



BHW

Bushey Hall Winchmaster

www.bhwgroup.com

OPERATING & MAINTENANCE INSTRUCTIONS



RHW MANUAL RATCHET TYPE WINCH

Models: RHW0500 (Part No. 10896), **RHW1000** (Part No. 11316),
RHW2000 (Part No. 11317), **RHW3000** (Part No. 11319)

In accordance with CE Directives

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INTRODUCTION

PLEASE READ THIS MANUAL CAREFULLY BEFORE SET UP OR OPERATION OF THE MACHINE

Those responsible for the installation and the operation of this machine must read and understand this manual. The first section deals with the installation requirements and the second section provides information to ensure safe use of the machine.

The RHW range is of the highest quality and has been designed to give a robust and efficient service for many years if care and attention are given at all times to correct installation, operation and maintenance.

IMPORTANT INFORMATION FOR RHW USERS

This operating and maintenance manual must be made available to any user of this equipment and further copies are available on request. Only operators who have been trained to operate the machine in a safe and proper manner should use a RHW winch.

Safe and correct use of the RHW winch can only be achieved after this manual has been read and fully understood and the instructions are carefully followed by the user.

Only a machine in good working order can be used and in particular the following should be checked every time it is used:

Only wire rope of the correct diameter and construction can be used. (See Page 4). The rope should be inspected to ensure it is serviceable (See 'Care of the Wire Rope – Page 11)

Slings, chains or any other securing device applied to the anchor point is subjected to the full load applied and should be at least capable of dealing with the machine's rated load capacity. This equipment should be regularly inspected. If any cuts, breaks or damage are evident it must be replaced before use.

Do not overload the machine and only use the handle provided. Nothing must be added to extend its length.

Ensure the wire rope and machines are kept clean.

RHW machines must not be used for lifting personnel.

PLEASE KEEP THIS MANUAL WITH THE MACHINE.



MACHINE INFORMATION

SPECIFICATIONS

Models

**RHW Manual Ratchet Type
 Winches RHR500/RHW1000
 RHW2000/RHW3000
 Complaint with Machinery Directive 2006/42/EC**

Construction & Operation

Heavy duty pressed galvanised finish provides ease of handling and a high level of corrosion resistance. The flat base of the housing provides additional stability in surface mounting applications.

Wire Rope is fed around the drum and clamped to the drum side wall to provide parallel clamping system with large surface area to minimise wire rope wear.

Operating Handle

For use on either IN or OUT manual operating rotation

Lubrication

Lightweight open gear grease for regular maintenance
 Calcium based grease for annual maintenance.
 DO NOT oil or grease wire rope. Use a suitable aerosol rope dressing.

CAPACITIES & MEASUREMENTS	RHW500	RHW1000	RHW2000	RHW3000
Rated Load 1st Layer	500kg	1000kg	2000kg	3000kg
Working Load 3rd Layer	340kg	718kg	1455kg	2136kg
Maximum Rope Storage	22m	25m	30m	30m
Gear Ratio	4.3:1	12.2:1	22.:1	29.2:1
Drum Ø	60mm	76mm	90mm	100mm
Wire Rope Ø	7mm	8mm	9mm	11mm
Net Weight approx...	14kg	19kg	25kg	44.5kg

Typical Applications

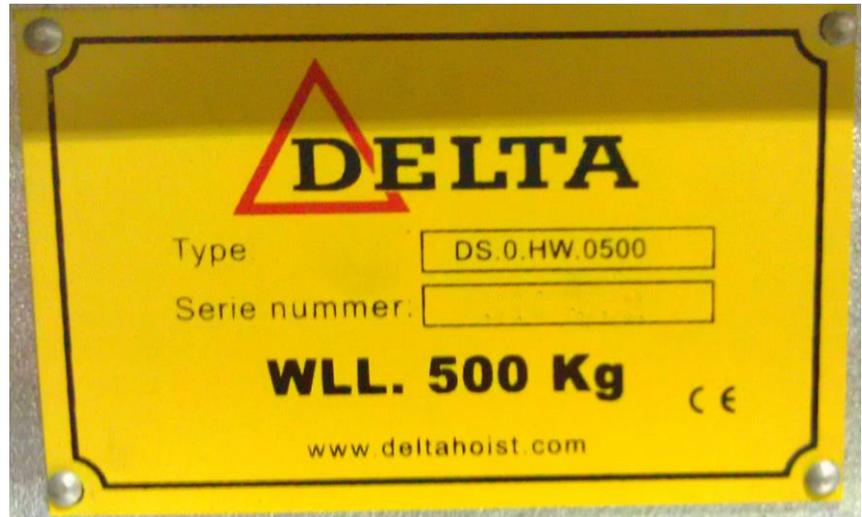
RHW winch is a range of dragging machines for use with wire ropes. They can be used for dragging and positioning heavy and large awkward loads, positioning structural steelwork, general public works, heavy mechanical and electrical engineering. Other uses include agricultural.

Also widely used for tensioning wire fences, garden landscaping and maintenance - and general construction of all kinds.

Useable at horizontal angled working positions only.

WINCH INFORMATION

RHW LABEL



USES FOR A RHW MACHINE

RHW machines provide the user with enormous dragging capacity from a compact, manually operated machine and can be used for many different applications.

The use of the LETTING OUT handle allows the wire rope to be let out under control to release tension on the load.

RHW machines can also be used for tensioning wire fences, positioning heavy machinery and many common applications in Civil Engineering.

With additional attachments such as fixed or movable pulley blocks the direction of lift can be changed and several machines can be used in parallel to enable applied forces to be multiplied.

The manual force applied through the adjustable handle is transferred into the wire rope by hardened ratchet drive and wheel that drives the drum and there for the wire rope in proportion to the force it is applying.

Attachments such as straps, chains or shackles to be attached should be fit for this purpose and be of a suitable rated capacity to at least match that of the machine and capable of safely handling the load to be moved.

Wire rope is supplied as standard with a safety hook. The other end of the cable is fused and tapered. Other wire rope lengths are available from BHW Group sales (01482 223 663).

