grounding (Earth)	Check grounding resistance	≤ 0.1 Ω	Adjust or repair grounding system
Insulation	Measure with megohmmeter	≥ 1.5 MΩ	Replace defective parts
Hoist Frame	Visual inspection	No cracks or breakage	Replace if damaged
Nameplate	Visual inspection	Load capacity clearly visible	Replace if illegible
Screws / Fasteners	Visual inspection	No looseness or missing parts	Tighten or replace
Abnormal Operation	Load test operation	No abnormal noise from hoist or motor	Repair if abnormal
Gear Oil	Visual inspection	Oil level and quality meet specifications	Refill or replace oil
Brake	Load operation test	Load stops without excessive sliding (>1% slip)	Repair if abnormal
Load limiter	Load test	Hoist operates within rated load capacity	Adjust or replace
Upper/Lower Limit Switch	Rated load test	Hoist stops automatically at limits and reverses correctly	Repair or replace
Upper/Lower Limit Switch	Rated load test	Hoist stops automatically at limits and reverses correctly	Repair or replace
Inspection of Load Chain Wear	**Measurement** Record the dimensions (B, C) as shown below at the time of purchase or inspection.  		Change

Capacity (t)	D=(di+d2)/2		L (mm)	
	Dimension	Rejected	Dimension	Rejected
0.5	6.3 mm	<5.7	210 mm	>217.36
1	7.1 mm	<6.4	234.1 mm	>242.30
2	10.0 mm	<9	331.6 mm	>343.22
3,5	11.2 mm	<10.1	375.8 mm	>388.96

Caution: If the load chain shows signs of wear, perform a visual inspection of the chain guide.
Action: Replace if wear or elongation exceeds specified tolerance limits.

SAFETY WARNINGS:

- Do not stand or pass under suspended loads.
- Do not move loads over personnel.

5.2.1 INSPECTION AND ACCEPTANCE CRITERIA

<table>
<tr><th>Item</th><th>Method</th><th>Inspection / Acceptance Standard</th><th>Action</th></tr>
<tr><td>Lifting chain deformation</td><td>Visual inspection</td><td>No deformation; operation of push button must be stable and normal</td><td>Replace</td></tr>
<tr><td>Lifting chain welding scar</td><td>Visual inspection</td><td>No visible welding defects or marks on the chain</td><td>Replace</td></tr>
<tr><td>Lifting chain rust</td><td>Visual inspection</td><td>No significant corrosion; apply lubricant to the lifting chain when necessary</td><td>Replace</td></tr>
<tr><td>Hook</td><td colspan="2">First use size: A , B , C Rejected standard: More than 5% decrease of measured size.
<table>
<tr><th rowspan="2">Capacity (t)</th><th rowspan="2">Normal</th><th colspan="2">D=(di+d2)/2</th><th colspan="2">L (mm)</th></tr>
<tr><th>Standard</th><th>Rejected</th><th>Standard</th><th>Rejected</th></tr>
<tr><td></td><td></td><td>d</td><td>d</td><td>d</td><td></td></tr>
<tr><td>0.25 , 0.5</td><td>30</td><td>18</td><td><17.1</td><td>21</td><td>>19.95</td></tr>
<tr><td>1</td><td>37</td><td>20</td><td><19</td><td>24</td><td>>22.8</td></tr>
<tr><td>2 , 3</td><td>45</td><td>26</td><td><24.7</td><td>42</td><td>>39.9</td></tr>
<tr><td>5</td><td>61</td><td>35</td><td><33.3</td><td>50</td><td>>47.5</td></tr>
</table>
■ These values are standard value, because these size can not be controlled in general tolerance range, when you buy you could use the measure value as standard value, you could judge the deformation and extension of the hook by judge the later measuring size with the first size</td><td>Change</td></tr>
<tr><td>Hook deformation</td><td>Visual inspection</td><td>Without obvious deformation and crack, hook neck wear well mixed. Without deeper crackle, screw and bolt can not be loose, without welding scar</td><td>Change</td></tr>
<tr><td>Hook rotation</td><td>Visual inspection</td><td>Hook should rotate normally</td><td>Change</td></tr>
<tr><td>Hook</td><td>Visual inspection
Function inspection</td><td>Hook pin should be in the hook tip</td><td>Change</td></tr>
<tr><td>Gasal plate</td><td>Visual inspection
Function inspection</td><td>Should work normally
WARNING: missing hook safe clip, please do not use.</td><td>Change</td></tr>
</table>

