William Hackett

C4 Chain Hoist User Manual

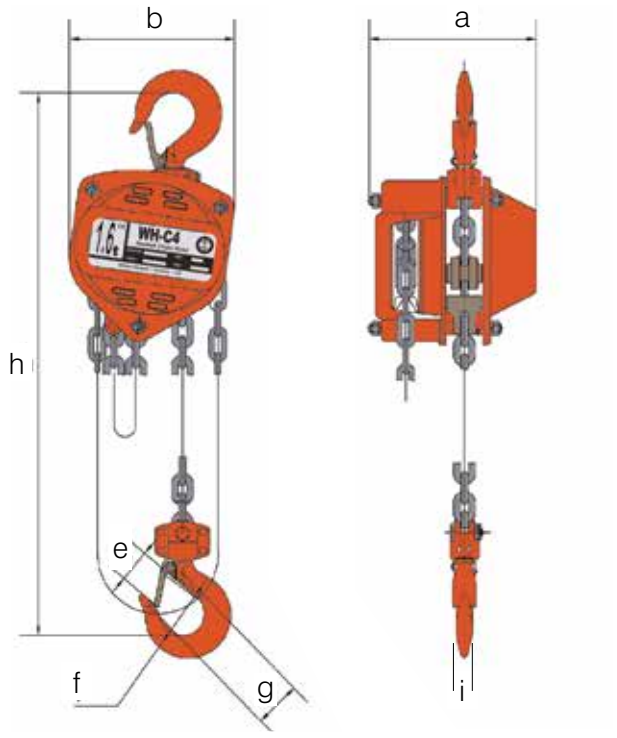
WHM-0027 Rev. 6


WH-C4
3.2t

Contents

Dimensions and Specifications

Single Fall



Multi Fall

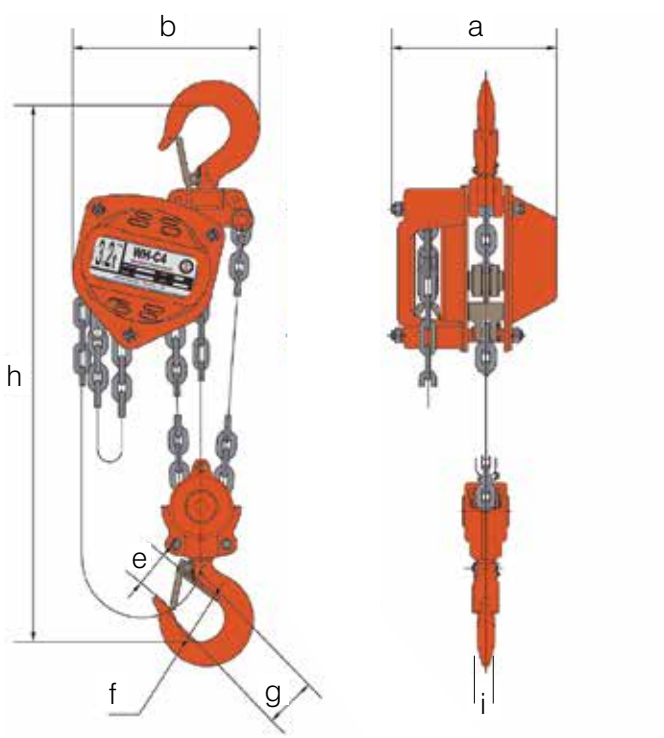


Table 1: Product specification, dimensions and WLL for William Hackett WH-C4 chain hoists

Part Code	WLL tonnes	No. of Falls	Load Chain mm	a mm	b mm	e mm	f mm	g mm	h min mm	i mm	Mass kg 3M HOL	Extra Weight per M kg
022.053	0.5	1	5 x 15	125	130	20.5	34	42.5	305	14.2	7.8	1.44
022.103	1.0	1	6 x 18	134	155	25.5	40	49.0	350	15.0	11.1	1.71
022.163	1.6	1	8 x 24	151	173	30.0	40	51.5	390	19.0	15.8	2.24
022.203	2.0	1	8 x 24	157	185	30.0	44	54.5	410	19.5	16.8	2.24
022.32D03	3.2	2	8 x 24	157	235	37.5	48	61.0	495	24.4	24.2	3.58
022.503	5.0	2	10 x 30	180	262	43.0	60	85.0	635	34.0	38.4	5.24
022.753	7.5	3	10 x 30	180	373	53.0	83	89.0	775	40.0	58.2	7.51
022/1003	10.0	4	10 x 30	180	365	53.0	83	89.0	815	40.0	68.9	9.58
022/1503	15.0	6	10 x 30	210	406	80.0	108	-	1000	56.0	116.7	13.92
022/2003	20.0	8	10 x 30	225	550	80.0	108	-	1100	56.0	149.5	19.16
022/3003	30.0	12	10 x 30	460	800	112.0*	140	-	1550	106.0	515.0	27.84
022/5003	50.0	20	10 x 30	580	840	140.0*	180	-	2000	132.0	750.0	45.20

*Measurement without latch

Hoist Selection

In accordance with statutory requirements (e.g. The Lifting Operations and Lifting Equipment Regulations 1998), all lifts using chain hoist assemblies should be planned by a competent person; require risk assessment and the production of a task method statement; and be subject to execution by suitably trained operatives under the supervision of a responsible person. The specification of the chain hoist assemblies required to achieve a safe lifting operation must be determined by a competent person.

It is not intended that the recommendations in this manual take precedence over existing plant safety rules and regulations or OSHA regulations. In the event that conflict exists between a rule set forth in this publication and a similar rule already set by an individual company, the more stringent of the two should take precedence.

Careful consideration should be given to the mass of the load being lifted and any dynamic factors that may be likely to affect the load on the hoist. Select the hoist capacity equal to or greater than the load. Ideally chain hoists should not be used to lift loads below 10% of their rated WLL limit.