SAFETY PRECAUTIONS

PLEASE READ THIS CAREFULLY BEFORE OPERATING THE MACHINE

The RHW is of the highest quality and has been designed to provide a robust and efficient service for many years if care and attention are given at all times to correct, safe operation and maintenance.

Respect for the RHW dragging machine – and common sense in its operation, will ensure complete safety and reliability.

BEFORE USE

- Make sure all mount bolts are secured.
- Firmly secure the winch in to position
- Place the adjustable operating handle on the IN and Out levers to ensure they move freely and are functioning correctly.
- Make sure the rope always has 5 wraps of rope on the drum at all times..
- Inspect the rope for possible damage and ensure any mud or dirt are removed.
- Ensure the rope inlet and outlet on the drum is not obstructed.
- Check you have enough room around the machine to operate it efficiently.
- Make sure it has enough capacity to with stand the force applied by the machine

DURING USE

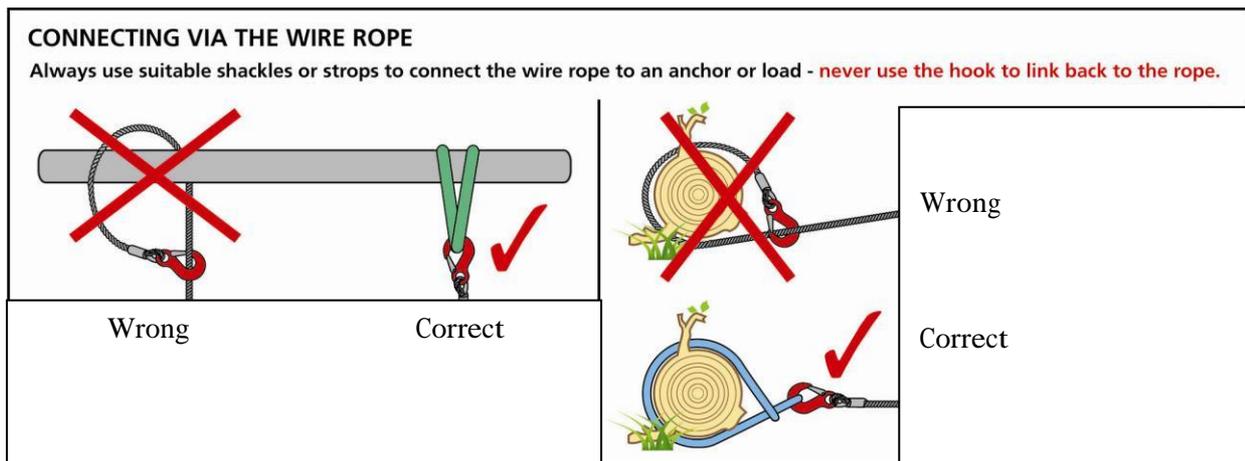
- Keep yourself and others at a safe distance and to the side of the wire rope when lifting under load.
- Never stand near or guide the wire rope under tension.
- Always use heavy-duty gloves when handling the wire rope to protect against cuts or possible burns.
- Always wear suitable protective clothing and footwear.
- Never exceed the rated capacity.
- Operate from a side position and do not stand over the machine or the wire rope.

NOTE: If it is necessary to calculate the forces applied, always have these checked by a competent engineer with particular reference to anchor points and fixture connections.

SAFETY PRECAUTIONS Continued

TAKE CARE OF THE WIRE ROPE

- Check regularly for signs of wear in the form of broken strands or severe kinks along its length. If more than 10 strands are broken in any 25mm of the ropes length it should be replaced.
- Do not allow the load to 'snatch' during a pull as this can momentarily double or even treble the load applied.
- When attaching the hook to the load, always use a suitable load bearing sling, straps or chains with adequate capacity to withstand the loads applied.
- Check that the hook is secure and the safety hook closed. Remember if the hook breaks away under tension it will travel through the air at speed.
- Never wrap the rope around a load, or around an anchor point and reconnect the rope on to the hook.
- Ensure that when 'letting out', sufficient rope is available. If the end of the rope is allowed to pass into the machine housing, the rope will be disconnected from the machine and the load will be released.



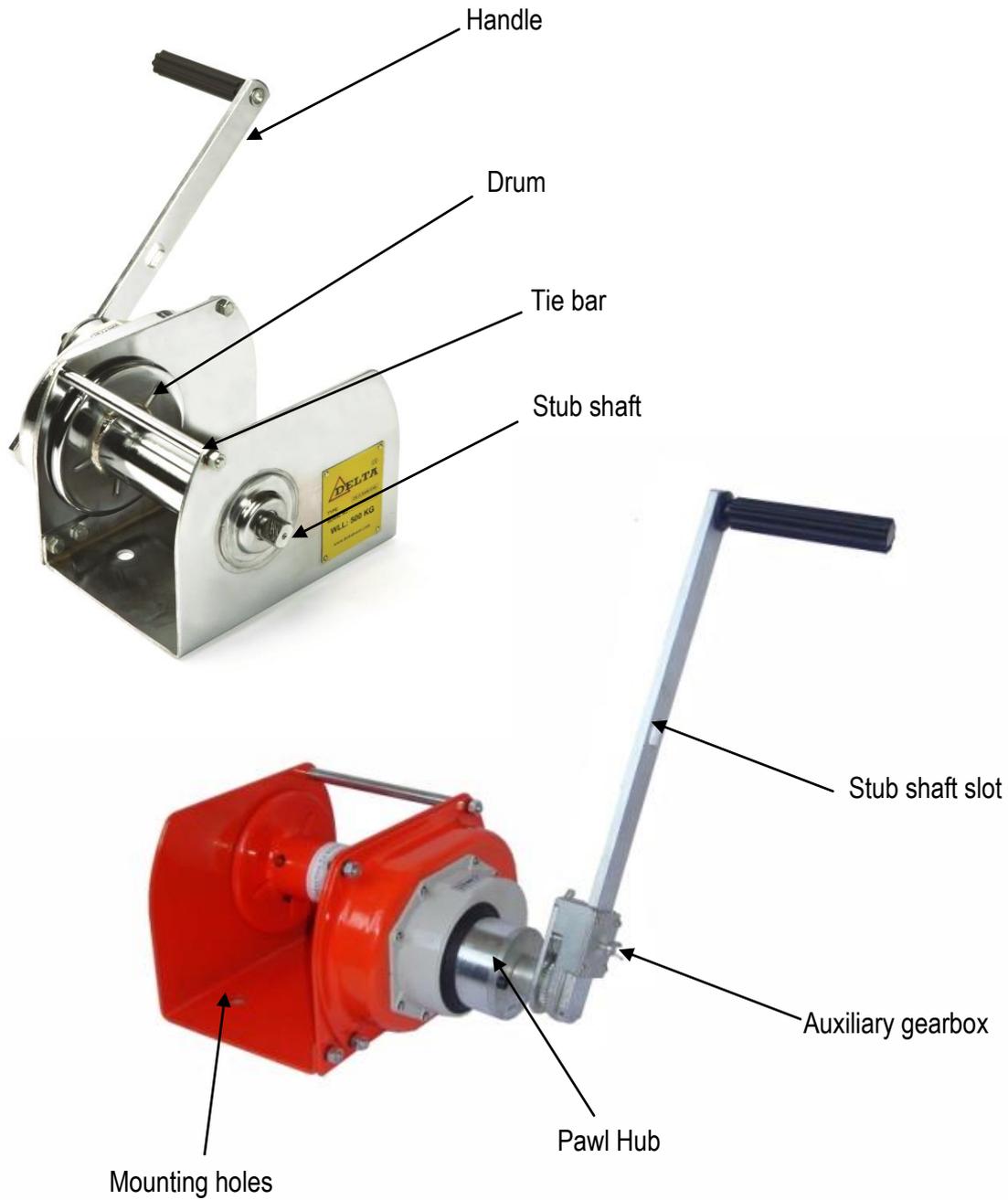
Colours of straps and straps are for illustrative purposes only

