

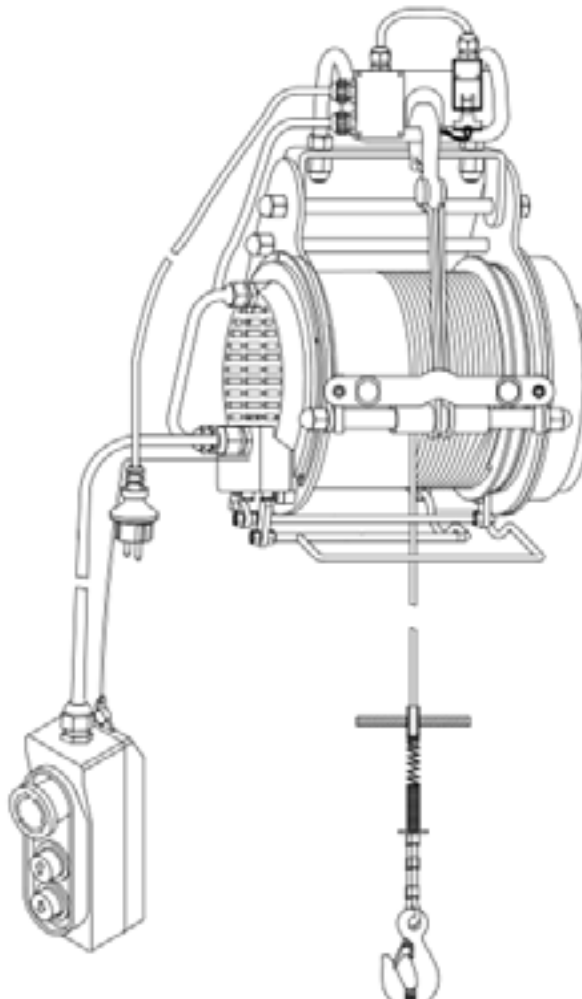


## Models

110VSH800 110VSH500 240VSH800 240VSH500

## Pro Series Electric Hoist

## Operation Instructions



## **Dear Customer**

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Your New Generation Electric Hoist is easy to use.  
This powerful multifunctional hoist is an indispensable tool for every  
Commercial, Industrial or DIY use.

This new electric hoist was manufactured in compliance with applicable standards and the equipment safety act.

When using power tools, some safety measures must be taken to avoid injuries and damages.

Please read these instructions and keep them in a safe place, so as to have them at hand at any time.

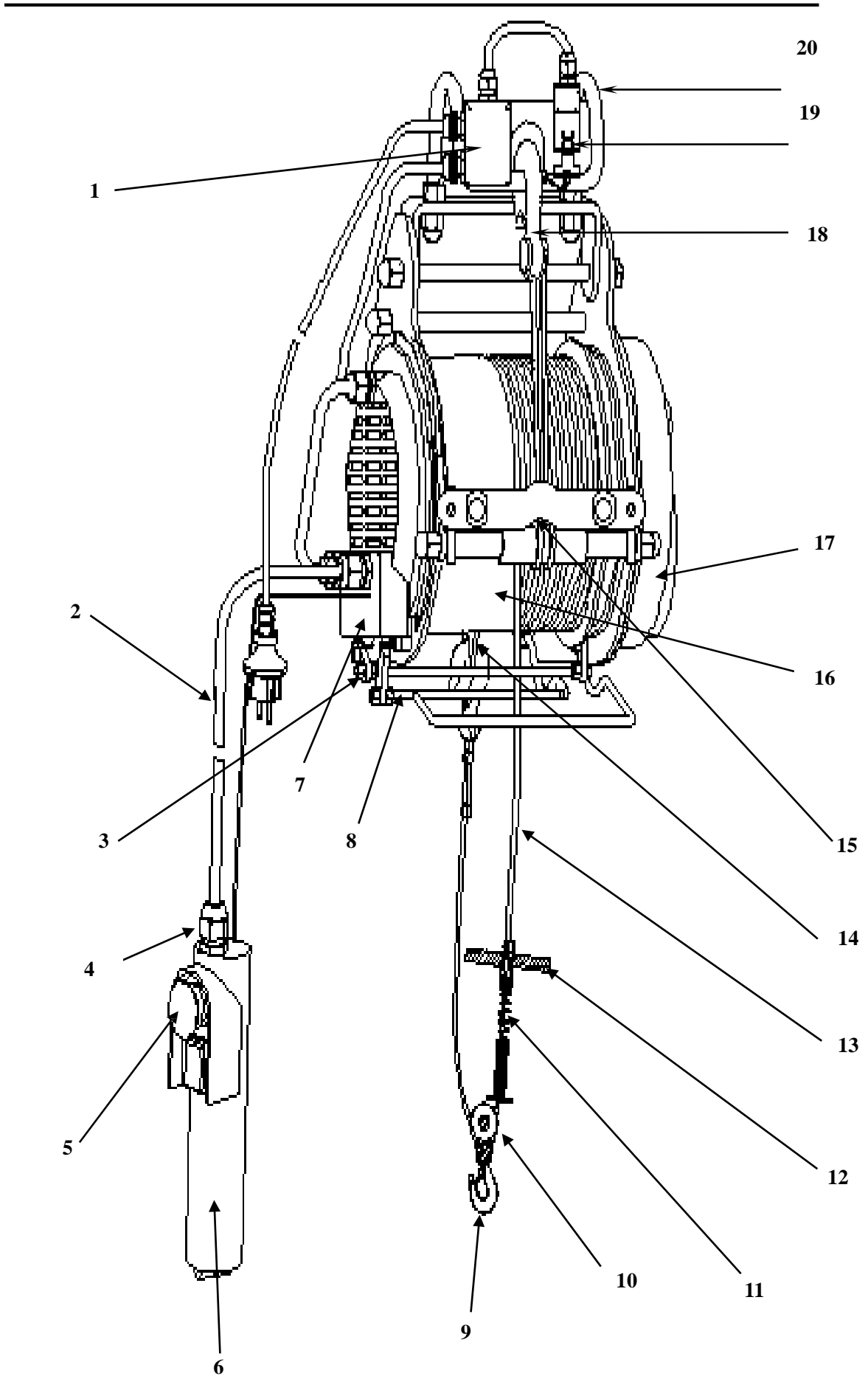
**We are not liable for any accidents or damages caused by non-compliance of these instructions!**