William Hackett C4 chain hoists are assembled, chained and tested in the UK to the height of lift specified by the end user. Careful consideration should be given to the headroom required to lift the load and the position of the operator before specifying the length of load chain and the hoist model.

The configuration of chain hoist assemblies are demonstrated on page 4, and are in accordance with the product specification, dimensions and working load limit (WLL) recorded in Table 1 (also on page 4).

William Hackett C4 chain hoists are designed for industrial applications in both indoor and outdoor plus topside marine environments.

William Hackett C4 chain hoists are available in specialised versions to suit hazardous environments. The C4 Atex hoist is suitable for spark sensitive use and the SS-C4 is corrosion resistant and suitable for subsea use.

William Hackett C4 chain hoists can be used within an operating temperature range of -20°C to +120°C.

William Hackett C4 hoists are suitable for fleeting lifting.

A thorough study of the information in this manual should provide a better understanding of safe operating procedures and afford a greater margin of safety for people and equipment.

Pre-use Checks

Before the chain hoist is issued from the designated storage location a competent person must ensure that the appropriate certification is in place for the hoist.

Safe use instructions should be made available.

Possession of the relevant certification does not absolve the user from his responsibility to carry out pre-use inspections.

Conducting thorough and consistent checks on a chain hoist immediately prior to use will help identify problems due to accidental damage, internal corrosion, brake contamination or inappropriate storage.
Points to check before each period of use are:

- If necessary, the hoist should be cleaned before inspection.
- Name Plate – details clear and visible
- Hook latches in good working order
- Is the Load chain worn or damaged. In particular attention should be given to the wear which occurs on the bearing surfaces inside the links and to damage in the form of bent, notched, stretched, or excessively corroded links and the chain should move freely.
- Obvious signs of hooks opening out increase in throat opening or any other form of distortion in the hooks or suspension fittings.
- Top and bottom hooks free to rotate with no load applied.
- With no load applied turning the hand chain clockwise should produce a clear and positive clicking sound as the brake ratchet activates.
- On multiple fall hoists check that all chain sheaves are free to rotate whilst no load is applied.
- Check all fixings are in place and in good condition, split pins or nyloc nuts.
- Obvious signs of damage to the hoist slack end chain anchor.
- General damage to the hoist body, this can be an indicator of neglect throughout the hoist.
- The load chain wheel should be checked for damage or debris
- Chain guides and strippers should be free of debris and in good condition.

If any of these points are not satisfied the hoist MUST NOT be used.

Safe Use information

Do not attempt lifting operations unless you understand the use of the equipment, the lifting and slinging procedures and you have been suitably trained.

William Hackett C4 chain hoists are not designed for lifting people and should not be used for that purpose.

Use appropriate personal protective equipment (PPE).

Check the correct engagement of the top and bottom hooks. The hooks should be free to articulate within the load attachment points without overcrowding.

Ensure that the suspension structure has sufficient load bearing strength and capacity to support the load.

Do not use the chain hoist as a chain sling; it is a lifting appliance and suitable lifting accessories should be incorporated into the lift plan to facilitate a safe lifting operation.

If more than one chain hoist is to be used, refer to Appendix 1: General Guidance for Fleeting Lifting at the end of this manual.

Establish a clearly defined zone around the area of the lifting operation.

Always stand aside from the load when operating the hoist and ensure that no one enters the lift zone unintentionally during the lifting operation.

Ensure that the load and hand chains are not twisted, particular care should be taken when using multi-fall hoists.

During the lift the load and hand chains should be straight and should not contact any angles or edges.

Take the load steadily and avoid shock loads, using the hand chain to apply effort. The load is lowered by pulling the hand chain in the opposite direction.

Do not expose chain hoist assemblies, chain slings and components to chemicals or corrosive solutions (whether immersed in such solutions or used in atmospheres in which fumes are present), particularly acidic or strongly alkaline environments without consulting the supplier or manufacturer.

Do not leave suspended loads unattended. In an emergency cordon off the working area and establish safe exclusion zones.

Never return a damaged chain hoist to stores; it should be reported to a competent person.

Storage and Control Procedures

The equipment should ideally be stored in a purpose designed facility where it can be kept secure from unauthorised use. A responsible person should control the issue and receipt of all lifting appliances and accessories, and a system to manage statutory inspections should be in place.

Storage would normally be on suitable racks within a container a manner that prevents accidental mechanical damage and where the load chains are clear from the ground.

The load chain should be dried and wrapped around the hoist, not left on the floor

During transport to the worksite and whilst in store at the worksite, the equipment should be protected from exposure to any conditions which may affect its ability to operate safely. In particular, it should be protected from exposure to:

- water/sea water;
- temperatures higher than can be comfortably tolerated by the hand
- temperatures below freezing point
- solvents
- corrosive chemicals or fumes
- grit, sand and wind-blown dust.

Any defects should be reported to the responsible person and damaged hoists should be quarantined.

Duty holders and actual users of lifting equipment, including hoists and associated components can obtain more detailed information and guidance on safe use and compliance with statutory requirements from the following publications;

HSE Publication L22 (2014) Safe Use of Work Equipment.
HSE Publication L113 (2014) Safe Use of Lifting Equipment.
HSE Publication INDG422 (2008) Thorough Examination of Lifting Equipment.
HSE Publication L23 (2004) Manual Handling.
HSE Publication L25 (2005) Personal Protective Equipment at Work.

Practical Considerations

As with any item of lifting equipment, the chain hoist will be specified for a maximum working load limit. This should not be exceeded during any lifting operation. It is important, therefore, when planning a lifting operation that the load to be lifted on the chain hoist is known or has been accurately estimated with an adequate allowance for safety. The possible effects of additional loading, such as friction, should be included when the chain hoist is being selected for the lift.

The design of chain hoists is such that a brake mechanism is used to suspend the load, but also requires a load to operate. When planning a lifting operation using a chain hoist or selecting a chain hoist for a lift, the light load limitation of the braking mechanism should be recognised. The William Hackett WH-C4 chain hoist is tested and certified to have a light load capability at 2% of the chain hoist rated capacity, but it is not recommended to use a chain hoist at below 10% of the rated capacity.