SAFETY PRECAUTIONS Continued

OPERATING A RHW MACHINE

MACHINE COMPONENTS

Familiarise yourself with the machine and all of its components.



PREPARING TO USE THE WINCH

THINGS TO CONSIDER

As with all machinery, you are advised to carry out a risk and surrounding environment assessment before commencing any lifting operation.

Lock the Operating Handle on to the handle lock at required length as required, checking that it is fully locked and tightened.

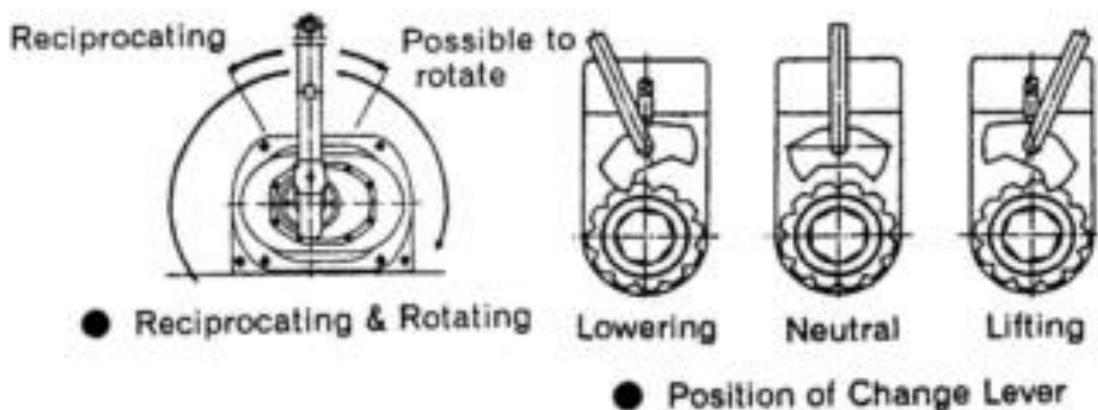
Observing all necessary safety procedures, turn the handle IN or OUT direction according to the application. When letting out or lowering NEVER allow the rope to completely run out. Always keep 5 wraps of rope on the drum.

Always operate winch with the handle fully tightened. **Do not** add anything to the handle that will make it longer. Excessive leverage will alter the performance of the WHW and result in possible injury or damage.

Under no circumstances wrap the wire rope around the load and then attach the hook back on to the rope. Use straps or slings of a suitable breaking strain from the hook to the load and ensure that the safety hook catch is fully closed.

RECIPROCATING OR STANDARD WINDING

The handle on the RHW winch can be wound 360° direction In or Out. If there is limited space for the winch then the reciprocation gearbox can be added. This will still allow you to pay out or pay in the rope but is useful for application where the winch is mounted directly to the floor or wall and would be difficult to rotate the handle 360°



PREPARING TO USE THE WINCH

INSTALLING THE ROPE

RHW-500

1. Loosen retaining bolt (grub screw) and insert the cable end into drum assembly.
2. Tighten retaining bolt firmly (require torque: 115 kgf.cm).
3. Apply slight hand tension pulling on the cable to check cable is attached.

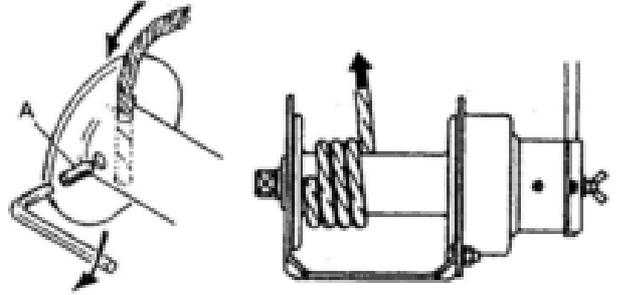


Fig. 1

RHW-1000, RHW-2000 & RHW-3000

1. Loosen retaining bolt (grub screw) and insert the cable end into drum assembly.
2. Tighten retaining bolt firmly (required torque: 115 kgf.cm).
3. Apply slight hand tension pulling on the cable to check cable is attached