**Suitable for commercial, professional and outdoor use.**

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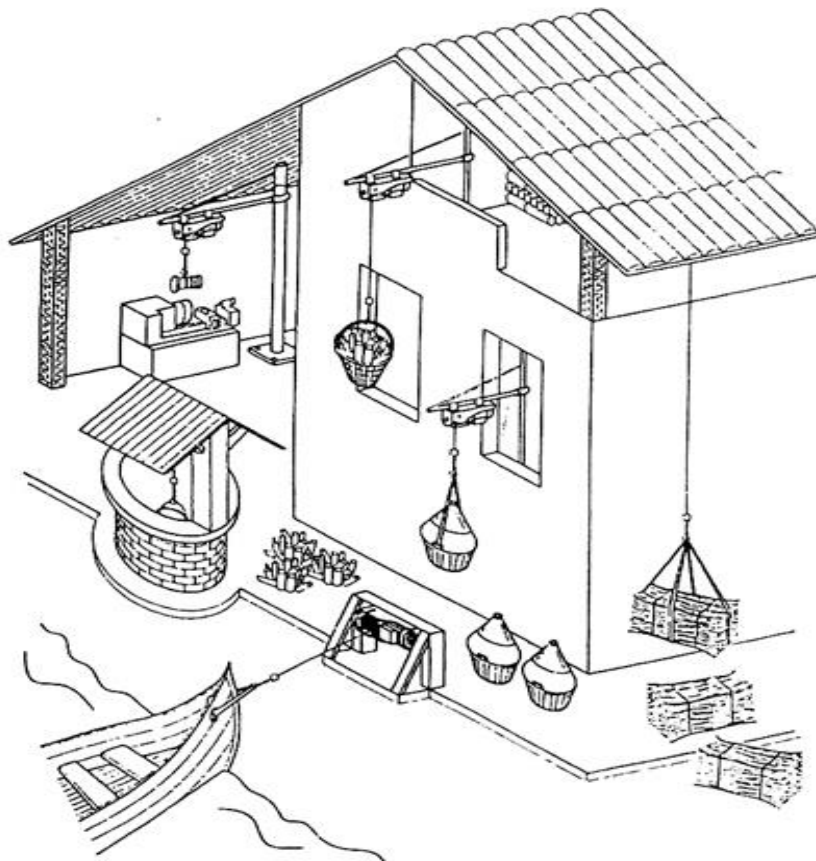
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## Overview

1. Switch box	11. Spring buffer unit
2. VDE plug with power cord	12. Limit weight
3. Down limit pole for limit stop	13. Steel cable line
4. Handle connection cable	14. Double line hook hanging device
5. Emergency-Off switch	15. Automatic rope rolling device
6. Controlling handle with Operating Switch Up/Down	16. Steel rope drum assembly
7. Junction box	17. Gear box
8. Up limit assembly for limit stop	18. Additional Protection hook
9. Load hook	19. Safety switch
10. Pulley hook	20. Hanging hook rack



## Area of Application

The Pro Series New Generation Electric Hoist is impressive with its minimal volume, unique design, lightweight, easy to install, and reliable usage. The motor uses a 110v or 230v 50HZ single-phase power supply and it is an ideal tool for lifting loads at various interior construction sites.

## Operation

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The traditional electric hoists currently in the market have some defects as below:

1, Old and heavy construction that occupies a big space when in operation, in turn is difficult to install in many applications.

2, Steel rope of most standard hoists on the market don't have a unique rope roller device, this in turn causes damage and compression on hoist cable reducing life of the hoist cable considerably.

Our aim was to resolve the above common problems by developing according to customer feedback a Pro Series New Generation Electric Hoist which has the following main features:

1, Simple structure with steel hanger, easy to install, equipped with additional protection hook to make sure operation safety and reduce accident risk.

