ProWINCH®

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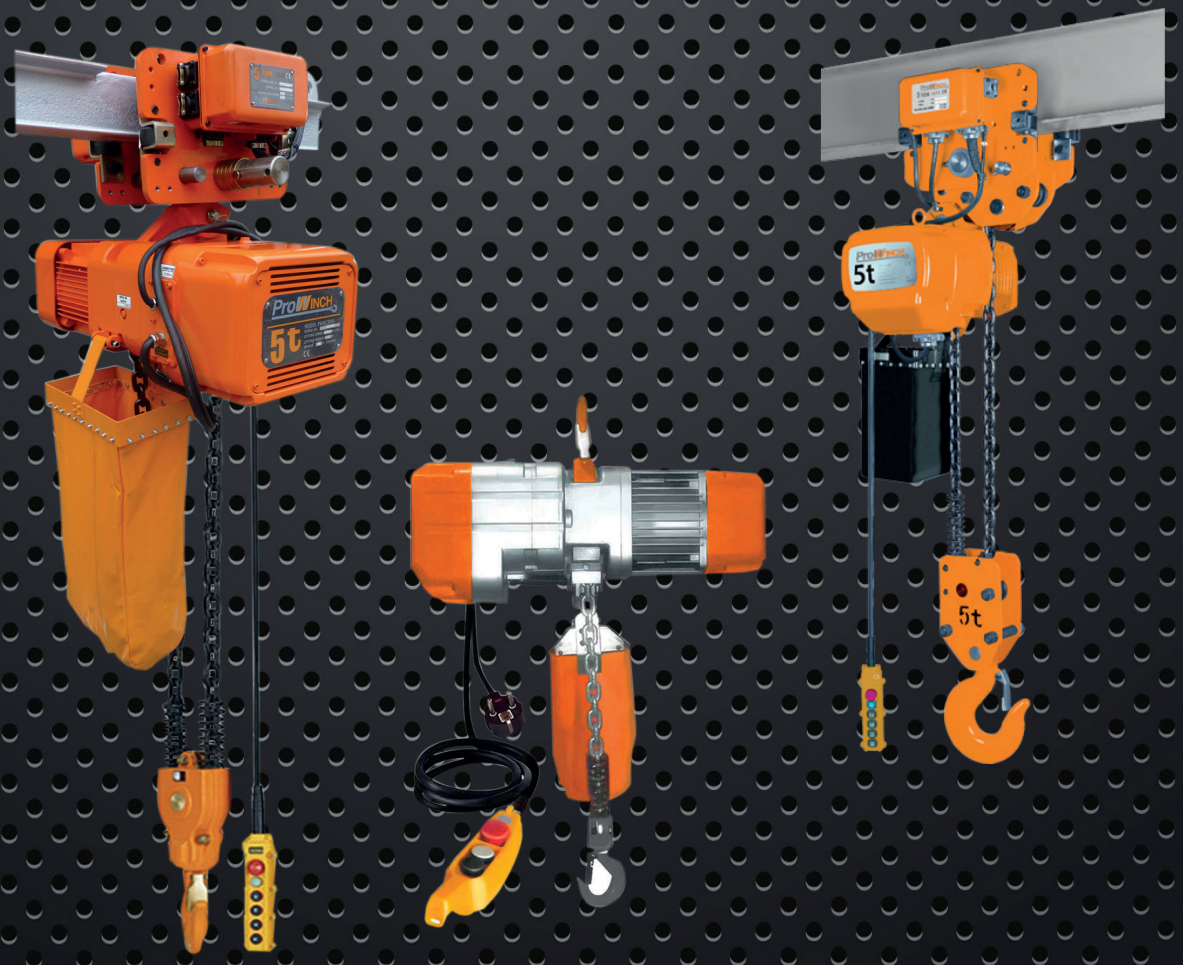


User Manual / Manual del usuario
Safety Warnings / Advertencias de seguridad

PWR - PWRC - PWHF - PWHC

DISCLAIMER WINCH PROWINCH®

Prowinch® LLC declares that it has made available to the Customer each and every one of the security warnings related to the purchased product and that, as a result, it does not assume any responsibility for any damages or losses that may be suffered by the client or third parties. cause or as a direct or indirect consequence of the breach or omission of any of the instructions or safety warnings contained in the User Manual and Security Warnings corresponding to the unit purchased.

In this sense, Prowinch® LLC will not be liable for accidents and / or damages to persons and / or property resulting from the negligent use of the product.

In no case does Prowinch® LLC assume any liability arising from the use of these voluntary recommendations, and does not offer any guarantee in relation to them. These recommendations do not take precedence over the current safety regulations of the plant.

For purposes of enforcing the Warranty of the product purchased, Prowinch® LLC, will only be liable for any damage when it is possible to prove that the user has followed each and every one of the warnings contained in the User Manual and Safety Warnings.

1. It is the sole responsibility of the Client / User to verify that the acquired equipment, products and accessories comply with the characteristics, capacities, elements, components, accessories and other conditions for the use that the Client / user intends to give it.

2. It is also the sole responsibility of the Client / User to ensure that the equipment and products purchased are operated and maintained in safety conditions and by personnel duly trained in the use thereof, also implementing all the security measures necessary for prevent accidents or damages to people or property and observing the indications and warnings of the corresponding manuals of use.

3. The possible support in the selection of the equipment, the capacities and characteristics required by the clients that Prowinch provides is delivered free of charge and provided based on the information of use and requirements indicated by the Client itself, information that Prowinch does not It may not correspond to verify. In this way, it is in any case the sole and exclusive responsibility of the Client -or who will use the equipment and products acquired- to ensure that they comply with the capabilities, characteristics, up-to-date maintenance and everything necessary for a correct and safe operation in relation to the intended use.

4. For personnel lifting Prowinch recommends the use of winches with 4 brakes. The use of winches of 3 or less brakes or safety features lower than the maximum available, for personnel lifting, is the sole responsibility of the customer.

5. In order to guarantee the safety of the users of the equipment, especially those of Personnel, it is necessary to carry out the inspections and maintenance of the equipment according to the recommended frequency in relation to its work cycle, as it is described by the ASME B30 standards. It is mandatory to keep record and evidence the written and photographic reports of: Maintenance, Start-up, Load Tests, Training, Certifications, Inspections and Reports of failures and accidents.

6. The aforementioned reports must be sent by email to registros@prowinch.com within the first 7 calendar days that said event has occurred.

7. Compliance with the timely implementation of the mandatory activities described in points 6 and 7, plus all the activities mentioned in the corresponding rules applied, are the sole responsibility of the user. Failure to comply with the foregoing, releases Prowinch from any type of Liability and Warranty to the team, customer, staff and / or user or any other liability that could be attributed to Prowinch.

The information contained in this manual may contain technical errors or inaccuracies, Prowinch® LLC, is not responsible for errors typing, omission or incorrect information.

This manual is subject to change without prior notice. Download the latest version available at www.prowinch.com

Always check www.prowinch.com for latest information regarding this product.

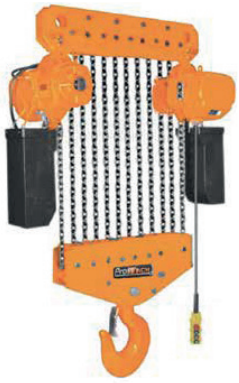
1. MODEL

PWR1 - PWR3 - PWR5

PWR10

PWR20

PWR30



PWRC1 - PWRC3

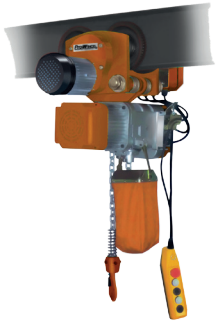
PWRC5

PWRC20

PWRCB1D - PWRCB3D
PWRCB5D - PWRCB7D
PWRCB10D

PWHF

PWHC



Thank you for purchasing our Prowinch® Electric Chain Hoist. This User Manual provides important information for personnel involved with installation, operation, and maintenance of this product. Read this User Manual before installing, operating, or maintaining product.

2. GENERAL SAFETY INSTRUCTIONS

Prowinch® Electric Chain Hoist is designed for safe and reliable service if operated according to User Manual.

Respect all warnings for personnel and third party safety. Inadequate operation may cause injuries or damage equipment. Read and understand this User Manual carefully before installation and commission of equipment. Keep this User Manual in an accessible place for consultation.

With compact structure, light weight and ease of use, PWR and PRWC models are preferred hoists for daily use in factories, mines, sea ports and warehouses.

Hoists used improperly may harm users and result in wounds, injuries or death. This User Manual highlights symbols and notes for caution, warning and danger. Attention to these areas ensures safety of operator.

Mandatory use of:

3. HOIST SAFETY PRECAUTIONS

WARNING:
This symbol indicates a dangerous situation which if not avoided may cause minor or moderate wounds. It is also used for indicating unsafe practices

DANGER:
This symbol indicates a dangerous situation which if not avoided may cause severe injuries or death.

DANGER
All operators and other users who are near the steel chain or its load must wear required safety equipment: gloves, safety helmet / hard hat, safety shoes and eye protection.

Study contents of this User Manual thoroughly before engaging electric chain hoist. Practicing correct and safe operating procedures and carrying out recommended preventative maintenance suggestions will ensure long, reliable, and safe service.

After careful study and understanding of User Manual, store it for future reference.

3.1 Before using equipment:

- Read and understand instructions in this User Manual and labels associated with hoist before operating equipment.
- Wear appropriate clothing: Do not wear jewelry or loose clothes as they might get attached to chain or hook.
- Wear leather gloves.
- Wear non-slippery safety shoes, helmet, and eye protection.
- Perform full check of hoist. Check for damaged parts or unusual characteristics. Keep a safe distance: suggested distance is at least 1.5 times length of hoist's chain. Broken or loose chain may cause injuries or death.
- Check hoist and chain are properly lubricated.
- Secure electric chain hoist to a suitable support.
- Visually inspect all electric chain hoists in addition to regular and maintenance inspections

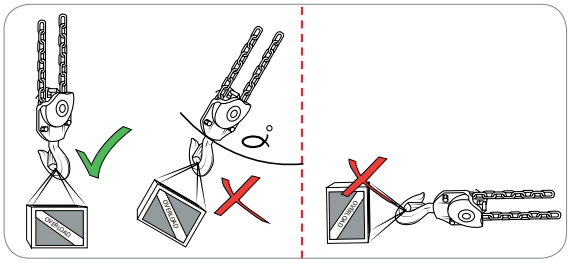
3.2 During Operation:

ALWAYS:

• Refer to maximum load capacity displayed on ID plate of hoist, not capacity of hook.
• Stop operation immediately if unauthorized personnel enter working area.
• Check state of hoist: If engine gets too hot, stop hoist and let it cool for a while.
• Stop, check, and secure load if hoist stops or loses movement during operation.
• Focus on operation. Pay attention at all times and keep proper balance.
• Unplug hoist after operation.

NEVER:

• Exceed maximum load capacity.
• Operate damaged or malfunctioning hoist.
• Operate hoist if behaving unusually.
• Lift, support, transport people, or lift or support loads over people.
• Walk over chain.
• Operate electric chain hoist with twisted, kinked, damaged or worn load chain.
• Use load chain as a sling around load.
• Operate a hoist if ID plate or safety labels are missing or illegible.
• Operate electric chain hoist when exposed to rain or water.
• Use if operator is sick or not completely attentive.
• Leave hoist unattended if energized or loaded.
• Operate hoist unless load is centered.
• Operate beyond limits of load chain or extend chain.
• Use load chain or hook as an electrical or welding ground.
• Remove labels on electric chain hoist.
• Use hoist to lift load at an angle, nor pull or drag load



3.3 Inspection, Maintenance and Repairs:

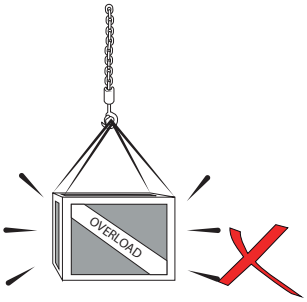
- Only trained and authorized personnel may make repairs to equipment.
- Use only original Prowinch® parts. The use of any other part immediately voids warranty.
- Failure to use only original Prowinch® parts may endanger operator.

ALWAYS:

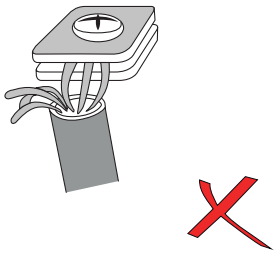
- Check quality of electrical connections.
- Check chain and keep it lubricated.
- Prevent others from being beneath load.
- Regularly inspect and maintain hoist.
- Check correct installation of hoist before using.
- Avoid contact with explosive gases or materials.

NEVER:

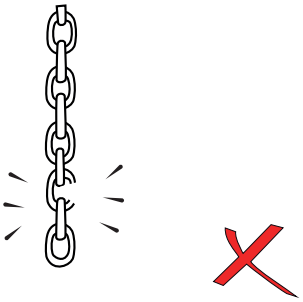
- Overload.
- Transport people or animals.
- Stand below load.
- Use hoist if exposed to rain, snow, or electrical storm.
- Leave load suspended for extended period of time. This may cause component deformation an accident.
- Exceed designated operating temperatures stated in this User Manual (differ depending on model).
- Expose hoist to water, sand, corrosive environment or other substances which may damage equipment.



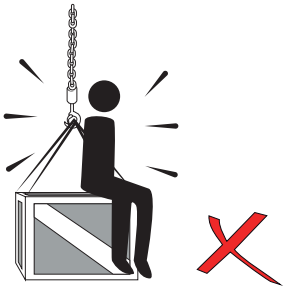
1. Do not overload.



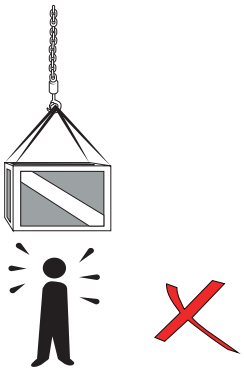
2. Check the quality of the electrical connections.



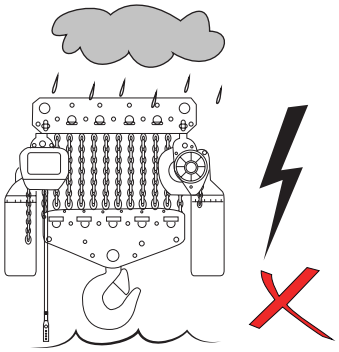
3. Periodically check the chain and keep it lubricated.



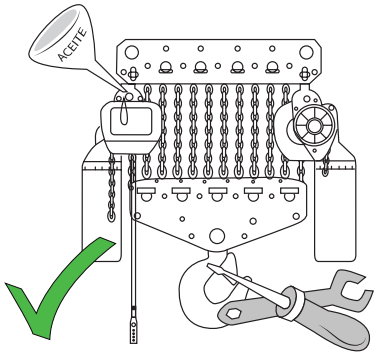
4. Do not transport people or animals.



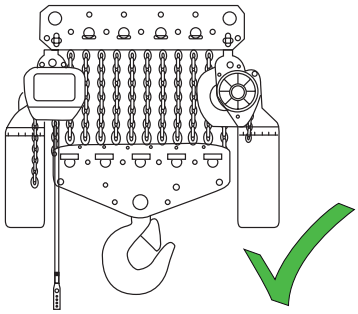
5. Do not place under load and prevent others from doing so.



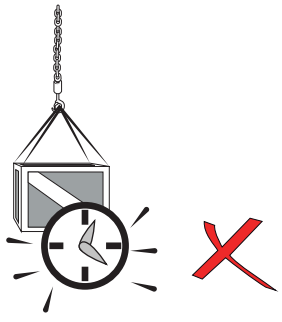
6. Do not use hoist if exposed to rain, snow or lightning.



7. Regularly inspect and maintain your hoist.

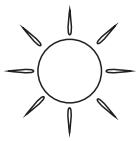


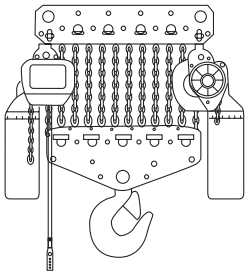
8. Always check correct hoist installation before use.



9. Do not leave the load suspended for long periods of time. It may cause deformation of the component or cause an accident.

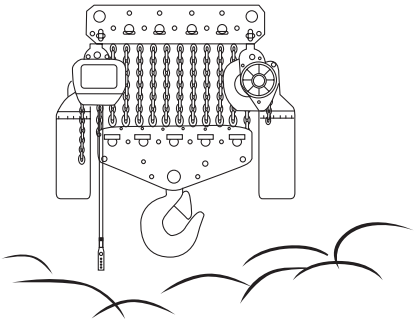
Do not exceed the operating temperatures for which the hoist is designed. This is stated in this manual and may vary depending on the model.

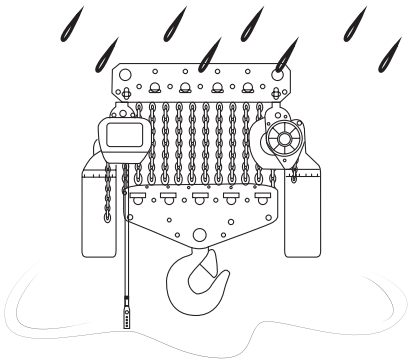




Avoid contact with gases or explosive materials.

When exposed to water, sand, corrosive environment and / or Other potentially harmful substances may damage the equipment.





Warning:

4. MAIN SPECIFICATIONS

4.1 Specification Chart (For all models of Prowinch® Electric chain hoists).

Item		Specs	
Operating temperature range (ºC)		-20 to + 40	
Operating humidity range (%)		85 or below	
Protection class	Hoist	IP55	
	Button switch	IP55	
Power		3 phases, 200 - 600V, 50/60Hz	
Noise level (dB)	Single speed hoist	81	
	Double speed hoist	81	
Chain specs	Working load limit	Diameter (mm)	Chain pitch (mm)
	0,3T, 0,5T	6,3	10
	1T, 2T, 3T	7,1	21
	1,5T, 2T	10	30
	2,5T, 3T, 5T, 7,5T, 10T, 15T, 25T	11,2	34

Observations

Do not use Prowinch® Electric Chain Hoists when temperature and humidity exceed range of Specification Chart.

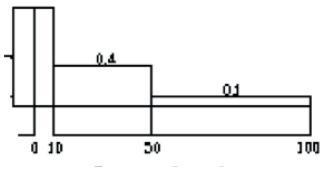
Our hoists are designed to lift up and down under common atmospheric and working conditions.

4.2 Load Level And Service Life

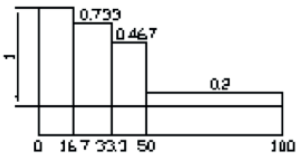
Guarantee of service life and safety for Prowinch® Electric Chain Hoists depends on proper installation, maintenance, and operation. Our electric chain hoists are designed to meet 1Bm, 1Am and 2M Load Level in FEM standards FEM 9.51, depending on the model.

The working class of your chain hoist is rated on ID plate of equipment.

Load Level	Definition	Cubic Value	Average Daily Operation Hours					
1 (light)	Mechanism and parts are frequently under light load, and there is no max. load unless exceptional conditions.	K ≤ 0.50	≤ 2	2 ~ 4	4 ~ 8	8 ~ 16	≤ 16	> 16
2 (medium)	Mechanism and parts are frequently under light load, but also under max. load with low frequency.	0.50 < K ≤ 0.63	≤ 1	1 ~ 2	2 ~4	4 ~ 8	8 ~ 16	≤ 16
3 (heavy)	Mechanism and parts are frequently under medium and heavy load.	0.63 < K ≤ 0.80	≤ 0.5	0.5 ~ 1	1 ~2	2 ~ 4	4 ~ 8	8 ~ 16
4 (overweight)	Mechanism and parts are frequently under max. or almost reach max. load.	0.80 < K ≤ 1	≤ 0.25	0.25 ~ 0.5	0.5 ~1	1 ~ 2	2 ~ 4	4 ~ 8
			1 Bm	1 Am	2m	3m	4m	5m

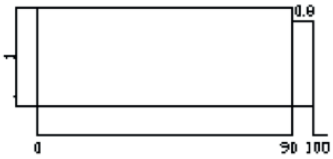


% Operation hours
Load level 1



% Operation hours
Load level 2

% Operation hours
Load level 3



% Operation hours
Load level 4

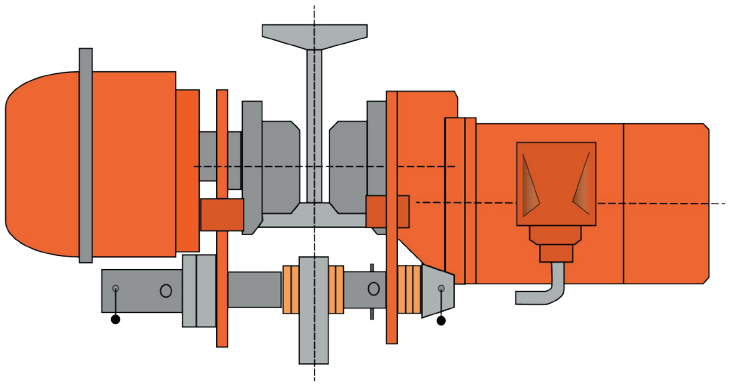
Selection of engines for lifting equipment

Group		Intermittent Service			Short-Term Service
F.E.M	ISO	Cycles/h	Starts/h	(ED%)	Operation period min
1 DM	M1	15	90	15	7.5
1 CM	M2	20	120	20	7.5
1 BM	M3	25	250	25	15
1 AM	M4	30	180	30	15
2 M	M5	40	240	40	30
3 M	M6	50	300	50	30
4 M	M7	60	360	60	60
5 M	M8	60	360	60	>60

Capacity (ton)	A	B	D	R	T	Speed (50HZ) m/min	Motor (Kw)	Min. Radius of turn	Beam Range
0.5	248	196	25	146	159	12.2	0.12	0.8	100

Capacity (ton)	A	B	D	R	T	Speed (50Hz) m/min	Motor (kw)	Min. Radius of turn	Beam Range
1	315	212	31	142	231	nov-21	0.4	0.8	52-145
2	325	220	36	142	231	nov-21	0.4	0.9	82-185
3	340	250	43	142	231	nov-21	0.75	1.0	100-185
5	400	291	54	142	231	nov-21	0.75	1.5	100-220
7.5	400	291	54	142	231	nov-21	0.75	1.8	100-225
10	500	370	70	142	231	nov-21	0.75	2.0	150-255

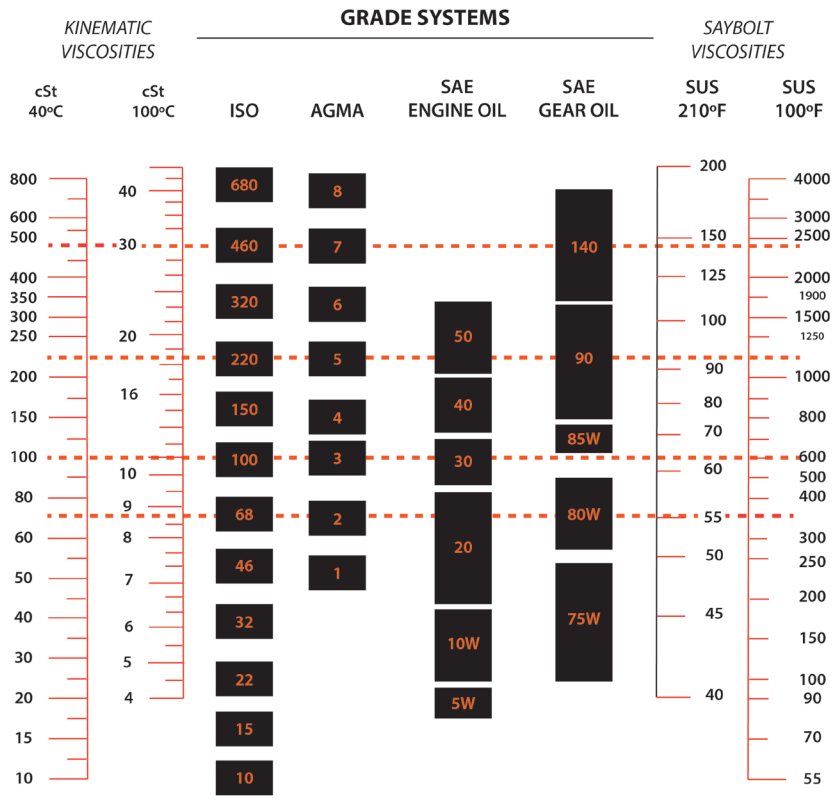
Capacity (ton)	A	B	D	E	R	T	Speed (50HZ m/min)	Motor (Kw)	Min. Radius of turn	Beam Range
1	325	230	31	32	142	231	nov-21	0.4	0.8	52-145
2	375	245	31	44	142	231	nov-21	0.4	0.9	82-145
3	400	250	36	44	142	231	nov-21	0.75	1.0	100-185
5	420	290	43	44	142	231	nov-21	0.75	1.5	100-185



4.3 Oil & Lubricant Recommendations

Load Chain
Do not allow chain to run dry.

Lubricant greatly increases life of load chain. Weekly lubrication and cleaning is satisfactory, but under hot, dirty, and extreme conditions it may be necessary to clean chain at least once a day and lubricate it several times between cleaning.
Apply sufficient lubricant to obtain natural runoff and full coverage, especially in interlink area.
Apply Lubriplate® Bar and Chain Oil 10-R or equal lubricant. Machine or gear oil (grade ISO VG 46 or 68 oil or equivalent) may be used as an alternative lubricant but must be applied more frequently.



