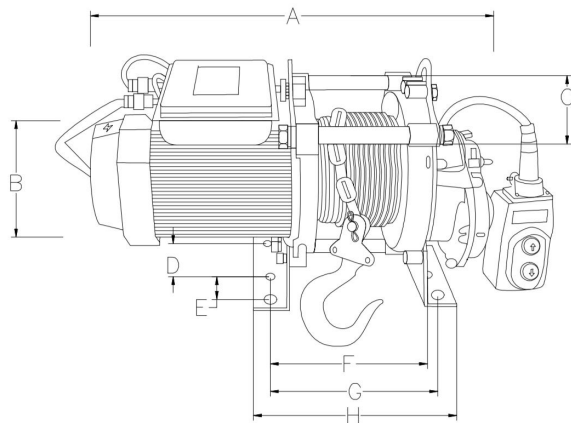


# USER'S MANUAL

## ELECTRIC WINCH

Model: AMFW



This manual is intended for an English-language recipient country and an English-speaking skilled operative as the user

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## PREFACE

This user's manual and instructions must be read thoroughly and understood by skillful personnel before the electric winch is about to using, and must be accessible by operators at all time during use. By the nature of industry machinery and its implied potential hazard as a result of the lifting and handling of heavy loads, the operators shall read "**SAFETY INSTRUCTION**" and "**CHECKING & MAINTENANCE**" carefully with particular caution and attention. This manual also contain danger, warning, safety advice & instructions by using following symbols as indication:



**Caution!**

\*Hazard to human health.

\*Failure to comply with instructions can expose person to direct risks or risk to winch itself.



**When there appears warning symbols like the beside ones show in this frame in the manuals contents, and these contents have been bordered, it means these text are very important safety instructions or precautions. The operators have to be sure to fully comply with the instructions, otherwise it is likely to endanger you or other people's lives and property. Therefore, please read carefully of our user's manual and precautions before you use electric winch.**



## Warnings



\***PLEASE** read carefully of this operating manual and other user manuals, understand the whole contents before you operation and use our products.



\***PLEASE** wear protective clothing and appliance before operator operation and use our products.



\*Do **NOT** move for the transportation of persons as this product is not designed and produced as a manned transport products.



\*Do **NOT** use this product as parts of a non-mechanical devices with moving loads. (man force involved is prohibited)

## Disclaimer



\*We do **NOT** undertake any responsibility for the damages caused by fire, earthquake, lightning or other natural disasters, acts of third parties, accidents, the user's intent, negligence or misuse, or other damages from the conditions beyond the usage environments.



\*We do **NOT** undertake any responsibility for the collateral damages caused by using this product or cannot put into use, such as the loss of business interests, business interruption, damage to lifting loads, etc.).



\*We do **NOT** undertake any responsibility for the damages caused by non-compliance with the contents of the operating manuals or beyond the specified scope.

## **SAFETY INSTRUCTION**

### **General Safety Rules**

- This electric winch is designed for lifting and pulling heavy loads only. Do not apply the electric winch to lifting or pulling person.
- Make sure the power input source comply with the voltage indicated on the electric winch before connecting the power wires to the power source.
- Connect the power wires. Tighten the terminals securely.
- Before operating the electric winch, read and follow the instructions for allowable lifting & pulling weight, speed and voltage etc. Indicated on the attached plate.
- Do not exceed the rated working load of the electric winch. Allowable lifting & pulling weight is indicated on the attached plate.
- The electric winch should be operated by skillful operators. Before operating the electric winch, check again if all lock screws are tighten securely.
- Before operating the electric winch, check and see if the wire rope drum runs to the correct direction and the brake works normally.
- Select a proper location for mounting the electric winch, to prevent the lifting weight touch other objects.
- Always keep the steel rope in good condition. When applying the electric winch for lifting heavy weights, reserve 3 round of rope remains on the drum.
- Do not load weight on electric winch and hold for long time.
- When the electric winch is running, keep hands or any other objects away from it to prevent danger.
- In case any malfunction or abnormal noise occurs during operation, stop the electric winch immediately. Check and repair it immediately for safety.
- Do not change the electric circuit or use any non original spare parts for replacement. The may avoid electric winch fault or even danger.