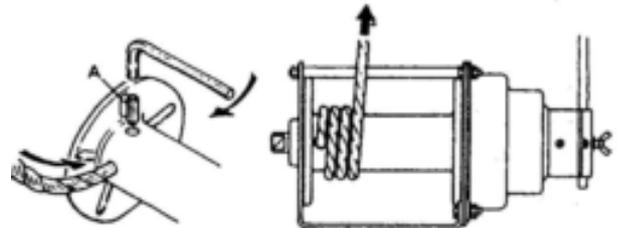


Fig. 2

Always wear good quality glove when handling cables or wire ropes

PREPARING TO USE THE

FREESPOOL

WARNING

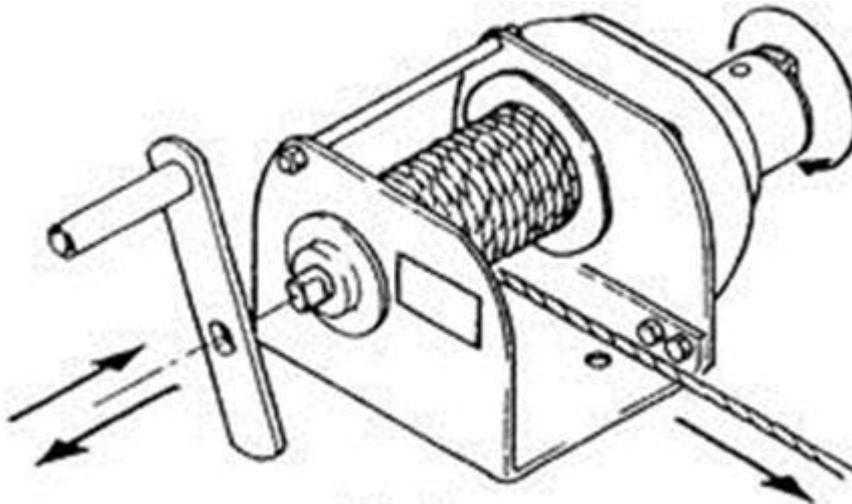
Use the freespool mode only when letting out cable without a load attached.

Never freespool with the handle attached to the winch

Failure to comply may cause serious injury and /or damage to the winch

WINCH IN TO FREESPOOL

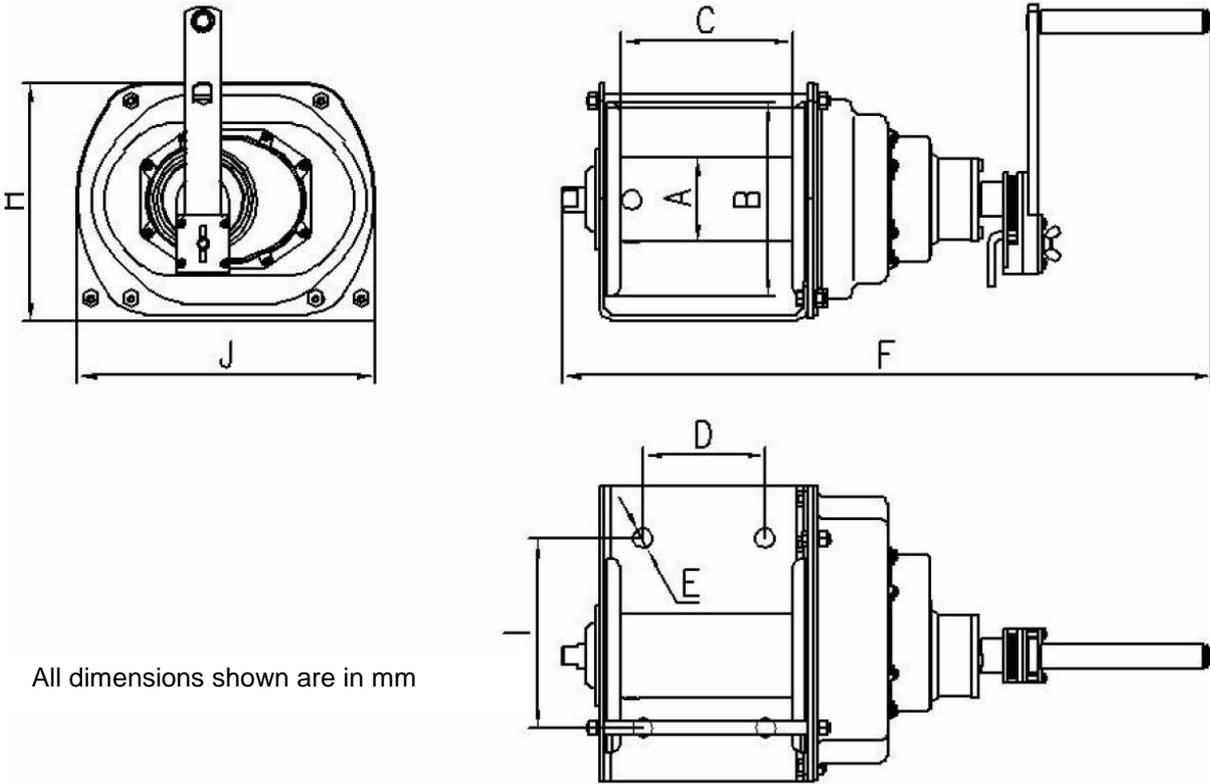
1. Remove any load from the cable
2. Remove the handle from the retainer.
3. Grasp the drum with one hand (using a suitable glove/ protection) and keep the drum from moving while at the same time turning the ratchet hub counter-clockwise until a click sound is heard.
4. Cable can now be unwound from the drum



WINCH IN TO DRIVE

1. Apply a load to the winch
2. Grasp the drum with one hand (using a suitable glove/ protection) and keep the drum from moving while at the same time turning the ratchet