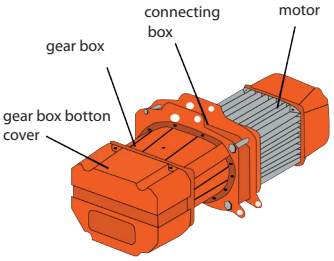
For dusty environments, it is acceptable to substitute a dry lubricant.

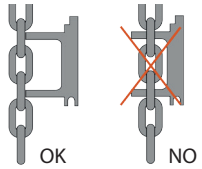
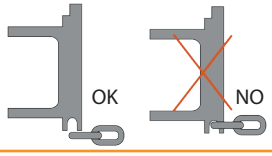
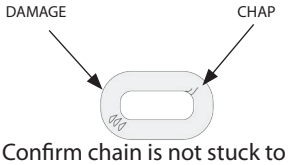
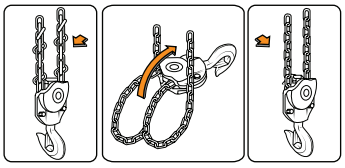
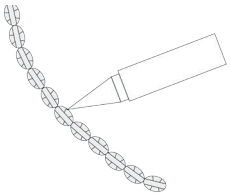
Apply lubricant to areas of load chain (shaded areas in figure below) that contact load sheave.
Hooks and Suspension Components
Hooks and bearings should be cleaned and lubricated at least once per year for normal usage. Clean and lubricate more frequently for heavier usage or severe conditions.
Suspension pins should be lubricated at least twice per year for normal usage; more frequently for heavier usage or severe conditions.

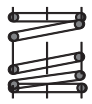
5. INSPECTIONS & MAINTENANCE

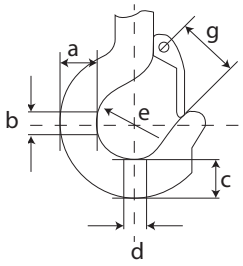
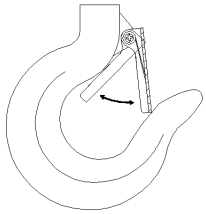
5.1 Periodic Inspection

5.2 Daily Inspection Of Electric Chain Hoists

Items	Inspection Method	Standards	Resolutions to Deviations
Marks such as name-plates, labels etc.	Visual check	No peeling and clear marks 	Proceed with cleaning, repairing and replacing. Record serial number for replacing
Deformation or dam-age of body parts	Visual check 	No remarkable deforma-tion, damage, defect and chap	Replace parts which are deformed, damaged, and defective
Bolts, nuts, and cutters loose or falling off	Visual and tool check	-Correct installation -A loose bolt will cause equipment failure -Ensure proper installation to avoid death or serious injury	Precise installation

Items	Inspection Method	Standards	Resolutions to Deviations
Extent of pitch	Check by chain measurement tool		
Attrition of chain di-am-eters	Check by chain measurement tool		
Deformation, damage, wind	Visual check  Confirm chain is not stuck to welding spatters by visual inspec-tion	-No deep cut -No deformation -No welding spatters -No wind -No chap	Replace load chains
Rust and corrosion	Visual check	No remarkable rust and corrosion	Replace load chains
Distortion	Visual check	No distortion due to bottom block rollover of double chain models 	Correct distortion
Oil supply	Visual check	Adequate supply of oil 	Oiling

<table>
<tr><th>Items</th><th>Inspection Method</th><th>Standards</th><th>Resolutions to Deviations</th></tr>
<tr><td>Limit switch</td><td>Check by pushing button</td><td>Operate until upper and lower limit cause automatic motor shutdown</td><td>Replace limit switch, disassemble and clean limit lever</td></tr>
<tr><td>Movement confirmation</td><td>Check by pushing button</td><td>-Load chain can roll up easily
-Motor shutdown immediately when operation stops
-All movements shutdown when E-stop button pushed
-Other buttons cannot cause movement when pushing the E-stop button
-All movements return to normal operation when E-STOP button relieved</td><td></td></tr>
<tr><td>Brake</td><td>Check by pushing button</td><td>Brake quickly activates and operation of bottom hook immediately stops (amount of movement of the load chain is within 2 to 3 rings)</td><td></td></tr>
<tr><td>Chain spring</td><td>Visual inspection and measure dimensions</td><td><table><tr><th rowspan="2">Chain</th><th colspan="2">Length of spring</th></tr><tr><th>Standard</th><th>Limits</th></tr><tr><td>Ø6.3</td><td>145</td><td>140</td></tr><tr><td>Ø7.1</td><td>145</td><td>140</td></tr><tr><td>Ø10.0</td><td>135</td><td>129</td></tr><tr><td>Ø11.2</td><td>160</td><td>152</td></tr></table></td><td>Replace chain spring
  </td></tr>
</table>

<table>
<tr><th>Items</th><th>Inspection Method</th><th>Standards</th><th>Resolutions
to Deviations</th></tr>
<tr><td>Attrition and opening of the hook</td><td>Check by visual and vernier caliper
 
</td><td>No remarkable opening or attrition
<table>
<tr><th>Load</th><th>a</th><th>b</th><th>c</th><th>d</th><th>e</th><th>g</th></tr>
<tr><td>0.3 -0.5</td><td>27</td><td>18</td><td>25</td><td>17</td><td>35</td><td>28</td></tr>
<tr><td>1</td><td>34</td><td>24</td><td>30</td><td>24</td><td>42</td><td>32</td></tr>
<tr><td>2</td><td>46</td><td>29</td><td>39</td><td>30</td><td>49</td><td>40</td></tr>
<tr><td>3</td><td>56</td><td>35</td><td>49</td><td>34</td><td>59</td><td>48</td></tr>
<tr><td>5</td><td>67</td><td>43</td><td>67</td><td>44</td><td>60</td><td>48</td></tr>
<tr><td>7.5 - 10</td><td>82</td><td>55</td><td>80</td><td>48</td><td>85</td><td>80</td></tr>
<tr><td>15</td><td>110</td><td>78</td><td>120</td><td>80</td><td>120</td><td>90</td></tr>
<tr><td>20 - 25</td><td>142</td><td>95</td><td>155</td><td>98</td><td>150</td><td>115</td></tr>
</table></td><td></td></tr>
<tr><td>Deformation, damage and corrosion</td><td>Visual check</td><td>No remarkable deformation, harmful damage and corrosion</td><td>Replace hook</td></tr>
<tr><td>Hook safety block</td><td>Visual inspection, fold and unfold actions</td><td>-Can exactly fold inside the hook
-No deformation
Dangerous
-Do not use hook if safety block is loosening
Improper use will lead to death or serious injury</td><td>Replace hook safety block
  </td></tr>
<tr><td>Hook movements (rotate)</td><td>Visual inspection and manual rotation</td><td>-No remarkable space between bottom supporting and top
-equal at right and left
-easy to rotate 360°</td><td>Replace hook</td></tr>
</table>

6. INSTALLATION

Before installing, removing, inspecting, or performing any maintenance on the hoist, the main switch must be de-energized, locked out, and tagged out.
Do not use this equipment in hazardous locations

Installation Process:

- Electric chain hoists must be grounded properly.
- Lock-out and tag-out the main disconnect switch in de-energized position before performing any service on hoist.
- Customer must provide power supply cable, fuses, and main disconnect switch.
- Check supply voltage is same as nameplate voltage on hoist.
- Check voltage does not vary by more than ±10% from nominal value.
- Do not use conductors smaller than those listed in this User Manual to supply power to hoist.
- Never bypass limit switches, remove limit switch stops, or alter limit switch devices.

6.1 Unpacking

Hoist should be carefully inspected upon delivery for damage which may have occurred during shipment or handling. Check hoist frame for: dents or cracks, external cords for damaged or cut insulation, control station for cut or damaged enclosure, and load chain for nicks and gouges.

1 Chain bag (box)	1pcs
2 Control wire rope	1 m
3 Button switch	1 pcs

Check and document hoist characteristics:
a. Model number
b. Rated capacity (tonnage)
c. Lifting length of load chain (meter)
d. Power supply
e. Push button pendant assembly (2 button, 4 button or 6 button)
f. Specially ordered optional items
g. Beam width for trolley installation

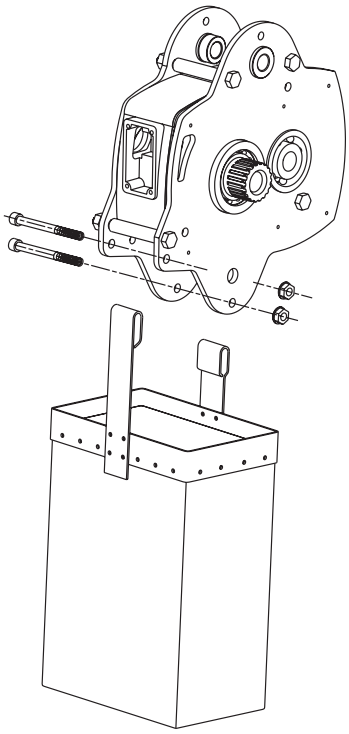
6.2 Supply Voltage

Check supply voltage before everyday use. If voltage varies more than 10% of rated value, electrical devices may not function normally and cause damage to equipment.

Do not connect equipment to power supply before completing installation process.

6.3 Chain Bag Assembly

Switch on power supply to hoist and have professional operate push button.



6.4 Electrical Connections: Refer to Section 4 of this User Manual

Operator and/or owner must provide main power supply hardware (cable, conductor bar, fuses, disconnect switch, etc.).

Fuses and other current overload devices must be in place to protect power supply.
Do not use power supply cables with solid conductors.
An improper or insufficient ground connection creates an electrical shock hazard when touching any part of hoist or trolley.

6.5 InstallTrolley (models with trolley)

1.- Insert suspension pins into lateral plate G and lock it with suspension pin bolts and nuts.

2.- Install suspension pin with adjusting disk.

3.- Install suspension pin into hanger T. The nameplates of hoist and trolley should be in the same direction.

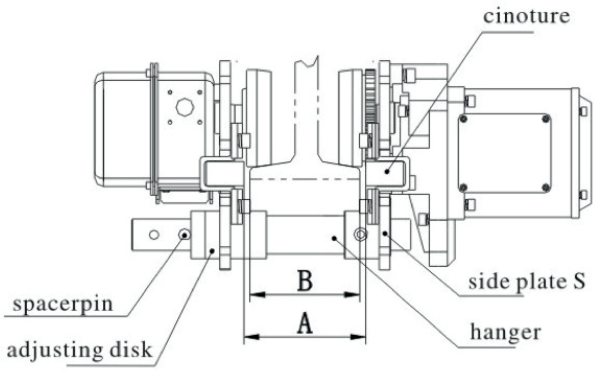
4.- Install additional gaskets into suspension pin before inserting it into lateral plate S.

5.- Install outside adjusting disk and spacer pin into suspension pin. Insert cotter pin into spacer pin.

6.- Cotter pin should be seen at the left side from front of trolley switch box.

6.6 Adjust Trolley Width (models with trolley)

- Adjust width of trolley according to drawing (below) for appropriate clearance.
- Size A is the dimension of two side plates that stretch outside completely.
- Size A must be approximate B (the width of rail flange) + 4mm.
- Adjust size A by increasing or decreasing adjusting disk. Insert cotter pin into spacer pin and bend two branches of cotter pin until size A is correct.



Nut must be tight, insert cotter pin and bend it completely.

6.7 Install Trolley Into Beam (models with trolley)

1. Install trolley at end side of beam and slip trolley which has already been connected with hoist to the appropriate place. This is the preferred method.

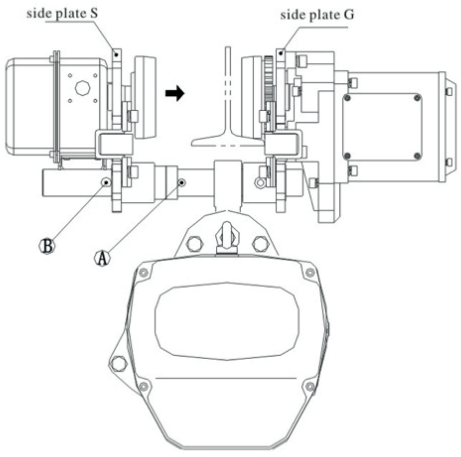
2. If first method is unavailable:

a) Unload brake stopper from hole A on suspension pin, and insert it into hole B. Insert cotter pin again and bend it completely.

b) Pull side plate S and G outside, then lift trolley until orbit wheel and orbit surface are in same horizontal position. Put orbit wheel of side plate G onto surface of orbit.

c) Hold side plate G and stop it from dropping from orbit. Firmly push side plate S and put its orbit wheel onto surface of beam.

d) Unload brake stopper from hole B and insert into hole A. Do not forget to bend cotter pin.



7. OPERATION

7.1 Qualified Operator

Safe and efficient operation of hoist requires an operator who displays caution and good judgment. The operator must be fully alert, focused, and aware of surroundings.
Job must be strictly carried out under the good practices defined by international and national safety standards, such as ANSI, OSHAS and ASME.

Operator training must be provided to ensure proper operation of equipment in compliance with instructions provided by equipment manufacturer and the provisions of ASME B30.

This hoist must not be operated by someone who:

- Cannot read, understand and speak language of security labels, ID Plate and User Manual of equipment.
- Does not meet legal age requirements.
- Has visual or hearing impediments.
- Experiences mental, heart, or other illnesses that could interfere with safe operation of equipment.
- Has not been trained for use of hoist.
- Has not received User Manual for exact equipment.
- Has not demonstrated qualifications through a practical operation of hoist.

7.2 Handling Precautions

ALWAYS:

- Keep hoist in good condition and make sure chain is lubricated and free to operate.
- Make sure electrical connection is grounded.
- Make smooth movements; avoid sudden changes of directions.
- Check functions of hoist and trolley without any load before operation.
- De-energize equipment after using it to avoid unintentional operation.
- Keep everyone a distance of at least 1.5 times the length of chain. If load falls it can cause serious injuries and death.
- Make sure no one is beneath load.

NEVER:

- Use pulleys or other accessories that are not specifically approved for relevant hoist model.
- Hoist load with tip of hook.
- Hoist load which is not vertical to hook.
- Use hoist to pull or drag load.
- Exceed maximum capacity of hoist.

7.3 Recommended Operation

Realice siempre una inspección completa antes de iniciar la operación del polipasto. Consulte ASME B30
¡Anuncie siempre a todo el personal que las maniobras de la grúa están a punto de comenzar!
No permita que el Personal Autorizado esté en el área de elevación.

Start with Operational Test

1. Press ⬇ button lowering unloaded hook down until limit spring touches limit switch. Be sure hoist stops automatically before totally compressing spring.

2. Press ⬆ button hoisting unloaded hook up until limit spring touches limit switch. Be sure hoist stops automatically before totally compressing spring.

3. Test correct function of emergency stop button. When pressing button ⬆ , ⬇ press emergency stop button. Ensure hoist stops immediately after pressing emergency stop switch. Hoist should not start again if any other movement button is activated.

4. Rotate emergency stop switch clockwise to original position. When it bounces back, hoist can be started again. If any of the above tests fail, unit must remain out of service, lockout/tagout power and request maintenance authorized personnel to check circuit layout for automatic locking emergency stop switch.

5. Check lubricating condition of load chain (load chain has been lubricated before delivery, but could be dried in transportation). Apply lubricant into chain bag to protect load chain.

6. Check direction of chain eyes. All welding points should be same direction. Hoist cannot be operated properly unless all welding chain eyes are in same line.

6.1. Position hoist in vertical position to load. Before moving trolley, make sure path of hook is free from any obstacle.

6.2. Lower hook near master link to hoist load and make final adjustments to secure a 90º vertical lift operation without any lateral deviation. Improper life angle may cause swinging of load.

6.3. Attach hook to load link and make sure there are no people in working area. Check that no loose items can fall from load.

6.4. Begin by hoisting load two inches and stop. Check brakes are fully operational and load doesn't lower while stopped. Also check load is balanced and secured. Load may have changed shape or center of gravity when suspended.

6.5. To reach a desired position, movements must be smooth and continuous. Repeatedly pressing buttons may heat up motor and damage equipment.

6.6 Avoid sudden directions changes. These movements may damage equipment, prematurely wear down brakes and cause accidents.

If hoist model has double dual/speed capabilities, always start with slower speed to avoid sudden accelerations. Decelerate before completing a stop.

7. Avoid any obstacle when hoisting or traveling load.

8. Start movement of trolley and check there is no swinging of load and no obstacles in path. Stop movement and make necessary adjustments if one of these conditions is present.

9. Once desired position is reached, slowly stop trolley. Position load completely vertical to desired spot where load will be lowered.

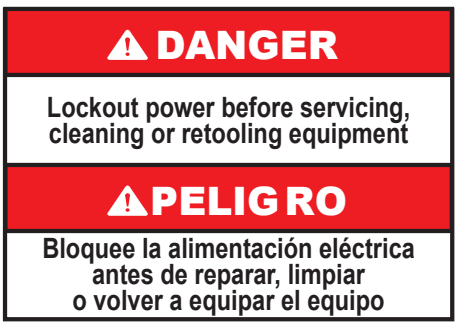
10. Gradually lower load until it is secured on resting surface. Avoid hitting surface at high speed. If necessary, stop movement before reaching surface and gradually lower to land load.

NEVER leave load suspended without attention of the hoist operator!

8. ELECTRICAL AND VOLTAGE SELECTION

Available voltages 3 phase 220V 60HZ , 380V 50HZ and 440V 60HZ

Before switching voltage!



A) PWR_ and PWR_M5 series Triple Voltage Single Speed Electric Chain Hoist

1) Open electric box metal cover.

2) Locate 9 black lines coming from motor labeled with yellow tags as K1 - K2 - K3 - K4 - K5 - K6 - K7 - K8 and K9.

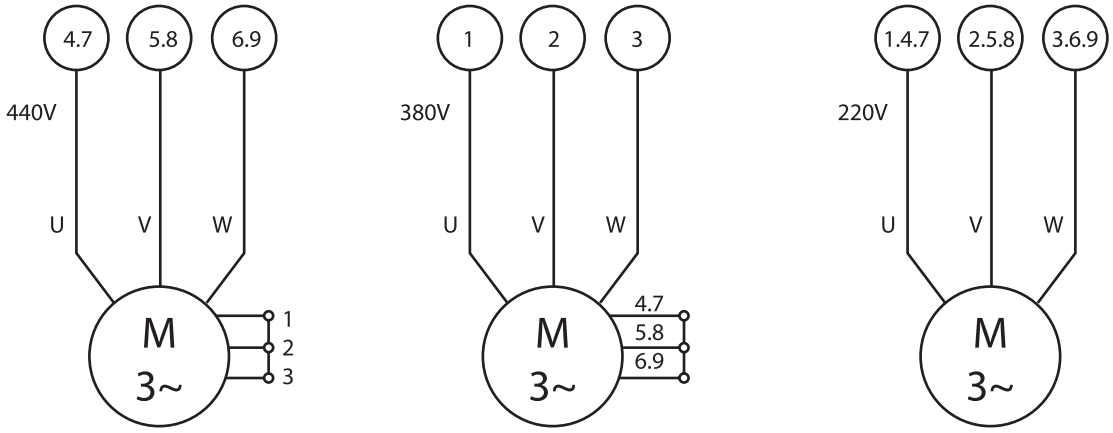
3) Depending on factory voltage preset, black wires/lines should be connected as follows:

- 220V 60HZ all 9 lines are connected into contactor relays in set of 3 together as follows:
  K1,K4,K7 @ U
  K2,K5,K8 @ V
  K3,K6,K9 @ W

- 380V 50HZ only 3 lines are individually connected into contactor relays:
  K1 @ U
  K2 @ V
  K3 @ W
  Lines K4 - K5 - K6 - K7 - K8 and K9 are separately all connected.

- 44V 60HZ only 6 lines are connected into the contactor relays in set of 2 together as follows:
  K4,K7 @ U
  K5,K8 @ V
  K6,K9 @ W
  Lines K1 - K2 and K3 are separately all connected.

Notes:
-Motor lines connected to contactors (U, V and W) are bridged between set of contactors.
-Unused lines shall be isolated from ground, properly connected among them and secured behind contactors.



4) Depending on voltage requirement, connect lines K1 - K2 - K3 - K4 - K5 - K6 - K7 - K8 and K9 as described above.

5) Next to the contactors locate triple voltage power transformer, unplug input (1 wire/line) and plug it as voltage requirement. 220, 380 and 440V are easily displayed on transformer.

6) Only for M5 units: Verify and replace Rectifier with corresponding voltage.
-Voltage ranges 300~555V use Rectifier RH555 UHT 555V~0.75A
-Voltage ranges 198~270V use Rectifier RB270 UHT 270V~0.75A

7) Check all connections are tight. Unused motor K lines shall be isolated from ground and properly connected among them as described in point 3.

8) Properly place electric box cover.

9) Remove old voltage tags and marks.

10) Replace new voltage tags and marks with corresponding new voltage selected.

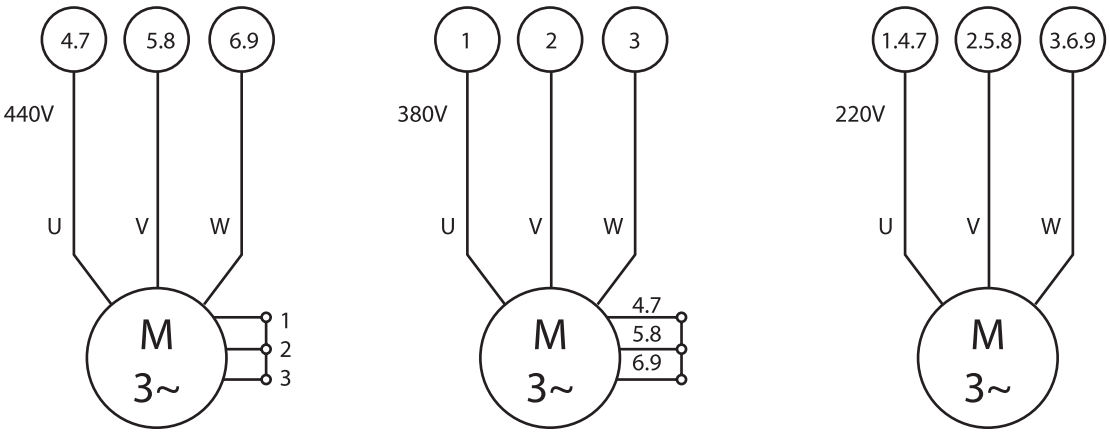
11) Remove lockout/tagout and perform all corresponding inspection and testing as described on ASME B30.16-2.

B) PWRC and PWRC_M5 Series Triple Voltage Single Speed Electric Chain Hoist with Power Trolley

1) Open electric box metal cover.

2) Locate 9 black lines from motor labeled with yellow tags as K1 - K2 - K3 - K4 - K5 - K6 - K7 - K8 and K9.

3) According to factory voltage black wires/lines connect as follows:
- 220V 60HZ all 9 lines connect into contactors relays in groups as follows:
K1, K4, K7 @U K2, K5, K8 @V K3, K6, K9 @W
- 380V 50HZ only 3 lines individually connect into contactors relays:
K1 @U
K2 @V
K3 @W
Lines K4 - K5 - K6 - K7 - K8 and K9 are separately connected.
- 44V 60HZ only 6 lines connect into contactors relays in sets as follows:
K4, K7 @U
K5, K8 @V
K6, K9 @W
Lines K1 - K2 and K3 are separately connected.
Notes:
-Motor lines connected to contactors (U, V and W) are bridged between set of contactors.
-Unused lines must be isolated from ground, properly connected, and secured behind contactors.



4) According to voltage requirement connect lines K1 - K2 - K3 - K4 - K5 - K6 - K7 - K8 and K9 as described above.

5) Locate black triple voltage power transformer next to contactors. Unplug input (1 wire/line) and plug according to voltage requirement. 220, 380 and 440V are displayed on transformer.

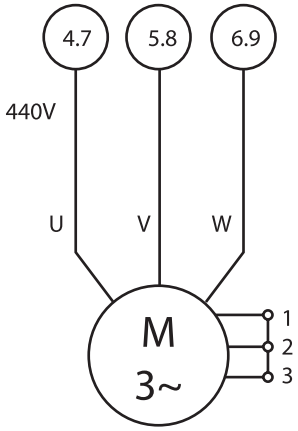
6) Only for M5 units: Verify and replace rectifier with corresponding voltage. For voltages ranging 300~555V use rectifier model RH555 UHT 555V~0.75A For voltages ranging 198~270V use rectifier RB270 UHT 270V~0.75A.

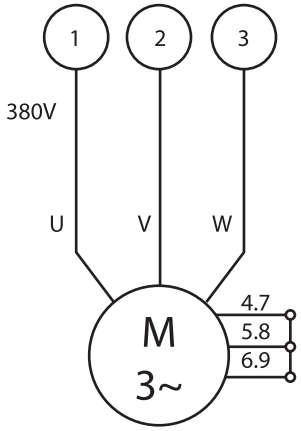
7) Ensure connections tightened, unused motor K lines must be isolated from ground and properly connected as described in point 3.

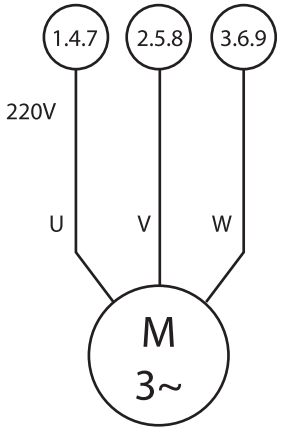
8) Open electric motor junction box on power trolley motor.