## **Electric Safety Rules**

- Before installing, please pay attention to the input rated voltage and correct and make sure the winch is grounded, in order to prevent accident.
- Cut off the main power supply before examine, checking, repair, maintenance or cleaning.
- Unauthorized or untrained personnel are not allowed to repair or maintenance any electric parts in the winch.
- Comply with the maintenance instruction to repair and maintenance the electric parts.
- After input power, check the motor rotation and winch.
- Please check the connecting of each terminals inside the control panel are tighten or not.
- Do not change the electric circuit by any untrained personnel.

## **Other Safety Rules**

- Don't rough handling the winch to avoid fault even danger.
- Before start the winch, make sure all the protecting covers are not breakdown and damage.
- If the mechanism or any parts breakdown, operator should stop operating winch immediately, examine and repair at once.
- If any abnormal sound during winch working, operator should stop operating winch immediately, examine and repair at once.
- Do not change or modify the original mechanical structure of electric winch. Otherwise may cause potential risk.
- We recommend customer to reserve some spare parts for preventing if any fault happen in routine working.
- Untrained personnel are always be forbidden to operate, check, maintenance and repair the electric winch.
- Please maintenance and repair the winch accordingly to user's manual.

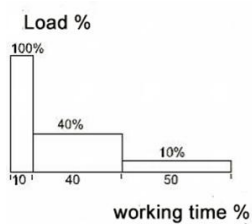
## PRODUCT DESCRIPTION

### General Information Chart

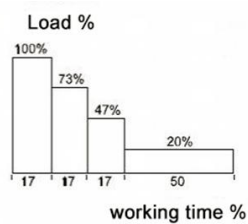
<b>Ambient Temperature</b>		-20°C ~ +40°C (1000 m.a.s.l)
<b>Humidity</b>		≤ 85%
<b>Protection Class</b>	<b>Motor</b>	IP44
	<b>Control Panel</b>	IP55
	<b>Pendant Control</b>	IP55
<b>Noise Level</b>		≤ 85 (dB)
<b>Insulation Class</b>		Class F

### Working Load Classification & Description

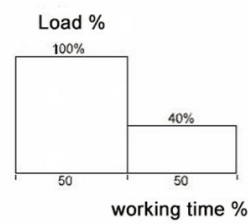
Load Lv.	Load Description	Factor	Service Life (hrs)					
			M1	M2	M3	M4	M5	M6
Lv.1 (Light)	Mostly by light load, Rare heavy / max. load	≤ 50%	800	1600	3200	6300	12.5k	/
Lv.2 Medium	Normally by medium load, sometimes in heavy load.	50~63%	400	800	1600	3200	6300	12.5k
Lv.3 Heavy	More frequent by medium / heavy , even max load.	63~80%	200	400	800	1600	3200	6300
Lv.4 Heavy +	Mostly by heavy / max. load all the time.	80~100%	/	200	400	800	1600	3200
<b>Classification</b>			<b>M1</b>	<b>M2</b>	<b>M3</b>	<b>M4</b>	<b>M5</b>	<b>M6</b>



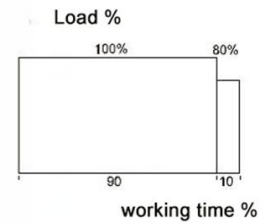
Load Lv.1



Load Lv.2



Load Lv.3



Load Lv.4

(Brief Description for Example)

## Working Record

The service condition of electric winch shall be check and recorded by trained maintenance personnel. The maintenance personnel have responsibility to ensure the actual working performance of electric winch are well and instant recorded on Inspection Schedule by regulation.