A chain hoist should be loaded and unloaded using the hand chain. When a load is removed from a chain hoist other than by the use of the hand chain (e.g. by transfer of a load to a surface crane) the brake mechanism will remain locked together. Subsequent loading of the hoist (for example, by the transferring of a load on to the hoist from a surface crane) will result in the load being applied to a locked brake mechanism - something manufacturers regard as bad practice, potentially resulting in unexpected slippage as the hoist is then operated. If a load is removed from a chain hoist, the chain hoist should be operated to unlock the brake and confirm the hoist is fully functional before the chain hoist is used for another lifting operation.

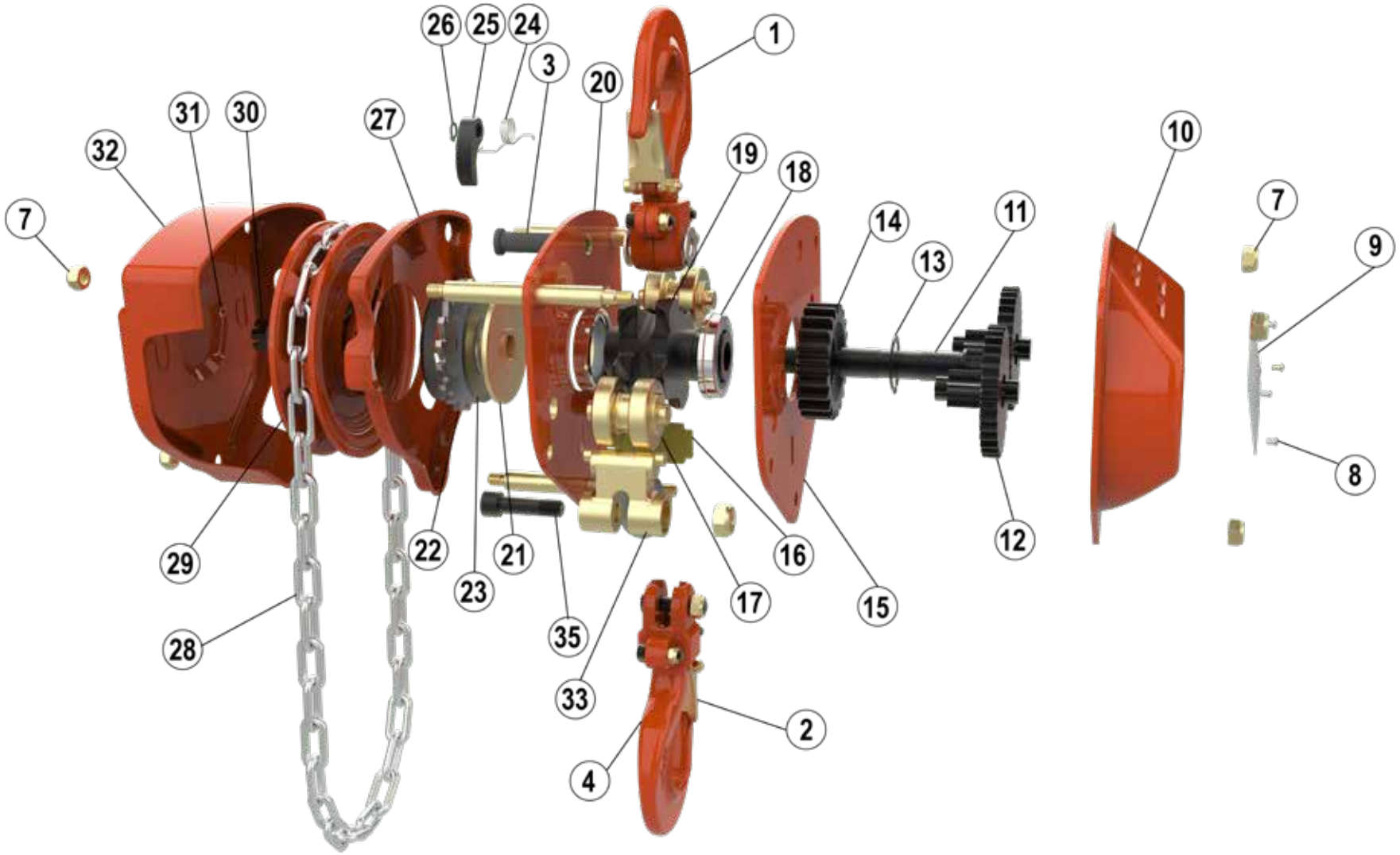
Spare Parts Inspection Category

STANDARD INSPECTION - Type 2	Non-Corrosion Protected or Painted Components

Part Code	Quantity	Description	Inspection Type (1 or 2)
			C4
C4.01	1	Top Hook Assembly	2
C4.02	2	Latch Kit	2
C4.03	1	Top Hook Pin	2
C4.04	1	Bottom Hook Assembly	2
C4.05	1	Bottom Hook Chain Fixing Pin	2
C4.07	6	Nut	2
C4.08	4	Label Rivets	N/A
C4.09	1	Label	2
C4.10	1	Gear Cover Assembly	2
C4.11	1	Pinion Shaft	2
C4.12	2	Pinion Gear (pair)	2
C4.13	1	Snap Ring	2
C4.14	1	Load Gear	2
C4.15	1	Gear Side Plate	2
C4.16	1	Stripper	2
C4.17	2	Guide Roller	2
C4.18	2	Caged Roller Bearings	2
C4.19	1	Load Sheave	2
C4.20	1	Wheel Side Plate Assembly	2
C4.21	1	Disc Hub	2
C4.22	2	Friction Disc (pair)	2
C4.23	1	Ratchet Gear	2
C4.24	2	Pawl Spring	2
C4.25	2	Pawl	2
C4.26	2	Snap Ring	N/A
C4.27	1	Brake Cover	2
C4.28	1	Hand Chain	2
C4.29	1	Hand Chain Wheel	2
C4.29L	1	Overload Limiter Assembly	2
C4.30	1	Pinion Nut	2
C4.31	1	Cotter Pin	N/A
C4.32	1	Hand Wheel Cover	2
C4.33	1	Chain Anchor Plate	2
C4.34	1	Split Pin	N/A
C4.35	1	Chain Anchor Pin	N/A
C4.36	1	Top Hook Pin and Lock Nut	2