2, New designed Gear Transmission mechanism which enhances greatly the Mechanical Transmission Efficiency.

3, Creative to use unique and innovative Automatic Rope Rolling, thoroughly solving the problem of easily damaged steel rope, and the layer-overlapping when direction of steel rope changes. With this device, completely ensure the steel rope is wound orderly and tightly, to avoid irregular squeeze and damage, therefore greatly improving the safety performance of steel rope.

4, Convenient way to change the steel rope in minutes. No need to disassemble the rope drum and machine.

5, Meets the Latest European EN Standard Attestation with Up and Down limit position device, enhancing greatly the operation security.

**Before operation and prior to use. Please Note**

**Please make sure the protection hook is in the proper fixed position, Put the safety interlock key in to the safety switch to enable operation. Failure to do so, the hoist will not power up or move in any direction.**

## **Important Information**

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- While lifting a load if the raising power is low, low enough that the load can't be raised, check if the voltage on-site is 230V.
- The machine works efficiently with a voltage of 230V, if the voltage does not meet the requirements you must reduce the load.
- Contact the dealer, manufacturer or professional repairman when the machine has a fault.

## **Primary Structure**

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a, Load hoisting motor: This motor is a magnetic single-phase capacitor motor and is isolated in accordance with Class B. The magnetic mechanism is constructed as a break and serves as a reliable safety but NEVER should be used as a holding device for long periods.

b, Gear Box: Here the triple reduction gearing is used. The cogwheel and the shaft are made out of a high quality, heat-treated, hard and tempered steel. The motor and the gear box are integrated as a single unit. The housing is produced through aluminum die-casting and it is compact and looks good.

c, Hoisting drum: The hoisting drum is welded together with a high quality seamless steel tube, inside which is mounted the motor.

d, Frame work is die-casted of high quality sheet steel. Its purpose is to protect and secure the electric pulley.

e, Hook: the hook is forged from high quality carbon steel. With the pulley hook the lifted weight is doubled.

f, Suspension style: it hangs with coordination with high-quality carbon steel hook and suspension bar, and equipped with hanging protection hook. Double-protection hanging effectively guarantees the risk of the device dropping.

g, Automatic rope rolling device: this device can eliminate the elastic force of steel rope therefore making the steel rope wind neatly and tightly with no mess and no squashed cable, in turn it will greatly enhance the lifetime of steel rope over 30,000 cycles. The cable **MUST** never be operated in the down direction **WITHOUT** a small load or tension applied, failure to do so will result in damage to roller guide system and hoist cable.

h, Handle controller: On the controller there is a dual-direction switch, to raise and lower the rope and hook. In addition, there is an emergency shut-off switch in order to stop the machine.

i, Upper and Lower limited position device:

- When the load weight is raised and makes contact with the end-switch / stop ring, the end-switch will stop the circuit for safety.
- When the load weight is lowered and the steel rope is going to be unrolled, the steel rope will then press on the down limit brake and the brake is applied. For guaranteed safety, the switch contact is activated in order to interrupt the circuit and stop the machine.

j. The Pro Series New Electric Hoist is uniquely designed so that it can't work without installing additional protection hook, thus ensuring better personal security.

## Safety Information

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**Never use the machine to transport people or animals!**  
**Never stand or work under a hoisted load.**

Qualified trained person 16+ can only operate the machine.

Keep the immediate working environment clean.

Disordered work spaces and workbenches can cause accidents.

Please consider environmental influences

Ensure good illumination for your workspace. Do not use the device near a potential fire hazard, easily flammable fluids or explosive surroundings, also do not expose it to unnecessary weather influences, such as rain, damp, sun exposure, dust or cold.

Protect yourself from electrical shock

Avoid physical contact with grounded surfaces (e.g. pipes, heat radiators, stoves or refrigerators).

Keep this device away from unauthorized persons

Prevent children and helpers from touching the cable winch while it is operated. Please be sure that children and other persons keep sufficient distance to the work space.

Store the cable winch in a proper manner when it is not in use

Store the machine at a dry, high or lockable place, out of the reach of children including plastic bags, boxes, Styrofoam and etc.

Do not overload the cable winch, in any case!

Please do not exceed the maximum load capacity (see data plate, not load hook!).  
Do not use 2 or more machines to load same object.

Forbid to lift an attached/fixed object

It is prohibited, to lift a weight crookedly, or to pull it along the floor.  
It is prohibited, to transport hot molten masses.

Don't use the machine in the aggressive environments or under low temperatures.

Wear safety work clothes

Never wear loose clothing or jewelry; this could be caught by movable parts of the machine. Always wear safety equipment (such as rubber gloves, non-slip footwear, hearing and hair protection and etc.) when working.

Only use the power cord for its intended use

Never carry the tool or pull on the power cord and never pull on the cord to disconnect the power

plug from the power outlet. Keep the power cord away from heat, oil and sharp edges. Check the power cable before every use for damages. Never use the winch, if the rope is worn out, knotted itself, or has a kink. Allow the cable to be replaced by a qualified professional.

Please be sure to maintain upright body position

**Ensure** a safe position and always maintain your balance, and not at an extreme angle. Always make sure, that no bodily parts come in to contact with the rotating pieces of the hoist.