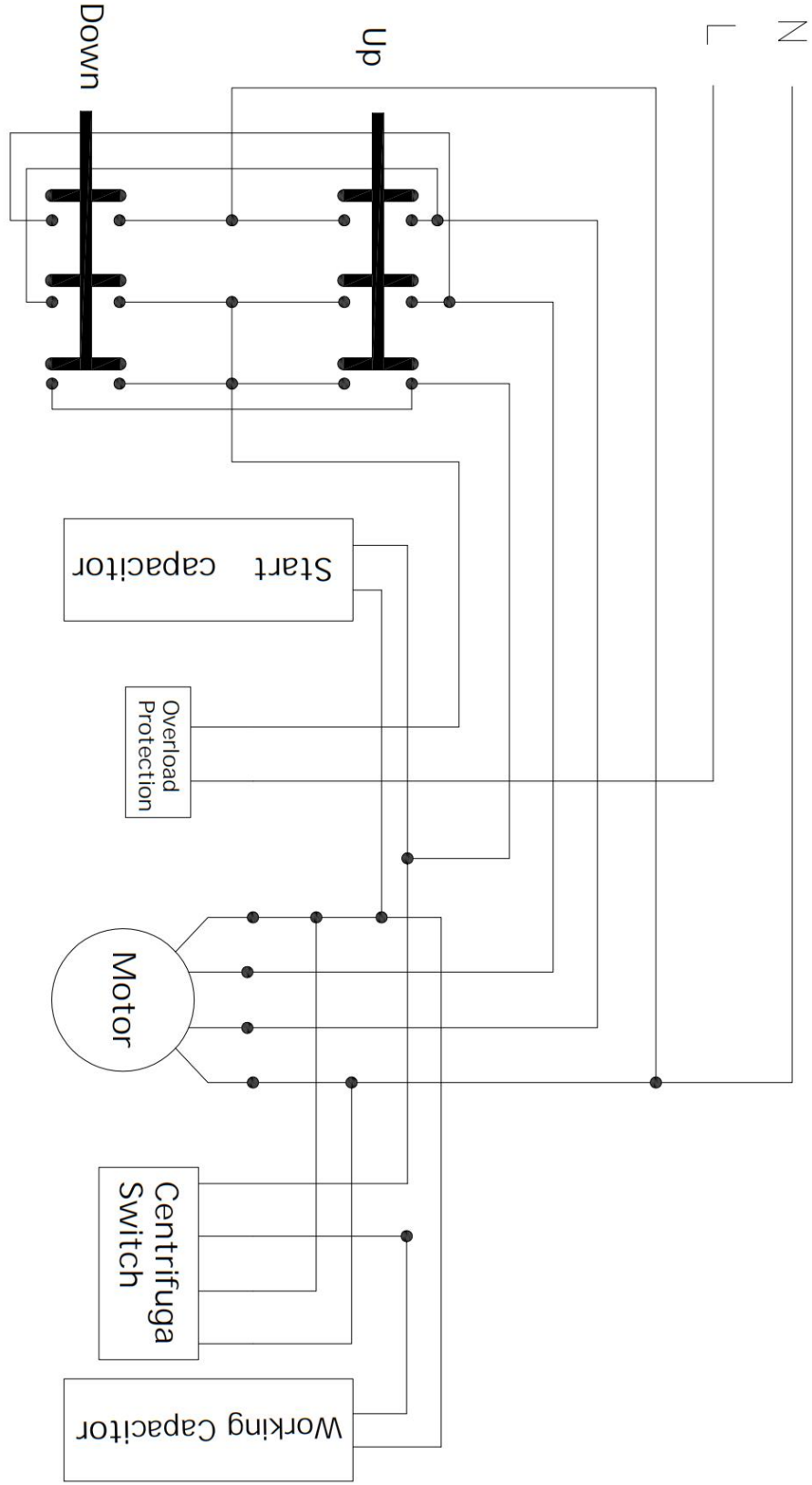
## General Technical Parameter

<b>MODEL</b>		<b>AMFW400</b>
<b>Capacity</b>		<b>400KG</b>
<b>Braking</b>	<b>Motor</b>	<b>Resistance Type</b>
	<b>Mechanical</b>	<b>Double Ratchet Jaw</b>
<b>Standard Rope length</b>		<b>0~60M</b>
<b>Wire Rope Diameter</b>		<b>6mm</b>
<b>Speed</b>		<b>30m/min</b>
<b>Motor Power</b>		<b>2.2KW</b>
<b>Power Input</b>		<b>220V/50HZ/1Ph</b>
<b>Net Weight</b>		<b>27KG</b>
<b>Gross Weight</b>		<b>32KG</b>