PREPARING TO USE THE WINCH

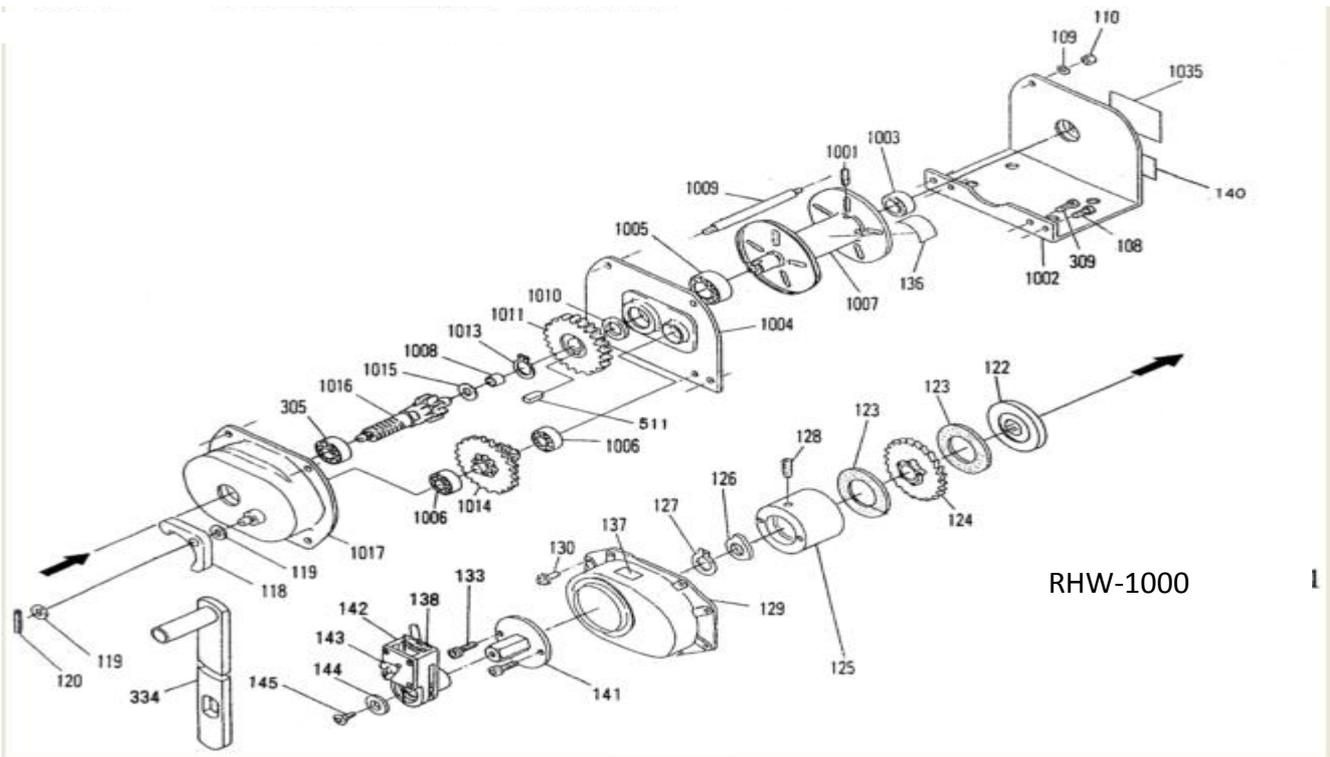


All dimensions shown are in mm

RHW-0500G/P RHW-1000G/P RHW-2000G/P RHW-3000G/P

A	Ø60	Ø76	Ø90	Ø100
B	Ø140	Ø175	Ø190	Ø230
C	150	154	195	205
D	100	110	155	155
E	Ø15	Ø18	Ø18	Ø18
F	403	443	490	549
H	182	214	230	296
I	130	170	170	170
J	245	266	300	365