9) Locate 9 black lines coming from motor labeled with yellow tags as K1 - K2 - K3 - K4 - K5 - K6 - K7 - K8 and K9.

10) Preset black voltage wires/lines connect as follows:
- 220V 60HZ all 9 lines connect into double row terminal block in groups as follows:
K1, K4, K7 @U K2, K5, K8 @V K3, K6, K9 @W
- 380V 50HZ only 3 lines individually connect into double row terminal block: K1 @U K2 @V K3 @W
Lines K4 - K5 - K6 - K7 - K8 and K9 are separately connected.
- 44V 60HZ only 6 lines connect into double row terminal block in sets as follows:
K4, K7 @U K5, K8 @V K6, K9 @W Lines K1 - K2 and K3 are separately connected.
Notes:
-Unused lines must be isolated from ground, properly connected and secured behind double row terminal block.







11) According to voltage requirement connect lines K1 - K2 - K3 - K4 - K5 - K6 - K7 - K8 and K9 in double row terminal block as described above.

12) Ensure connections tightened, unused motor K lines must be isolated from ground and properly connected as described in point 8

13) Properly set motor junction box cover.

14) Remove previous voltage tags and marks on hoist and trolley.

15) Replace voltage tags and marks with corresponding new voltage selected on hoist and trolley.

16) Remove lockout/tagout and perform all corresponding inspection and testing as described in ASME B30.16-2 and ASME B30.17-2

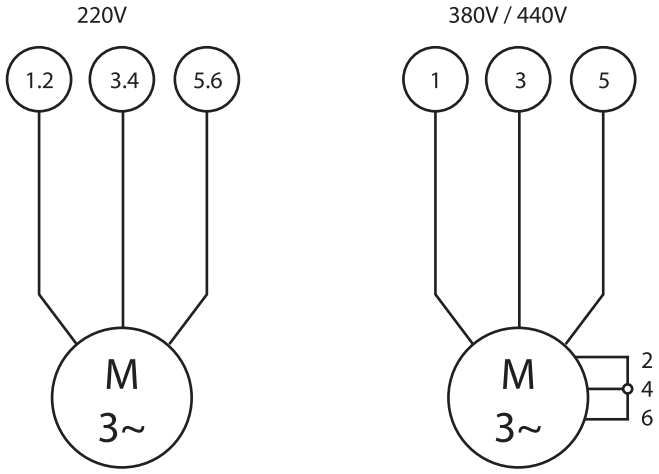
C) PWR_i and PWR_M5i Series Triple Voltage Double Speed Electric Chain Hoist

1) Open electric box metal cover.

2) Locate 12 black lines coming from motor labeled with yellow tags as: High Speed: 6 thicker lines K1 - K2 - K3 - K4 - K5 and K6. Low Speed: 6 thinner lines K1 - K2 - K3 - K4 - K5 and K6.

3) Preset black voltage wires/lines connect as follows and repeat for thicker (High Speed) and thinner (Low Speed) lines:
- 220V 60HZ both sets of 6 lines connect into contactors relays in sets as follows:
K1, K2 @U K3, K4 @V K5, K6 @W
- 380V 50HZ and 44V 60HZ both sets of 3 lines individually connect into contactors relays:
K1 @U K3 @V K5 @W Lines K2 - K4 and K6 are separately connected.

Notes:
-Motor lines connected to contactors (U, V and W) are bridged between set of contactors.
-Unused lines must be isolated from ground, properly connected and secured behind contactors.



4) According to voltage requirement connect both sets of lines (thicker and thinner) K1 - K2 - K3 - K4 - K5 - and K6 as described above.

5) Locate black triple voltage power transformer next to contactors. Unplug input (1 wire/line) and plug according to voltage requirement. 220, 380 and 440V are displayed on transformer.

6) Only for M5 units: verify and replace rectifier with corresponding voltage. For voltages ranging 300~555V use rectifier model RH555 UHT 555V~0.75A For voltages ranging 198~270V use rectifier RB270 UHT 270V~0.75A

7) Ensure connections tightened, unused motor K lines must be isolated from ground and properly connected as described in point 3.

8) Properly set electric box cover.

9) Remove previous voltage tags and marks.

10) Replace voltage tags and marks with corresponding new voltage selected.

11) Remove lockout/tagout and perform all corresponding inspection and testing as described in ASME B30.16-2.

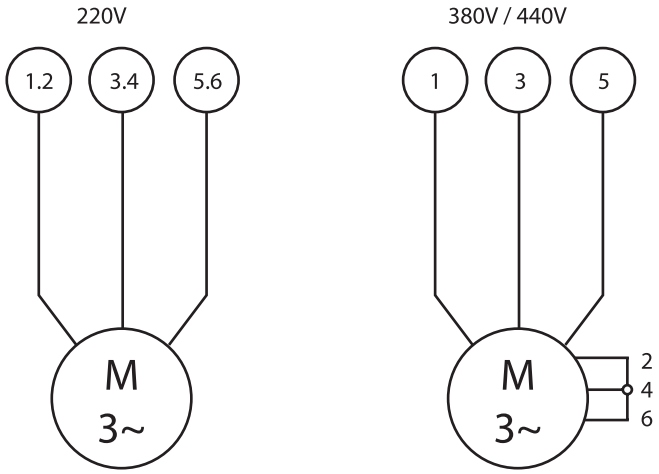
D) PWRC_i and PWRC_M5i series Triple Voltage Double Speed Electric Chain Hoist with Power Trolley

1) Open electric box metal cover.

2) Locate 12 black lines coming from motor labeled with yellow tags as: High Speed: 6 thicker lines K1 - K2 - K3 - K4 - K5 and K6. Low Speed: 6 thinner lines K1 - K2 - K3 - K4 - K5 and K6.

3) Preset black voltage wires/lines connect as follows and repeat for thicker (High Speed) and thinner (Low Speed) lines:
- 220V 60HZ both sets of 6 lines connect into contactors relays in sets as follows:
K1, K2 @U K3, K4 @V K5, K6 @W
- 380V 50HZ and 44V 60HZ both groups of 3 lines individually connect into contactors relays as follows:
K1 @U K3 @V K5 @W Lines K2 - K4 and K6 are separately connected.

Notes:
-Motor lines connected to contactors (U, V and W) are bridged between set of contactors.
-Unused lines must be isolated from ground, properly connected and secured behind contactors.



4) According to voltage requirement connect both sets of lines (thicker and thinner) K1 - K2 - K3 - K4 - K5 - and K6 as described above.

5) Locate black triple voltage power transformer next to contactors. Unplug input (1 wire/line) and plug according to voltage requirement. 220, 380 and 440V are displayed on transformer.

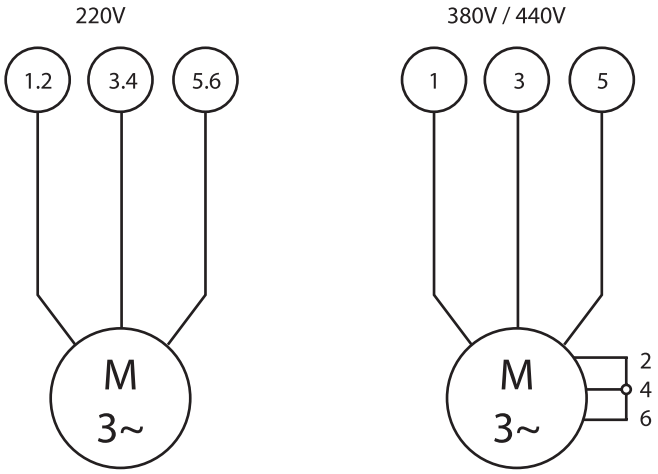
6) Ensure connections tightened, unused motor K lines must be isolated from ground and properly connected as described in point 3.

7) Open electric motor junction box on power trolley motor.

8) Locate 12 black lines coming from motor labeled with yellow tags as:
High Speed: 6 thicker lines K1 - K2 - K3 - K4 - K5 and K6.
Low speed: 6 thinner lines K1 - K2 - K3 - K4 - K5 and K6.

9) Preset black voltage wires/lines connect as follows and repeat for thicker (High Speed) and thinner (Low Speed) lines:
- 220V 60HZ both sets of 6 lines connect into double row terminal block in sets as follows:
K1, K2 @U K3, K4 @V K5, K6 @W
- 380V 50HZ and 44V 60HZ both sets of 3 lines individually connect into double row terminal block: K1 @U
K3 @V K5 @W Lines K2 - K4 and K6 are separately connected.

Notes:
-Motor lines connected to contactors (U, V and W) are bridged between set of contactors.
-Unused lines must be isolated from ground, properly connected and secured behind contactors.



10) According to voltage requirement connect both sets of lines (thicker and thinner) K1 - K2 - K3 - K4 - K5 - and K6 on double row terminal block as described above.

11) Ensure connections tightened, unused motor K lines must be isolated from ground and properly connected as described in point 8.

12) Properly set motor junction box cover.

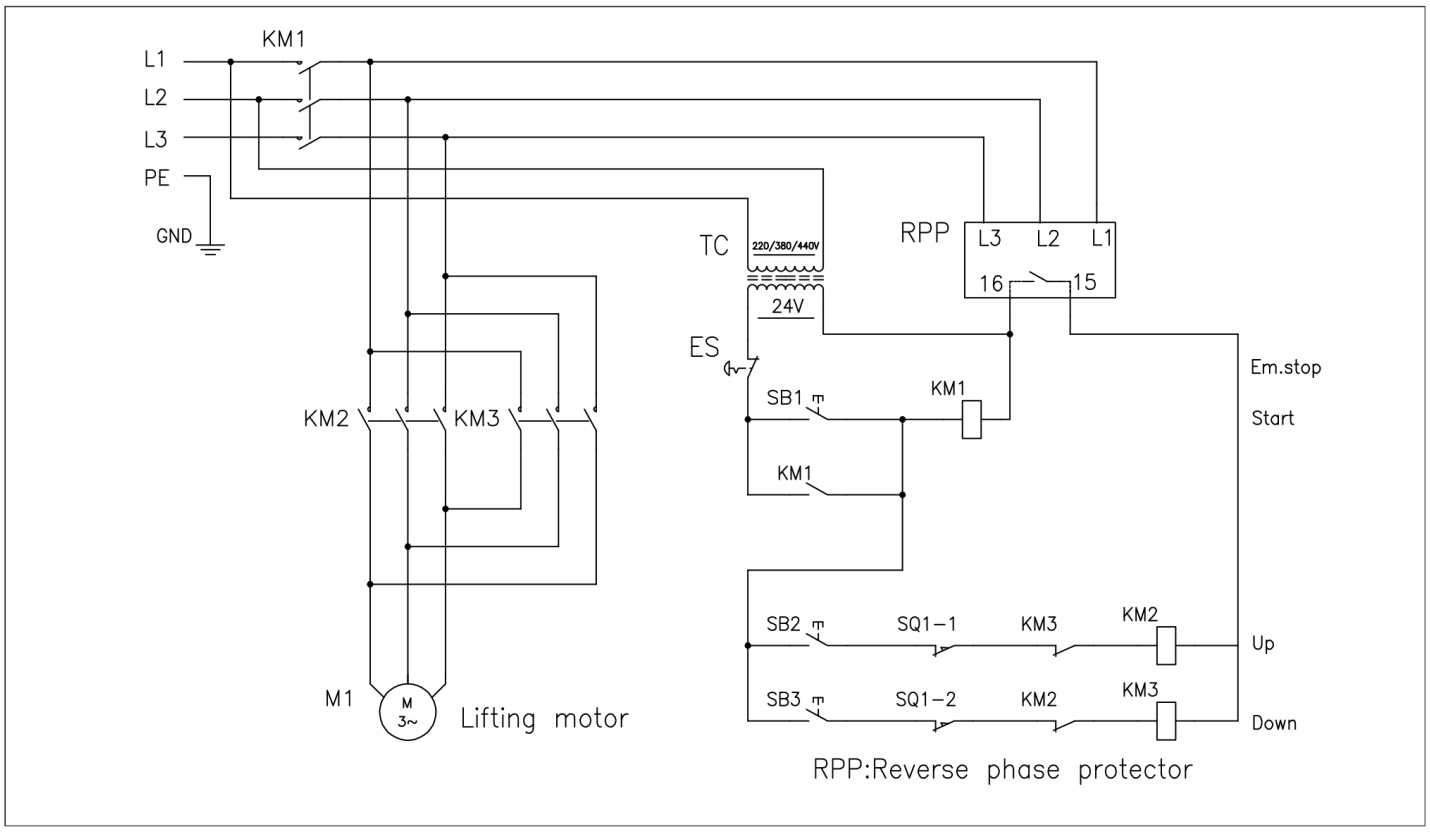
13) Remove previous voltage tags and marks on hoist and trolley.

14) Replace voltage tags and marks with corresponding new voltage selected on hoist and trolley.

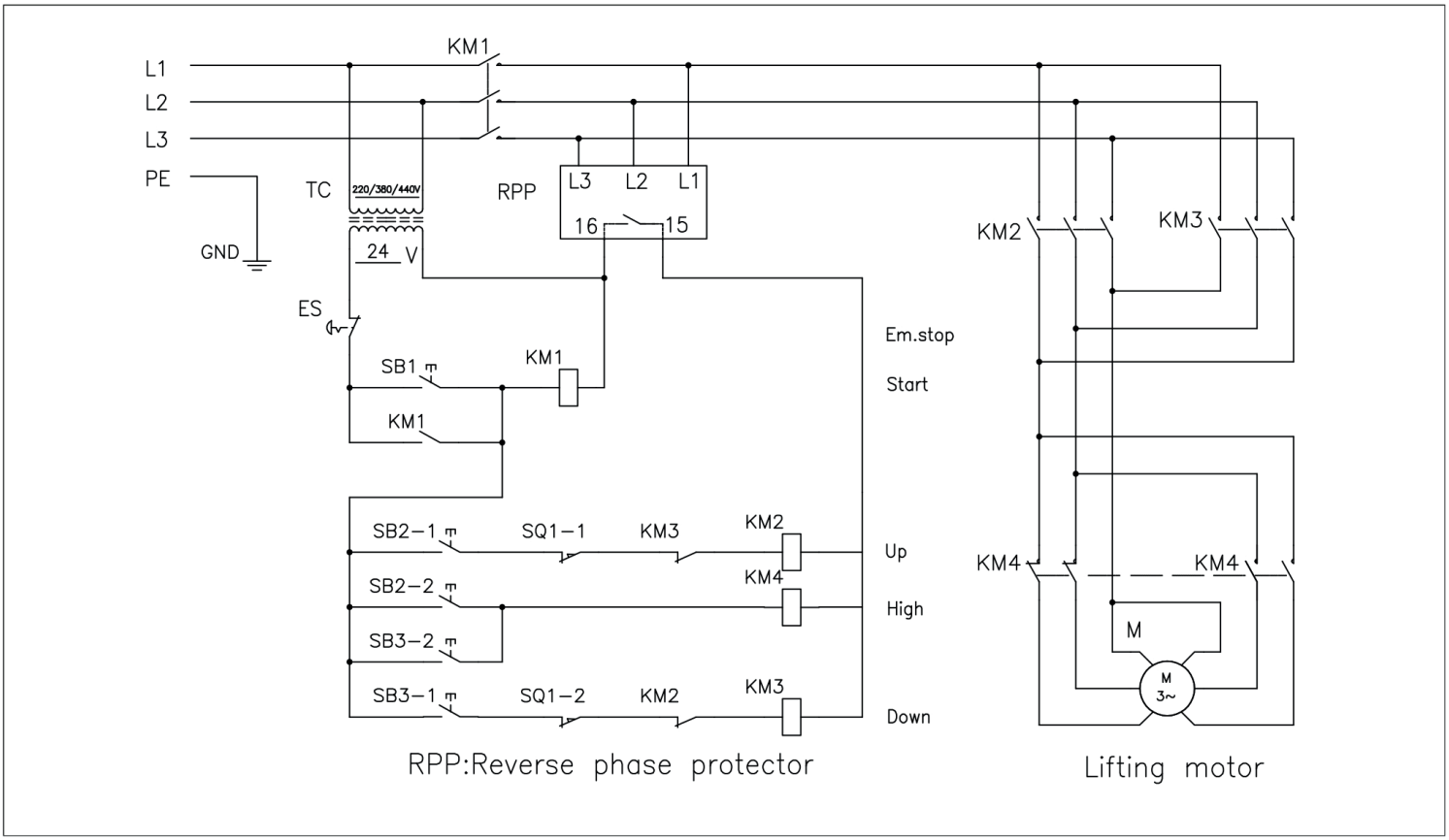
15) Remove lockout/tagout and perform all corresponding inspection and testing as described in ASME B30.16-2 and ASME B30.17-2.

9. CONVENTIONAL HOIST WIRING DIAGRAM (PWR - PWRC)

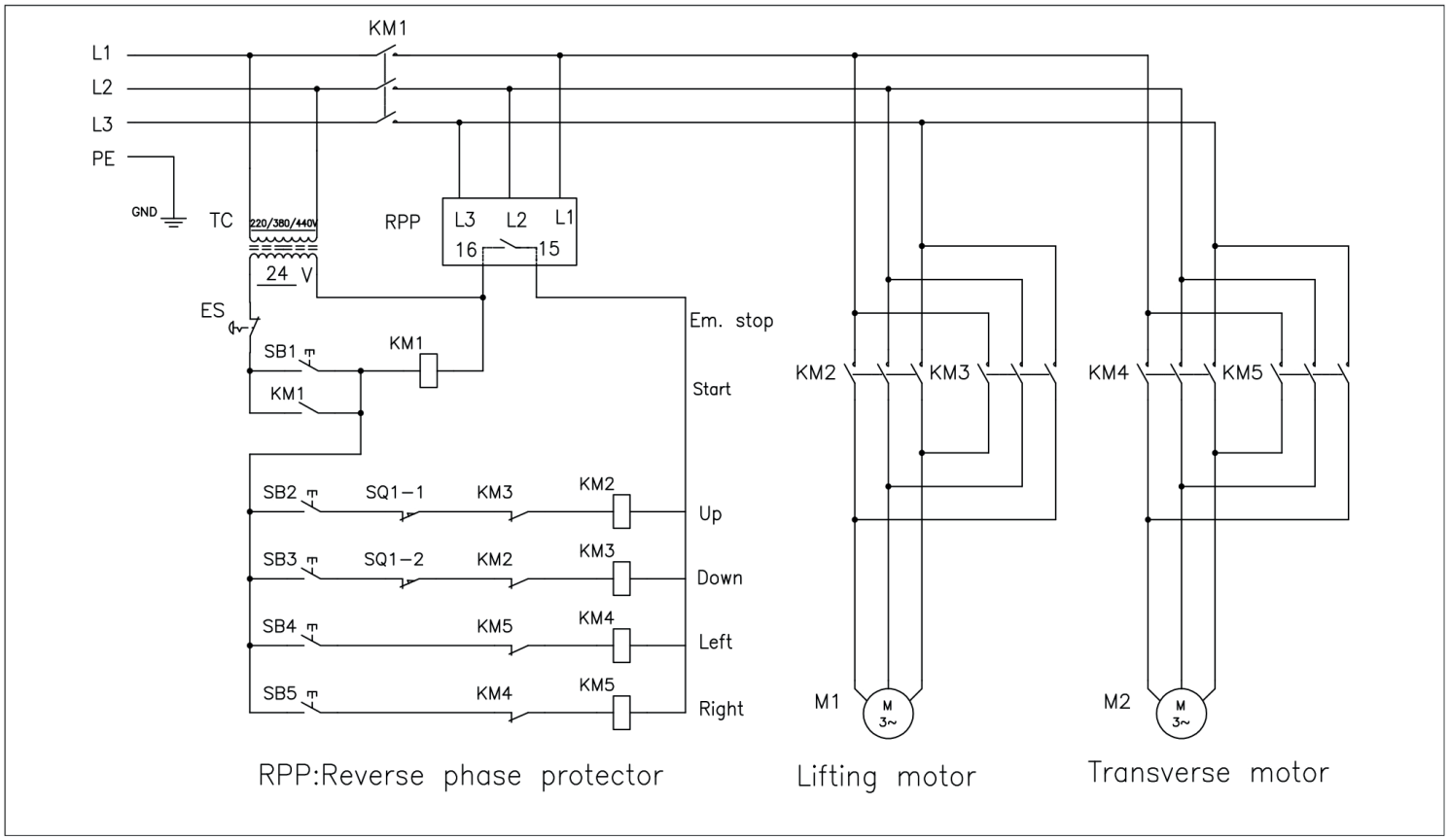
9.1 For 2 directions single speed (with start).



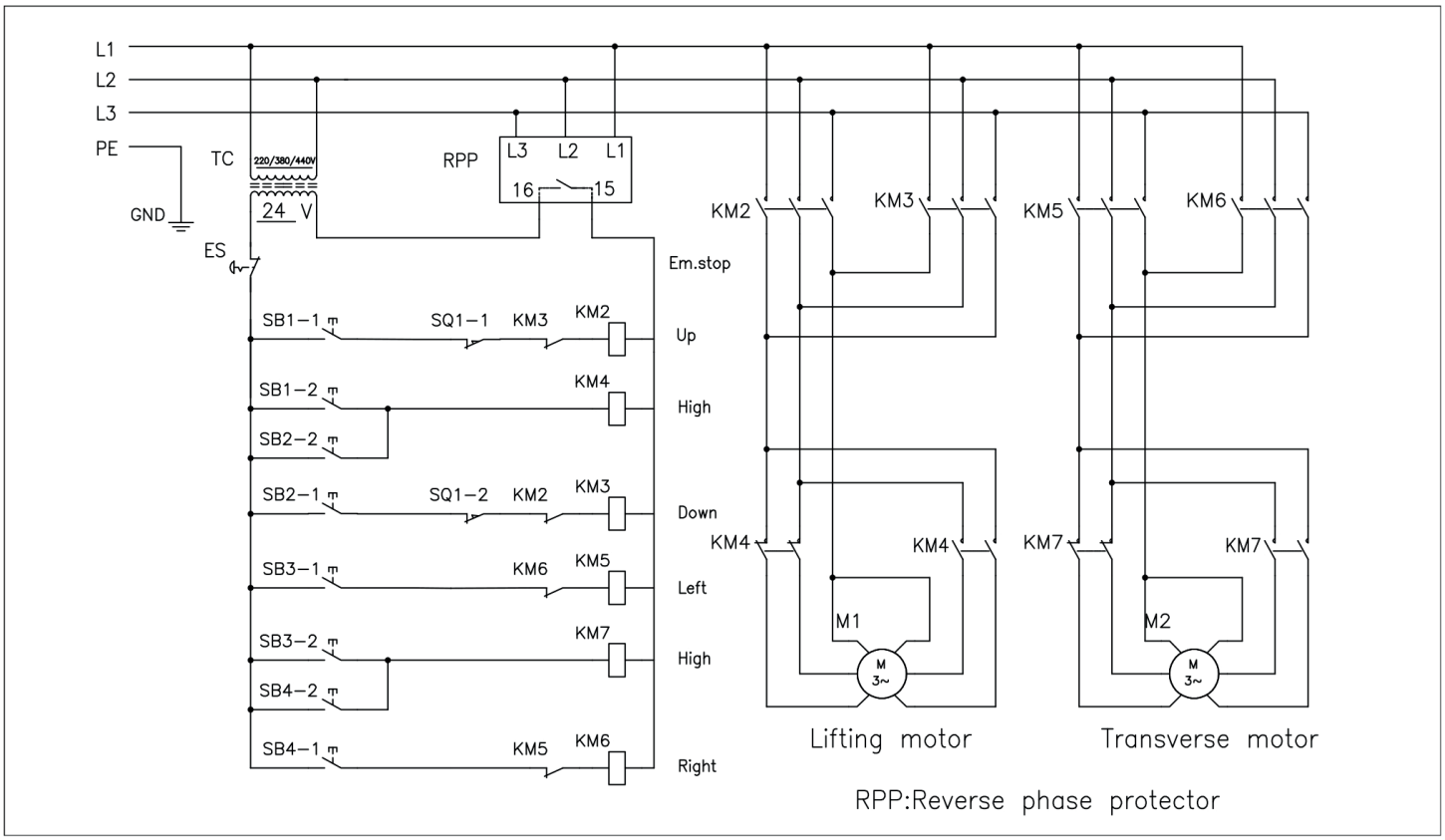
9.2 For 2 directions double speed (with start)