Disconnect the cable winch from the power supply when not in use

**Always** disconnect the power plug from the power supply if the device is not in use and prior to performing any maintenance.

Always work carefully and with an amount of caution

**Please use common sense while working. Do not operate it if you are tired or under the influence of medicine, alcohol, drugs, or other narcotics.**

Inspect components for damages

Prior to operating, please inspect it for possible damaged components. In particular damaged safe guard components. in order to ensure proper working conditions and fulfilment of the intended function. Inspect the setting and connection of movable parts, inspect all components for breakage, connection and other conditions which might influence the correct operation. Damaged components, in particular damaged safety equipment, must be repaired or replaced by a professional unless otherwise stated in this user manual. Please have any damaged switches repaired by a professional. **Never** use the machine if it cannot be switched off or on using the main power switch.

Use only the manufacturer recommended accessories

The use of accessories or additional devices other than the ones described in this manual can lead to injuries.

Have your cable winch repaired only by a qualified electrician.

This power tool complies with applicable safety regulations. Repairs must be performed only by qualified electricians using original replacement parts; otherwise, serious injuries may occur.

Forbid to lift side-pull load.

Prohibit unwanted start-ups on loose steel rope.

Be sure to hoist the loads with lowest speed from the ground. The cable should have tension on but not unwound when starting lifting a load from the ground.

The Limit Switch is not allowed to be used as an off-switch or be tampered with.

The limit switch is a safety device to prevent the weight from being lifted over its boundary.



If the brakes stop functioning and the load lowers quickly, one should press the off-switch immediately and then the On-switch.

After unloading, please send the machine in for repairs to a qualified professional.

Do not leave the load hanging in the air long-term, to prevent the deformation of the pieces.

While the machine is in operation do not carry out any repairs or inspections.

It is prohibited to change any part of the pulley or to disassemble it.

Depending on the frequency of use, after 20 hours of continuous operation, the machine must be taken in for a thorough maintenance check (at least once a year minimum).

Discard the machine after 1000 hours of operation which is added up according to work duty.

Make sure to operate the Emergency Stop Switch to stop machine in case of dangerous and emergency situation.

Reset the red switch head to operation status in the direction of the arrow (clockwise) until the danger has passed.

## **Technical Specifications**

Type	SH200/400	SH250/500	SH300/600	SH400/800
Rated voltage	110V,220V,240V	110V,220V,240V	110V,220V,240V	110V,220V,240V
Rated frequency	50 Hz	50 Hz	50 Hz	50 Hz
Power rating:	1000W	1000W	1050W	1300W
Rated current	4 .3A	4 .3A	4 .6A	5.6A
Max. loading capacity -for single cable -for double cable	200 kg 400 kg	250 kg 500 kg	300 kg 600 kg	400 kg 800 kg
Cable speed -for single cable -For double cable	8m/min 4m/min	8m/min 4m/min	8m/min 4m/min	8m/min 4m/min
Max. Hoisting height -for single cable -For double cable	38m / 19m	38m / 19m	34m / 17m	32m / 15m
Cable diameter	4.0mm	4,0 mm	4,5 mm	5,0mm
Tensile strength	1870 N/mm <sup>2</sup>	1870 N/mm <sup>2</sup>	1870 N/mm <sup>2</sup>	1870 N/mm <sup>2</sup>
Protection rating	IP65	IP65	IP65	IP65
Motor category	M1	M1	M1	M1
Work duty	S3 20%-10min	S3 20%-10min	S3 20%-10min	S3 20%-10min
Protection rating	I	I	I	I
NET Weight	29kg	36kg	30kg	37kg
Sound pressure level (LWA)	71 dB(A)	71 dB(A)	71 dB(A)	71 dB(A)

- Please be clear the Work Duty before operation: S3 20%-10min, run 2min, rest 8min, one cycle of every 10min.
- The LWA values states here a level of loudness this machine will comply to. Whether or not the operator is required to wear hearing protection can't be determined here. This depends on how much noise reaches the ear and the environment the hoist is operated in. Even though it may NOT be explicitly required, we recommend for your own interest to always wear hearing protection when operating this machin

## Electric Principle Drawing

Be sure to fix 10 Amp fuse or air switch on the loop of power supply when using this cable winch.

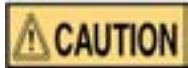
### Environmental Protection



Discarded electric appliances are recyclable and should not be discarded in the domestic waste! Please actively support us in conserving resources and protecting the environment by returning this appliance to the collection centers (if available).

## Preparation

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This new electric hoist is designed for use on professional and construction applications! It is not intended for lifting people. This device can be operated without hazards only if you follow all instructions (and safety instructions) in this user manual closely.