6. HOOK INSPECTION

SIZE SELECTION (A, B, C):

- **Rejection criteria:** Decrease in measured dimension exceeding 5% compared to standard value.Do not move loads over personnel.

Note: These values are standard reference values. As the hook size cannot be controlled during general use, measurements should be compared against the initial standard dimensions at the time of inspection.

6.1 HOOK DEFORMATION

6.1.1 INSPECTION AND ACCEPTANCE CRITERIA

Item	Method	Inspection / Acceptance Standard	Action
Hook deformation	Visual inspection	No deformation, cracks, neck wear, or excessive wear. Hook, shackle, screw, and bolt must not be loose or welded	Replace

Item	Method	Inspection / Acceptance Standard	Action
Hook Rotation	Visual inspection	Hook must rotate smoothly and normally without restriction or abnormal resistance.	Replace
Hook Condition	Visual inspection / Functional test	Hook pin must be correctly positioned at the hook tip. No abnormal wear, damage, or misalignment allowed.	Replace
Safety plate (Safety latch)	Visual inspection / Functional test	Must operate correctly and return to closed position automatically. If missing, damaged, or not functioning properly, the equipment must not be used.	Replace

⚠ Add N°1 lithium base grease to all bearings annually when maintained

⚠ Assessment of i nspection result should made by specialist so that the hoist can reach safe work condition after maintained

⚠ Forbidden to use the parts which is not conform to standard or we do not accept.

⚠ Lubricate all bearings annually with No. 1 lithium-based grease during scheduled maintenance.

⚠ The inspection results shall be evaluated by qualified personnel to ensure that the hoist is restored to a safe operating condition after maintenance.

⚠ Non-conforming parts shall not be used or accepted under any circumstances.

7. MAINTENANCE

7.1 GENERAL RULES


Improper maintenance may result in serious injury or death


The electric chain hoist shall be maintained only by qualified personnel. If qualified personnel are not available, contact the supplier or manufacturer for assistance.


The hoist shall not be used while it is under maintenance.


If any abnormal condition is detected after operation, inspect the hoist in accordance with the inspection requirements described in Chapter 5.


After operation, if the hoist is found abnormal, please check all items according to the inspection demands of Chapter 5.


Do not store the hoist with a suspended load.


Clean all dirt and contaminants from the hoist after use.


Store the hoist in a clean, dry, and well-ventilated environment.


Failure or breakage of the load chain may result in serious injury or death.


The load chain must be properly maintained through correct operation, regular maintenance, and periodic inspection.