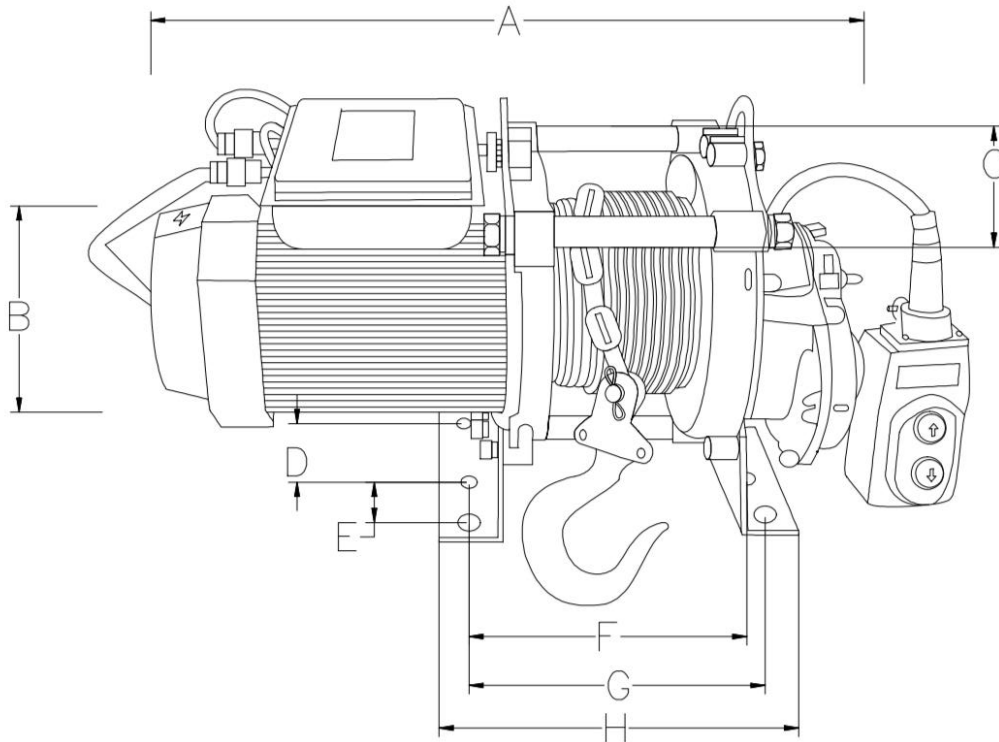
- Remark:**
- 1). Above speed performance base on 50Hz. (60Hz = 50Hz \* 1.2 approx.)
  - 2). The capacity performance base on lifting application.
  - 3). For more technical parameters, please contact your supplier for information.



# Electrical Circuit Diagram









## Dimensions

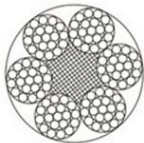


Basic Dimensions	
A	490mm
B	290mm
C	220mm
D	80mm
E	50mm
F	163mm
G	208mm
H	250mm







## Notes & Fault Analysis

-  • Water on friction surface may reduce the friction force, and cause rust.
-  • Dust and oil on friction surface will reduce the friction force. Hard object like metal shards may even damage the surface and cause brake fault.
-  • If the coil is abnormal, use a multi-meter and meg-ohmmeter to measure the coil resistance and insulation resistance, replace the stator if necessary.
-  • When brake can not response instantly when motor start and stop, will aggravate the wear and reduce the service life of the brake and the motor, even burn the coil by overheating.
-  • When the rotor is worn to a very thin level, please replace in time.
-  • Line problem. Please check whether the line connection is abnormal.