Prior to start-up operation, please be sure to make some preparations:

- Make sure the voltage of your power network complies with the voltage listed on the data plate and that the device is equipped with the correct power plug.
- Please make no-loading test before start-up operation, and please check:
  - a, the flexibility of up/down operating switch to insure the controlling of the hoisting and lowering of load hook.
  - b, the flexibility of up limit bracket to make sure the cut-off of circuit.
  - c. The flexibility of down limit bracket to make sure the cut-off circuit when the steel cable is nearly used up.
  - d, Any abnormal sounds in start-up operation.
  - e, Check the steel rope for possible damage (split or bent), or when it has reached 20 hours of use, change the rope immediately.
- Please inspect the brake disc before operating. At every 20 hours after load, there is a need to make 1.1 times mobile load test and 1.25 times dead load test, to check the brake disc. If the load lowers or the brake is not flexible, replace the relevant components in time.
- Please inspect the hook before operation for possible damage or distortion. Make sure it is replaced in time.
- Operation using a residual current protective device (Red Emergency Stop Switch)



offers additional protection against danger / emergency circumstances. To re-start turn the stop button in the arrow direction to recover operation after removing the danger.

- Please be sure to lubricate parts. Dab the lubricant on the load hook, cable drum shaft, slow down box, and bearing every half a year.  
Please lubricate the nesting cable drum shaft when replacing the steel cable.  
Immediately replace the cable if damaged, splintered or frayed.
- Please perform any rework and maintenance tasks only if the power supply is isolated.
- Please inspect the device for transportation damages. Immediately report any possible damages to your seller.

## **Installation**

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The new electric hoist is easy to install with hanging hook rack. It can directly install on the crossbeam which external diameter is suggested  $\Phi 50\text{mm}$ . The crossbeam is fixed in the stand pillar, which is mounted in the work site as user's requirements. Pay attention to mount the stand pillar firmly enough to handle the loading weight for long periods.

**Please make sure the protection hook is in the proper fixed position. Put the safety interlock key in to the safety switch to enable operation. Failure to do so, the hoist will not power up or move in any direction.**

## **Operation**

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a) The new generation electric hoist is operated using either the operating remote lead or wireless remote transmitter. When pressing the upper position of the remote, the load is hoisted up. When pressing the lower position, the load is lowered down. Never switch directly from lifting to lowering or vice versa without first stopping the initial movement. Always stop the machine prior to changing directions.

b) Operate the Emergency-Off switch to immediately stop the cable winch in case of an emergency and to secure against restart. To reset the device to operational status, first turn the Emergency-Off switch clockwise, which will unlock the red key. The cable winch is now operational.

c) This electric hoist is designed with limit configuration to limit stop. When load hook is hoisting up to topmost position, the limit weight will touch the up limit bracket, the micro-switch of up limit bracket will cut off the circuit and make the motor stop to ensure the safety of operation. When load hook is lowering down and has nearly used up the cable, the micro-switch of down limit bracket will start work and cut off the circuit and make the motor stop.

d) Attention! If the cable has been unwound to the point where the red indicator mark is visible, the cable winch must be stopped. Under no circumstances should the cable be unwound past this point'

e) If the cable hoist cannot lift a load, **STOP** and look in the cause, if necessary switch it off immediately to prevent damage or accidents.

f) Please be sure that the load is securely fastened to the load hook. Maintain the largest

possible distance to the load and steel cable during operation.

g) Upon lowering a load, please remember that the electric hoist may still unwind a few more centimeters after it was stopped. Therefore, please **STOP** in sufficient time.

h) Please be sure that the steel cable cannot be moved more than 15° to the either side.

i) The cable hoist can be operated with a single or double cable, therefore the permissible rated load can vary (see Technical Specifications).

j) After unpacking the product, check to make sure that all pieces and accessories correspond with the item list. Check to see if the hoist has any dents or damage and if the cable connections have any defects and also if the motor shows any signs of water damage.

k) The electric pulley uses a single-phase energy power supply. The nominal voltage is 230V  $\pm$  5%, the nominal frequency is 50Hz + 1%. The motor must be safely grounded. In the circuitry of the power supply an over-current protection must be installed.

l) After connecting the power supply, the pulley can then be raised and lowered in Jog-mode. One can raise and lower start-up during a dry-run. First when the up and down movement is stable and the brakes work flawlessly, one can test the pulley with a dummy load.

m) The surrounding area temperature should be between 50- 40 °C. The height about sea level needs to be under 1000m. The area dampness should be at 30-95%.

The temperature for the storage and transport should be about -25 °C up to 55 °C.

### **Intermittent rating**

This machine is designed for operating type S3 20% - 10 min (periodic intermittent operation). The relative duty cycle is 20%, which means that the device can be operated at rated load for 2 minutes during each operating cycle and must then be switched off or rested for 8 minutes to cool off. The device can therefore be continuously used for a duration of 20% of the total operating cycle of 10 minutes at rated load.

### **Overload**

a) The cable hoist is not suitable for continuous operation. The motor is protected from overload and overheating by a thermal temperature switch.

b) If the permissible operating time is exceeded, the motor temperature will increase and the temperature switch will shut the cable hoist off. The temperature switch will automatically switch back on after a cooling phase, normally 8-10mins

c) In case of a strain on the cable hoist with a lesser load, the operating time will increase and the cooling time will decrease.

d) Attention! In case of direct exposure to sunlight or heat, the temperature of the casing will increase significantly, which will also decrease the permissible operating time. It is therefore possible that the temperature switch will switch off after a short time period and the cable hoist will shut down. Please wait until the device is cooled off.