MAINTANCE



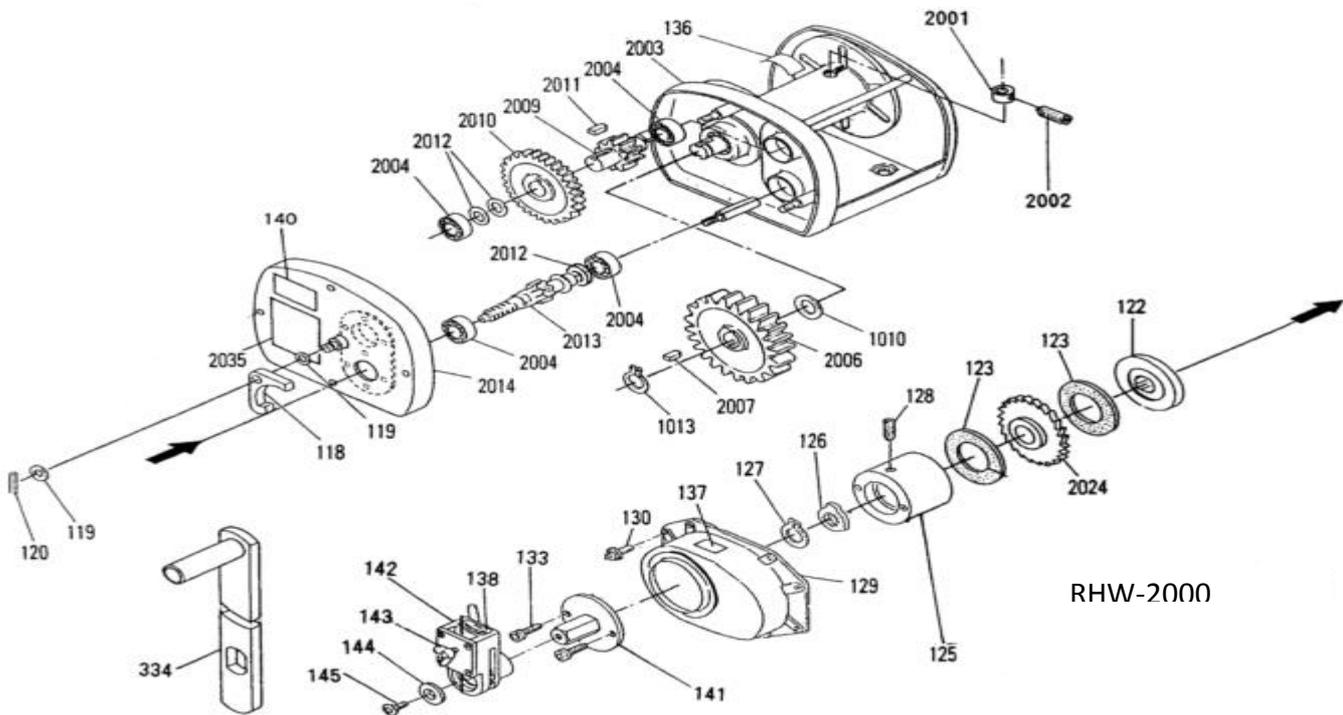
RHW-1000

RHW-1000 Part numbers

BHW No.	No.	RW/OD	Description	Q'ty	BHW No.	No.	RW/OD	Description	Q'ty
17029	1001	40	HSH Locking bolt M8 x 40mm	1	17007	119	18/20	Washer O/D 25mm	2
17030	1002	42	Casing A assembly	1	17008	120	17	Spring pin D4 x 25mm	1
17031	1003	43	Ball bearing 6205ZZ	1	17009	122	16	Disc hub	1
17032	1004	36	Casing B assembly	1	17010	123	13/15	Brake disc	2
16997	305	26	Ball bearing 6005Z	1	17011	124	14	Ratchet wheel assembly	1
17033	1005	37	Ball bearing 6206Z	1	17012	125	11	Ratchet	1
2693	1006	29/31	Ball bearing 6203	2	17013	126	10	Ratchet stopper	1
17034	1007	38	Drum assembly	1	17014	127	9	Clamp N.D. 12	1
2068	108	24	Hex bolt M8 x 20mm	3	15413	128	12	Ball plunger	1
17035	1008	39	N/R Bearing 10BM1410	1	17015	129	8	Brake cover assembly ABS	1
16999	109	22	Spring washer N.D 8	7	17016	130	7	PH Screw M4 x 10mm	8
2069	309	23	Hex bolt M8 x 25mm	2	17017	141	6	Handle mount assembly	1
17036	1009	41	Stay bolt	1	17018	133	5	HSH bolt M6 x 18mm	2
2572	110	21	Hex nut M8	7	17019	142	4	Ratchet handle assembly	7
17037	1010	35	Washer O/D 42.7mm	1	17020	143		Butter fly nut M6 x 12mm	1
17038	1011	33	Spur gear C	1	17021	144	3	Flat washer B	1
17039	1012	34	Key 8 x 7 x 15.7	1	17022	145	2	HXH bolt M6 x 16mm	1
17040	1013	32	Clamp N.D 30	1	17023	334	1	Handle assembly	1
17041	1014	30	Pinion B assembly	1	17045	1035		Name plate	1
17042	1015	28	Thrust washer AS-1024	1	17025	136		Rotation Indicator	1
17043	1016	27	Pinion	1	17026	137		Winding Indicator	1
17044	1017	25	Gear cover assembly	1	17027	138		Indication label	1
17006	118	19	Brake pawl	1	17028	140		Warning label	1