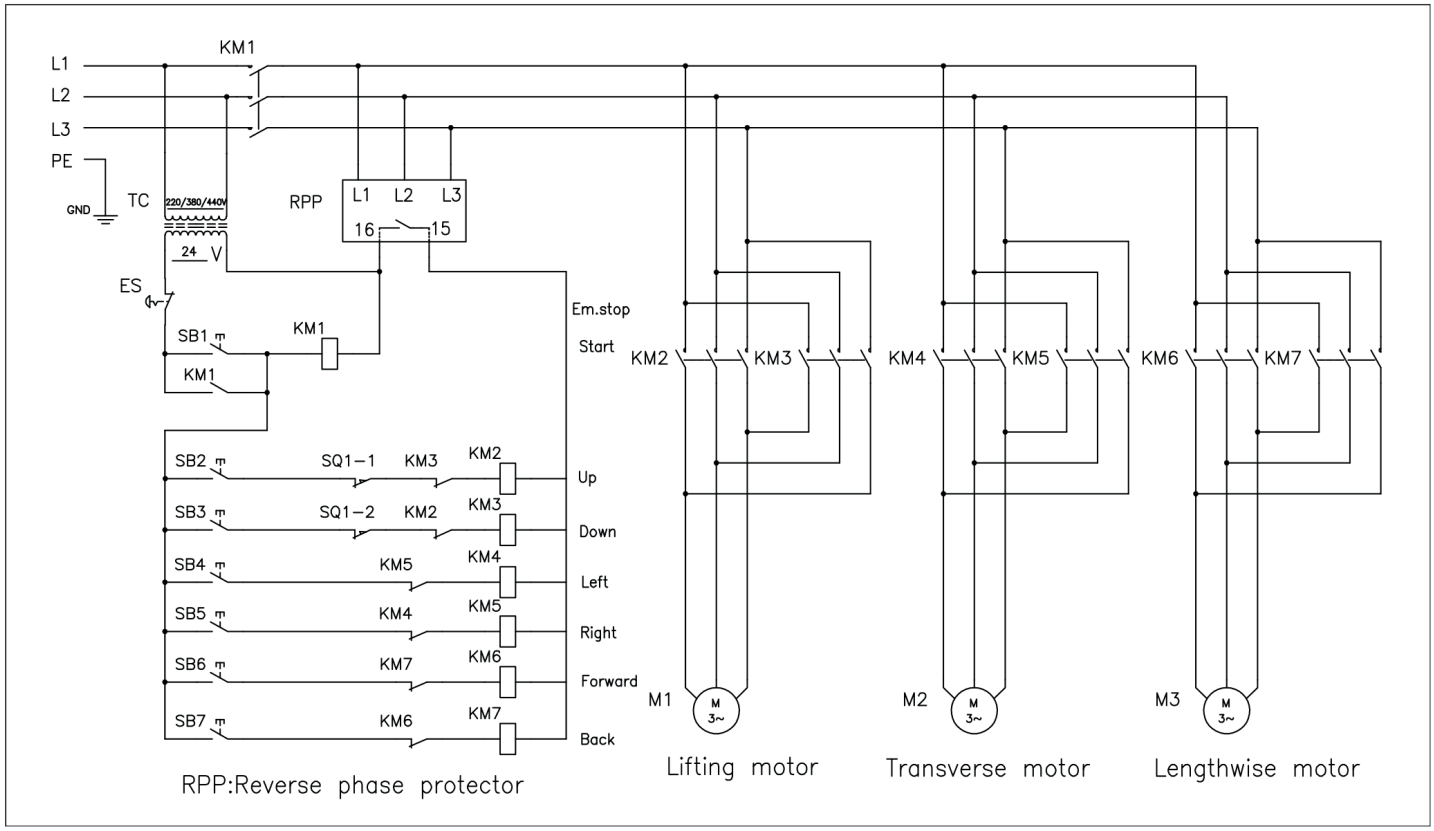
9.3 For 4 directions single speed (with start)



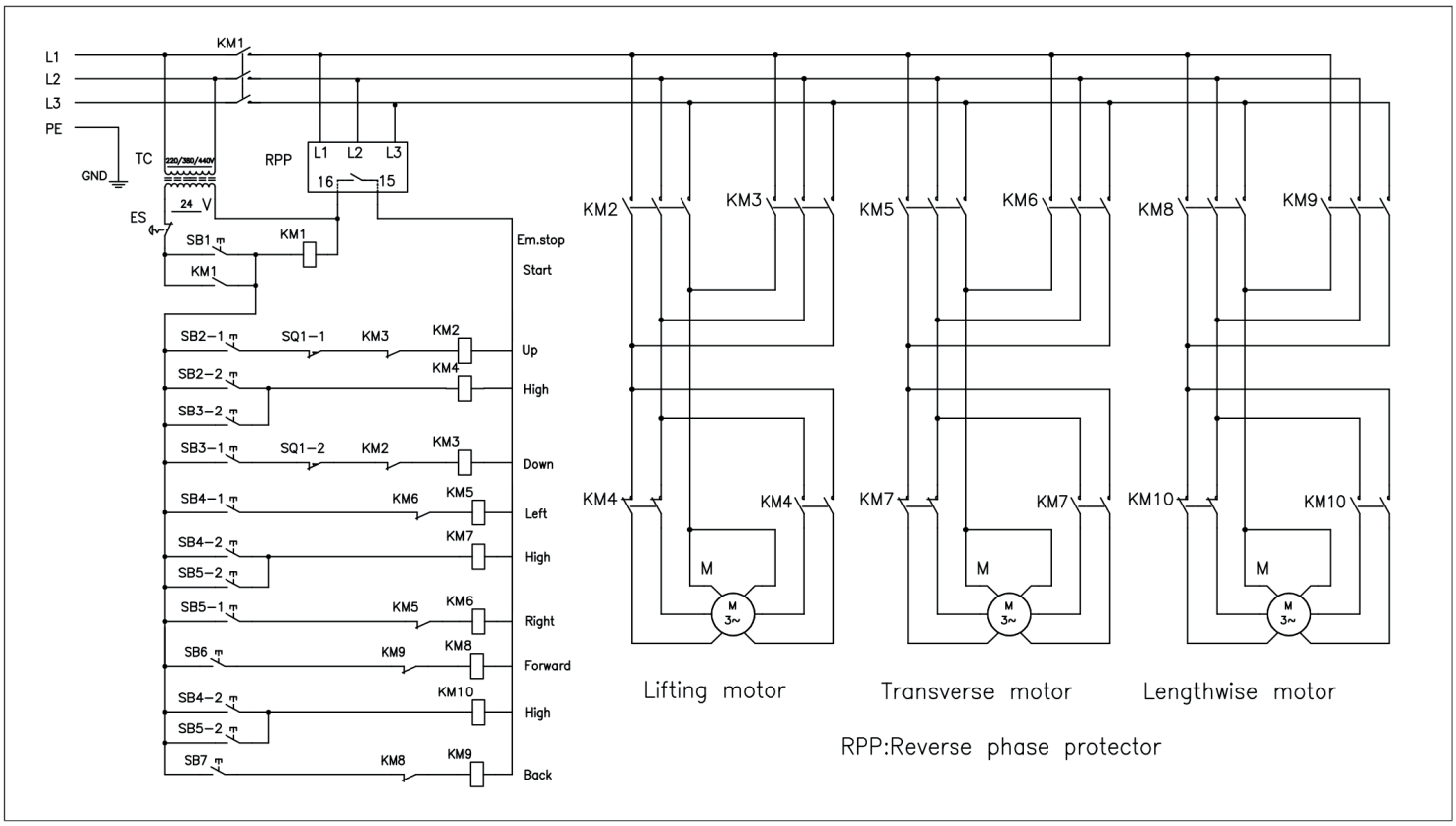
9.4 For 4 directions double speed (with start)



9.5 For 6 directions single speed (with start)

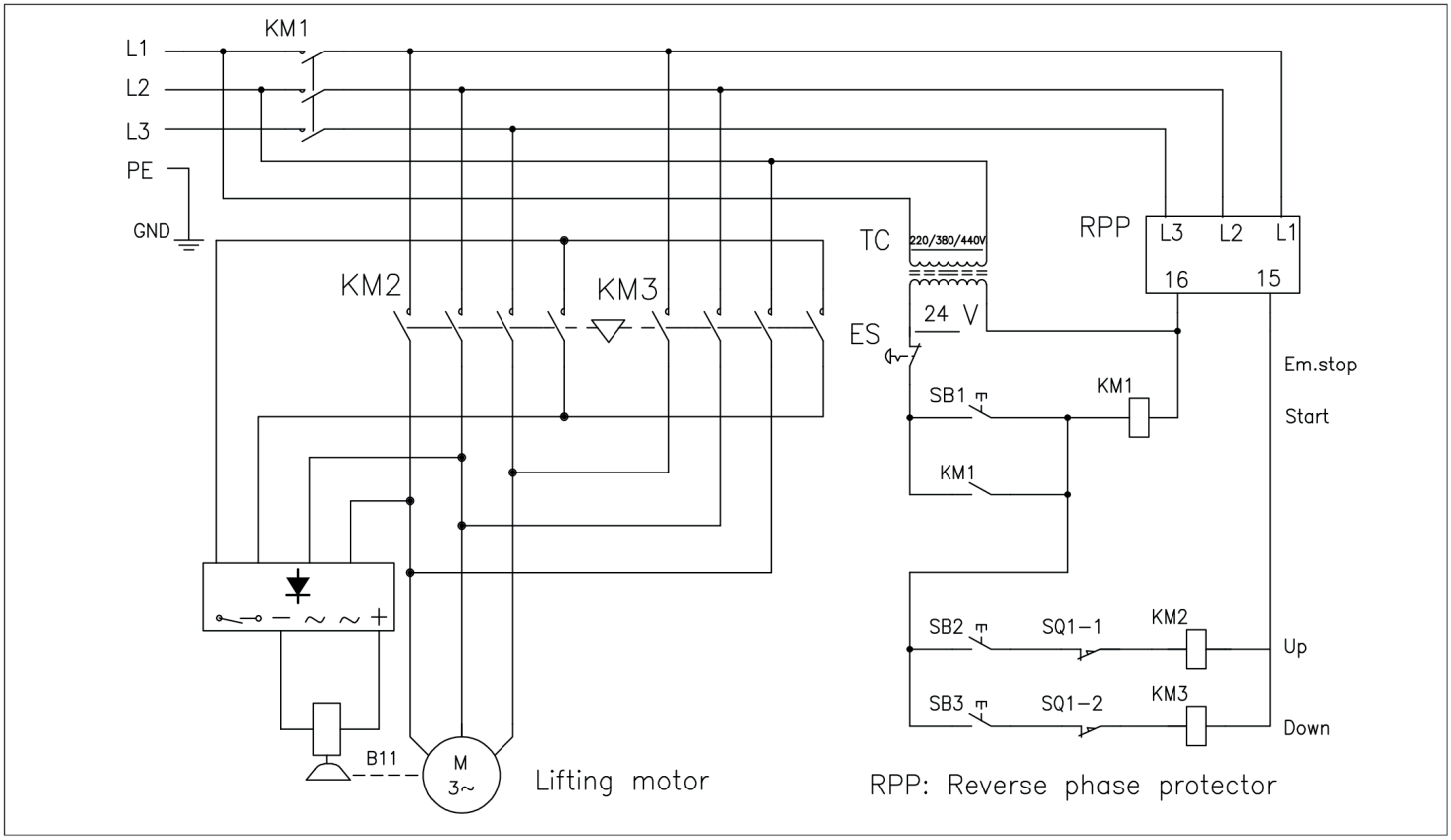


9.6 For 6 directions double speed for all (with start)

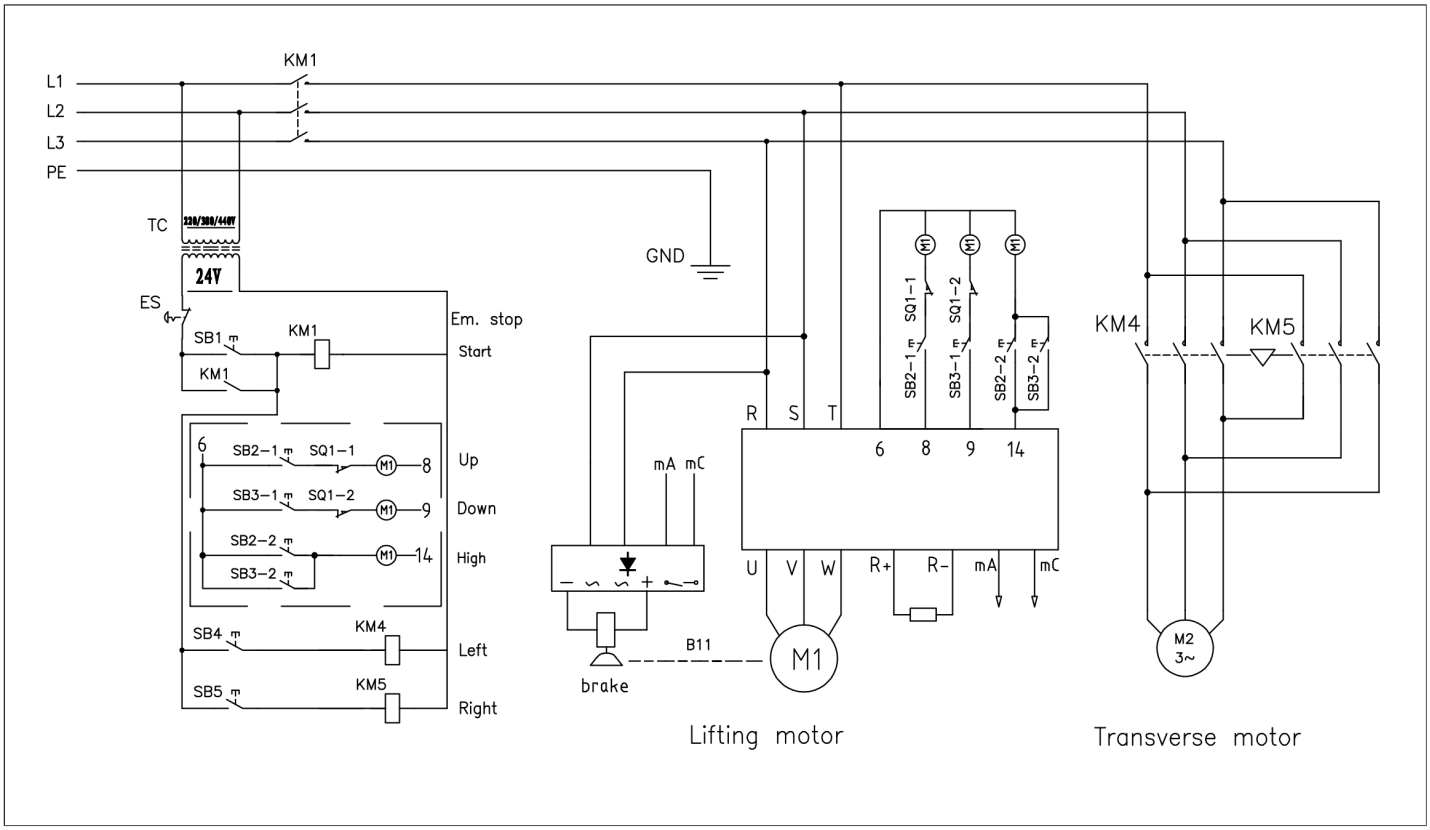


10. HEAVY DUTY HOIST WIRING DIAGRAM (PWR_M5 & PWRC_M5)

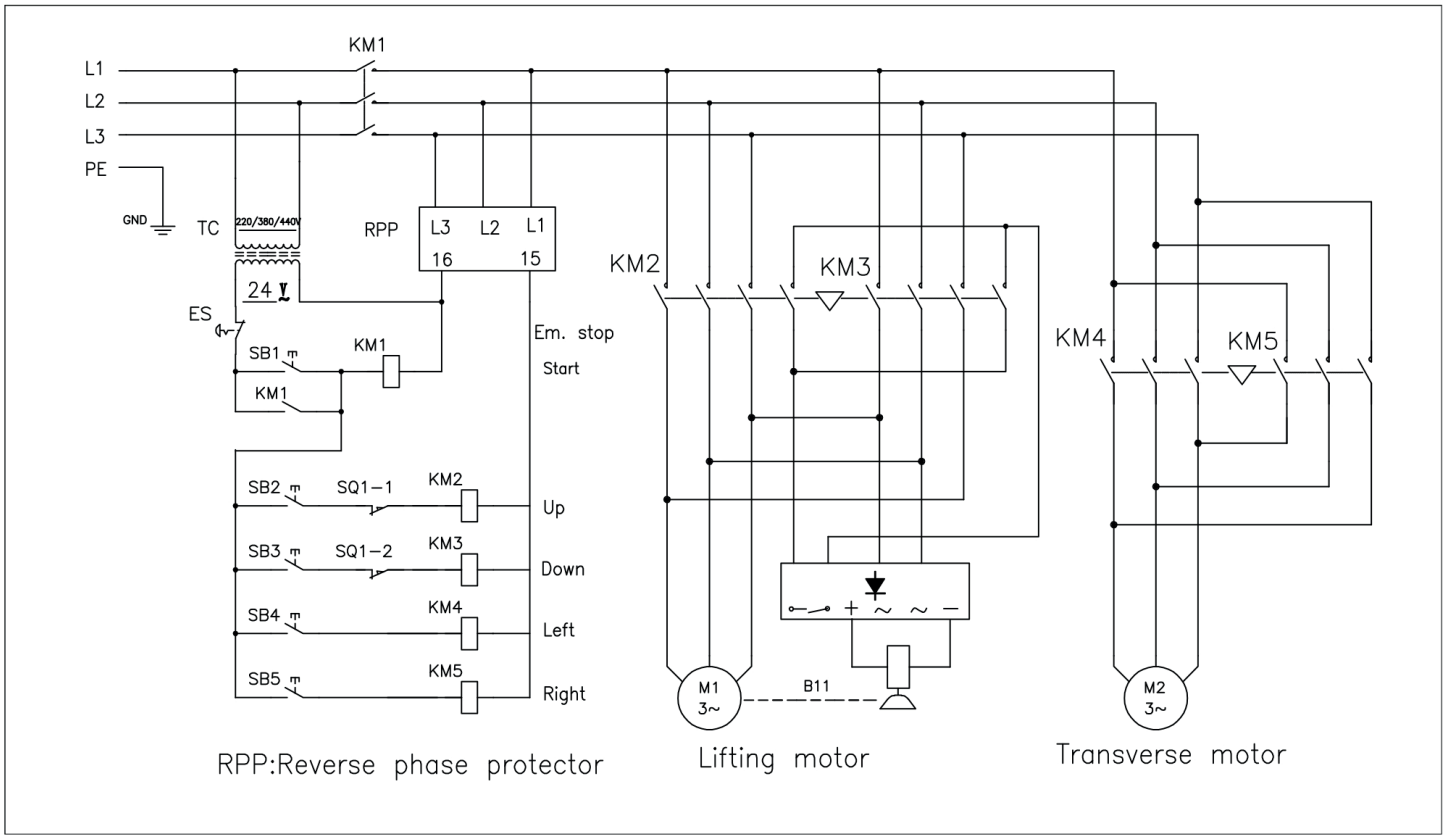
10.1 PWR_M5 Two directions single speed



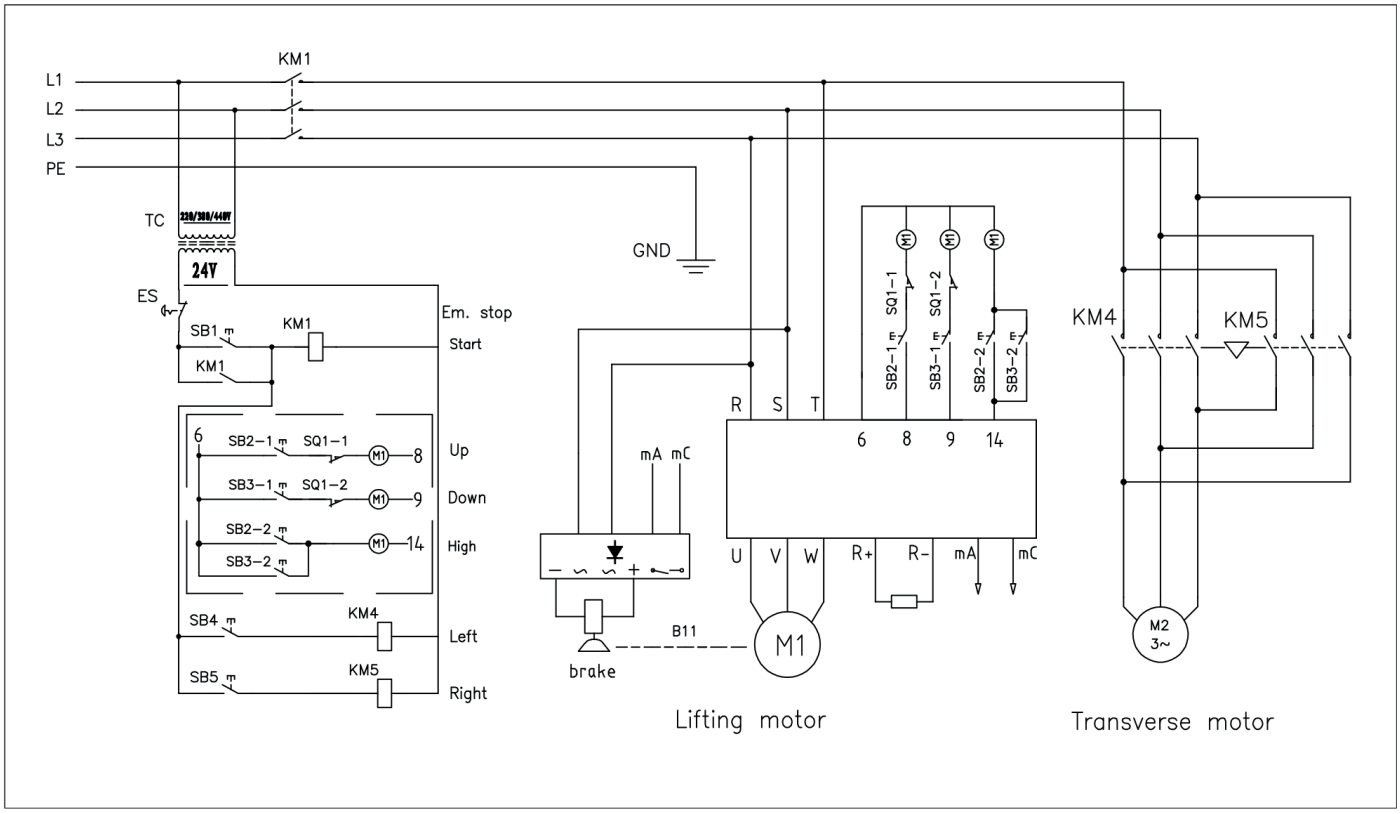
10.2 PWR_M5i Two directions double speed (with inverter)



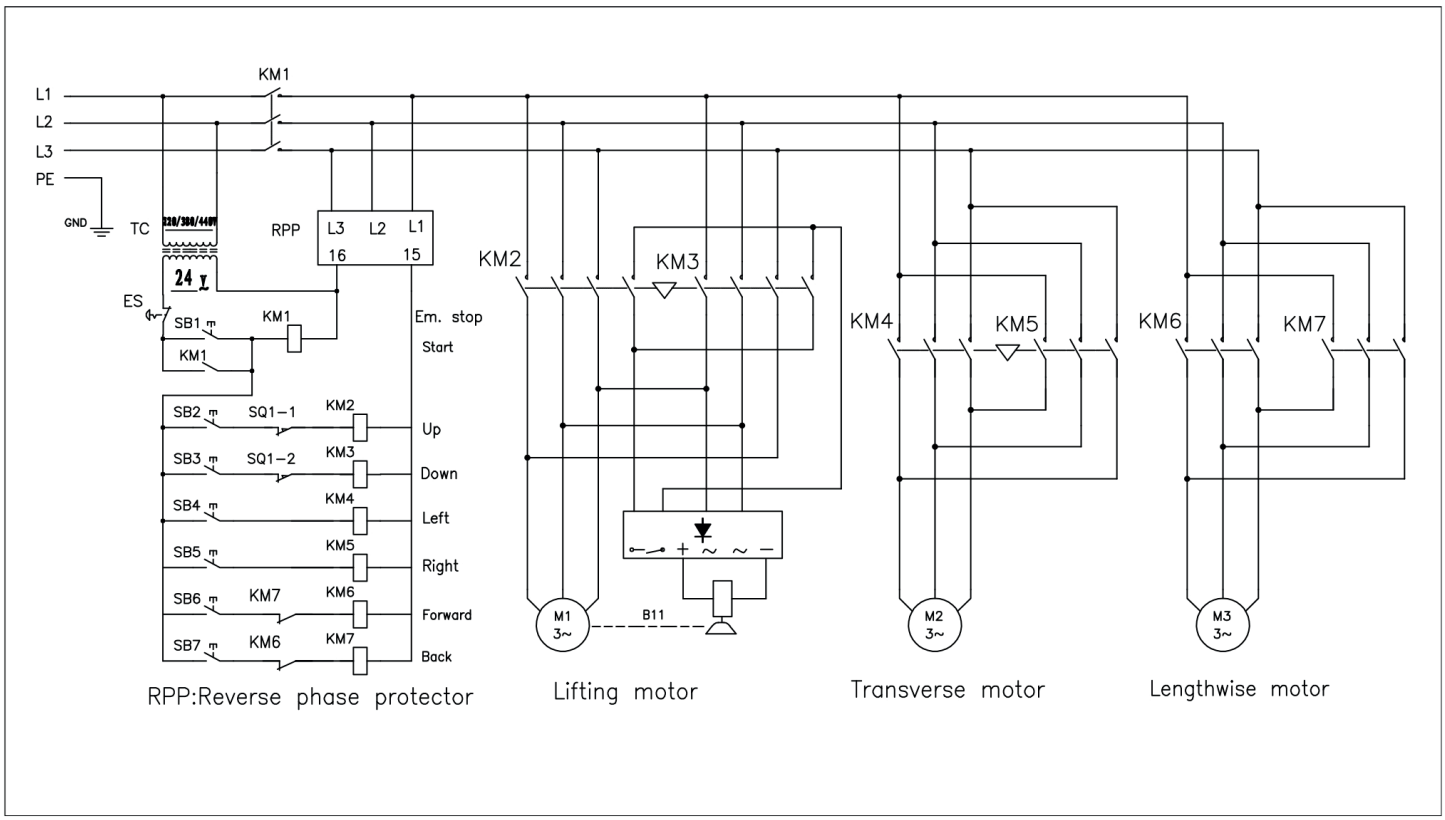
10.3 PWRC_M5 Four directions single speed