Parts List

Part Code	Part Name	C4 Finish
C4.01	Top Hook Assembly	Powder Coating & Zinc
C4.02	Latch Kit	Zinc Passivate
C4.03	Top Hook Pin	Self Colour
C4.04	Bottom Hook Assembly	Powder Coating & Zinc
C4.05	Bottom Hook Chain Fixing Pin	Powder Coating & Zinc
C4.07	Nut	Zinc Passivate
C4.08	Label Rivets	Aluminium
C4.09	Label	Aluminium
C4.10	Gear Cover Assembly	Powder Coating
C4.11	Pinion Shaft	Self Colour
C4.12	Pinion Gear (pair)	Self Colour
C4.13	Snap Ring	Self Colour
C4.14	Load Gear	Self Colour
C4.15	Gear Side Plate	Powder Coating
C4.16	Stripper	Zinc Passivate
C4.17	Guide Roller	Zinc Passivate
C4.18	Caged Roller Bearings	Self Colour
C4.19	Load Sheave	Self Colour
C4.20	Wheel Side Plate Assembly	Powder Coating
C4.21	Disc Hub	Zinc Passivate
C4.22	Friction Disc (pair)	N/A
C4.23	Ratchet Gear	Zinc Passivate
C4.24	Pawl Spring	Stainless Steel
C4.25	Pawl	Self Colour
C4.26	Snap Ring	Self Colour
C4.27	Brake Cover	Powder Coating
C4.28	Hand Chain	N/A
C4.29	Hand Chain Wheel	Powder Coating
C4.29L	Overload Limiter Assembly	N/A
C4.30	Pinion Nut	Self Colour
C4.31	Cotter Pin	Steel
C4.32	Hand Wheel Cover	Powder Coating
C4.33	Chain Anchor Plate	Zinc Passivate
C4.34	Split Pin	Steel
C4.35	Chain Anchor Pin	Steel
C4.36	Top Hook Pin and Lock Nut	Self Colour & Zinc



Part Code	Part Name
C4.01	Top Hook Assembly
C4.02	Latch Kit
C4.03	Top Hook Pin
C4.04	Bottom Hook Assembly
C4.05	Chain Fixing Pin
C4.07	Nut
C4.08	Label Rivets
C4.09	Label
C4.10	Gear Cover Assembly

Part Code	Part Name
C4.11	Pinion Shaft
C4.12	Pinion Gear (pair)
C4.13	Snap Ring
C4.14	Load Gear
C4.15	Gear Side Plate
C4.16	Stripper
C4.17	Guide Roller
C4.18	Caged Roller Bearings
C4.19	Load Sheave

Part Code	Part Name
C4.20	Wheel Side Plate Assembly
C4.21	Disc Hub
C4.22	Friction Disc (pair)
C4.23	Ratchet Gear
C4.24	Pawl Spring
C4.25	Pawl
C4.26	Snap Ring
C4.27	Brake Cover
C4.28	Hand Chain (5 x 25mm)

Part Code	Part Name
C4.29	Hand Chain Wheel
C4 29L	Overload Limiter
C4.30	Pinion Nut
C4.31	Cotter Pin
C4.32	Hand Wheel Cover
C4.33	Chain Anchor Plate
C4.35	Chain Anchor Pin
C4.36	Top Hook Pin and Lock Nut

Hoist Disassembly

C4 Servicing Tool Requirements	
Metric spanners or socket set 5mm-19mm	Long nose pliers
Circlip pliers	Nylon/Dead blow hammer
Ball Pein hammer	Solvent free brake cleaner
120-180 grit Sandpaper	Cross head screw driver
Metric Allen Key set 3mm-12mm	Vernier caliper
Pop Rivet Gun	Drill (for speed link removal)

The following procedures should only be performed by a competent person.

It is a responsibility of the owner/user to install, operate, inspect and maintain product in accordance with all applicable Standards and Regulations. If the product is installed as part of a lifting system, it is also the responsibility of the owner/user to comply with the applicable standards that address other types of equipment used.

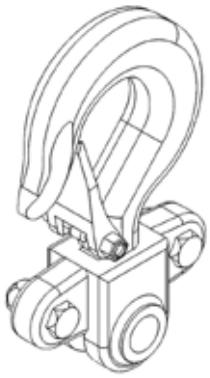
Disassembly

1. On single fall chain hoists remove bottom hook #4 and disassemble for inspection including latch.
2. Depending on model remove either split or bolt and locking nut from chain anchor #33.
3. The load chain can now be fed out from the hoist body using the hand chain, this is easiest when the hoist is hung from its top hook, take care that the chain does not catch or jam between the guides and sheave on removal #17 & 19.
4. On multiple fall hoists remove the chain end fixing #36 and feed the chain from the hook sheaves.
5. Loosen and remove the 3pcs of nyloc nuts from the hand wheel cover#32.
6. Remove hand chain for inspection, pay attention to the pop riveted speed link connection.
7. Remove and discard the split pin #31.
8. Remove castle nut #30.
9. The handle wheel #29 can now be rotated counter clockwise and removed from the pinion shaft.
10. Lift the brake cover from the hoist body.
11. Lift the upper friction disc, ratchet gear and lower friction disc from the disc hub, #22 (2pcs) and 23.
12. The Disc hub is removed by turning counter clockwise. Tip- after the hoist has been loaded the disc hub can become tight to remove, this can be freed with a gentle tap using a nylon hammer, whilst holding the pinion shaft tap the disc hub in the counter clockwise direction.
13. Remove the pawl circlips #26.
14. Lift the pawls and pawl springs #24 &25 (on certain models the pawls are secured using counter sunk bolts).
15. Remove the top hook pin #3 and lift the top hook #4 from the hoist body.
16. Turn the hoist over and remove 3pcs nylon nut #7 then lift the gear cover #10 from the hoist body.