7.2 LUBRICATION

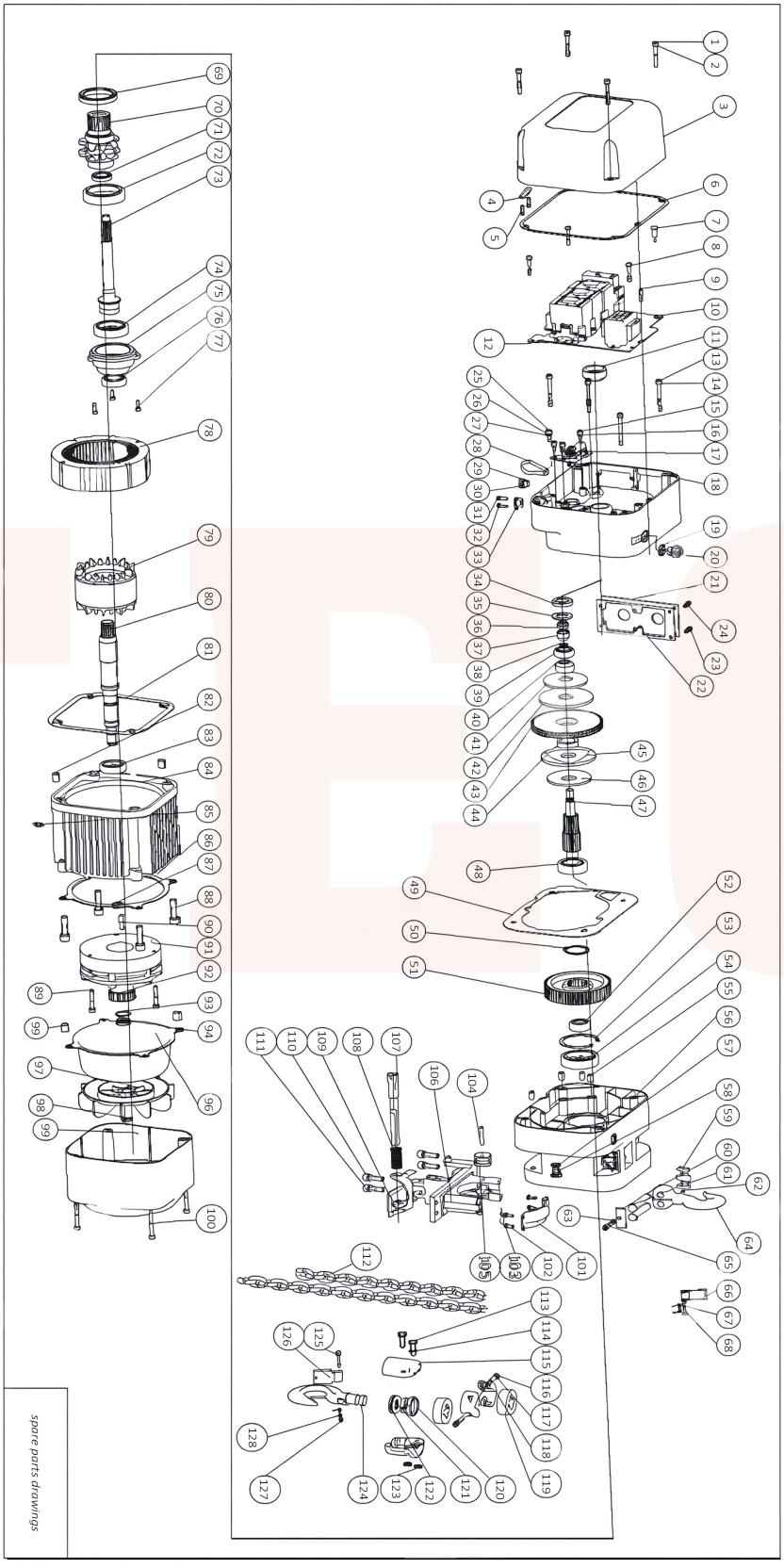
- The load chain is a critical component of the hoist and must be regularly lubricated.

7.3 Troubleshooting

Malfunction	Possible Cause	Corrective Action
The hoist does not operate when the control switch is activated	Power supply disconnected or loose electrical wiring.	Inspect and secure all electrical connections.
	Damaged electrical components.	Replace the defective electrical components.
The load drifts downward after the hoist is stopped (brake does not hold the load)	Brake disc contaminated with oil or dust.	Clean the brake disc thoroughly.
	Excessive brake disc wear.	Replace the brake disc
Abnormal noise from the load chain during operation	Insufficient chain lubrication.	Lubricate the load chain using the manufacturer-recommended lubricant.
	Worn or damaged chain guide.	Replace the chain guide.
Electrical leakage or electric shock hazard	Improper or inadequate grounding	Verify and ensure proper grounding of the equipment.
	High humidity in the operating environment.	Do not operate the equipment in excessively humid conditions or provide adequate environmental protection.
	Dust accumulation on electrical components.	Clean electrical components regularly to prevent contamination.
Load slips or lowers while lifting	Improperly adjusted or worn load limiter.	Adjust or replace the load limiter as required.
Hook deformation or excessive opening	Load supported on the tip of the hook instead of the saddle.	Ensure the load is properly seated in the center (saddle) of the hook.
	Incorrect chain sling or lifting accessory selected.	Use the appropriate chain sling or lifting accessory for the application.
Variable Frequency Drive (VFD) alarm	VFD fault or protection activated	Refer to the VFD operation manual to identify the alarm code and perform the recommended corrective action.