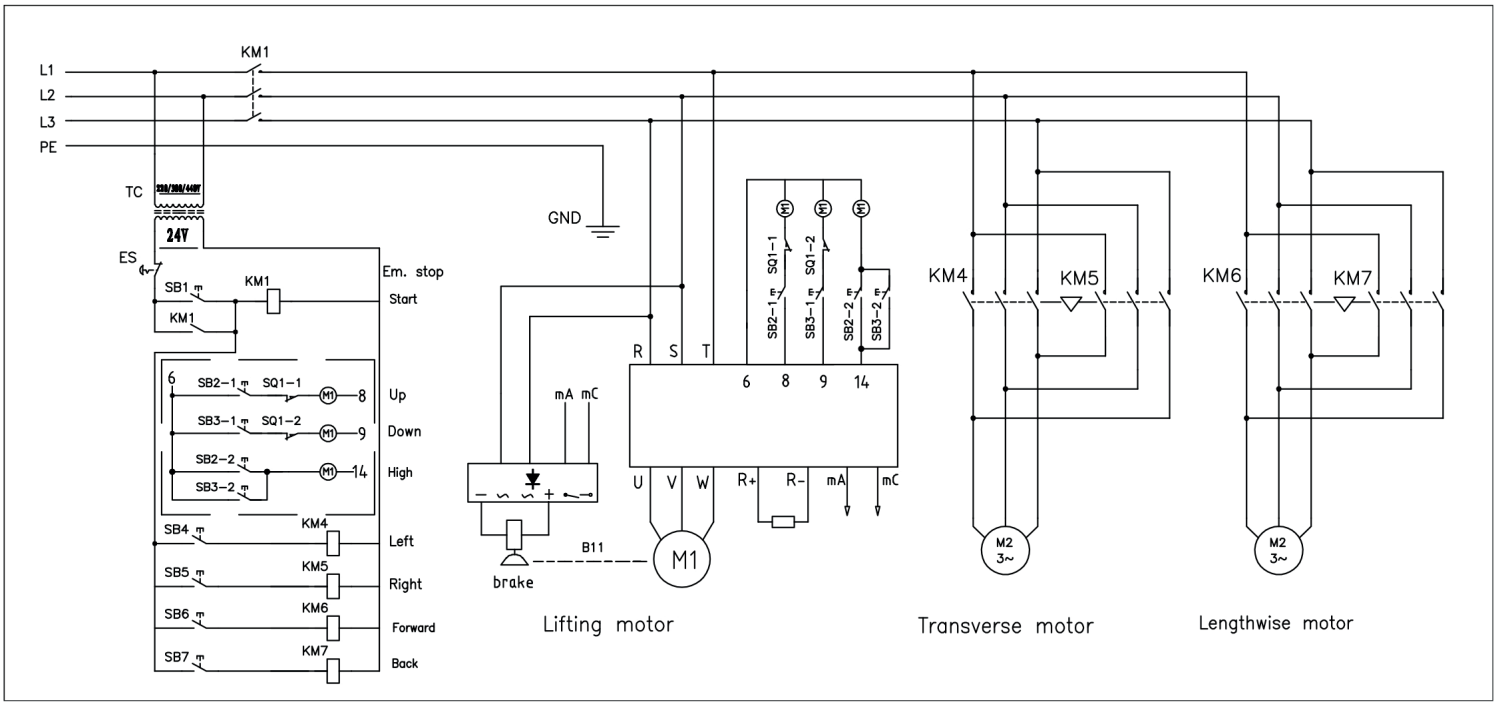
10.4 PWRC_M5i Four directions double speed (with inverter)



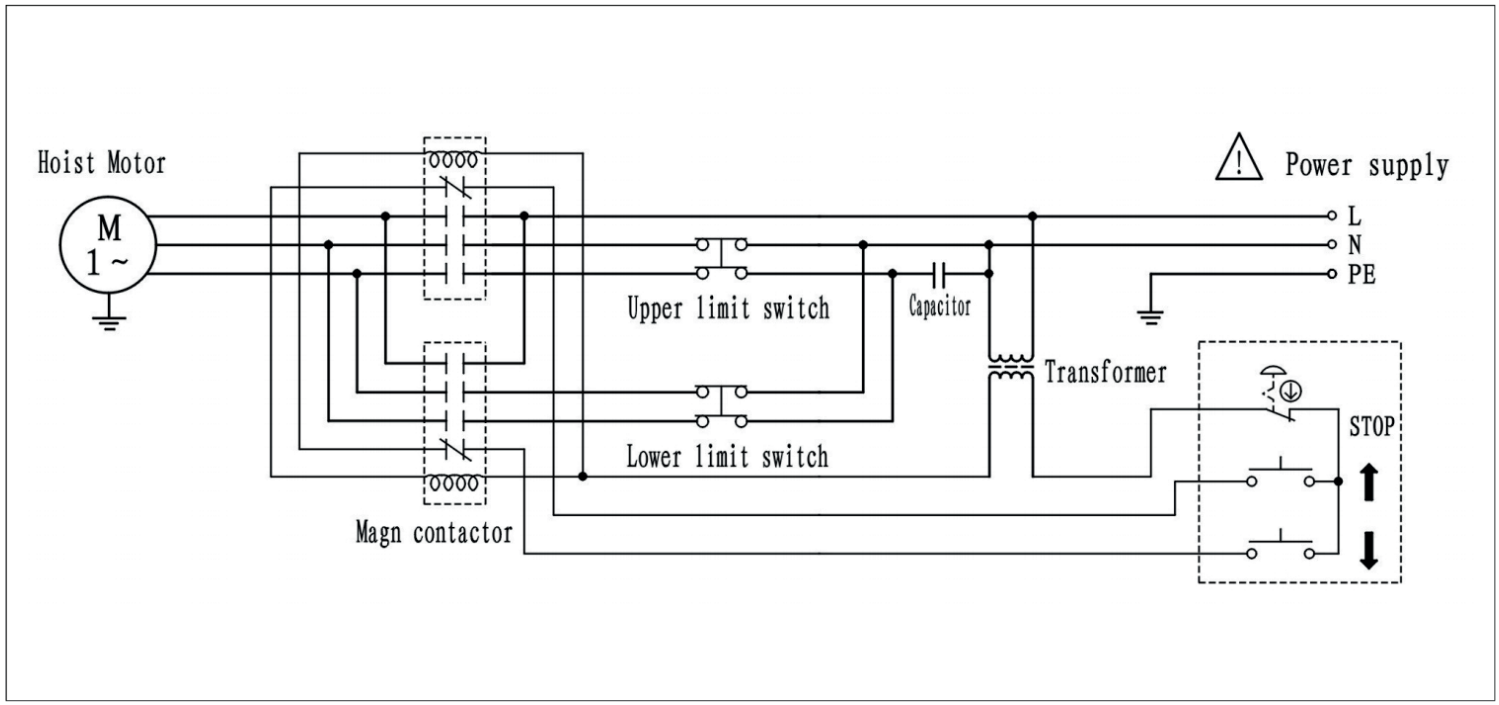
10.5 Overhead Crane Six directions single speed



10.6 Overhead Crane Six directions double speed (with inverter)

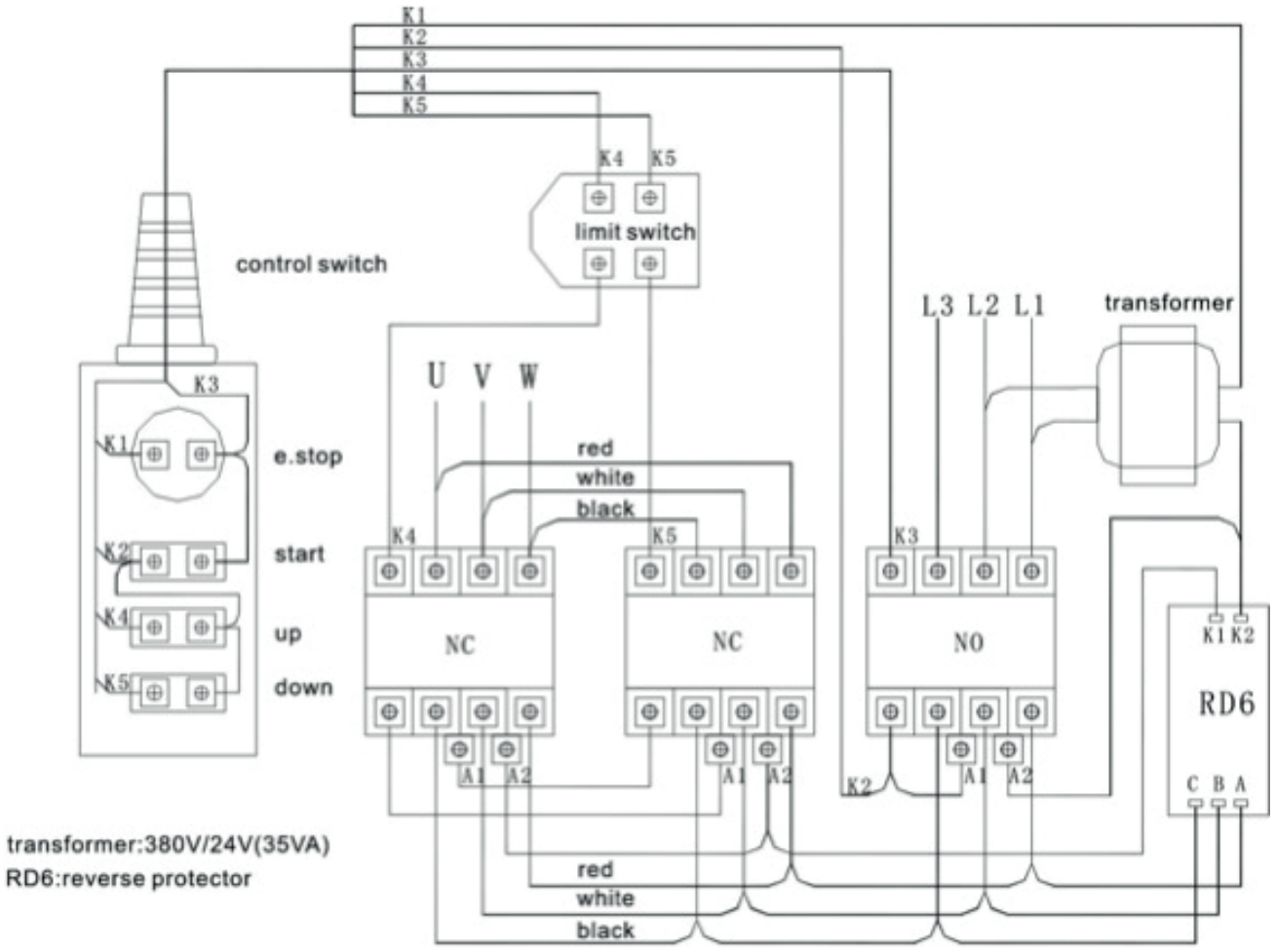


10.7 PWHF Electrical Diagram



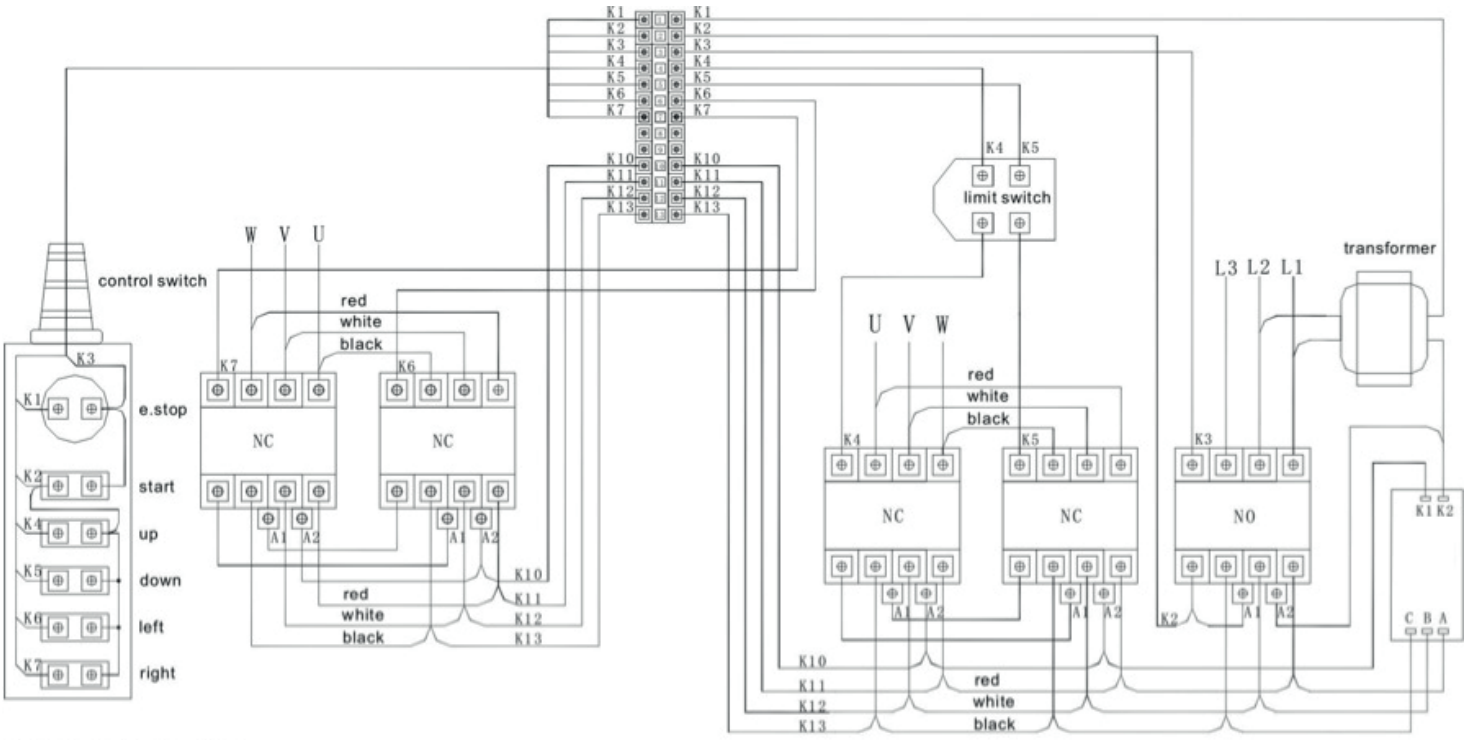
11. CONTROL

11.1 For 2 directions wiring diagram for single speed



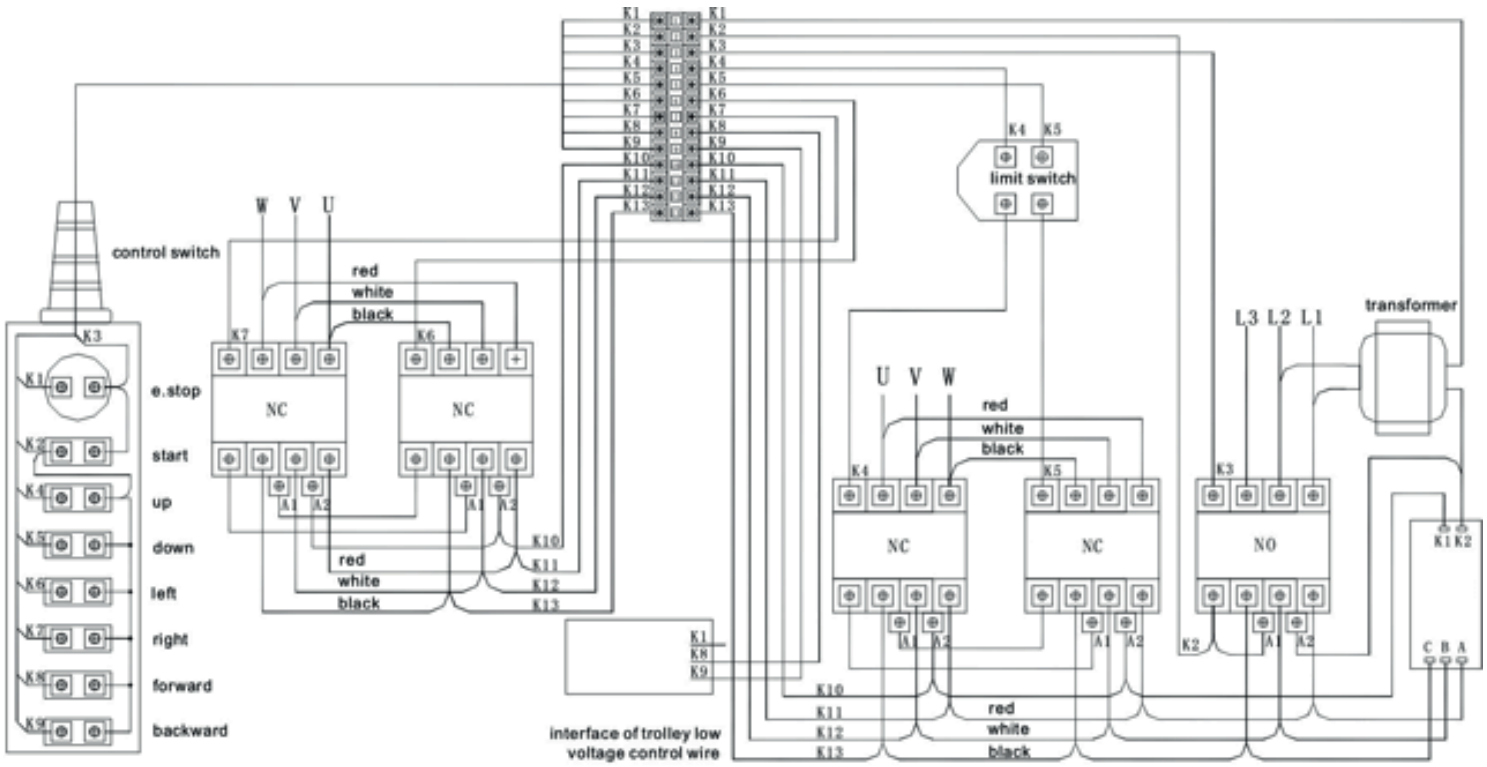
"e.stop" means emergency stop

11.2 For 4 directions wiring diagram for single speed



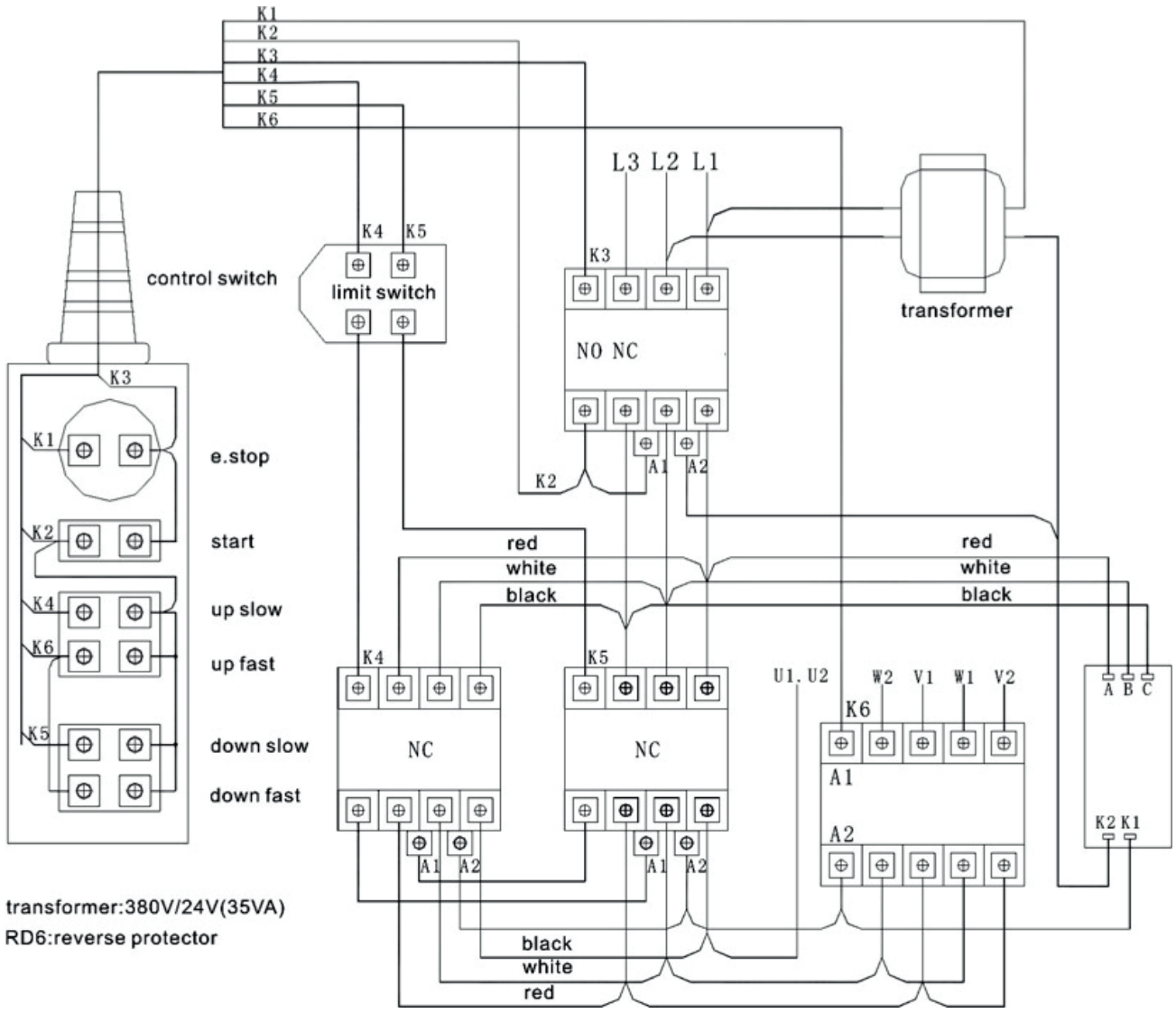
transformer:380V/24V(35VA)
RD6:reverse protector