RW/OD means order of disassembly for RH-1000

MAINTANCE

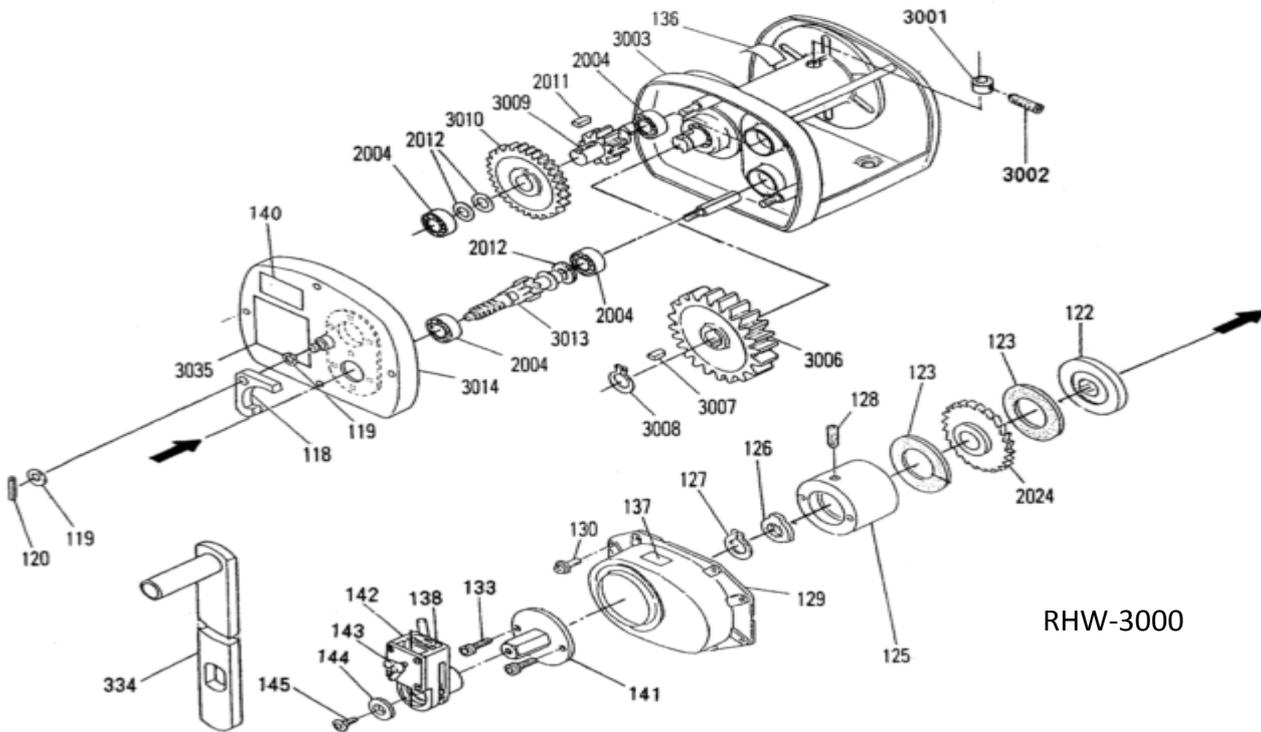


RHW-2000 Part numbers

BHW No.	No.	RW/OD	Description	Q'ty	BHW No.	No.	RW/OD	Description	Q'ty
17046	2001	36	Cable sleeve dia.9mm	1	17010	123	13/15	Brake disc	2
17047	2002	37	HSH Locking bolt M8 x 12mm	1	17059	2024	14	Ratchet wheel assembly	1
17048	2003	35	Winch assembly	1	17012	125	11	Ratchet	1
17049	2004	24/34	Ball bearing 6005	4	17013	126	10	Ratchet stopper	1
17050	2006	31	2nd Spur gear	1	17014	127	9	Clamp N.D. 12mm	1
17051	2007	32	Key 10 x 8 x 20	2	15413	128	12	Ball plunger	1
17052	2009	28	2nd Pinion	1	17015	129	8	Brake cover assembly ABS	1
17037	1010	33	Washer O/D 42.7mm	1	17016	130	7	PH Screw M4 x 10mm	8
17053	2010	27	1st Spur gear	1	17017	141	6	Handle mount assembly	1
17054	2011	29	Key 7 x 7 x 14	1	17018	133	5	HSH Bolt M6 x 18mm	2
17055	2012	26	Washer O/D 34mm	3	17019	142	4	Ratchet Handle Assembly	1
17040	1013	30	Clamp N.D. 30	1	17020	143		Butterfly nut M6 x 12mm	1
17056	2013	25	1st Pinion assembly	1	17021	144	3	Flat washer B	1
17057	2014	23	Gear cover assembly	1	17022	145	2	HXH bolt M6 x 16mm	1
17058	2015	22	Spring washer N.D. M10	4	17023	334		Handle assembly	1
2574	2016	21	Hex nut M10	4	17060	2035		Name plate	1
17006	118	19	Pawl brake	1	17025	136		Rotation indicator	1
17007	119	18/20	Washer O.D. 25mm	2	17026	137		Winding indicator	1
17008	120	17	Spring pin D4 x 25	1	17027	138		Indication label	1
17009	122	16	Disc hub	1	17028	140		Warning label	1

RW/OD means order of disassembly for RH-2000

MAINTANCE



RHW-3000

RHW-3000 Part numbers

BHW No.	No.	RW/OD	Description	Q'ty	BHW No.	No.	RW/OD	Description	Q'ty
17061	3001	35	Cable sleeve dia.12.5mm	1	17059	2024	14	Ratchet wheel assembly	1
17062	3002	36	HSH Locking bolt M10 x 12mm	1	17012	125	11	Ratchet	1
17063	3003	34	Winch assembly	1	17013	126	10	Ratchet stopper	1
17049	2004	24/33	Ball bearing 6005	4	17014	127	9	Clamp N.D. 12mm	1
17064	3006	31	2nd Spur gear	1	15413	128	12	Ball plunger	1
17065	3007	32	Key 12 x 8 x 34	2	17015	129	8	Brake cover assembly ABS	1
17066	3008	30	Clamp N.D. 40	1	17016	130	7	PH Screw M4 x 10mm	8
17067	3009	28	2nd Pinion	1	17017	141	6	Handle mount assembly	1
17068	3010	27	1st Spur gear	1	17018	133	5	HSH Bolt M6 x 18mm	2
17054	2011	29	Key 7 x 7 x 14	1	17019	142	4	Ratchet Handle Assembly	1
17055	2012	26	Washer O/D 34mm	3	17020	143		Butterfly nut M6 x 12mm	1
17069	3014	23	Gear cover assembly	1	17021	144	3	Flat washer B	1
17070	3015	22	Spring washer N.D. M12	4	17022	145	2	HXH bolt M6 x 16mm	1
2576	3016	21	Hex nut M12	4	17023	334		Handle assembly	1
17006	118	19	Pawl brake	1	17071	3035		Name plate	1
17007	119	18/20	Washer O.D. 25mm	2	17025	136		Rotation indicator	1
17008	120	17	Spring pin D4 x 25	1	17026	137		Winding indicator	1
17009	122	16	Disc hub	1	17027	138		Indication label	1
17010	123	13/15	Brake disc	2	17028	140		Warning label	1

RW/OD means order of disassembly for RH-3000

MAINTANCE

SPARES

If it becomes necessary to obtain replacement parts, ensure that you refer to the correct model, as parts are different for each model.

Please contact BHW Group sales on +44 (0)1482 223 663, quoting serial number of the machine if possible and model number.

BHW Group Limited reserve the right to change

CARE OF THE WIRE ROPE

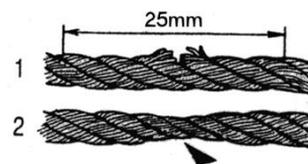
NOTE: ISO 4309:2004/2010 – WIRE ROPES DIRECTIVE

ISO 4309:2004/ 2010 details guidelines for the care, installation, maintenance and examination of wire rope in service on winches, hoists and cranes, and enumerates the discard criteria to be applied to promote the safe use of the machinery. It is important that these guidelines for safe care, installation and ultimately disposal of wire ropes is strictly adhered to according to this directive.

It is most important that the wire rope is inspected on a regular basis, for kinks, flat spots, broken strands and Other damage, and if necessary the damaged sections should be cut away and the rope re-attached or completely Replaced.

Check both the rope and the hook and replace under any of the following circumstances:

- 10 strands of rope or more broken within a space of 25mm or more (Fig. 1). Rope shows visible signs of wasting (Fig. 2).
- Deformed or excessively corroded rope. Twisted rope.
- Bent rope.
- Faulty or damaged hook or safety catch.
- The wire rope is 10% less than original diameter as specified, due to stretch during



use. Wire ropes and safety hooks must be replaced if damaged or worn.

WIRE ROPES ARE NOT COVERED BY WARRANTY.

MAINTANCE

MAINTENANCE PERIODS

REGULAR MONTHLY MAINTENANCE

Check all mounting bolts are tight and not damaged
The machine should be kept clean in order to prevent any build-up of material on external working parts. Check your WHW for any external damage.
All external-moving parts should be lubricated with lightweight oil.
Remove any dirt or debris from wire rope and apply a suitable aerosol dressing to protect.