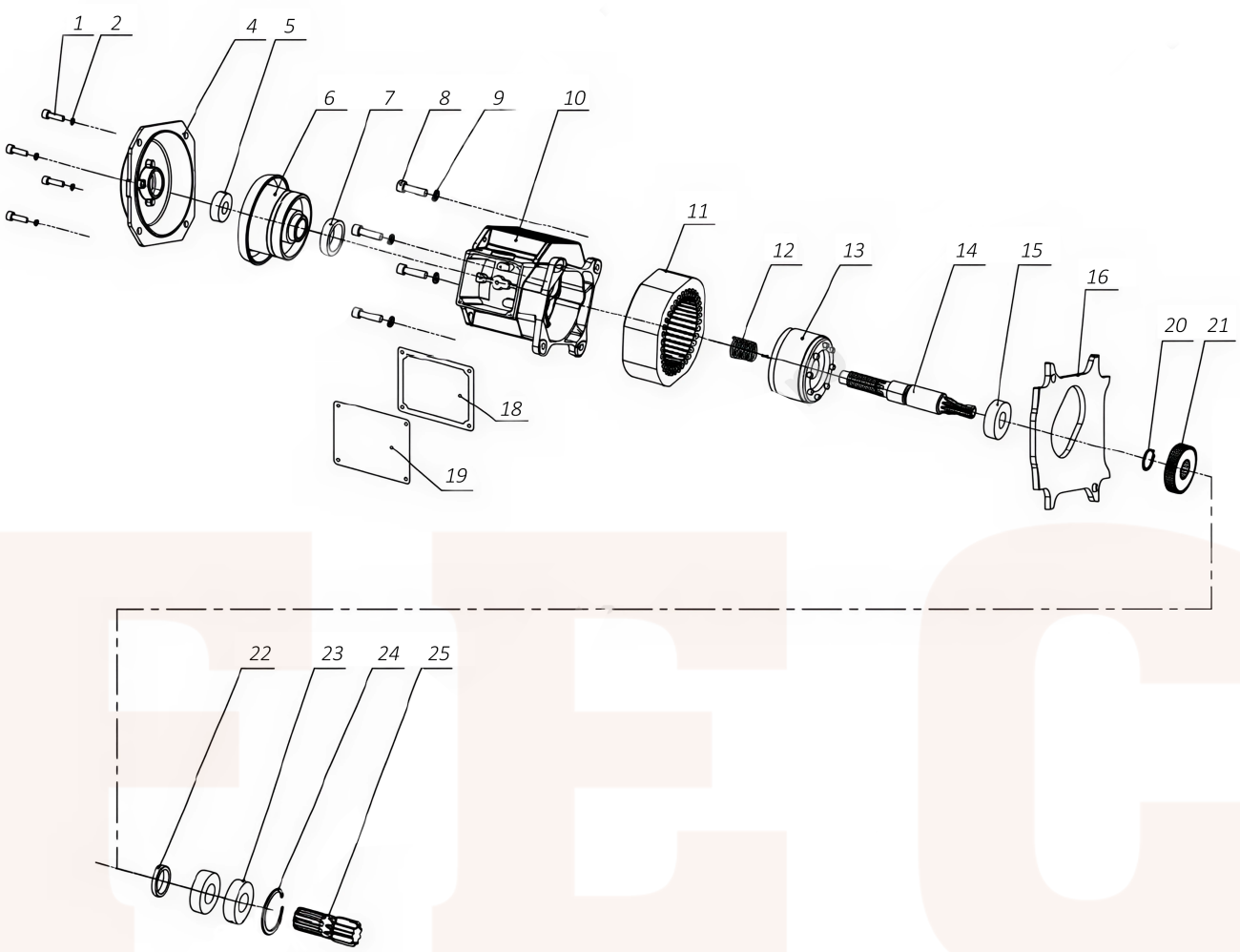
8. APPENDIX

8.1 PARTS LIST – ELECTRIC CHAIN HOIST (0.5 t – 5 t)



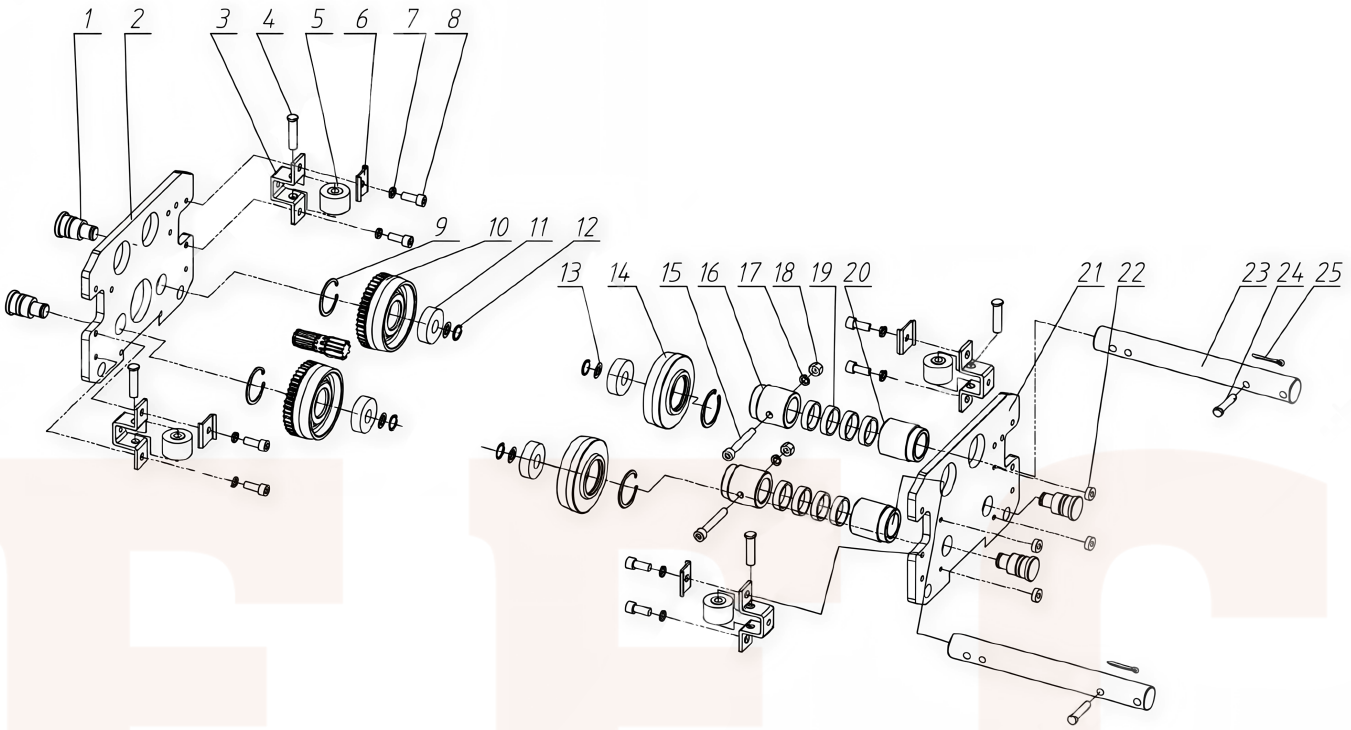
1.	Socket head cap screw	44.	Min gear spacer sleeve	87.	External retaining ring
2.	Spring washer	45.	Brake disc	88.	Socket head cap screw
3.	Controller cover	46.	Belleville springs	89.	Socket head cap screw
4.	Suspension ring	47.	Clutch shaft	90.	Flat key
5.	Pan phillips	48.	Deep groove ball bearing	91.	Brake
6.	Controller cover shim	49.	Gearbox gasket	92.	Brake spline sleeve
7.	Electrical installation plate	50.	External retaining ring	93.	External retaining ring
8.	Slotted pan head screw	51.	Output gear	94.	V ring
9.	Slotted Spring Pins	52.	Deep groove ball bearing	95.	Dowel pin
10.	Electrical mounting plate	53.	Circlip For Hole	96.	Brake cover
11.	Nut cap	54.	Deep groove ball bearing	97.	Fan
12.	Terminal strip	55.	Dowel pin	98.	External retaining ring
13.	Socket head cap screw	56.	Chain wheel case	99.	Fan cover