11.3 For 6 directions wiring diagram for single speed

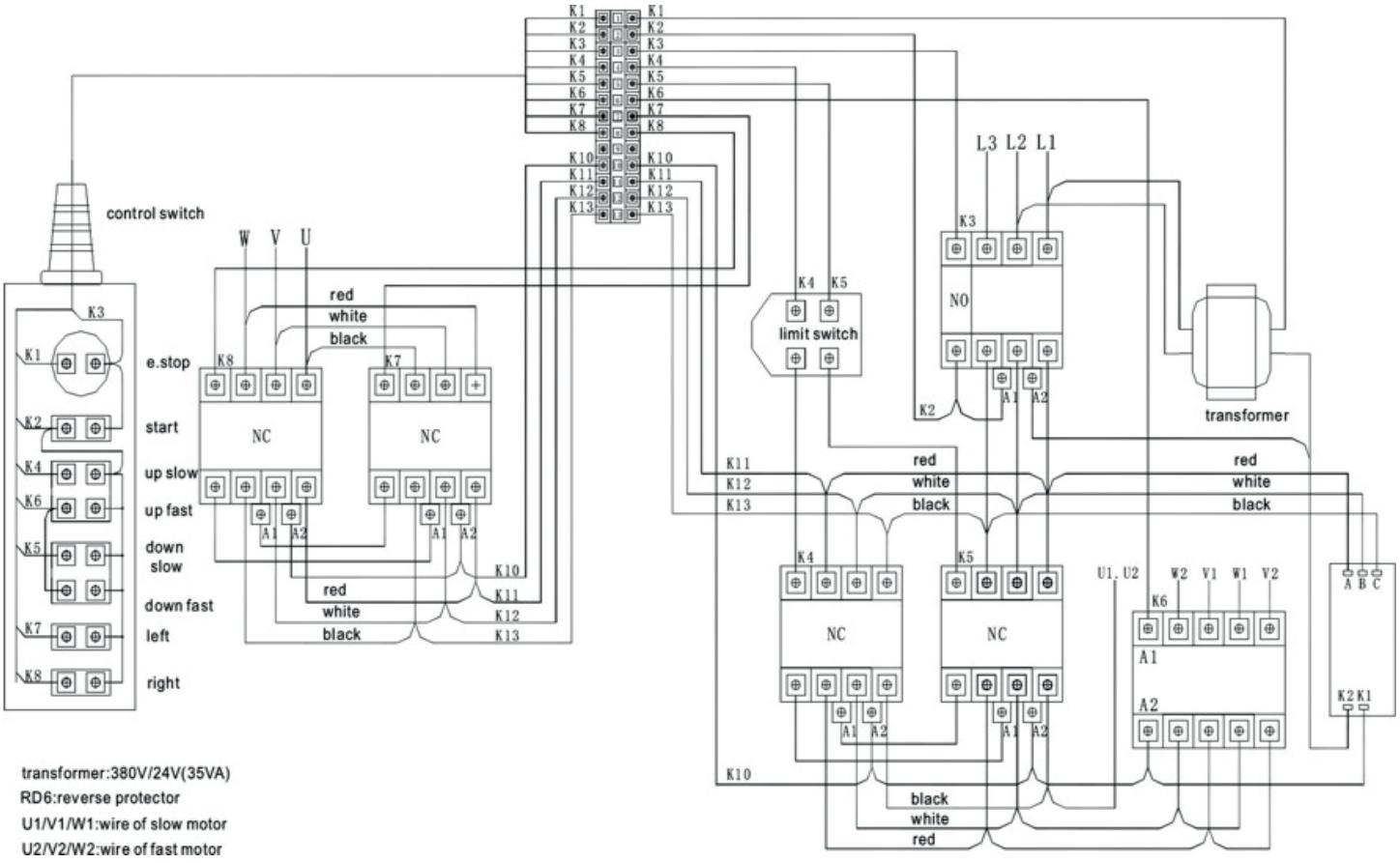


transformer:380V/24V(35VA)
RD6:reverse protector

11.4 For 2 directions wiring diagram for double speed

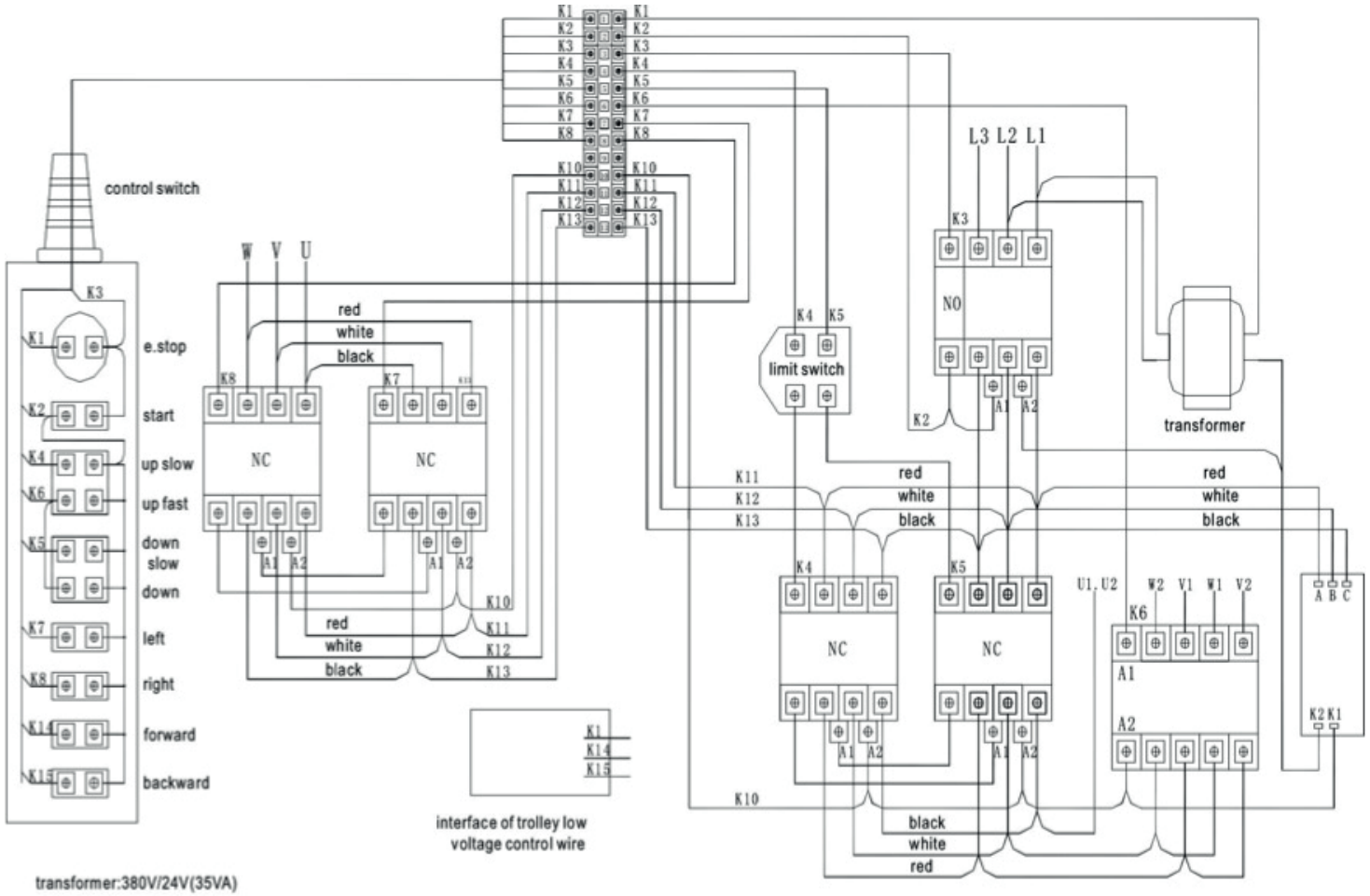


11.5 For 4 directions wiring diagram for double speed

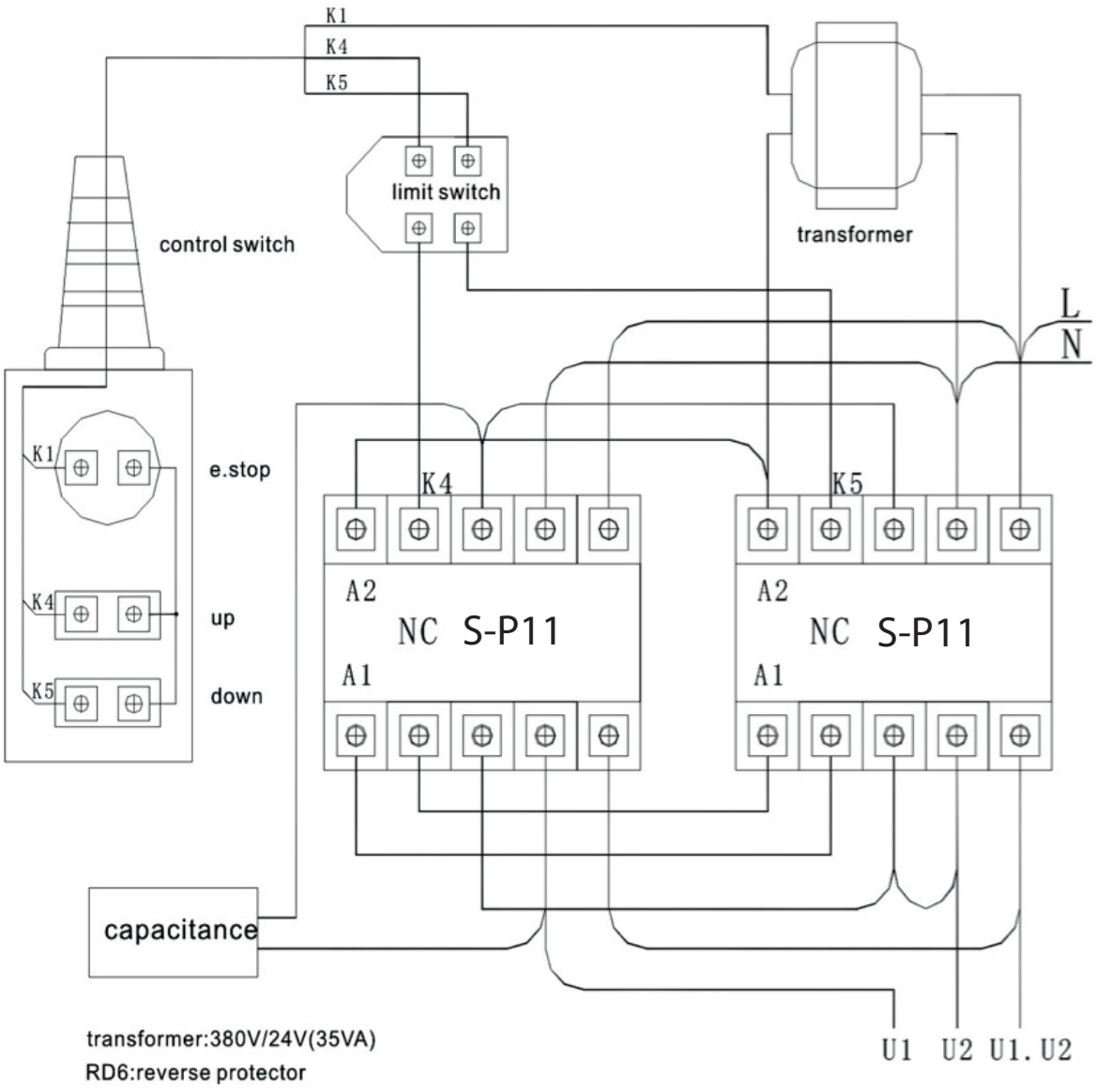


transformer:380V/24V(35VA)
RD6:reverse protector
U1/V1/W1:wire of slow motor
U2/V2/W2:wire of fast motor

11.6 For 6 directions wiring diagram for double speed



11.7 Wiring diagram for single phase motor



12. TROUBLESHOOTING

12.1 Faults, Cause, and Correction

Faults			Major Cause	Check Items	Remarks
Does not operate in non-load state	Brake inaudible	Contactor is inaudible	Excessive voltage	Power	
			Operating circuit break-off, electric parts overheating	Power supply	
				Internal wiring	
				Contactor	
				Transformer	
				Up/Down limit switch	
				Button switch	
		Contactor is audible	Power circuit break-off, overheating motor, brake	Motor	
				Brake	
				Internal wiring	
				Contactor (junction fusing)	
	Brake audible		Drive overheating, broken bearing	Gear	
				Bearing	
Operates in non-load state	Unable to lift (motor roar)		Default phase (single phase operation)	Power	
				Feed power	
				Motor	
				Contactor(junction fusing)	
	Slow lifting		Low voltage	Feed power	
Unintended reaction from button	Inverse reaction from button		Anti-phase wiring	Feed power	
			Incorrect wiring	Internal wiring	
				Button switch	
	No reaction after pressing button		Circuit wire break	Internal wiring	
				Button switch	
			Electric installation parts	Contactor	
				Up/Down limit switch	
				Contactor	
				Brake	
				Feed power	
				Internal wiring	
				Button switch	
				Load chain	
				Load pulley, bare pulley	
				Gear	
				Bearing	
	Noise of brake	Running (grating)	Drag	Brake	
		Stop	Wear of friction plate	Brake	
	Abnormal noise of rail curve (grating)		Obstruction of orbit/wheel	Operation of trolley	

Fault		Major Cause	Check Items	Remarks
Does not move horizontally		Rail declining	Trolley movement	
	Electric trolley /manual trolley	Inclined pull (wheel is lifting)	Trolley movement	
	Electric trolley /manual trolley	Gear occlusion problem	Trolley movement	
	Electric trolley /manual trolley	Brake fastening	Trolley movement	
	Electric trolley	Electric faults	Trolley movement	
Irregular movement and noise	Electric trolley /manual trolley	Rail & wheel interference	Trolley movement	
		Side wheel lacks oil		
		Uneven wheel wear		
		Wheel deformation		
		Rail deformation, wear		
		Bearing wear		
		Brake wear		
Hook		Deformation	Hook	
Load chain		Wear, extension, deformation	Load chain	
Electric shock upon touching machinery body or control switch		Equipment not properly grounded	Proper electric connection	
Does not operate in non-load state	Brake inaudible	Supply power	Supply power voltage	
		Operating circuit break-off, electric parts overheating	Cables	
			Internal wiring	
			Transformer	
			Electrical relay	
			Limit switch	
			Push button switch	
		Braking interval too large or small.	Motor	
			Calibrate brake	
		Tripping as motor overheats	Thermal protector	
	Brake audible	Bearing burning out, driving component wear	Replace brake bearing	
			Bearing	
	Slow load operation	Voltage drop	Feed cable	
	Low and high speed status not operating or working slow	Low voltage	Supply power	
		Voltage drop	Feed cable	
Movement does not correspond with switch button	Movement did not correspond with switch button	Motor wires connected	Motor	
		Connection error	Internal wiring	
			Push button switch	
	Switch button did not work	Operating circuit break-off	Internal wiring	
			Push button switch	
		Electrical installation error	Limit switch	

12.2 Issues & Measures

Power supply

Condition	Reason	Action	Cause	Correction
No operation	Abnormal supply voltage	Power supply	Improper power supply	Check power supply regularly

Power Cable

Condition	Reason	Action	Cause	Correction
No operation	Wire break	Repair or change cable if broken	Strong force exerted	Firmly fix on cable support or other equipment
			2 or more	Use anti-vibration cable in movable part.
			Twisted, knotted	Straighten twists and knots
			Interference with other equipment	Use fixed cable and avoid outside interference
	Overheating	Check cables, exchange if overheating	Temperature rise due to off-capacity	Adopt the proper cable
			Binding cable used	Do not use binding cable
Starting slow or no operation	Off-capacity	Check cable diameter, replace cable if diameter is too small	Voltage drop	Adopt proper cable
Operation only in free load (single phase)	1 wire break or overheating	Refer to above break or overheating item		
Movement did not correspond with switch button (opposite)	Power line connection error	Replace wires	Wiring assembly error	Connect wire as per wiring diagram

Motor

Condition	Reason	Action	Cause	Correction
No operation	Coil burning (above 2 phase)	Measure phase resistance value; change motor if value is infinite.	Excessive current caused by high or low voltage	Operate under rated voltage
			Excessive current caused by overload	Operate under rated voltage
			Beyond short-term rating and intermittent cycle rating	Short-term rating, intermittent cycle rating, operate under rated voltage
				Avoid over-operation
			Excessive current caused by brake	Refer to brake
	Lead wire break (above 2 phase)	Measure phase resistance value; change motor if value is infinite.	Lead wire broken in assembly	Change motor coil
			Vibration, drop	Avoid excessive bumping in usage
Operation only in free load (single phase state)	Coil burning (1 phase only)	Measure phase resistance value; change motor if value is infinite	Poor electric isolation	Ensure foreign matter does not enter motor
	Leading wire break (1 phase only)	Measure phase resistance value; change motor if value is infinite	Leading wire break in assembly	Change motor coil
			Vibration, drop	Avoid excessive bumping

Brake

Condition	Reason	Action	Cause	Correction
No operation	Braking coil burning	Measure brake phase resistance value; change brake if value is infinite.	Excessive current caused by high or low voltage	Operate under rated voltage
				Avoid over-operation
			Excessive current caused by overload	Operate under rated voltage
				Confirm short-term rating, intermittent cycle rating, operate under rated voltage
			Excessive current caused by operation in singe phase state	Stop immediately if unable to lift load in single phase
	Friction plate beyond brake magnetism scope	Measure brake clearance, replace if space is over usage limit		Avoid over-operation
	Broken brake wire	Ensure wire is connected, replace if disconnected	Lead wire damaged during assembly	Replace coil brake
	Improper connection of brake wire terminal	Replace insert terminal when loose	Assembly error	Proper connection in assembly
	Rust	Replace brake if rust present	Exposure to water in storage	Ensure dry storage
			Condensation	Monitor usage environments
	Friction plate wear	Measure brake clearance, replace if space is over use limit		Avoid over-operation

Inside Wiring

Condition	Reason	Action	Cause	Correction
No operation	Break	Check cable, repair if wire break	Vibration, drop	Avoid excessive bumping in usage
			Leading wire damaged in assembly	Change motor coil
		Check connector, repair if wire break	Connector not properly set	Press by appropriate tool
	Wiring error	Refer to wiring diagram, ensure properly connected	Wiring error	Refer to wiring diagram, ensure properly connected
	Connector screws loose (overheating)	Fastening	Improper fastening	Ensure effective fastening
			Vibration, drop	Avoid excessive bumping in usage
	Connector, insert terminal improper combination	Proper combination	Bad combination during assembly	Ensure combination is effective

Transformer

Condition	Reason	Action	Cause	Correction
No operation (contractor)	Coil burning, break	Measure coil resistance value; Change transformer if value infinite	Excessive voltage	Operate under rated voltage
				Avoid over-operation
			Excessive current caused by contactor	Refer to contactor items
			Vibration, drop	Avoid excessive bumping in usage
	Wire break	Check leading wire, repair or change transformer if wire	Vibration, drop	Avoid excessive bumping in usage

Contactor & Electric Reply

Condition	Reason	Action	Cause	Correction
Non-stop activation	Junction welding burn out	Change contactor if continuous welding or burn out. For electric reply, visual inspection of junction		Do not over-operate
			Excessive voltage (Excessive current)	Operate under rated voltage
			Excessive current due to overload	Operation under rated voltage
No operation	Coil burning	Measure coil resistance value. Change coil if value infinite.		Avoid over-operation
			Excessive voltage	Operate under rated voltage
			Vibration due to low voltage (Starting current added continuous)	Operate under rated voltage
		Replace contactor if action is not smooth. For electric reply, visual inspection for part breakage	Vibration, drop	Avoid excessive bumping in usage

Limit switch

Condition	Reason	Action	Cause	Correction
No operation (Contactor)	Contact fused	Operate limit switch. Check continuity of contactor, re-place if result is negative	Limit switch overuse	Avoid overuse of switch
	Wire break	Inspect cable, change if wire breakage or replace limit switch	Vibration, drop	Avoid excessive bumping in usage
	Moveable parts rusting	Check movable parts such as limit lever. Remove if rusty or replace if adhesive	Set in Up/Down limit for long time	Do not set in Up/Down limit
Motor did not stop upon reaching upper and lower limit	Contact fused	Operate limit switch. Check continuity of contactor, replace if can not stop	Limit switch used frequently	Avoid overuse of limit switch
	Rusting of moveable parts	Check movable parts such as limit lever. Remove if rusty or replace if adhesive	Infrequent usage; use in moist environments.	Regular inspection
	Wiring error	Reference wiring diagram. If limit switch cable is properly connected, it is inversely con-nected. Swap 2 wire power cords	Wiring error	Properly connect wire power cords as per wiring diagram

Push button switch

Condition	Reason	Action	Cause	Correction
No operation (Contactor	Emergency button is pressed	Turn button right to recover	Emergency button not reset	Read User Manual before usage
	Switch gear fault	Conduction contacts, replace switch if off	Vibration, drop	Avoid excessive bumping in usage
	Wiring break	Check if button cable is correctly connected to switch device. Repair if broken	Vibration, drop	Avoid excessive bumping in usage
	Terminal screw loose	Tighten screw	Vibration, drop	Avoid excessive bumping in usage
	Button cable wire break	Replace cable or button cable when wire break	Cable coating damaged	Avoid contact with other equipment during operation
			Faulty installation	Install protection line firmly
Action does not correspond with display	Wiring error	Reference wiring diagram. If limit switch cable is properly connected, it is inversely con-nected. Swap 2 wire power cords	Wiring error	Properly connect wire power cords as per wiring diagram
Operation conintues upon button release	Faulty switch gear part	Replace switch if not smooth.	Vibration, drop	Avoid excessive bumping in usage

Electric shock

Condition	Reason	Action	Cause	Correction
Electric shock upon touching machinery or control switch	Equipment not properly grounded	Measure earth resistance. If below 100Ω assemble ground wire	Improper ground wire connection	Firmly connect ground wire
			Ground wire bad connection	Assemble carefully to prevent loose screw
			Cable break	Do not apply excessive force on cable
	Dampness/ water	Clean, use once dry	Wet hands	Do not operate with wet hands

Hook

Condition	Reason	Action	Cause	Correction
Hook mouth open	Hook deformation	Replace hook if deformation is beyond permitted range.	Overload	Operate under rated voltage
			Lifting (hook connected with grounded object)	Do not lift grounded objects.
			Load hanging on hook head; hook pull horizontal	Lifting load properly with hook
			Hanger suspension errors	Lifting angle must be controlled within 120 °
			Load size exceeds rated hook	Using proper hook
Hook twist			Chain wrapped around load	Do not wrap chain
Head hook improper rotating	Bearing rust, corrosion	Hand rotation; maintain or replace if experiencing difficulty rotating	Inadequate grease lubricant; corrosion	Apply grease lubricant regularly; prevent hook contamination of chemical agents
	Bearing damage		Dust	Prevent foreign matter from entering head

Load chain

Condition	Reason	Action	Cause	Correction
Chain twist	Bottom hook upturned	Reset hook	Bottom hook rotation during usage	Check hook state before operation
	Chain twist in machinery body	Reassemble chain guide and load chain	Improper assembly	Ensure proper assembly
Limit switch suddenly activated in decline	Chain twist or knot in chain bag	Confirm chain bag capacity (chain bag nameplate) replace with larger one if capacity insufficient	Chain bag inadequate capacity	Confirm lifting height and chain bag capacity
Crackling sound	Chain damage	Measure wear of chain link diameter. Replace if reaching wear limit	Long-term operation with insufficient lubrication	Apply grease lubricant regularly
Irregular sound from springs (cracking sound)	Wear of link part	Measure diameter on wear of chain, and replace when at wear limit	Excessive operation	Avoid excessive operation
			Overload	Use under rated load
			Incline pull	Ensure proper pull direction
			Wear of load pulley and empty pulley	Refer to load pulley and empty pulley
	Extension of pitch	Measure pitch and replace when exceeding limit	Overload	Use under rated load
Irregular sound	Damage or deformation on chain surface	Replace when obvious damage and deformation occur	Use under transition situation	Use under models with multiple chain
			Chain used improperly	Ensure proper assembly
	Mark on chain surface		Damaged by other equipment	Monitor surrounding environment throughout usage to avoid collisions
Discoloration	Rust, corrosion	Apply lubricants and replace when obvious rust and corrosion occurs	Lubricant exhausted	Apply lubricating oil regularly
			Exposure to water	Use in dry places
			Influenced by seawater or chemical agent	Inform us if used in special circumstances to safeguard range
Load chain fractured	Reaching service life	Check chain, replace if differing from benchmark specifications	Mechanical life	Operate correctly and manage properly including inspection before usage and regular check-ups

Chain Wheel

Condition	Reason	Action	Cause	Correction
Improper noise	Wear of chain wheel	Check wear degree on chain, wheel slot, and load chain. Replace if badly worn	Long-term operation with insufficient lubrication	Apply lubricating oil regularly
			Excessive operation	Avoid excessive operation
			Overload	Use under rated load
			Incline pull	Avoid incline pull

Load pulley and empty pulley

Condition	Reason	Action	Cause	Correction
Irregular sound from springs (cracking sound)	Wear of pulley	Measure slot edge thickness and load chain, replace if badly worn	Long-term operation with insufficient lubrication	Apply lubricating oil regularly
			Excessive operation	Avoid excessive operation
			Overload	Use under rated load
			Incline pull	Avoid incline pull

Chain Guide

Condition	Reason	Action	Cause	Correction
Increased shaking	Wear of chain guide and guide pulley	Measure benchmark size and load chain, replace if badly worn and limit size exceeded	Incline pull	Avoid incline pull

Chain Wheel, Junction Part

Condition	Reason	Action	Cause	Correction
Unable to lift loads	Wear, breakage	Replace when obvious wear or breakage occur	Long-term operation with insufficient lubrication	Apply lubricating oil and inspect annually
			Long-term operation with insufficient lubrication (joint part of motor shaft)	Apply lubricating oil and inspect annually
Irregular operation	Wear, breakage		Limit switch used too frequently	Avoid excessive use of limit switch

Bearing

Condition	Reason	Action	Cause	Correction
Unable to lift loads	Breakage	Replace bearing	High temperature or high frequency	Avoid use at high temperatures or high frequency
Abnormal sound	Aging	Replace bearing		

Trolley

Condition	Reason	Action	Cause	Correction
No drive due to wheel skid	Rail tilt	Confirm rail slope is within 1 °	Improper rail settings	Set up orbit correctly
No drive due to wheel skid	Apply oil above orbit wheel tread.	Ensure wheel is clean and unobstructed	Use in environment which outside material does not interfere with parts	Clean orbit regularly
Audible friction when travelling on curve track	Friction resistance between wheel and rail	Apply lubricating oil on track tread		
No drive on curve track	Interference of curve track and trolley	Confirm that orbit curve's radius is minimal bending radius	Curve track exceeding limit value	Avoid use on curve track exceeding limit value
Wheel raised and unable to be driven	Inclined pull wheel raised		Operation method	Correct use
Wheels stopped revolving	Faulty gear connection	Ensure clean space between wheel and gear	Interference from outside material	Check regularly
Abnormal sound	Improper adjustment circle	Confirm adjustment circle number and insert position	Insufficient confirmation	Install correctly
	Wear of wheel	Confirm wear degrees	Travelling surface has bump	Confirm regularly
	Deformation of wheel	Check wheel bending and surface damage	Excessive collision, travelling surface deformed	Replace and use correctly
	Aging of wheel bearings	Confirm irregular sound exists when wheel rotates	Reaching service life	Replace
	Deformation and wear of track	Confirm rail wear and deformation	Overload or reaching service life	Replace and use correctly