NOTE: At this point it is advisable to take notice of how the pawls (#25) are tensioned and located to the ratchet disc (#23)

17. Remove pinion gears #12 (2pcs).
18. Lift the pinion shaft #11 from the sheave #19.
19. Remove the load gear circlip #13 then lift the load gear #14 from the sheave.
20. Gear side plate #15 can now be removed, it is recommended to make a note of the position of each component within the side plates.
21. Remove guides, stripper, sheave and anchor, #16, 17, 19 & 33, disassembly complete.

C4.01 Top Hook Assembly



Inspection Type: Visual and Dimensional - contact manufacturer
Quantity: 1

Check for distortion, damage, fractures and stretching. The hook shall be free and smooth to rotate, the hook to housing contact points should have even wear, check top hook bolt hole to diagram.

Action: Shotblast and repaint or replace if required.

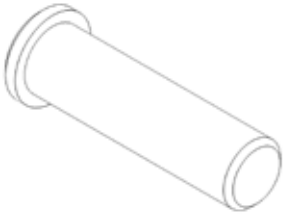
C4.02 Latch Kit

Inspection Type: Visual
Quantity: 2

Latch assemblies shall be secure and free/smooth to open and close.

Action: Replace if necessary.

C4.03 Top Hook Pin

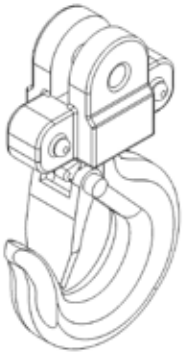


Inspection Type: Visual and Dimensional - contact manufacturer
Quantity: 1

Check dimensionally and visually for damage or wear.

Action: Replace if necessary.

C4.04 Bottom Hook Assembly

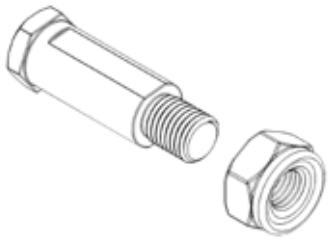


Inspection Type: Visual and Dimensional - contact manufacturer
Quantity: 1

Check for distortion, damage, fractures and stretching. The hook shall be free and smooth to rotate, the hook to housing contact points should have even wear.

Action: Shotblast and repaint or replace if required.

C4.05 Bottom Hook Chain Fixing Pin



Inspection Type: Visual

Quantity: 1

Check for damage or wear.

Action: Check and replace if necessary.

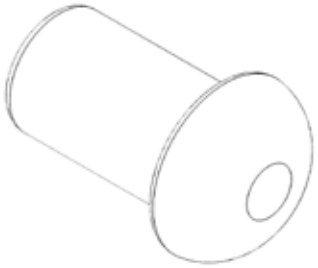
C4.07 Nut

Inspection Type: Not Applicable

Quantity: 6

Action: Discard and replace.

C4.08 Label Rivets



Inspection Type: Not Applicable

Quantity: 4

Action: Discard and replace.

C4.09 Label

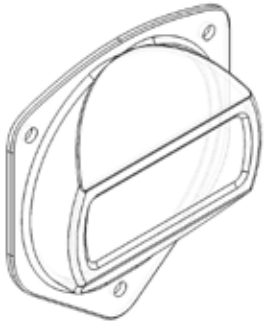
Inspection Type: Visual

Quantity: 1

Check nameplate is secure and in good condition, the unique hoist Ser no, WLL, HOL, chain grade an dimension should all be legible.

Action: Check and replace if necessary.

C4.10 Gear Cover Assembly



Inspection Type: Visual
Quantity: 1

Examine for cracks, distortion,damaged or broken parts, check gear bushings are secure and in good condition.

Action: Shotblast and repaint or replace if necessary.

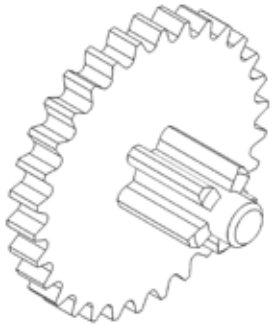
C4.11 Pinion Shaft

Inspection Type: Visual
Quantity: 1

Check for wear and damage.

Action: Clean or replace.

C4.12 Pinion Gear (pair)



Inspection Type: Visual
Quantity: 2

Examine gears for wear, fractures and alignment

Action: Clean, reapply grease or replace if necessary.

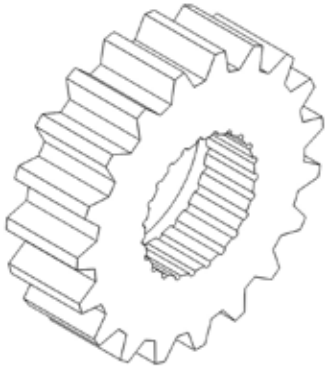
C4.13 Snap Ring

Inspection Type: Visual
Quantity: 1

Examine for cracks, distortion or damage.

Action: Replace if necessary.

C4.14 Load Gear

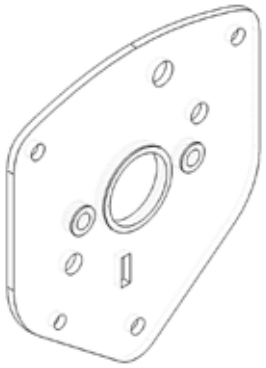


Inspection Type: Visual
Quantity: 1

Examine gear for wear, fracture and alignment.

Action: Clean, reapply grease or replace if necessary.