14.	Shim	57.	Spring washer	100.	Socket head cap screw
15.	Socket head cap screw	58.	Hex head screws	101.	Chain guide algan
16.	Spring washer	59.	Upper hook pivot pin card	102.	Crossed discal screw
17.	Limit switch complete	60.	Upper hook pivot pin	103.	Spring washer
18.	Gearbox	61.	Upper hook hanging pin	104.	Guide pulley pin
19.	Spring washer	62.	Self-locking nut	105.	Guide pulley
20.	Hex head screws	63.	Spring washer	106.	The chain conductor
21.	Partial	64.	Upper hook	107.	Limit switch connecting shaft
22.	Partial cover gasket	65.	Socket head cap screw	108.	Limit switch spring
23.	Socket head cap screw	66.	Hook safety latch	109.	Limit stent
24.	Spring washer	67.	Hook spring	110.	Socket head cap screw
25.	Socket head cap screw	68.	Crossed discal screw	111.	Spring washer
26.	Spring washer	69.	Oil seal	112.	Chain
27.	Flat washer	70.	Load gear	113.	Hex head screws
28.	Hang with	71.	Oil seal	114.	Spring washer
29.	Hex head screws	72.	Deep groove ball bearing	115.	Lower hook swivel shell
30.	Spring washer	73.	Output shaft	116.	Socket head cap screw
31.	Crossed discal screw	74.	Deep groove ball bearing	117.	Spring washer
32.	Spring washer	75.	Motor shaft coupling sleeve	118.	Lower hook locking sleeve
33.	Wire rope clamp accessories	76.	Deep groove ball bearing	119.	Limit ring
34.	Oil seal	77.	Socket head cap screw	120.	Hook fixing ring
35.	Corrugated spring gasket	78.	Motor stator assmbly with	121.	Two halves of the hook
36.	Self-locking nut	79.	Motor rotor	122.	Thrust ball bearing
37.	Clutch shaft spacer sleeve	80.	Motor rotor shaft	123.	Self-locking nut
38.	O-ring	81.	Motor shell gasket	124.	Lower hook
39.	Deep groove ball bearing	82.	Dowel pin	125.	Crossed discal screw
40.	Shaft sleeve	83.	Deep groove ball bearing	126.	Hook safety latch
41.	Belleville springs	84.	Motor shell	127.	Hook spring
42.	Brake disc	85.	Hexagon socket screw	128.	Self-locking nut
43.	Min gear	86.	Brake housing gasket		

