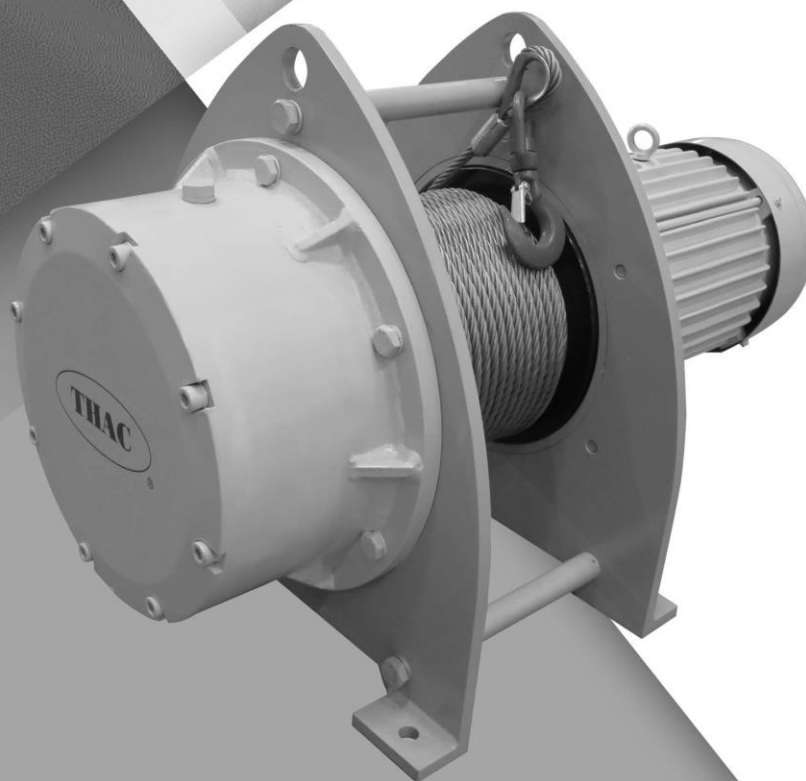


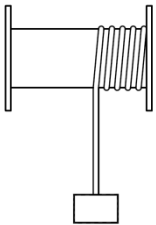



Electric Wire Rope Winch

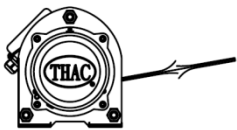





Warning and Cautions

Always know your winch. Take time to fully read the instruction and/or operation guide in order to understand your winch and its operations

	 WARNING
	<p>Always wind the wire rope on the drum tightly and never operate winch with less than 5 wraps of wire rope around the drum as the rope attachment to the drum is not designed to hold a load</p>

	 WARNING
	<p>Do not use winch to lift, support, or otherwise transport personnel</p> <p>Always stand clear, keep hands clear, keep others away</p>

	 WARNING
	<p>Always inspect winch rope, hook, and slings before operating winch. Frayed, kinked or damaged winch rope must be replaced immediately.</p>

	 WARNING
	<p>Fail to adequately align, support, or attach winch to a suitable mounting base could result in a loss of efficiency or premature failure of winch, wire rope or mounting base.</p>

1. General Information

1.1 Attention

Every winching situation has the potential for personal injury, do not install or operate the winch before reading this manual. Read, understand and follow all instructions on this winch and in the manual before operation. Keep this manual in a safe place for future reference

1.2 Operational Environment

Ambient temperature : -20°C to +40°C

Ambient humidity : 85 % or less (no condensation)

Environment to be avoided :

- A place with organic solvent, volatile powder, plenty of powder and dust
- A place with considerable amount of acids and salts
- A place with explosive gases or vapor

When installing the electric wire rope outdoors or to the place where the winch is exposed to direct rain, wind and snow, shelter the winch under a roof to protect it from rain, wind and snow.