Electric Trolley

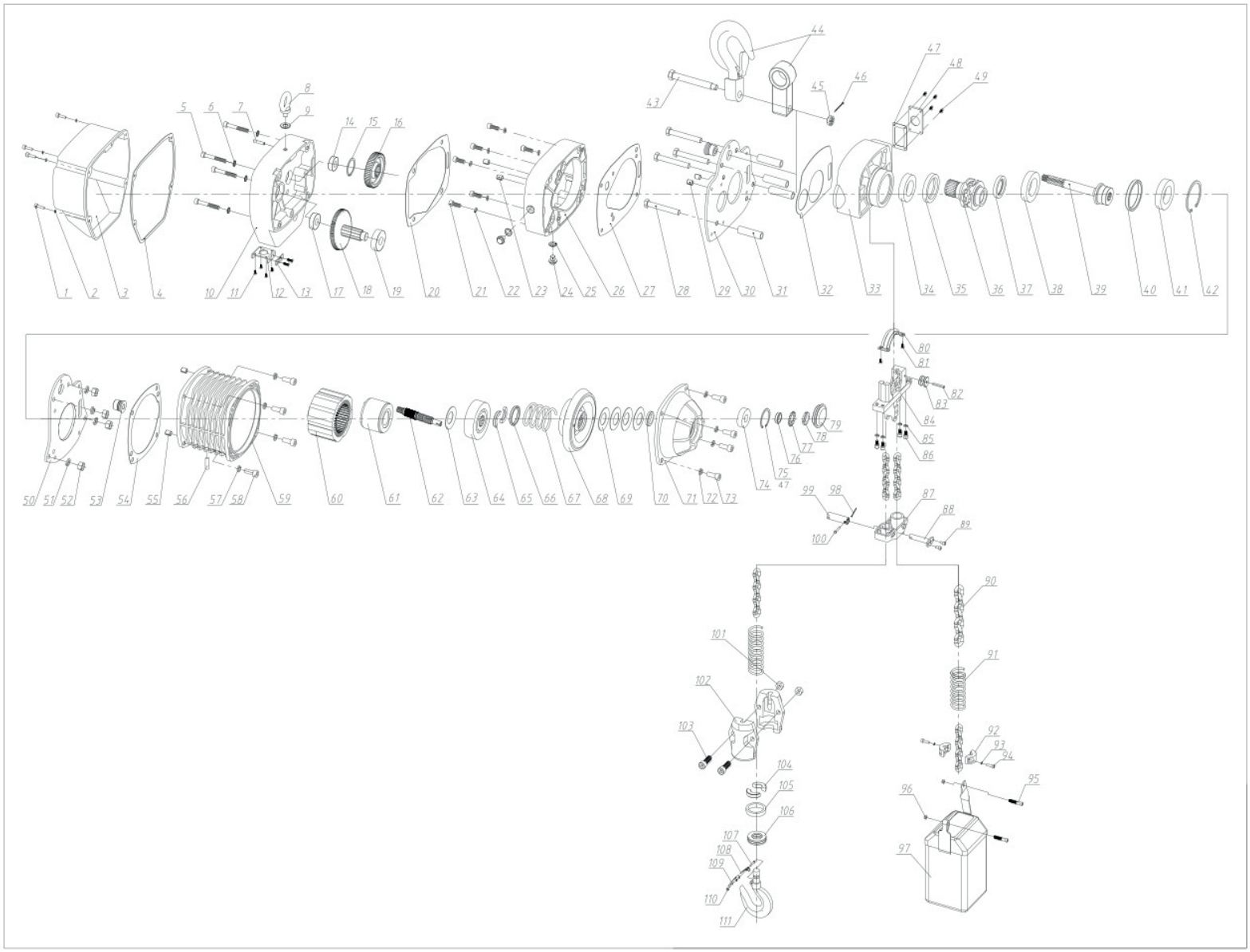
Condition	Reason	Action	Cause	Correction
Wheels stopped revolving	Brake gelling	Open motor cover remove rust and dirt	Usage environment	Inspect regularly
	Electric fault	Refer to items of electric chain hoist		
Abnormal sound	Wear of edge guide wheel	Confirm wear degrees	Reaching service life	Confirm regularly
	Wear of friction slices	Confirm wear degrees of friction slices	Reaching service life	Confirm regularly

Manual Trolley

Condition	Reason	Action	Cause	Correction
Unable to move hand chain	Bad connection between hand wheel and hand chain	Properly adjust hand chain on hand wheel	Excessive or improper usage	Replace worn or deformed components

13. EXPLODED VIEW AND PARTS LIST

13.1 Chain hoist



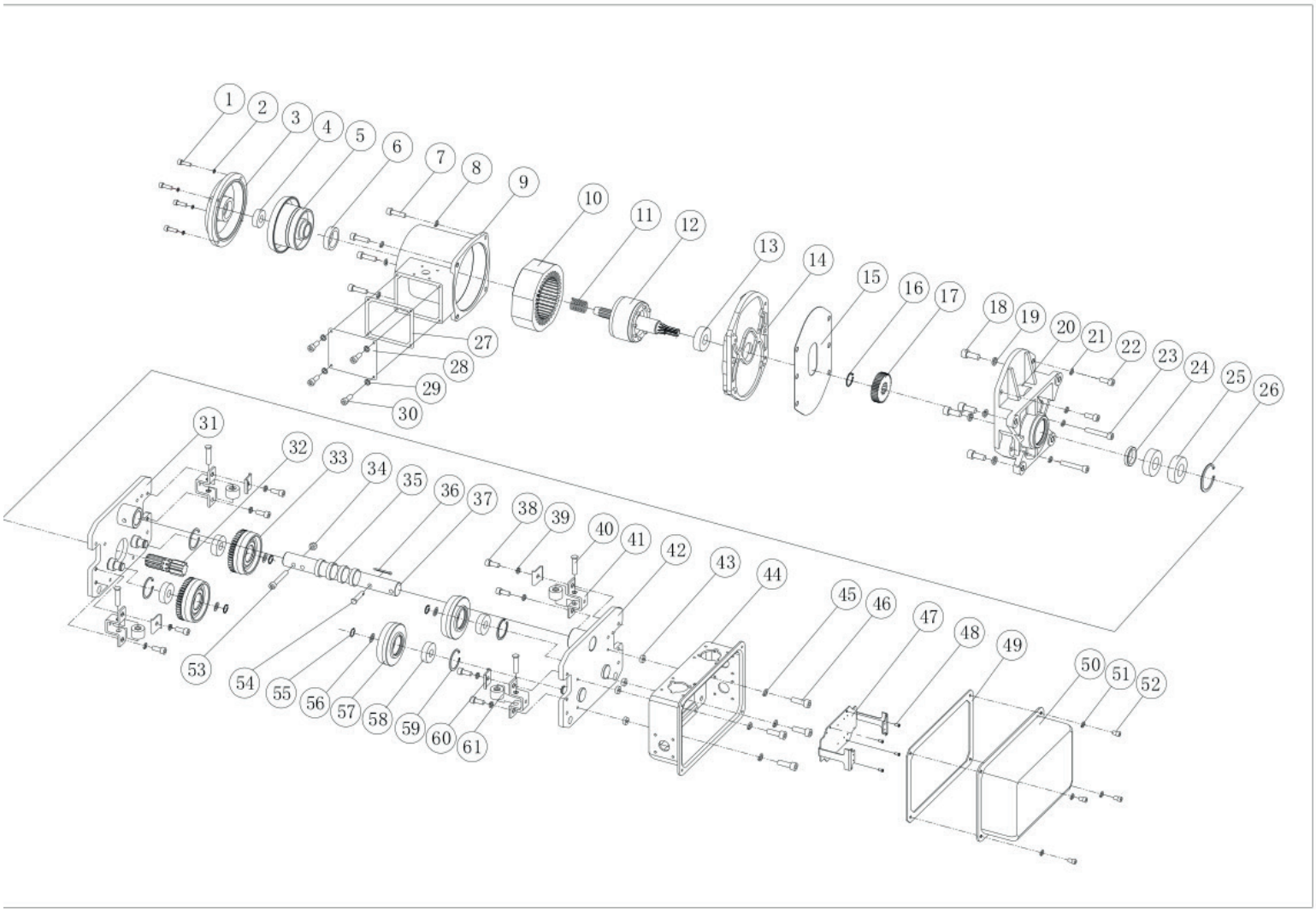
S/N	PART NAME	QTY	OBSERVATIONS	S/N	PART NAME	QTY	OBSERVATIONS
1	Hexagonal circular	4		36	chain wheel	1	
2	spring gasket	4		37	Oil seal	1	
3	gearbox base	1		38	Deep groove	1	
4	Gasket of gearbox	1		39	Output shaft	1	
5	Hexagonal circular	4		40	Bearing fixed	1	
6	Serrated gasket	4		41	Deep groove	1	
7	gearbox base	1		42	Internal circlip	1	
8	Lifting eyebolt	1		43	Hexagonal bolt	1	
9	lifting eyebolt	1		44	Ring	1	matched by choose
10	gearbox	1			up hook	1	
11	Notch countersink	6		45	Slotted hex	1	
12	wiring fixing ring	1		46	Cotter pin	1	
13	wiring fixing ring	1		47	side cover	1	
14	Deep groove ball	1		48	side cover	1	
15	Washer on shaft	1		49	Haxagonal	4	
16	Output gear	1		50	Base plate of	1	
17	Deep groove ball	1		51	spring gasket	4	
18	Gear-gear shaft	1		52	Nut	4	
19	Deep groove ball	1		53	Bushing	2	
20	Gearbox gasket	1		54	Motor case	1	
21	Hexagonal circular	6		55	Fitting pin	2	
22	spring gasket	6		56	Hexagonal awl	1	
23	Fitting pin	2		57	spring gasket	4	
24	Hex bolt	2		58	Hexagonal	4	
25	Hex bolt gasket	2		59	Motor case	1	
26	Middle pieces	1		60	motor stator	1	
27	Middle pieces	1		61	motor rotor	1	
28	Panels bolts	4		62	motor axle	1	
29	Fitting pin	2		63	disc spring	1	big
30	gearbox base	1		64	guide block	1	
31	Connection joint	4		65	Two-piece ring	2	
32	connection box	1		66	Fixing ring	1	
33	connection box	1		67	Brake spring	1	
34	Deep groove ball	1		68	Brake assembly	1	
35	Oil seal	1		69	disc spring	4	small

					BOM	
SYM	INT.	CHANGE NO.	DATE	SIGN	DWG.SYM.	
DR		INSP.	APP.			

S/N	PART NAME	QTY	OBSERV ATIONS	S/N	PART NAME	QTY	OBSERV ATIONS
70	Rotor gasket	1		105	Hook Fixing Ring	1	
71	End cover of motor	1		106	Mono directional	1	
72	spring gasket	4		107	Cross recess head	1	
73	Hexagonal circular	4		108	Hook spring	1	
74	Deep groove ball	1		109	Safety piece	1	
75	Internal circlip	1		110	Hexagonal nut	1	
76	Upper gasket of the	1		111	Bottom hook	1	
77	Locking piece	1					
78	Screw cap	1					
79	Rubber cover	1					
80	Guide sheet iron	1					
81	Notch countersink	2					
82	Pulley axle	1					
83	Guide pulley	1					
84	Chain guide	1					
85	spring gasket	4					
86	Hexagonal circular	4					
87	Guide bracket	1					
88	Stop pin assembly	1					
89	Hexagonal circular	2					
90	chain	7pcs					
91	Limit spring	2					
92	chain limit ring	2					
93	spring gasket	2					
94	Hexagonal circular	2					
95	Hexagonal circular	2					
96	Hexagonal Nut	2					
97	chain bag assembly	1					
98	Cotter pin	1					
99	Connection shaft of	1					
100	Pin roll	1					
101	Hexagonal Nut	2					
102	Single back-hooking	1					
103	Hexagonal circular	2					
104	Hook Two-piece	7pairs					

					BOM	
SYM	INT.	CHANGE NO.	DATE	SIGN	DWG.SYM.	
DR		INSP.	APP.			

13.2 TROLLEY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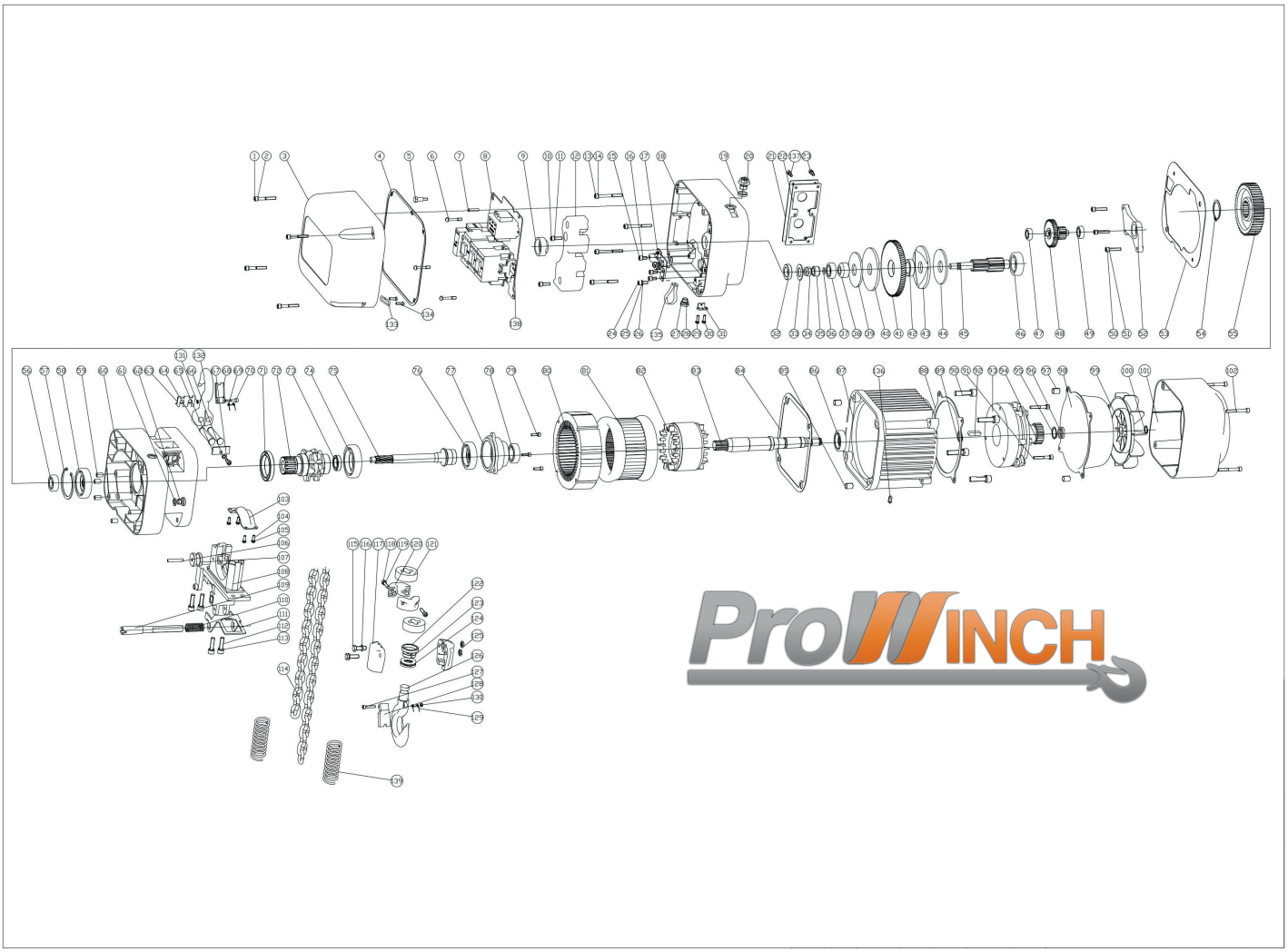
No.	Part name	Quantity for each type trolley					
		1t	2t	3t	5t	7.5t	10t
1	Hexagon socket head cap screws	4	4	4	4	4	4
2	Grower washer	4	4	4	4	4	4
3	Motor End cover	1	1	1	1	1	1
4	Deep groove ball bearing	1	1	1	1	1	1
5	Brake block	1	1	1	1	1	1
6	Rubber retainer ring	1	1	1	1	1	1
7	Hexagon socket head cap screws	4	4	4	4	4	4
8	Grower washer	4	4	4	4	4	4
9	Motor shell	1	1	1	1	1	1
10	Motor stator	1	1	1	1	1	1
11	Brake spring	1	1	1	1	1	1
12	Rotor block	1	1	1	1	1	1
13	Deep groove ball bearing	1	1	1	1	1	1
14	Motor bottom plate	1	1	1	1	1	1
15	Moot bottom plate washer	1	1	1	1	1	1
16	Axle retainer ring	1	1	1	1	1	1
17	Gear	1	1	1	1	1	1
18	Hexagon socket head cap screws	4	4	4	4	4	4
19	Grower washer	4	4	4	4	4	4
20	Gear box	1	1	1	1	1	1

21	Grower washer	2	2	2	2	2	2
22	Hexagon socket head cap screws	2	2	2	2	2	2
23	Hexagon socket head cap screws	2	2	2	2	2	2
24	Retainer ring	1	1	1	1	1	1
25	Deep groove ball bearing	2	2	2	2	2	2
26	Hole retainer ring	1	1	1	1	1	1
27	Motor side plate washer	1	1	1	1	1	1
28	Motor side plate	1	1	1	1	1	1
29	Grower washer	4	4	4	4	4	4
30	Hexagon socket head cap screws	4	4	4	4	4	4
31	Trolley main support plate block	1	1	1	1	1	1
32	Castellated shaft	1	1	1	1	1	1
33	Driven tooth gear	2	2	2	2	2	2
34	Luck nut	1	1	1	1	1	1
35	Axle adjusting ring	8	8	8	8	8	8
36	Cutter pin	1	1	1	1	1	1
37	Axle	1	1	1	1	1	1
38	Hexagon socket head cap screws	8	8	8	8	8	8
39	Grower washer	8	8	8	8	8	8
40	Side wheel axle	4	4	4	4	4	4
41	Side wheel support	4	4	4	4	4	4
42	Trolley subplate block	1	1	1	1	1	1

43	washer for wire shell	4	4	4	4	4	4
44	Bottom block of motor wire shell	1	1	1	1	1	1
45	Grower washer	4	4	4	4	4	4
46	Hexagon socket head cap screws	4	4	4	4	4	4
47	Electrical installation board	1	1	1	1	1	1
48	Phillips screw	4	4	4	4	4	4
49	Washer for wire shell	1	1	1	1	1	1
50	Motor wire shell	1	1	1	1	1	1
51	Grower washer	4	4	4	4	4	4
52	Hexagon socket head cap screws	4	4	4	4	4	4
53	Hexagon socket head cap screws	1	1	1	1	1	1
54	Fixed pin	1	1	1	1	1	1
55	Axle retainer ring	4	4	4	4	4	4
56	Wheel retainer ring	4	4	4	4	4	4
57	Wheel	2	2	2	2	2	2
58	Deep groove ball bearing	4	4	4	4	4	4
59	Hole retainer ring	4	4	4	4	4	4
60	Side wheel support washer	4	4	4	4	4	4
61	Trolley side wheel	4	4	4	4	4	4

13.3 PWR_M5



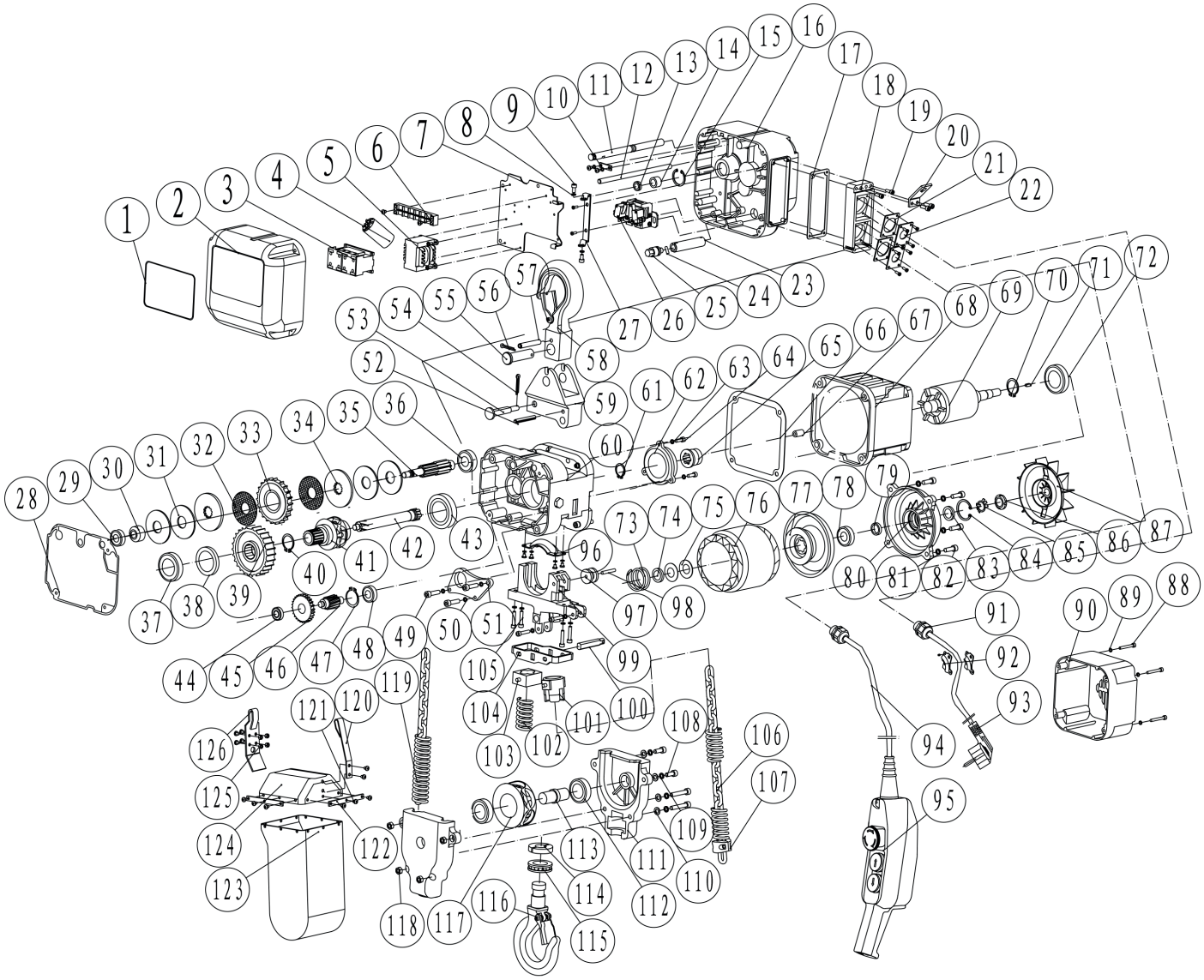
PWR_M5 ELECTRIC CHAIN HOIST SPARE PARTS

S/N	PART NAME	QTY	REMARK		S/N	PART NAME	QTY	REMARK
1	Hexagonal circular bolt	4			36	O-ring	1	
2	Spring gasket	4			37	Deep groove ball bearing	1	
3	Gearbox base cover	1			38	Pressing Cover	1	
4	Gasket of gearbox base	1			39	Disc spring	1	
5	Panel pin	1			40	Brake disc	1	
6	Slotted pan head screw with waisted shank	3			41	Middle -gear	1	
7	Fitting pin	1			42	Sleeve of middle gear	1	
8	Installing panel of electronics	1			43	Brake disc	1	
9	Nut cap	1			44	Disc spring	1	
10	Hexagonal circular bolt	2			45	Clutch shaft	1	
11	Spring gasket	2			46	Deep groove ball bearing	1	
12	Balance block	1			47	Deep groove ball bearing	1	
13	Hexagonal circular bolt	4			48	Duplex gear	1	
14	Gasket of screw	4			49	Deep groove ball bearing	1	
15	Hexagonal circular bolt	3			50	Haxagonal circular bolt	3	
16	Spring gasket	3			51	Spring gasket	3	
17	Limit switch Assembly	1			52	Fixed bracket of reduction gear	1	
18	Gearbox	1			53	Gasket of gearbox	1	
19	Gasket of bolt	1			54	Shaft ring A	1	
20	Hexagon bolt	1			55	Output gear	1	
21	Side cover	1			56	Deep groove ball bearing	1	
22	Side cover gasket	1			57	Shaft ring B	1	
23	Hexagonal circular bolt	6			58	Deep groove ball bearing	1	
24	Hexagonal circular bolt	1			59	Fitting pin	2	
25	Spring gasket	1			60	Connecting box	1	
26	Flat gasket	1			61	Gasket of Hexagonal Nut	1	
27	Hexagon bolt	2			62	Hexagonal Nut	1	
28	Gasket of hexagon bolt	2			63	Block piece of upper hook pin	1	
29	Cross recess head screw	2			64	Upper hook pin	1	
30	Spring gasket	2			65	Pressing plate of upper hook pin	1	
31	Wire clamp	1			66	Spring gasket	1	
32	Oil seal	1			67	Haxagonal circular bolt	1	
33	Waveform spring gasket	1			68	Hook latch	1	
34	Hexagonal Nut	1			69	Hook spring	1	

PWR_M5 ELECTRIC CHAIN HOIST SPARE PARTS

S/N	PART NAME	QTY	REMARK		S/N	PART NAME	QTY	REMARK
35	Shaft Sleeve of clutch	1			70	Cross recess head screw	1	
71	Oil seal	1			106	Guide roller axle	1	
72	Chain wheel	1			107	Guide roller	1	
73	Oild seal	1			108	Chain guide	1	
74	Deep groove ball bearing	1			109	Connecting shaft of limit switch	1	
75	Output shaft	1			110	Spring of limit switch	1	
76	Deep groove ball bearing	1			111	Bracket of limit switch	1	
77	Sleeve of motor shaft	1			112	Hexagonal circular bolt	4	
78	Deep groove ball bearing	1			113	Spring gasket	4	
79	Haxagonal circular bolt	3			114	Load chain	1	
80	Motor Stator	1			115	Hexagonal Nut	2	
81	Motor Wire coiling	1			116	Spring gasket	2	
82	Motor Rotor	1			117	Bottom hook half piece	2	
83	Motor shaft	1			118	Hexagonal circular bolt	2	
84	Motor case gasket	1			119	Spring gasket	2	
85	Fitting pin	2			120	Chain limit ring	2	
86	Deep groove ball bearing	1			121	Limit block	2	
87	Motor case	1			122	Hook fixing ring	1	
88	Gasket of brake cover	1			123	Hook piece ring	2	
89	Shaft ring A	1			124	Mono directional ball bearing	1	
90	Hexagonal circular bolt	4			125	Hexagonal Nut	1	
91	Haxagonal circular bolt	3			126	Bottom hook	1	
92	Flat key	2			127	Cross recess head screw	1	
93	Brake block	1			128	Hook latch	1	
94	Splined hub of brake	1			129	Hook sping	1	
95	Shaft ring A	1			130	Hexagonal bolt	1	
96	V-ring	1			131	Hexagonal bolt	1	
97	Fitting pin	2			132	Upper hook	1	
98	Brake cover	1			133	Fixing ring	1	
99	Cooling fan	1			134	Cross recess head screw	2	
100	Shaft ring A	1			135	Sling	1	
101	Fan cover	1			136	Hexagon socket set screw with cone point	1	
102	Haxagonal circular bolt	4			137	Spring gasket	6	
103	Guide sheet iron	1			138	Wiring strip	1	
104	Cross recess head screw	4			139	Limit spring	2	
105	Spring gasket	4						