### **Operation with double cable line**

Loosen the nuts of the 3 screws located on the additional load hook and remove the cover plate located on the side. Place the steel cable around the deviating shaft and reattach the cover plate and nuts. Please be sure that the load hook / deviating shaft is installed properly and that the nuts are securely tightened.

Please insert the load hook attached to the cable into the hook bracket of the mounting casing.



## **Maintenance and Cleaning**

Disconnect or isolate the power supply prior to performing any work on the device. Clean the device using a damp cloth and some liquid soap. Never use cleaning agents or solvents, these could damage the device's plastic parts and be harmful to the operator.

Regularly inspect the total length of the steel cable for damages as well as the functionality of the limit bracket (2) (Wind cable winch until the limit weight (5) activates the limit bracket of the limit switch).

If the steel cable is damaged (split or bent, see below), a professional must replace it using original replacement parts from the seller.



During assembly of the cable, it is imperative to remember the maximum limit weight (5) in order to ensure a secure limit stop.

Only Inspect the free movement of all mechanical components after the power plug has been disconnected or isolated.

Replace lost parts only with original parts.

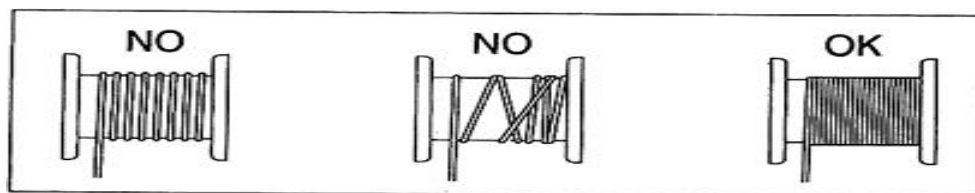
Return the device to your seller to ensure professional maintenance.

The machine should be inspected totally after 20 hours continuously use, time according to operation frequency, usually make a repair annually.

**Important:**

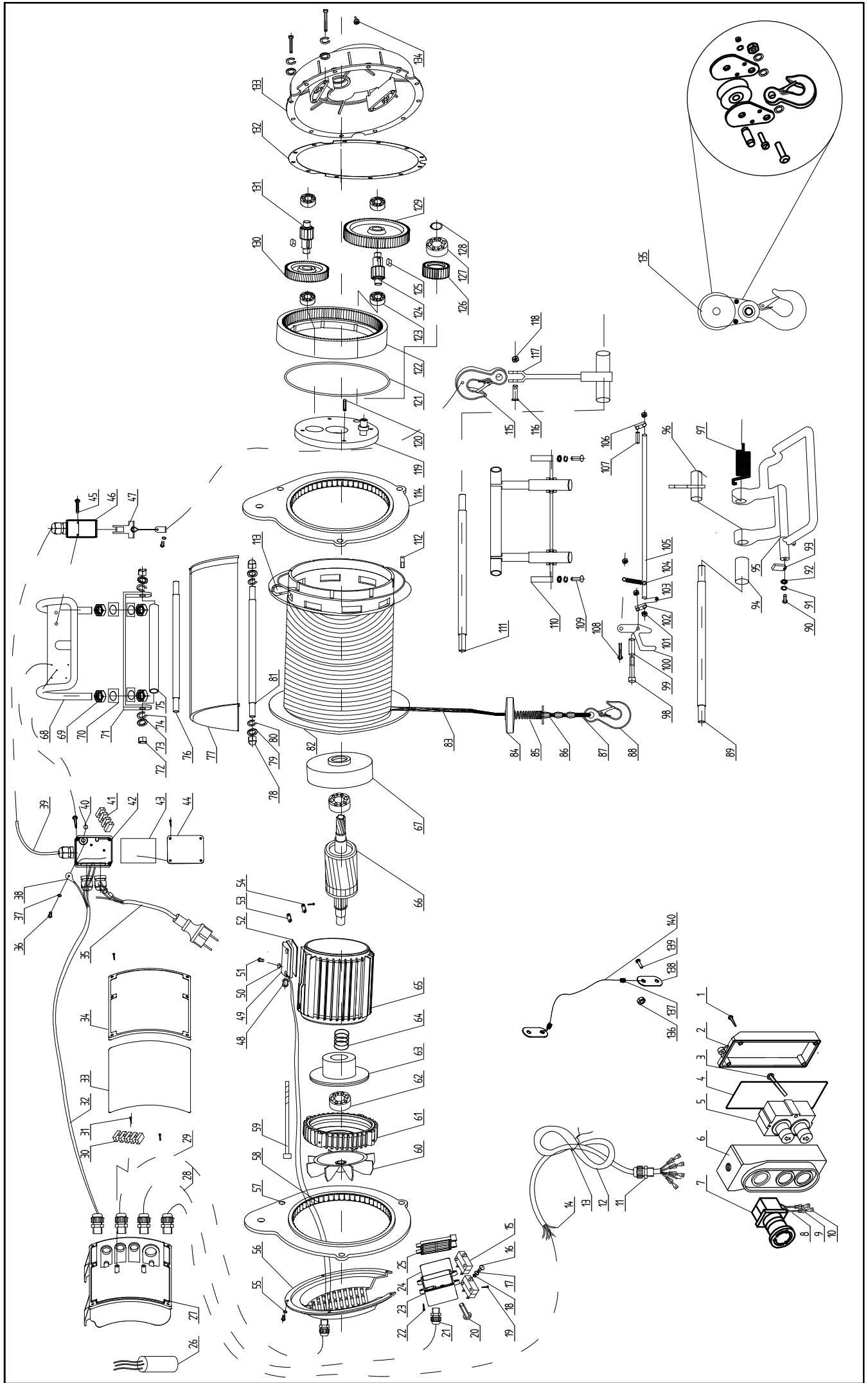
**Winch or Hoist Cables are not covered by any warranty, it is the responsibility of the operator or user to maintain the cable and replace if it becomes damaged or frayed.**