## Wire Rope

<b>Standard</b>	<b>DIN3060</b>					
<b>Breaking Force</b>	<b>21..2KN</b>					
<b>Applicable Model</b>	<b>Rope Diameter (mm)</b>	<b>Nominal Tensile Strength (MPa)</b>	<b>Rope Structure</b>			
			<b>Strand Nos.</b>	<b>Core Nos.</b>	<b>Material Type</b>	<b>Section View</b>
AMFW400	6	1770	6	19	FC	 6X19+FC





## Notes & Maintenance

-  • The winch operator shall check the wire rope condition before every using.  
Any abnormal found, shall report to technician or specialist.
  
-  • The Inspector shall examine the wire rope condition weekly and record well.
  
-  • The examination shall include the wearing condition of main wire rope trip, corrosion, damage and deformation.
  
-  • If any abnormal condition appeared on rope sleeve, shall stopping using and replace new one immediately.
  
-  • The wire rope shall not be cut or under heavy weights, and avoid touching with strong acid and alkali substance.
  
-  • Do lubricate the wire rope by actual working condition. If dust and rust on rope, please clean and lubricate at once.




## PRE-USE PREPARATION

### Regular Checking



#### Mechanical Checking

-  • Please remove all packing materials
-  • Do visual check on appearance of electric winch see if any damage happen on winch body or related parts.
-  • Check the wire rope are well installed on rope drum. See if any twist, kink, or damage happen on wire rope.
-  • Check the base of winch, see if and deformation happen. And also check the screw hole in proper position.

#### Electric Checking

-  • Check the electric winch are grounded wired.
-  • Check if any cable or wires loosen from terminals.
-  • Do visual check on control parts, include the control panel, pendant control, and wireless remote control if have.



#### Other Checking

-  • Check all warning labels are well stay on electric winch.
-  • Check all enclosed paper materials can be found in box, such as user's manual, testing report, and etc.

### Installation

#### General Precaution

The following environmental conditions may affect winch working performance:

-  • Lowest Temperature below **-20°C**
-  • Highest Temperature above **40°C**



- Humidity conditions above 90%



- Exposed in raining or snowing outside environment.

**CAUTION!**

- If in chemical, dusty, or explosive environment, please contact your winch supplier for more information.

### Power Input

- Connect the local power source with electric winch. Make sure the power cables are fixed in safety distance with winch and wire rope.
- Pay attention on the power cables shall not tangled with wire rope.
- The electric winch shall be connected to ground for prevent electric risk.
- Pay attention on the power cables shall not tangled with wire rope.
- The pendant control is normally preset on electric winch. If not, the connection shall be handled by authorized personnel.

### Mounting Base

The electric winch is designed or supposed to be mounted on even and solid ground for preventing the winch moving when working.

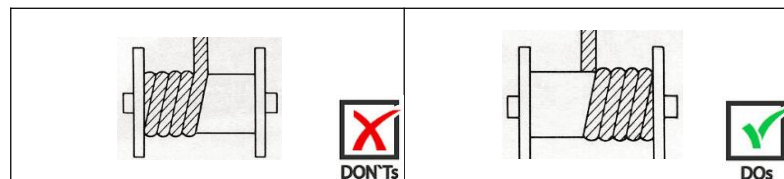


- \*Extra mounting base can be optional if customer need.

### Winding Direction



- Pay attention on the rope shall be winded in correct direction when installation.