13.4 PWHF / PWHC



S/N	PARTS NAME	S/N	PARTS NAME
1	Name plate	36	Ball bearing
2	Electric equipment case set	37	Sprocket
3	Electriomagnetic contactor	38	Axle elastic collar
4	3ph misconnection protector	39	Chain wheel
5	Transformer	40	Motor output axis
6	6p-terminal block set	41	Axle elastic collar
7	Machine mounting plate	42	Ball bearing
8	Spring washer	43	Transmission gear (A)
9	Socket cap screw	44	Transmission shaft A
10	Spacing plate	45	Axle elastic collar
11	Top hook pin shaft	46	Ball bearing
12	Hanging pole	47	Socket cap screw
13	Lock nut	48	Spring washer
14	Shaft sleeve	49	Bearing block
15	Hole elastic collar	50	Elastic cylindrical pin
16	Grar box cover	51	Chain axis
17	Gasket	52	Cotter pin
18	wire holder	53	Hanging axis
19	Socket cap screw	54	Cotter pin
20	Hanging plate	55	Elastic cylindrical pin
21	Sealed ring 3	56	Top hook set
22	Housing plug plate	57	Top hook connecting plate
23	Spacing pin(A)	58	Gear case set
24	O type rubber ring	59	Ball bearing
25	Spacing axle spindle head	60	Oil seal
26	Limit switch set	61	Ball bearing
27	gemel socket	62	Bearing block
28	sealed ring 2	63	Spring washer
29	ball bearing	64	Socket cap screw
30	Pressing sleeve	65	Spline housing
31	Disc spring(big)	66	Ball bearing
32	Pressure plate	67	Sealed ring 4
33	Brake disc set	68	Motor casing
34	Transmission gears (B)set	69	Rotor set
35	Transmission shaft B	70	Axle elastic collar

S/N	PARTS NAME	S/N	PARTS NAME
71	Flat key	106	Chain guiding inlet plate
72	Tripping spring	107	Socket cap screw
73	Stop collar A	108	Chain
74	Disc spring	109	Compensating spring
75	Disc spring	110	Chain buckle
76	Stator set	111	Socket cap screw
77	Brake set	112	Spring washer
78	Ball bearing	113	Flat washer
79	Shaft sleeve	114	Loose pulley box(left)
80	Motor cover	115	Ball bearing
81	Spring washer	116	Loose pulley axis
82	Socket cap screw	117	loading semicircular ring
83	Stop collar B	118	Thrust bearing
84	Hole elastic collar	119	Hook
85	Thrust washer	120	Loose pulley
86	Round nut	121	Ball bearing
87	Fan blade	122	Loose pulley box(right)
88	Socket cap screw	123	Nut
89	Elastic collar	124	Chain
90	Cover	125	Compensating spring
91	Housing plug set(1)	126	Lifting lug(2)
92	Guy clip	127	Phillips screw
93	Power cord	128	Binder plate
94	Patera	129	Chain bucklet set
95	Housing plug set(2)	130	Tray entrance
96	Pushbutton cable set	131	Thin locknut
97	Pushbutton switch set	132	Phillips screw
98	Protecting hood	133	Lifting lug(1)
99	Guide wheel		
100	Cylindrical pin		
101	Chain guide holder		
102	Spacing axis(2)		
103	Guiding inlet(B)		
104	Spacing spring		
105	Guiding inlet(A)		

14. DATA SHEET

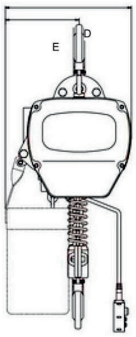
14.1 PWR

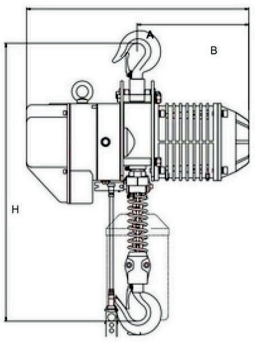
Electric Chain Hoist / Polipasto Eléctrico Cadena

	Code / Código		PWR05	PWR1	PWR2	PWR3	PWR5	PWR10
Hoist / Polipasto	Capacity	lb	1.102	2.204	4.409	6.612	11.020	22.040
	Capacidad	kg	500	1.000	2.000	3.000	5.000	10.000
	Lifting Speed	ft/min	23,6	21,6		17,7	8,8	
	Velocidad de Elevación	m/min	7,2	6,6		5,4	2,7	
	Lifting Height (Customizable)	ft		19,6		29,5		39,3
	Altura de Izaje (Modificable)	m		6		9		12
	Motor Power Potencia Motor	kW	0,8	1,5		3		30 x 2
	Voltage Voltaje	V	3Φ /380V 50 Hz Chile - 220/440V 60 Hz USA y Colombia					
	Motor Speed Velocidad del Motor	RPM	1.440					
	Insulation Grade Grado de Aislación	Grade	F					
Chain / Cadena	Chain Type Tipo de Cadena	Grade	G 100					
	Chain Dimensions Dimensiones de Cadena	mm	Ø6,3	Ø7,1	Ø10	Ø11,2		
	Chain Falls Caidas de Cadena	U	1				2	4
	Chain Lenght (Customizable)	ft	19,6				78,7	157
	Largo de cadena (Modificable)	m	6				24	48
Gerneral	Operation Temperature	F°	- 4° ~ 104° F					
	Tem. Operación	C°	- 20° ~ 40° C					
	Operating Humidity Humedad de Operación	%	< 85 %					
	Noise Level Nivel Sonoro	dB	81					
	Control Voltage Voltaje de Control	V	24V / 36V / 48V					
	Weight	lb	104	139	288	319	387	1.175
	Peso	kg	47	63	131	145	176	534
	Duty Class Clase de Servicio	FEM / ISO	1Am / M4					
	Standards Normas		ASME B30.16 / ANSI Z535.4 - 2007					

Warranty: 3 Year / Certification Valid for 1 Year / 10 Year Parts and Service Availability
Garantía: 3 Años / Certificación valida por 1 año / 10 Años disponibilidad de piezas y servicio

> SERVICE / SERVICIO	> LOAD / CARGA	> TIME / TIEMPO	> MAINTENANCE (Months) / MANTENIMIENTO (Meses)
NORMAL	< 65 %	< 25 %	6 ~ 12
HEAVY / PESADO	> 65 %	> 25 %	3 ~ 6
SEVERE / SEVERO	**Abnormal Conditions** **Condiciones Anormales** *Environmental, Geographical and/or Risky* *Ambientales, Geográficas y/o Riesgosas* < 100 % < Duty Cycle limit < Límite Ciclo de trabajo		1 ~ 3





The cooling fin is specially designed to ensure quick heat dissipation with the rate up to 40% of continuous service. The integral enclosed structure with IP55 protection grade makes it applicable fotr hostile environments.

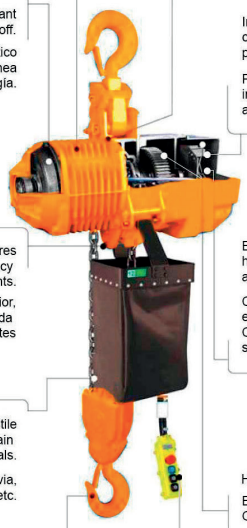
Disipadores de temperatura de alta eficiencia para servicio continuo de hasta 40%. Su grado de Protección IP55 asegura su operación y durabilidad en ambientes hostiles.

The loading support frame consists of two steel plates and it's shell is made of light aluminum, achieving a lightweight and resistant structure

Su estructura combina componentes de hierro forjado y aluminio obteniendo un equipo liviano y de alta resistencia.

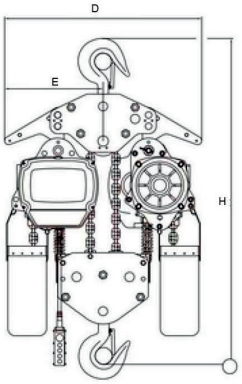
Electromagetic brake system design allows instant brake as soon as the electric power is cut off.

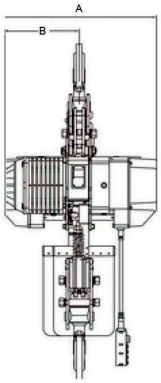
Freno de seguridad electromagnético que bloquea de forma instantánea la carga ante un corte de energía.



Inverse phase sequence protecting device which controls the circuit and disables operation in case the power supply is wrongly connected.

Protección eléctrica de inversión de fases que inhabilita el equipo en caso de ser conectado a la alimentación eléctrica en forma equivocada.





Upper and Lower Limit switches ensures the equipment life expectancy and avoids accidents.

Limitadores de recorrido superior e inferior, aportan seguridad y alarga la vida del equipo y sus componentes

Electromagnetic contactor can be used safely under high frequency. Low voltage contoller to avoid unexpected accidents caused by electric leakage.

Contactor electromagnético para operación segura en equipos sometidos a un uso intensivo. Controlador de bajo voltaje para evitar riesgos de shock eléctrico.

G100 chain can be safely used in hostile environments such as rain sea water and chemicals.

Cadena de Acero G100 para uso bajo lluvia, agua salada, químicos, etc.

High Precision Gears Level 8

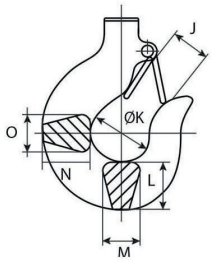
Engranajes de alta precisión Grado 8

Forged Safety Hook with 360º rotation.

Ganchos de Seguridad Forjados, giro en 360º

Low voltage Pendant Control (24V / 36V / 48V) with IP66 protection grade. Includes emergency stop and safety buttons.

Botonera de bajo voltaje (24V / 36V / 48V) con parada de emergencia y botones de seguridad tipo "Hombre Muerto". Grado de Protección IP66.



	Model / Modelo		PWR05	PWR1	PWR2	PWR3	PWR5	PWR10
Dimensions / Dimensiones	A	mm	460	520	615	615	615	630
	B		230	260	295	295	295	315
	D		288	300	430	430	430	890
	E		178	176	265	265	325	445
	H		530	650	800	845	1.030	1.400
	J			32	40	48	48	80
	K			42	49	59	60	85
	L			30	39	49	57	80
	M			24	30	34	44	48
	N			34	46	56	67	82
	O			24	29	35	43	55

14.2 PWRC

1 - 3 Tons

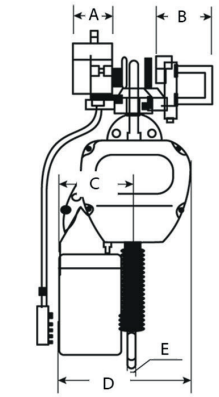
ELECTRIC TROLLEY /
CARRO ELÉCTRICO

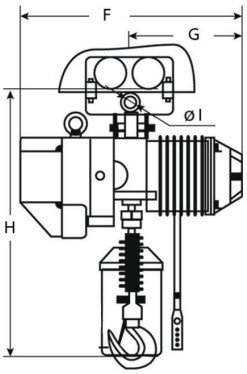
5 Tons

7,5 Tons

> SERVICE / SERVICIO	> LOAD / CARGA	> TIME / TIEMPO	> MAINTENANCE (Months) / MANTENIMIENTO (Meses)
NORMAL	< 65 %	< 25 %	6 ~ 12
HEAVY / PESADO	> 65 %	> 25 %	3 ~ 6
SEVERE / SEVERO	**Abnormal Conditions** **Condiciones Anormales** *Environmental, Geographical and/or Risky* *Ambientales, Geográficas y/o Riesgosas* < 100 % < Duty Cycle limit < Límite Ciclo de trabajo		1 ~ 3

	Model / Modelo		PWRC1	PWRC2	PWRC3	PWRC5	PWRC7
Hoist / Polipasto	Capacity	lb	2.204	4.408	6.612	11.020	16.530
	Capacidad	kg	1.000	2.000	3.000	5.000	7.500
	Lifting Speed	ft/min	21,6		17,7	8,8	5,9
	Velocidad de Izaje	m/min	6,6		5,4	2,7	1,8
	Lifting Height (Customizable)	ft	20		29,5		
	Altura de Izaje (Modificable)	m	6		9		
	Motor Power	Hp	2,0	4,0			
	Potencia Motor	kW	1,5	3,0			
	Voltage / Voltaje	V	3Φ / 220~690 V / 50~60 Hz (Standard 380 V)				
	Rated Current / Corriente Nominal	A	3,2 - 2,4 A	6,0 - 4,5 A	6,25 - 4,7 A	6,5 - 4,8 A	13 - 9,8 A
	Motor Speed / Velocidad Motor	rpm	1.440				
	Insulation Grade / Grado de Aislación	Grade	F				
Trolley / Carro	Trolley Speed	ft/min	68,8			36,0	
	Velocidad Carro	m/min	21			11,0	
	Trolley Motor Power	Hp	0,5		1,00		1,07
	Potencia Motor Carro	kW	0,4		0,75		0,8
	Rated Current / Corriente Nominal	A	0,6 - 1,8 A		0,75 - 2,25 A		
	Beam Range With	in	2,25 ~ 5,94	3,22~ 6,91	3,9 ~ 6,91		
	Rango Ancho de Viga	mm	58 ~ 153	82 ~ 178	100 ~ 178		
	Min. Trurn Radius	ft	2,62	2,95	3,28	4,92	5,90
	Radio Mínimo de Giro	m	0,8	0,9	1,0	1,5	1,8
Chain / Cadena	Chain Type / Tipo de Cadena	Grade	G100				
	Chain Dimensions / Dimensiones de Cadena	mm	Ø 7,1 x 21	Ø 10 x 30	Ø 11,2 x 34		
	Chain Falls / Caidas de Cadena	u	1			2	3
	Chain lenght (Customizable)	ft	20			59	88
	Largo Cadena (Modificable)	m	6			18	27
General	Operation Temperature	F°	-4° ~ 104° F				
	Temp. Operación	C°	-20° ~ 40° C				
	Operating humidity / Humedad de Operación	%	≤ 85%				
	Noise Level / Nivel Sonoro	dB	81,0				
	Control Voltage / Voltaje de Control	V	24 V / 36 V / 48 V				
	Weight (*)	lb	227	355	368	485	639
	Peso (*)	kg	103	161	167	220	290
	Duty Class / Clase de Servicio	FEM/ISO	1Am / M4				
	Standards / Normas		ASME B30.16 / ASMEB30.17 / ANSI Z535.4 2007				
	(*) Weights based on a range of 3m chain / Pesos en base a un alcance de cadena de 3m						
Warranty / Garantia	Warranty: 3 Year / Certification Valid for 1 year 10 Year Parts and Service Availability Garantía: 3 Años / Vigencia de Certificación 1 año 10 Años de disponibilidad de Repuestos y Servicio						





Disipadores de temperatura de alta eficiencia para servicio contínuo de hasta 40%. Su grado de Protección IP55 asegura su operación y durabilidad en ambientes hostiles.

The cooling fin is specially designed to ensure quick heat dissipation with the rate up to 40% of continuous service. The integral enclosed structure with IP55 protection grade makes it applicable fotr hostile environments.

Su estructura combina componentes de hierro forjado y aluminio obteniendo un equipo liviano y de alta resistencia.

The loading support frame consists of two steel plates and it's shell is made of light aluminum, achieving a lightweight and resistant structure

Freno de seguridad electromagnético que bloquea de forma instantánea la carga ante un corte de energía.

Electromagetic brake system design allows instant brake as soon as the electric power is cut off.

Protección eléctrica de inversión de fases que inhabilita el equipo en caso de ser conectado a la alimentación eléctrica en forma equivocada.

Inverse phase sequence protecting device which controls the circuit and disables operation in case the power supply is wrongly connected.

Limitadores de recorrido superior e inferior, aportan seguridad y alarga la vida del equipo y sus componentes

Upper and Lower Limit switches ensures the equipment life expectancy and avoids accidents.

Contactor electromagnético para operación segura en equipos sometidos a un uso intensivo.
Controlador de bajo voltaje para evitar riesgos de shock eléctrico.

Electromagnetic contactor can be used safely under high frequency. Low voltage contoller to avoid unexpected accidents caused by electric leakage.

Cadena de Acero G100 para uso bajo lluvia, agua salada, químicos, etc.

G100 chain can be safely used in hostile environments such as rain sea water and chemicals.

Engranajes de alta precisión
Grado 8

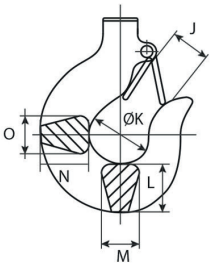
High Precision Gears Level 8

Ganchos de Seguridad
Forjados, giro en 360°

Forged Safety Hook with 360° rotation.

Botonera de bajo voltaje (24V / 36V / 48V) con parada de emergencia y botones de seguridad tipo "Hombre Muerto". Grado de Protección IP66.

Low voltage Pendant Control (24V / 36V / 48V) with IP66 protection grade. Includes emergency stop and safety buttons.



Model / Modelo			PWRC1	PWRC2	PWRC3	PWRC5	PWRC7
Dimensions / Dimensiones	**A** (Hoist / Tecle)	mm	142	142	142	142	142
	B (Hoist / Tecle)		231	231	231	231	231
	C (Hoist / Tecle)		176	265	265	325	325
	D (Hoist / Tecle)		300	430	430	430	430
	E (Hoist / Tecle)		22	24	24	43	43
	F (Hoist / Tecle)		520	615	615	615	615
	G (Hoist / Tecle)		260	295	295	295	295
	H (Hoist / Tecle)		650	770	830	1015	1015
	I (Hoist / Tecle)		Ø 40	Ø 47	Ø 58	Ø 54	Ø 54
	J (Hoist / Tecle)		32	40	48	48	48
	K (Hoist / Tecle)		Ø 42	Ø 49	Ø 59	Ø 60	Ø 60
	L (Hook / Gancho)		30	39	49	57	57
	M (Hook / Gancho)		24	30	34	44	44
	N (Hook / Gancho)		34	46	56	67	67
	O (Hook / Gancho)		24	29	35	43	43

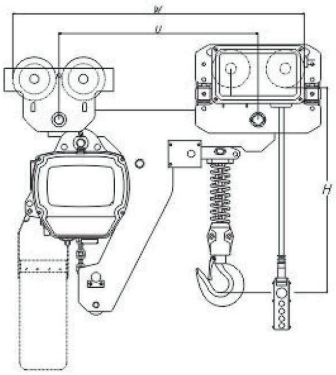
14.3 PWRCB

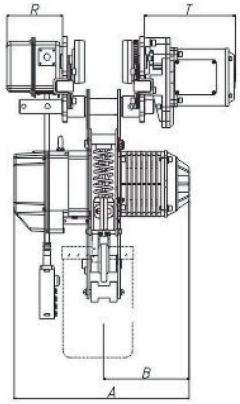
Height Electric Chain Hoist Power Trolley / Tecle cadena con carro perfil bajo

Model / Modelo			PWRCB1D	PWRCB3D	PWRCB5D	PWRCB7D	PWRCB10D
Hoist / Polipasto	Capacity	(lbs)	2 204	6 614	11 023	16 535	22 046
	Capacidad	(kg)	1 000	3 000	5 000	7 500	10 000
	Lifting Speed	(ft/min)	22.6 - 7.5	17.7 - 5.9	8.8 - 2.9	5.9 - 1.9	8.8 - 2.9
	Velocidad de Izaje	(m/min)	6.9 - 2.3	5.4 - 1.8	2.7 - 0.9	1.8 - 0.6	2.7 - 0.9
	Lifting Height	(ft)	19.6	29.5			
	Altura de Izaje	(m)	6	9			
	Motor Power Potencia Motor	(kw)	1.8 / 0.6	3 / 1			
	Voltage Voltaje	(v)	3P 220V-690				
	Motor Speed Velocidad Motor	rpm	2 880 / 960				
	Insulation Grade Grado de Aislación	Grade	F				
Chain / Cadena	Chain Type Tipo de Cadena	Grade	80				
	Chain Dimensions	(in)	Ø5/16	Ø7/16	Ø5/16	Ø7/16	Ø7/16
	Dimensiones de Cadena	(mm)	Ø7.1	Ø11.2	Ø7.1	Ø11.2	Ø11.2
	Chain Falls Caidas de Cadena	(u)	1	2	2	3	4
	Chain lenght	(ft)	19.6	59		88,5	118
	Largo Cadena	(m)	6	18		27	36
Electric Trolley / Carro Eléctrico	i Beam Viga	mm	58 ~ 153	100 ~ 178		150 ~ 220	
	Trolley Speed	ft/min	69 - 36				
	Velocidad del carro	m/min	21 - 11				
	Motor Power Potencia Motor	kW	2 x 0.4	2 x 0.75			
	Control Voltage Voltaje de Control	V	24				
	Minimun radius of turn Radio mínimo de giro	Mts	0.8	1	1.5	1.8	2
	Standards Normas		ASME B30.17				
	Net Weight Peso Neto	kg	120	212	302	340	480
Warranty / Garantía	Warranty: 3 Years / Certification Valid for 1 year 10 Years Parts and Service Availability Garantía: 3 Años / Vigencia de Certificación 1 año 10 Años de disponibilidad de Repuestos y Servicio						

SERVICE FACTOR / FACTOR DE SERVICIO

▸SERVICE/SERVICIO	▸LOAD / CARGA	▸TIME / TIEMPO	▸MAINTENANCE (Months) / MANTENIMIENTO (meses)
Normal	< 65%	< 25%	6 ~ 12
Heavy / Pesado	> 65%	> 25%	3 ~ 6
Severe / Severo	⚠ Abnormal Conditions En condiciones Anormales *Environmental, Geographical y Riscky Ambientales, Geográficas y Riesgosas*		1 ~ 3
	< 100%	< Duty Cycle limit < Límite Ciclo de Trabajo	





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Disipadores de temperatura de alta eficiencia para servicio continuo de hasta 40%. Su grado de Protección IP55 asegura su operación y durabilidad en ambientes hostiles.

The loading support frame consists of two steel plates and it's shell is made of light aluminum, achieving a lightweight and resistant structure

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Upper and Lower Limit switches ensures the equipment life expectancy and avoids accidents.

Limitadores de recorrido superior e inferior, aportan seguridad y alarga la vida del equipo y sus componentes

Electromagnetic contactor can be used safely under high frequency. Low voltage contoller to avoid unexpected accidents caused by electric leakage.

Contactor electromagnético para operación segura en equipos sometidos a un uso intensivo. Controlador de bajo voltaje para evitar riesgos de shock eléctrico.

G80 chain can be safely used in hostile environments such as rain sea water and chemicals.

Cadena de Acero G80 para uso bajo lluvia, agua salada, químicos, etc.

High Precision Gears Level 8

Engranajes de alta precisión Grado 8

Forged Safety Hook with 360° rotation.

Ganchos de Seguridad Forjados, giro en 360°

Low voltage Pendant Control (24V / 36V / 48V) with IP66 protection grade. Includes emergency stop and safety buttons.

Botonera de bajo voltaje (24V / 36V / 48V) con parada de emergencia y botones de seguridad tipo "Hombre Muerto". Grado de Protección IP66.

	Model / Modelo	PWRCB1D	PWRCB3D	PWRCB5D	PWRCB7D	PWRCB10D
Dimensions / Dimensiones	H	480	685	740	890	850
	A	582	670	670	670	670
	B	280	313	313	313	313
	D	630	750	825	1020	996
	E	445	503	541	730	700

15. WARRANTY

LIMITED WARRANTY COVERAGE

PROWINCH products are warranted to the original purchaser for a period of three (3) years after the date of purchase only to be free from defects in material and workmanship when subjected to normal, proper and intended use. Within this period, PROWINCH will only repair or replace free of charge any part on a product, after examination, is determined by PROWINCH to be defective in material or workmanship and was not caused or substantially contributed to by other factors or circumstances beyond PROWINCH control, including (but not limited to) defective installation, maintenance or repair, product modification or alteration, any neglect misuse or excessive use, mishandling, product exposure to extreme or unsuitable conditions, normal wear and tear or failure to follow manufacturer's instructions. This warranty does not apply to damage that PROWINCH determines to be from repairs made or attempted by anyone other than PROWINCH authorized personnel.

Return of the product with a copy of proof of purchase to PROWINCH, freight prepaid and insured, are required for this warranty to be effective. If more than one year has elapsed from purchase date, proof of periodic and regular maintenance by an authorized service must also be provided for this warranty to be effective. PROWINCH does not cover freight or labor charges associated with the inspection and testing of products which are found by PROWINCH not to be a valid warranty claim.

DISCLAIMER

In no event shall PROWINCH be liable for any labor, removal and installation expenses, loss of time, manufacturing costs, transportation, materials, loss of profits, incidental, special, consequential or punitive damages, or for any costs, attorney fees, expenses, losses or delays, direct or indirect, alleged to be as a consequence of any damage to, failure of, or defect in any product including, but not limited to, any claims for loss of profits. PROWINCH disclaims any implied warranties, including without limitation, any implied warranty of merchantability or fitness for a particular use or purpose.

Acceptance of the exclusive repair and replacement remedies described herein is a condition of the contract for the purchase of every PROWINCH product. If you do not agree to this condition, you should not purchase the product.


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