1.3 Operating Practices

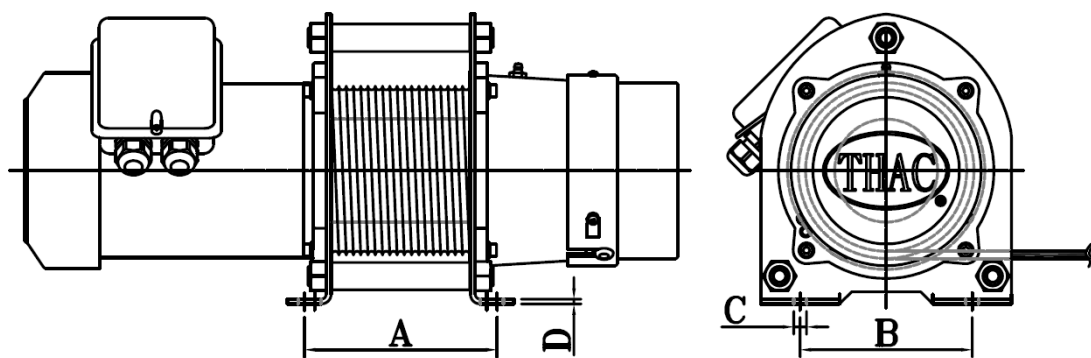
1. Do not use winch to lift, support, or otherwise transport personnel.
2. Always keep a safe distance from the winch and wire rope while under a load.
3. A minimum of 5 wraps of wire rope around the barrel drum is necessary to hold the load.
4. Do not shift the winch in a sudden manner (excessive inching) that may cause the winch to fail.
5. Keep hands and cloths away from the rotating parts or moving wire rope.
6. A wire rope can break without warning and shall be replaced if it shows signs of excessive wear, broken strands and corrosion.
7. Lifting and lowering suspended loads, side-pull is not allowed
8. It is forbidden to move loads above the rated capacity of the winch
9. Do not try to move fixed or obstructed loads.
10. Wire rope shall be tightened and shall not be in the slack condition when the loads movement begins.

2. Installation

2.1 Mounting

The winch must be installed by qualified technicians and prior to installing the winch, carefully inspect it for any possible damage occurred.

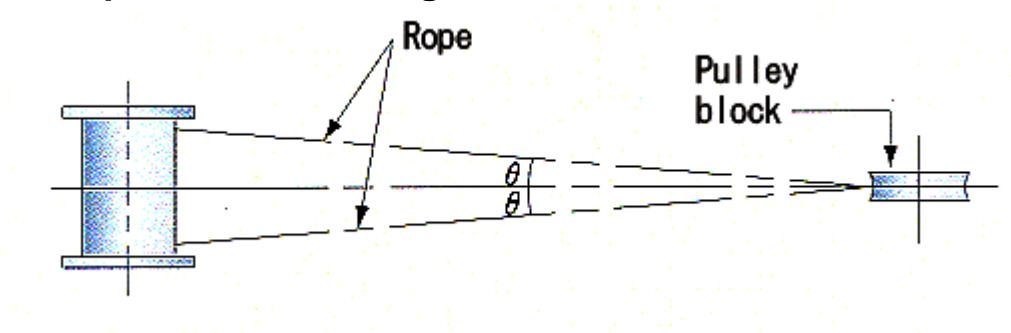
The winch must be assembled onto a rigid structure with an even surface. Screw should be used with resistance class 8.8 or 10.9 and with torque according to standard in face. The screws should be long enough to anchor the winch structure and mounting surface.



Unit: mm

Model	A	B	Φ C	D	Screw	Torque	Q'ty
	mm	mm	mm	mm	Φ mm	Nm	
TA300,TB300	142~159	142	10.5	4	M10	51	4
TA500,TB500	296	224	16	6	M14	139	4
TB750,TB1000	297	336	16	12	M14	139	4
TB2000	536	130,450	24	19	M22	597	8
TB3000	659	260,580	24	19	M22	597	8

2.2 Important of fleet angle



In order to promote proper spooling of the wire rope it is recommended a fleet angle $1\frac{1}{2}^{\circ}$ for smooth drums and 2° for grooved drums to be maintained. Exceeding these recommendations may cause poor spooling from rope piling up, and possible damage to the wire rope through crushing and abrasion.