## CHECKING & MAINTENANCE

### Periodical Check & Maintenance List

Items	Checking content	Checking by	Inspection Timing		
			Check Before Use	Daily Check	Monthly Check
Brake	Functional Test	Test Run	√	√	
	Brake Disc	Visual	√		√
Motor	Functional Test	Test Run	√	√	
	Temperature	Measure	√	√	
	Noise	Hear	√	√	
Gearbox	Oil Level	Measure	√		√
	Noise	Hear	√	√	
Wire rope	Broken Wires	Visual	√	√	
	Lubricating	Visual	√	√	
	Kinking	Visual	√	√	
	Rope Sheath	Visual	√	√	
Rope Drum	Deformation	Visual	√		√
Hook	Deformation	Visual	√	√	
	Safe Latch	Visual	√	√	
	Swivel	Test Run	√		√
Electric Panel	Enclosure / Deformation	Visual	√		√
	Cable Connection	Test Run	√		√
Pendant / Remote Control	Enclosure / Deformation	Visual	√		√
	Button Functioning	Test Run	√	√	
	Emergency Stop Button	Test Run	√	√	



**CAUTION!**

1. Only authorized personnel may allow to handling above working.
2. Please follow above list to carry out the checking strictly.

## FAULT SOLUTIONS

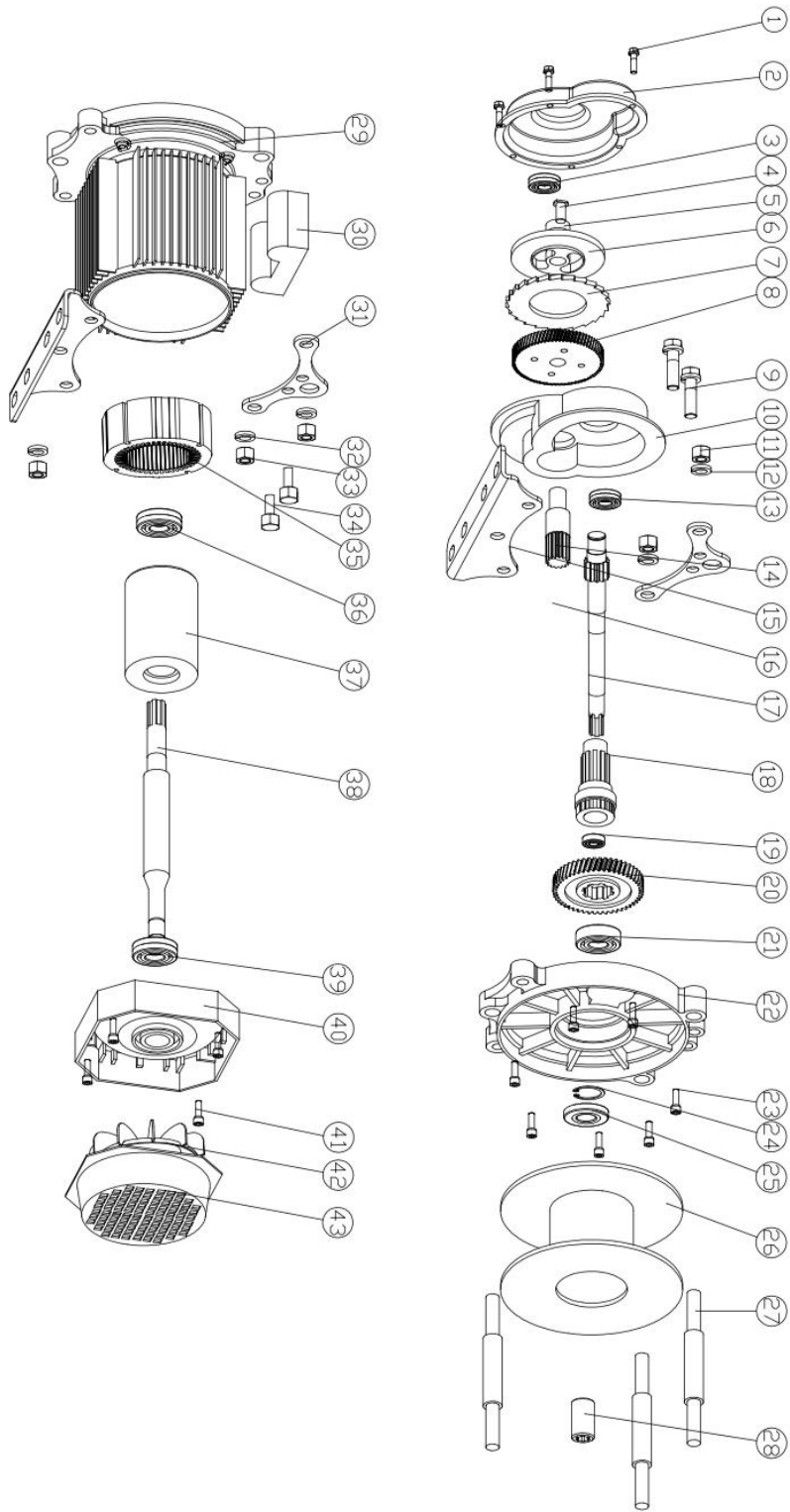


**Attention!**

**The power must be cut off before any fault handling.**

Faults Description	Possible Causes	Handling Solution	Remarks
Winch has no reaction after pressing the buttons of pendant / remote control	No power	*Check power source	If above solutions were handling but faults remains, please check other parts: motor & electric panel.
	Disconnection of cables or wires	*Check the connection	
	Emergency-Stop activated	*Check "Emergency-Stop button	
Winch running with abnormal big noise.	Motor problem	*Check & hear the motor	Motor disc
	Gearbox problem	*Check & hear the gearbox	Gears & oil condition
	Wire Rope & Drum	*Check & hear the rope & drum	Kinked / abnormal touch
	Winch base	*Check the base see of	Resonation
No braking force	No power	*Check power wiring of brake	Brake wiring
	Disconnect or wrong connection	*Check wiring of brake	