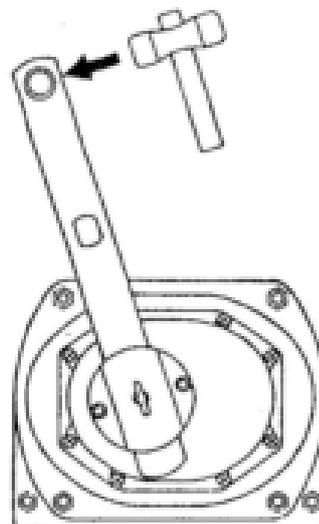
REGULAR YEARLY MAINTENANCE

Clean and lubricate with good quality open gear grease.
Check all parts and accessories for any wear or damage. Replace as necessary.

WINCH SIEZED

It is not recommended to leave the winch under load for long periods of time. Under such condition dust from the brake discs or from the environment may cause the brake components to stick or lock together. This problem can be avoided by occasionally operating the handle.

If lock –up occurs, pull the handle hard in the anti-clockwise direction or tap the stem of the handle with a rubber mallet (fig 10) in the same direction. Once lock-up has been cleared, the winch must be taken out of service. The winch must then be disassembled, inspected and serviced. All part inspected and replaced if required before re-assembling and placing back in to service.



MAINTANCE

BRAKE MECHINISUM

Keep the braking area clean and dry. Do not use oil or water in the brake disc (14, fig 7) and ratchet disc (16, fig7) at any time. This will affect the brake disc and could cause brake failure.

When brake discs (14, fig 7) shows excessive wear or are heavily scratched, they need to be replaced. Original disc thickness is 3.2mm. Replace the brake discs when there thickness has reduced 2.6mm. Another indicator of brake wear is in the idle angle of the ratchet. As the brake discs wear the idling angle of the ratchet (fig 8) spreads gradually. Replace brake discs when the angle reaches 65°.

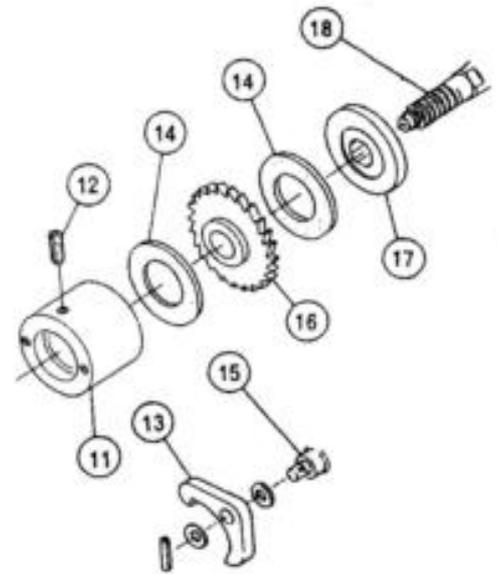


Fig. 7

KEEP the threaded parts of the ratchet (11, fig 7) and the pinions (18, fig7) clean with wire brush.

If the ratchet (11, fig7), ratchet disc (16, fig 7) and disc hub (17, fig 7) begin to show wear, lightly sand with fine sand paper. If they show excessive wear they must be replaced.

If rust is found inside of the hole of the ratchet (11, fig 7) and on the brake pawl pin (15, fig7) lightly sand with fine sand paper , clean and lubricate lightly with a light machine oil.

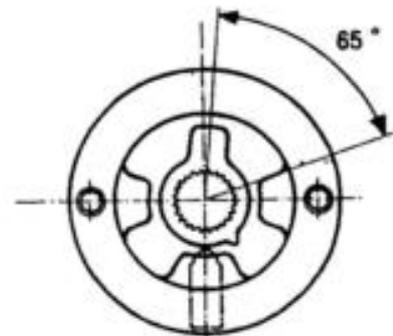


Fig. 8

MAINTANCE

TROUBLE SHOOTING

Below are some tips on trouble shooting with a RHW winch, further advice is readily available from the BHW Group.

SYMPTOM	POSSIBLE CAUSE	CORRECTIONS
Drum will not rotate	Winch mounting twisted or deformed Drum damaged Brake seized Bearing damaged Tie bars twisted or damaged	Repair or replace Repair or replace Service or replace Replace Replace
Winch will not freespool	Ratchet system not working Spring loaded plunger weak	Re-set or replace Replace
Winch will not go in to drive	Spring loaded plunger weak Spring loaded plunger position	Replace Re-set
Winch will not hold the load	Brake disc worn Brake disc smooth Brake pawl worn	Replace Repair or replace Replace
Failure to pull the rated load	Overload	Reduce the load
Rope will not layer neatly on the drum	Fleet angle too short to diversion pulley Rope damaged Side pulls builds up on one side	Increase distance Replace Use snatch block to improve angle
Gear cover assembly	Cracked or damaged	Replace
Brake cover	Cracked or damaged	Replace
Handle assembly	Deformed or damaged	Replace

MAINTANCE

WARRANTY

BHW GROUP LIMITED warrants each new RHW Winch and ancillary equipment supplied as part of the customer order against factory defects in materials and workmanship for one year from date of purchase.

The responsibility for decommission of the machine or ancillary equipment is the owner's, together with its return and transportation – prepaid - to BHW Group Limited.

BHW Group Limited will, under this warranty, without charge, repair or replace at its option, parts which on inspection are deemed to be defective. The loss of use of associated machinery, staff or contractors time, inconvenience, commercial loss or consequential damages are not covered.

Warranty does not apply where the product has been tampered with or altered in any way, or where the serial number or date stamp has been defaced, altered or removed, or if in the view of BHW Group Limited the damage or failure occurred from misuse, negligence or accident.

THIS WARRANTY EXCLUDES THE WIRE ROPE

BHW Group Limited reserve the right to change the design of any product without assuming any obligation to modify any product previously supplied.

Machines or equipment returned under warranty should be despatched to BHW Group Limited service department at the address shown below, with full name and address of sender, a statement detailing the defect and proof of purchase.



Service Department
Bushey Hall Winchmaster
6 South Orbital Trading Park
Hedon Road, Hull, HU9 1NJ

Telephone: +44 (0)1482 223 663
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