Experience shows the correct distance between the centers of winch drum and sheave for are the equivalents of approximately 19 times drum width in meter for $1\frac{1}{2}^{\circ}$ and 15 times drum width for 2° fleet angle

Table 2. Minimum Distance

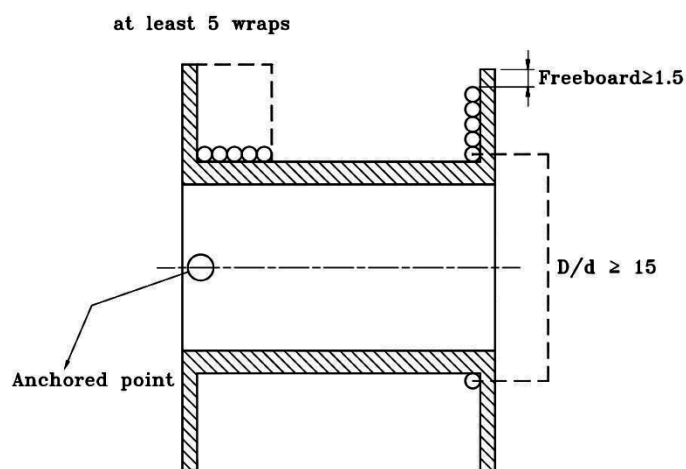
Model	TA300 TB300	TA500 TB500	TB750	TB1000	TB2000	TB3000	TC5000	TC7500
Drum Width	110 mm	231 mm	220 mm	207 mm	360 mm	496 mm	520 mm	950 mm
Minimum Distance	2.1 m	4.4 m	4.2 m	3.9 m	6.8 m	9.4 m	9.9 m	18.1 m

2.3 D/d ratio and rope working

The drum is generously dimensioned to obtain a minimum D/d ratio (first layer pitch diameter/rope diameter) of 15:1 with a rope safety factor of 5 times for lifting and lowering applications. For any hauling or pulling applications, it requires a minimum D/d ratio of 12:1 and 3 time of rope safety factor

2.4 Freeboard

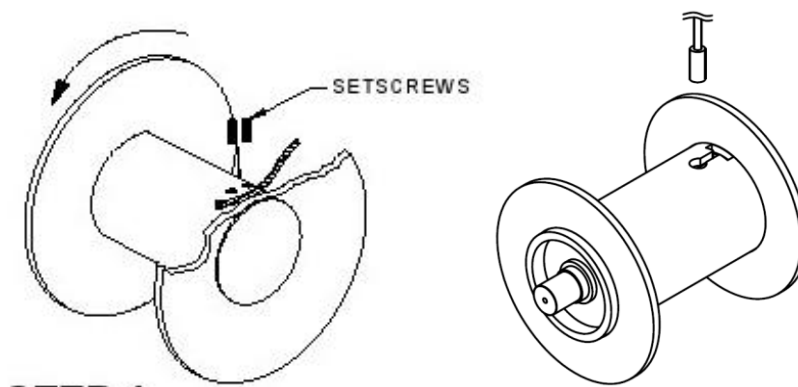
The lifting capacity is rated at the top layer of wire rope, which corresponds to the full drum rope capacity less 1.5 layers at the top of drum flange.



2.5 Wire Rope installation

Maintain at least five (5) tight wrap of wire rope on the drum at all time
Install the wire rope to come off the drum for underwind operation
When replace a wire rope, use a new wire rope that provides at least 5 time of rope safety factor to handle the actual working load and meet all applicable industry regulations.

Insert the wire rope into proper slot according to drum rotation and thread set-screw into threaded holes in drum flange, making sure that both screw clamp onto wire rope. Once the set-screw are tightened secure, the wire rope is properly installed. A given amount of freeboard of at least 1.5 times of wire rope diameter to prevent the wire rope from inadvertently coming off the drum.