Braking force not enough, winch can not stop instantly, brake force long distance.	Brake assembly & wiring	*Check the brake	/
	Brake Disc loosen	*Adjust the brake disc	Do daily or monthly checking on brake disc
	Unsuitable power supply	*Check the electric power	/
Slow lifting & pulling speed	Overload	*Reduce the load weight	Overload is prohibited
	Weak power voltage	*Check electric power	/
Electric Leakage & shock	Cable wire core exposed	*Check the cable & wires	Any electric leak winch shall stop working and repair immediately.
	Water penetration	*Check the motor & pendant control	
Serious wearing of wire rope	Lack of lubrication	*Lubricate wire rope timely	Specially in dusty environment
	Foreign matter attached	*Clean wire rope timely	
	Unfitted guide pulley	*Check or replace new parts	Mind the auxiliary parts





S/N	PARTS NAME	QTY.	S/N	PARTS NAME	QTY.
1	Hexagon Socket Head Bolts	6	36	Deep Groove Ball Bearing	1
2	Gearbox Bottom Cover	1	37	Motor Rotor	1
3	Deep Groove Ball Bearing	1	38	Motor Shaft	1
4	Ratchet Shaft	1	39	Deep Groove Ball	1
5	Ratchet Piece	1	40	Motor Cover	1
6	Ratchet Fixing Disc	1	41	Hexagon Socket Cylindrical Screws	4
7	Ratchet Disc	1	42	Fan	1
8	Primary Reduction Gear	1	43	Fan Cover	1
9	External Hexagonal Screw	2			
10	Gear Box	1			
11	External Hexagon Nuts	6			
12	Spring washers	6			
13	Deep Groove Ball Bearing	1			
14	Primary Reduction Shaft	1			
15	Base frame	2			
16	Deep Groove Ball Bearing	1			
17	Input Shaft	1			
18	Connection Shaft	1			
19	Deep Groove Ball Bearing	1			
20	Secondary Reduction Gear	1			
21	Deep Groove Ball Bearing	1			
22	Gearbox Base	1			
23	Hexagon Socket Cylindrical Screws	6			
24	Hole Retaining Ring	1			
25	Oil Seal	1			
26	Reel Assembly	1			
27	Support Bar	3			
28	Connection Sleeve	2			
29	Motor Housing Base	1			
30	Electrical Assembly	1			
31	Connecting Pendant	2			
32	External Hexagon Nuts	6			
33	Spring Washers	6			
34	Hexagon Bolts	4			
35	Motor Stator	1			