8.2 EXPLODED VIEW OF TROLLEY MOTOR ASSEMBLY



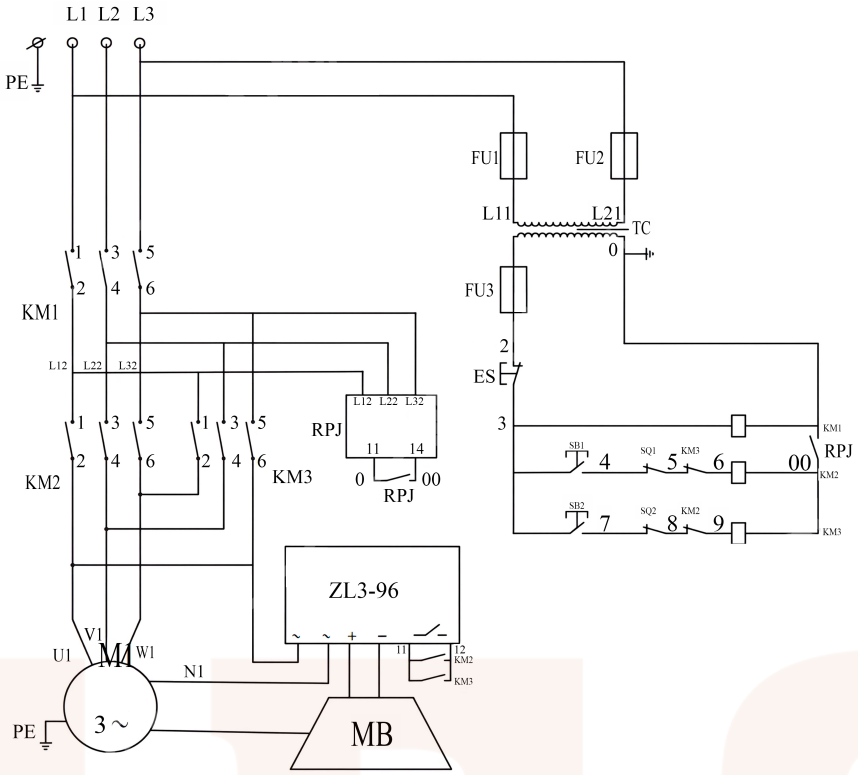
1.	Socket head cap screw	**14.**	Rotor shaft
2.	Spring washer	**15.**	Bearing
4.	Motor back end cover	**16.**	Motor bottom plate
5.	Bearing	**18.**	Side plate gasket
6.	Brake Assembly	**19.**	Side plate
7.	Rubber circlip	**20.**	Circlip
8.	Socket head cap screw	**21.**	Gear
9.	Spring washer	**22.**	Circlip
10.	Motor shell	**23.**	Bearing
11.	Motor stator	**24.**	Circlip for hole
12.	Brake spring	**25.**	Spline gear shaft
13.	Motor rotor		