## Correct winding of steel rope



### Problem-Solving

Common Malfunction	Cause	Solution
The Off-On-Switch is used but the motor does not turn	<ol style="list-style-type: none"> <li>1. It is not plugged into the power supply.</li> <li>2. The wires are broken or ripped.</li> <li>3. Switch Malfunction</li> <li>4. The capacitor is burned through.</li> <li>5. End-switch has not been reset or a limit switch error</li> <li>6. The thermal switch has suffered a wire break.</li> </ol>	<ol style="list-style-type: none"> <li>1. Connect the item to the power supply.</li> <li>2. Check the wires and plug it in again to the outlet.</li> <li>3. Repair switch or change it</li> <li>4. Change your capacitor</li> <li>5. Check the end-switch and replace the limit switch.</li> <li>6. Wait until the item cools down, or replace the thermal switch.</li> </ol>
The dual-direction switch has been activated. The motor is very loud, can however not pick-up the load.	<ol style="list-style-type: none"> <li>1. The voltage offered is too small.</li> <li>2. The capacitor has become damaged.</li> <li>3. The brake is not completely open.</li> </ol>	<ol style="list-style-type: none"> <li>1. Adjust the work, depending on the power supply</li> <li>2. Change power supply.</li> <li>3. Allow the machine to be repaired from</li> </ol>
After a power loss the brakes do not hold or the machine slips down	<ul style="list-style-type: none"> <li>• The air between the brakes is too large</li> <li>• The brake spring is ripped.</li> <li>• The brake disk is locked</li> <li>• The brake disk is at the start already dirty.</li> </ul>	<ul style="list-style-type: none"> <li>• Allow the machine to be repaired from a qualified repair service.</li> </ul>
The noise of the machine becomes louder	<ol style="list-style-type: none"> <li>1. Badly oiled</li> <li>2. After a long use, the cogwheel and bearings are damaged.</li> <li>3. Badly installed or dent</li> </ol>	<ol style="list-style-type: none"> <li>1. Oil/Grease machine officially.</li> <li>2. Change the cogwheel or bearings.</li> <li>3. Check installed parts or let a qualified</li> </ol>
The rope winch has too much voltage.	<ol style="list-style-type: none"> <li>1. Earthed error or is not possible</li> <li>2. The internal connectors are touching the housing</li> </ol>	<ol style="list-style-type: none"> <li>1. Checked earthed wires and properly connect them.</li> <li>2. Check all internal connections</li> </ol>
End-switch is not functioning.	<ol style="list-style-type: none"> <li>1. The end-switch is defect</li> <li>2. End-switch is blocked</li> </ol>	<ol style="list-style-type: none"> <li>1. Switch off or change</li> <li>2. Check, repair, and change End switch</li> </ol>



No.	components description	Item.	material	Num.
1	Cross pan head screw	ST4*15		10
2	Up cover of controlling handle			1
3	Cross pan head screw	ST4*25		2
4	Airproof loop of controlling handle		rubber	1
5	Up & down switch	LA137		1
6	Lower cover of controlling handle		PA	1
7	Emergency stop switch	LA136: AC250V		1
8	Electronic line			3
9	Plug-in reed jacket		PVC	7
10	Plug-in reed	6.3		5
11	Cable gland	M20*12	PA	2
12	Controlling handle cable line	5*1.0		1
13	binding			1
14	Copper head of cable line			37
15	Position limited switch	JDLA106		2
16	Position limited button	φ8	Q235	2
17	Button spring loop		rubber	2
18	Snap ring	φ8	65Mn	2
19	Cross pan head screw	ST3*14		4
20	Cross head screw	M5*18		2
21	Cable gland	M16×10.5	PA	8
22	Cross pan head screw	ST3*10		2
23	Junction box		ABS	1
24	Waterproof ring		rubber	1
25	Lower cover of junction box		ABS	1
26	Capacitor			1
27	Electric box		PA	1
28	Cable line	4*1.0		1
29	Cable line	4G1.0		1
30	Connecting ending	10	PA	1
31	Cross head screw	ST3*12	45#	14
32	Cable line	3G1.0		1
33	Waterproof ring		rubber	1
34	Cover of Electric box		PA	1
35	Power cord	3G1.0		1
36	Cross pan head screw	M4x8		1
37	Spring washer	M4		4
38	Terminal piece		copper	1
39	Cable	4*1.0		1
40	Seal		rubber	1