2.6 Wire Rope Checking

The following checks shall be carried out daily checking and periodic checking of each one month, three months or each one year

Item	Checking reference
Breaking of base wire	Less than 10%
Decreasing of diameter	7% of nominal diameter max.
Kink phenomena	To be free from kink phenomena
Deforming or corrosion	To be not remarkable
Fastening condition of end	To be sufficient for hanging up of load
Condition of rope winding-in	To be free from irregular winding
Condition of feed oil	To be not insufficient in feed oil
Confirming of rope dead turn	Confirming of normality of operation

3. Operation

3.1 Starting up

Prior to starting of use, carry out the daily checking and use after confirming the safety of function. The operator of winch must not be apart from the operating position under the loading condition. The winch is designed for lifting or pulling loads.

3.2 Electrical Connection

Before beginning work on electrical components the main current switch must be switched off and secured against unintentionally being switched on. Before connecting the winch ensure that the electrical data on the nameplate match the local specifications. It is essential to have a good grounding to prevent any risk of electric shock. A considerable voltage drop can provoke the opening of brake, using a proper the section of power cord and switch cord to avoid any. Make sure the input voltage variation at motor side shall be falling within $\pm 5\%$.

3.3 Lubrication

Gear lubrication is an important component in insuring the long life of your winch. The type of lubricant will have a great influence. Generally a gear lubricant should have a viscosity of 100 to 250 cSt at the expected ambient operating temperature.

Interval	Lubrication Checks
Initial change	The initial grease oil should be changed after the first 10 hours of operation
Subsequent change	250 working hours of a year or after-repair or disassembly of gear box. Intervals are based on winch operation in a normal environment. In heavy or severe operating conditions adjust lubrication intervals accordingly.

TA300/500 or TB300/500: Grease EP1, Multipurpose Lithium-base grease
for temperature range of -30° to 10°C,
Grease EP, Multipurpose Lithium-base grease
for temperature range of -1° to 49°C EP
TB750/1000/2000/3000 : Grease oil for temperature range of -20° to:
TC5000/7500 52°C ,ISO VG100 (SAE 75W90)

4. Compliance with EU Directives

Electric Winches shall comply with the following regulations

1. European Standards of EN 14492-1 for Power Driven Winches came to effect from 29th. December 2009
2. European Machinery Directive 2006/42/EC.
3. European Directive on Electromagnetic Compatibility (EMC) 2004/108/EC
4. European Low Voltage Directive (LVD) 2006/95/EC

To comply with EN 14492-1, the following optional accessories must be fitted to all winches by the owner or end user.

- Low voltage control ·Rope drum cover
- Remote control w/ an emergency stop button ·
- Up and down limits protection devices

When using and installing a winch, the owner or end user shall ensure that all legal requirements are completely complied with.

Extracts from the Directives

1. EN 14492-1 Section 5.15.6 Wire Rope

Wire rope minimum break to be **five times** winch rating

2. EN 14492-1 Section 5.7.2 Rope Drum

Rope drum mean diameter to be **15** times the diameter of the wire rope and the flanged drum end plates shall protrude beyond the rope wound on the drum at the top layer by at least 1.5 x the nominal rope diameter.

3. EN 14492-1 Section 5.7.6 Rope Fastening onto the rope drum attachment to withstand 2.5 times the winch rating

Rope must have at least two wraps winding before fixing point

4. EN 14492-1 Section 5.15.5 Brake

Winch to hold full rated load

5. EN 14492-1 Section 5.15.2 Rated Capacity Limiters

Winch for lifting and lowering purpose with a rated capacity of 1,000 kgf or more shall be fitted with a rated capacity limiter to prevent overloading of the winch

5. Checking Reference

Due to the potential risk for injury, winches must be properly maintained. It's important to follow checking references in addition to these general guidelines for safe operation. Inspect your winch before and after each time you use it. Keep the winch, wire rope and remote control clean. If necessary, unwind the winch completely and use a clean rag to remove any dirt and debris.