C4.15 Gear Side Plate

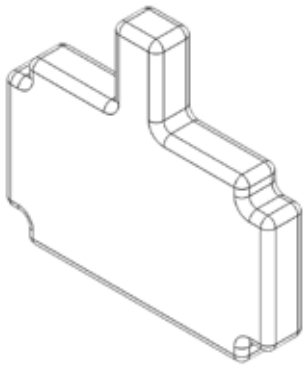


Inspection Type: Visual
Quantity: 1

Examine gear/right side plates for alignment and ensure they are free from excessive wear and distortion, examine load pin, guide, stripper and stay bolt holes for signs of wear and stretch, check gear bushings are secure and in good condition.

Action: Shotblast and repaint or replace if necessary.

C4.16 Stripper



Inspection Type: Visual
Quantity: 1

Examine chain stripper for wear and damage.

Action: Replace if necessary.

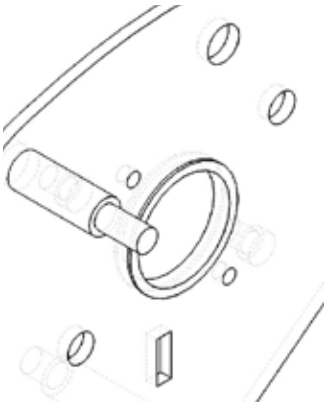
C4.17 Guide Roller

Inspection Type: Visual
Quantity: 2

Examine chain guide for wear and damage

Action: Replace if necessary.

C4.18 Caged Roller Bearings

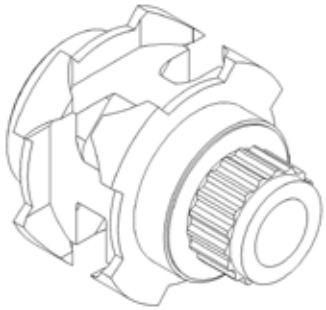


Inspection Type: Visual
Quantity: 2

Examine Bearings for excessive corrosion and wear, the bearings should be smooth and free to operate when a slight pressure is applied.

Action: Clean, reapply grease or replace if necessary.

C4.19 Load Sheave

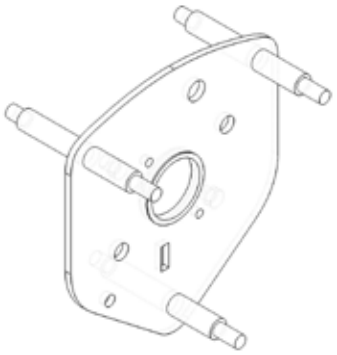


Inspection Type: Visual
Quantity: 1

Check load chain pockets for wear and damage, ensuring satisfactory seating of load chain in pockets.

Action: Clean, reapply grease or replace if necessary.

C4.20 Wheel Side Plate Assembly



Inspection Type: Visual
Quantity: 1

Examine body plates for alignment and ensure they are free from wear and distortion, examine load pin, guide and stripper holes for signs of wear and stretch, check stay bolts and pawl stands are secure and free from defects.

Action: Shotblast and repaint or replace if necessary.

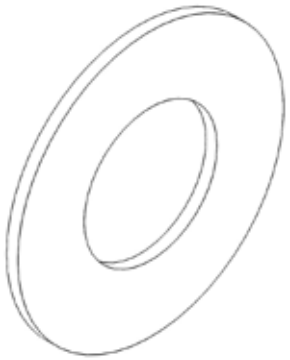
C4.21 Disc Hub

Inspection Type: Visual
Quantity: 1

Check splines and ensure the component mating surfaces are smooth, flat and without excessive corrosion.

Action: Replace if necessary.

C4.22 Friction Disc (pair)

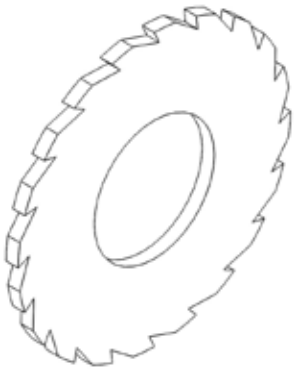


Inspection Type: Visual and Dimensional - see miscellaneous
Quantity: 2

Check for fractures, wear and damage ensuring mating surfaces are flat and clean and free from contaminents.

Action: Replace if any defects found or below tolerance.

C4.23 Ratchet Gear

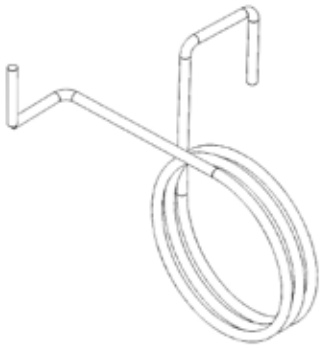


Inspection Type: Visual and Dimensional - see miscellaneous
Quantity: 1

Examine ratchet teeth and brake component surfaces ensuring they are smooth and flat.

Action: Replace if any defects found or below tolerance.

C4.24 Pawl Spring



Inspection Type: Visual
Quantity: 2

Examine pawl springs for corrosion and fractures, ensure the spring is good working order and not deformed or stretched.

Action: Replace if necessary.

C4.25 Pawl

Inspection Type: Visual and Dimensional - see miscellaneous
Quantity: 2

Check pawl for wear ensuring pawl is free to move on pawl shaft

Action: Replace if any defects found or below tolerance.

C4.26 Snap Ring

Inspection Type: Not Applicable
Quantity: 2

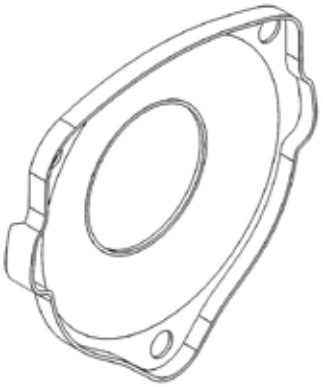
Action: Discard and replace.

C4.27 Brake Cover

Inspection Type: Visual
Quantity: 1

Examine for wear, damage fractures.

Action: Shotblast and repaint or replace if necessary.