No.	components description	Item.	material	Num.
41	Connecting ending	4	PA	1
42	Switch box		ABS	1
43	Waterproof ring		rubber	1
44	Cover of Switch box		ABS	1
45	Cross pan head screw	M3*30		1
46	Safety Switch	QKS8		1
47	Safety key			1
48	Waterproof ring		rubber	1
49	Waterproof box		PA	1
50	Washer	M4	rubber	1
51	Cross head screw	M4*12		1
52	Waterproof ring		rubber	1
53	Pressing line plate		paper	1
54	Pressing line plate		Q235	1
55	Washer	M4		4
56	Fan cover		PA	1
57	Left endplate assembly		Q235	1
58	Pin roller			136
59	Outer hex bolt	M5×175		1
60	Fan		PA	1
61	End cover		Alu.	1
62	Bearing	6202		2
63	Brake assembly			1
64	Brake spring	φ2.6	65Mn	1
65	Stator & Motor cover			1
66	Rotator			1
67	Front cover	φ4.5	Alu.	1
68	Hanging hook rack			1
69	Screw	M12	Q235	1
70	Washer	φ12	Q235	4
71	Base of hook rack		Q235	1
72	Screw nut	φ12	Q235	1
73	Washer	φ12	Q235	1
74	Spring washer	φ12	Q235	1
75	Fix tube of hook rack		Q235	1
76	Connecting pole of hook rack		45#	1
77	Rope drum cover		PA6	1
78	Nut	M10	45#	6
79	Spring washer	φ10	65Mn	6
80	Washer	φ10	Q235	6



81	Connecting pole of end plate		45#	1		109	hexagon screw	M6x12		14
82	Rope drum assembly			1		110	Rope rolling assembly		Q235	2
83	Steel rope		45#	1		111	Rope rolling pole		45#	1
84	Spring buffing assembly			1		112	Screw	M6×12	45#	8
85	Balance weight			1		113	Rope pin		Q235	1
86	Aluminum buckle		Alu.	3		114	Right end plate assembly			1
87	The protection plate		Q235	1		115	Hook			1
88	Hook			1		116	hexagon screw	M8x30	45 #	1
89	Connecting pole		45#	1		117	Connecting pieces			1
90	hexagon screw	M6×20		2		118	Nut	M8		1
91	Washer	φ 6	Q235	26		119	Gear box components			1
92	Spring washer	φ 6	Q235	22		120	Cylindrical pin	6x19	45#	1
93	Up position limited block		PA	1		121	Airproof loop	φ184×φ3		1
94	up position limited sleeve		Q235	1		122	Internal gear			1
95	Up position limited frame		PA	1		123	Bearing	6201		4
96	Pulley hook		Q235	1		124	Gear shaft I		40Cr	1
97	Torsional spring			1		125	Flat key			2
98	hexagon screw	M6×45	45#	7		126	Idle gear		40Cr	1
99	lower position limited sleeve			1		127	Ball bearing	3203-2RS		1
100	Position limited holding plate			1		128	Snap ring	φ 17	65Mn	1
101	Nut	M6		4		129	Spur gear		40Cr	1
102	lower position limited block		PA6	1		130	Helical gear		40Cr	1
103	Nut	M6		2		131	Gear shaft II		40Cr	1
104	Lower position limited Spring			1		132	Paper washer			1
105	Lower position limited pole		Q235	1		133	Gear box		Alu.	1
106	Lower position limited base		PA6	1		134	Grease nipple		copper	1
107	screw	M6x20		1		135	Pulley hook			1
108	Cross head screw	M6x18		1						

## Lifting Operations and Lifting Equipment Regulations 1998 (LOLER)

These Regulations (often abbreviated to LOLER) place duties on people and companies who own, operate or have control over lifting equipment. This includes all businesses and organisations whose employees use lifting equipment, whether owned by them or not. In most cases, lifting equipment is also work equipment so the Provision and Use of Work Equipment Regulations (PUWER) will also apply (including [inspection](#) and [maintenance](#)). All lifting operations involving lifting equipment must be properly planned by a competent person, appropriately supervised and carried out in a safe manner.

LOLER also requires that all equipment used for lifting is fit for purpose, appropriate for the task, suitably marked and, in many cases, subject to statutory periodic '[thorough examination](#)'. Records must be kept of all thorough examinations and any defects found must be reported to both the person responsible for the equipment and the relevant enforcing authority.

Most lifting equipment and lifting accessories will also fall within the scope of the [Machinery Directive](#), as implemented by the [UK Supply of Machinery \(Safety\) Regulations](#). Such equipment must have been subject to [conformity assessment](#) and be appropriately [CE marked](#) and accompanied by a [Declaration of Conformity](#) (DoC) before being placed on the market or brought into use. This includes lifting equipment whose only source of power is directly applied human effort (eg manually operated chain blocks and car jacks).