8.3 COMPONENTS OF ELECTRIC TROLLEY

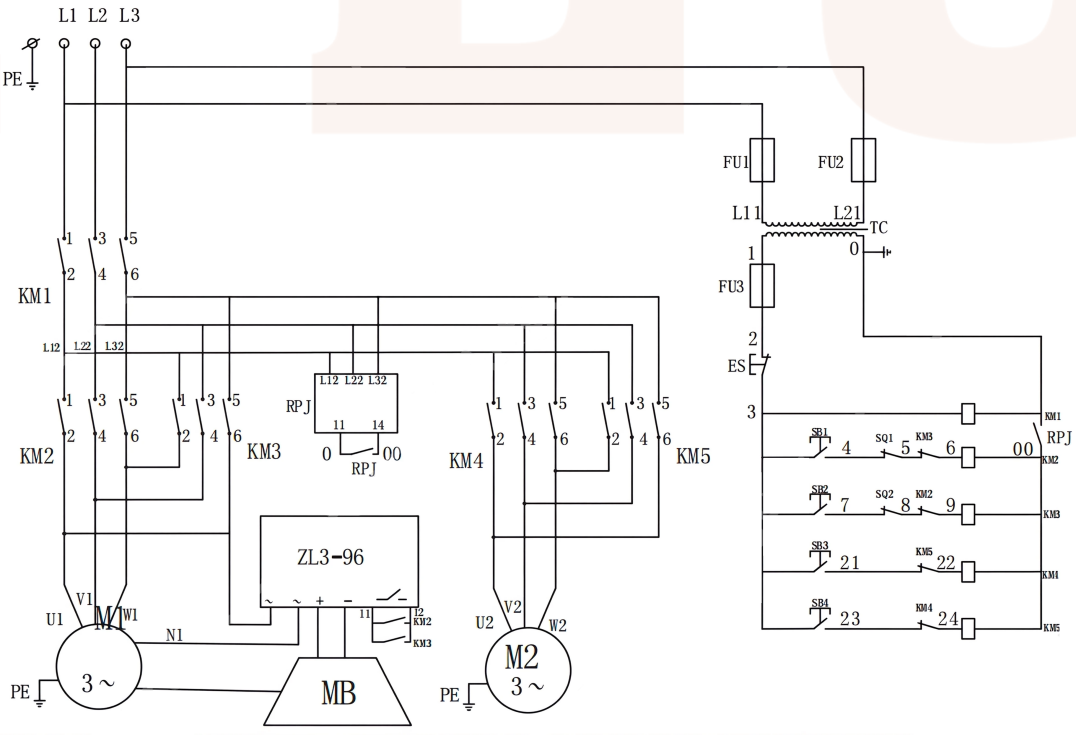


1.	Wheel shaft	**14.**	Trolley wheel
2.	Trolley subplate plate	**15.**	Socket head cap screw
3.	Auxiliary wheel bracket	**16.**	Bushing
4.	Auxiliary wheel shaft	**17.**	Spring washer
5.	Trolley auxiliary wheel	**18.**	Self-locking nut
6.	Auxiliary wheel bracket gasket	**19.**	Adjusting spacer
7.	Spring washer	**20.**	Bushing
8.	Socket head cap screw	**21.**	Trolley main plate
9.	Circlip for hole	**22.**	Gasket
10.	Toothed driving wheel	**23.**	Trolley shaft
11.	Deep groove ball rolling bearing	**24.**	Trolley shaft dowel pin
12.	Circlip for shaft	**25.**	Split pin
13.	Trolley wheel washer		

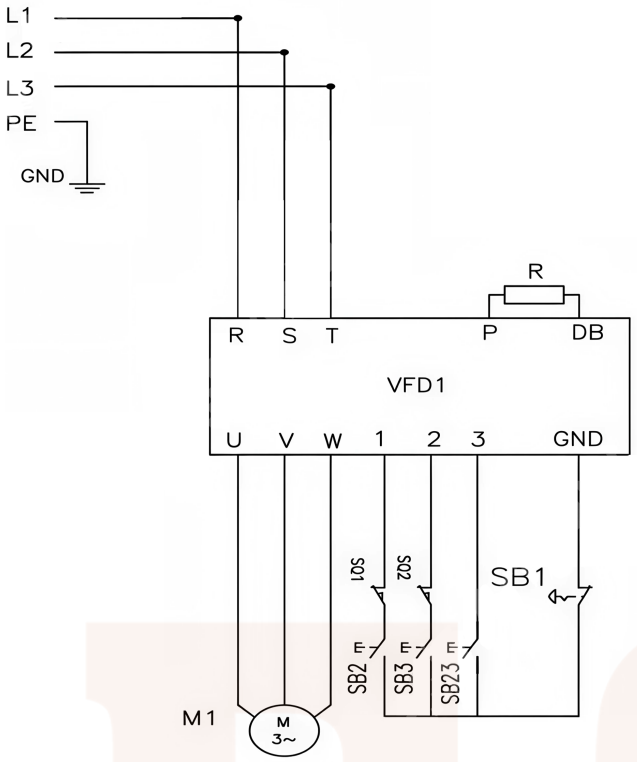
8.3.1 ELECTRIC CHAIN HOIST - SINGLE SPEED



8.3.2 ELECTRIC CHAIN HOIST WITH ELECTRIC TROLLEY - SINGLE SPEED



8.3.3 ELECTRIC CHAIN HOIST - SINGLE SPEED



8.3.4 ELECTRIC CHAIN HOIST WITH ELECTRIC TROLLEY