C4.28 Hand Chain

Inspection Type: Visual and Dimensional - see miscellaneous
Quantity: 1

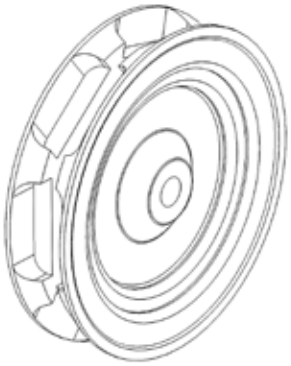
Examine hand chain for damaged or distorted links, sharp edges, corrosion.
Check condition of speed link if present.

Action: Replace if necessary.

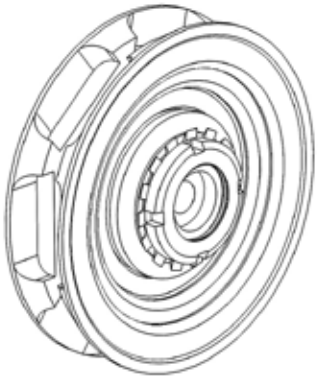
C4.29 Hand Chain Wheel

Inspection Type: Visual
Quantity: 1
Check Handwheel for Damage, fractures, ensure brake surfaces are smooth and free from defects.

Action: Shotblast and repaint or replace if necessary. Ensure threads and brake surfaces are free from paint or powder coating if reconditioning.



C4.29L Overload Limiter Assembly

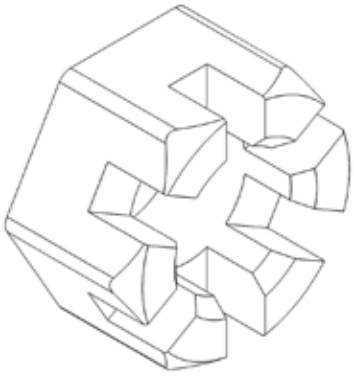


Inspection Type: Not Applicable

Quantity: 1

Action: Contact manufacturer.

C4.30 Pinion Nut



Inspection Type: Visual

Quantity: 1

Check thread condition, check for wear or fractures.

Action: Replace if necessary.

C4.31 Cotter Pin

Inspection Type: Not Applicable

Quantity: 1

Action: Discard and replace.

C4.32 Hand Wheel Cover

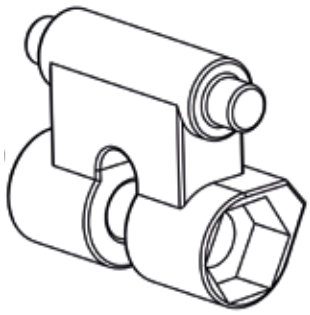
Inspection Type:

Quantity: 1

Examine for cracks, distortion, damage or wear and the cover is of good condition and secure. Check cover assembly fixings.

Action: Shotblast and repaint or replace if necessary.

C4.33 Chain Anchor Plate



Inspection Type: Visual
Quantity: 1

Check for damage and wear on all components of the anchor, pay attention to chain contact points including load pin.

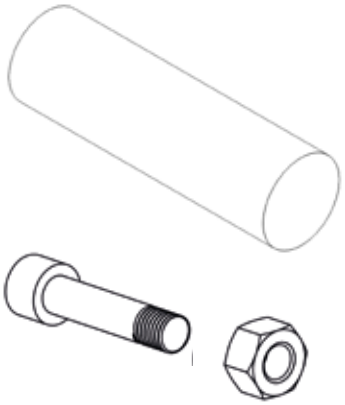
Action: Shotblast and repaint or replace if necessary.

C4.34 Split Pin

Inspection Type: Not Applicable
Quantity: 1

Action: Discard and replace.

C4.35 Chain Anchor Pin

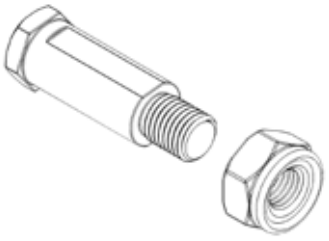


Inspection Type: Visual
Quantity: 1

Check for damage and wear on all components of the anchor, pay attention to chain contact points including load pin.

Action: Check and replace if necessary.

C4.36 Top Hook Pin and Lock Nut



Inspection Type: Visual
Quantity: 1

Check for damage or wear.

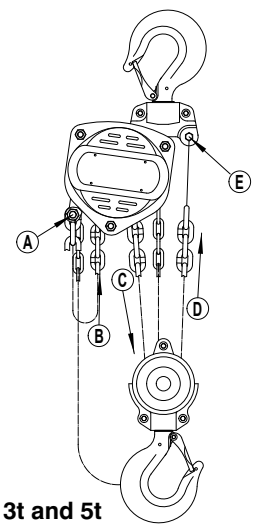
Action: Check and replace if necessary.