The specified person performs the checking of winch and divide the checking into daily checking and periodic checking. In the case where the winch is repaired, check after repairing relating to confirm that it works under normal conditions

Items	Daily Check	Weekly Check	Monthly Check	Yearly Check
All functional operating mechanisms for maladjustment and unusual sounds	x	x	x	x
Limit devices for operation	x	x	x	x
Brake device for proper operation	x	x	x	x
Gear box for leakage	x	x	x	x
Hook and hook latch operation	x	x	x	x
Evidence of worn, corroded, cracked or distorted parts	x	x	x	x
Evidence of loose bolts or nuts	x	x	x	x
Evidence of excessive wear on motor or load brake	x	x	x	x
Evidence of wire rope for any possible defects	x	x	x	x
Electrical apparatus for signs of pitting or any deterioration of visible controller contacts	x	x	x	x
Evidence of damage of mounting structure	x	x	x	x
Function labels on motor, winch or pendant switch	x	x	x	x

6. Trouble Shooting

Condition	Possible Cause	Correction
Winch does not operate	Incorrect voltage or frequency	Verify frequency, voltage and phase inlet meet specified requirements
	Wrong electrical wiring	Verify the wirings
	Motor is burned out	Replace motor
	Winch is overload	Reduce the load
Drum will not rotate under load	The brake is not released	Checking wiring, refer to wiring Diagram
	Brake coil burned or damaged	Replace brake coil
	Bridge rectifier burned or damaged	Replace bridge rectifier
	Incorrect power cord in section or too long	Use bigger section of power cord
	Winch is overload	Reduce the load
Brake fail to activate	Brake coil damaged	Replace brake coil
	Brake disc worn	Replace brake disc
	Brake gap is too large	Adjust the brake gap
Brake fail to release	Winch is mechanically binding up	Winch drum centerline should be mounted on a horizontal plane
Too hot on the motor surface	Long period of operation	Allow the winch to cool down
	Damaged brake	Repair or replace brake
Excessive noise	Fail to adequately align	Check mounting, refer to Winch Mounting
	Motor damaged	Verify the motor
	Gear damaged	Inspect and replace damaged gears
	Considerable voltage drop	Voltage variation at motor side must within $\pm 5\%$
Oil leak	Oil plug is loosened	Tighten plug
	Sealings damaged	Replace if necessary

7. Winch Limited Warranty

Limited One (1) Year Warranty Statement

Taiwan Hoist and Crane Co., Ltd (THAC) warrants to the original purchaser that the mechanical components and electrical components will be free of defects in material and workmanship for a period of one (1) year from the original date of purchase. This Warranty applies only to the original purchaser of the Products.

Notice of claimed breach of this Warranty must be given by Buyer to Seller within the applicable period. Such notice shall include an explanation of the claimed warranty defect and proof of date of purchase of the article which warranty coverage is during the warranty period. No allowances shall be made by Seller for any transportation, labor charges, parts, adjustments or repairs, or any other work, unless such items are authorized in writing and in advance by Seller.

If an article is claimed to be defective in material or workmanship, or not to conform to the applicable specifications, Seller will either examine the article at Buyer's site or issue shipping instructions for return to Seller.

The winch are not approved for lifting or handling personnel or persons unless specifically approved in writing from Seller for specific intended application. The wire rope assembly including hook after initial use, fasteners, or product finish are excluded the warranty and disclaimed. The Limited Warranty does not cover any failure that results from improper installation, operation or the buyer's modification in design.

THAC reserves the right to change product design without notice. In situations in which THAC has changed a product design and shall have no obligation to upgrade or otherwise modify previously manufactured Products. No THAC dealer, agent or employee is authorized to make any modification, extension or addition to this warranty.



TAIWAN HOIST AND CRANE CO., LTD.
No. 88, Ln.157, Shandong Rd., Zhongli City,
Taoyuan County 32053, Taiwan (R.O.C.)
Tel: +886-3-4984188 Fax: +886-3-4984198
E-mail: thac@taiwanhoist.com.tw
<http://www.taiwanhoist.com.tw>

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