Assembly Instructions

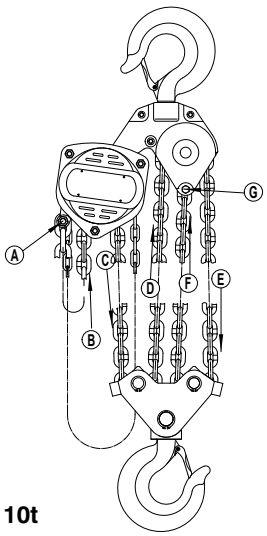
1. With the wheel side plate facing pawl stands down, lubricate the sheave to bush contact points and insert the load sheave #19 with the splined section upwards.
2. Install chain guides, stripper and chain anchor #16, 17 & 33.
3. Again lubricate the sheave to bush contact points and install gear side plate #15 ensuring correct alignment with wheel side plate.
4. Lubricate and install load gear #14, refit circlip ensuring it is secure and fully seated in its recess.
5. Lubricate the pinion shaft taking care not to apply excessive amounts around the threaded/splined brake section then insert through load gear.
6. Install the pinion gears making sure the alignment marks are correctly positioned, apply a liberal amount of grease to the assembly then secure the gear cover using 3 nylon locking nuts.
7. Turn the hoist over so that the brake side faces upwards then reinstall the top hook, unsure the top hook pin is fully seated.
8. Install the pawl assemblies lightly greasing the pawl shafts, ensure the pawl springs are secured correctly and the circlip is seated firmly in its recess.
9. Install the disc hub #21 by rotating clockwise on to the pinion shaft.
10. Tension the pawls by turning them clockwise against the pawl spring, do not over tension.
11. Fit the lower friction disc, ratchet gear and upper friction disc ensuring the ratchet tooth profile matches that of the pawls.
12. Install the brake cover #27.
13. Hold the end of the pinion shaft with a set of pliers and wind the load limiter/handwheel down the pinion shaft in a clockwise direction by hand until the load limiter comes to a stop.
14. Line up the castellated nut with the threaded pinion shaft and fasten by hand in a clockwise direction until the castellated nut comes into contact with the handwheel or load limiter shim/washer as applicable. Rotate the castellated nut anti-clockwise until one of the castellated slots in the nut aligns with the drilled hole located near the end of the pinion shaft so that a new split pin can be inserted. The drilled hole should align with the first or second available castellated slot. Insert and secure split pin. Ensure the handwheel rotates freely in both a clockwise and anti-clockwise direction.
15. Insert the split pin through both the castellated slot in the nut and the drilled hole of the pinion shaft, ensuring these are aligned. The split pin used should be size 3/32 x 1. The head of the split pin should be seated inside the slot of the castellated nut, with the eye of the split pin sitting in the vertical plane. The top leg of the split pin should be folded over and positioned flat on top of the pinion shaft. The bottom leg should be shortened with a cutting tool and folded down the edge of the castellated nut. Ensure that the legs of the split pin do not interact or interfere with any other components, including the shim/washer.
16. The hoist is now ready for chain installation.

Chain Installation

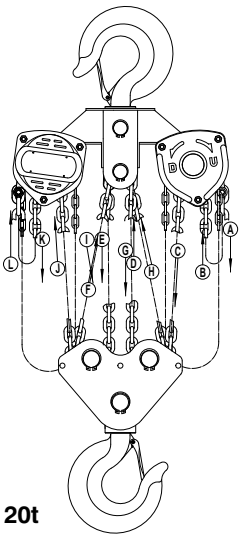
The Chain shall be installed with the weld facing away from the main hoist sheave in a vertical plain.



3t and 5t



10t



20t

RAISING THE LOAD

To raise load, pull right side of hand chain *(A, Figure 5)* so that the wheel turns clockwise. To lower load, pull left side of hand chain *(B, Figure 1)* so that wheel turns counterclockwise.

Important: Make sure hoist has an adequate length of load chain to raise or lower the load in a safe manner. Do not attempt to lower hoist beyond its limit.

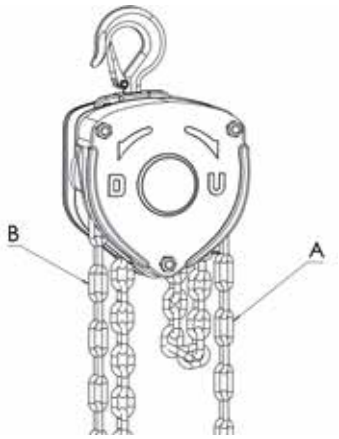


Figure 1

HAND CHAIN: JOINING AND INSTALLING

1. Cut the required length of 5mm x 25mm hand chain so that the links at either end plain in the same direction.

2. Make sure the chain is not twisted and bring the two ends together.

3. Join the two ends of hooking speed links over each side making sure that the chamfered edge of the speed link is to the outside.

4. Fix the two halves of the speed link together with two 2.4mm x 6mm stainless steel pop rivets.

Note: The indicated 'speed links' must only be used on hand chain which fully complies with the dimensional detail indicated within this script. The hand chain runs over a specific calibrated pocket wheel and the chain is also calibrated to suit this particular pocket wheel.

LOAD AND WEAR LIMITS

Alloy Steel Chain

Carefully inspect entire load chain. Measure five consecutive links with calipers to measure the length. Check every metre and especially where excessive wear is indicated. Any load chain that shows noticeable deformation or heat influence must be replaced with a new one. Never extend load chain by welding a second piece to the original.

Figure 2

Capacity t	5 Links Normal mm	5 Links Limit Replace if more than:
0.5	75	77.3
1.0	90	92.6
1.6	120	123.4
2.0	120	123.4
3.2	120	123.4
5.0 to 50.0	150	154.3

BRAKE DISC

Replacement limits for brake disc

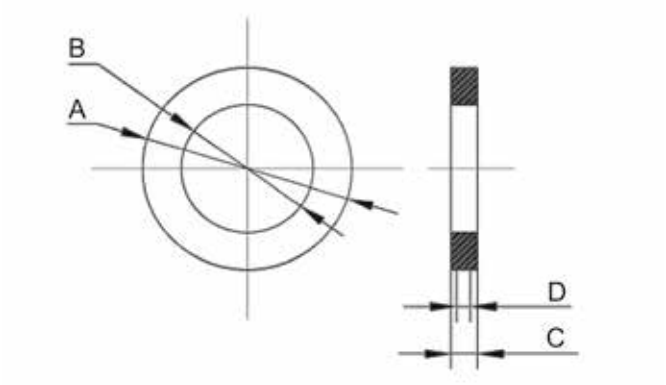


Figure 3

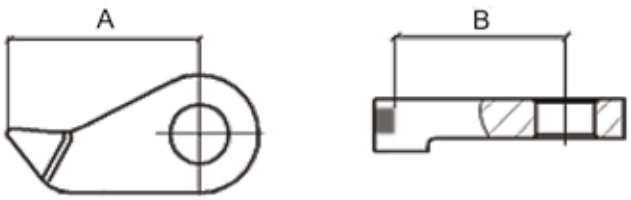
Capacity t	A mm	B mm	C mm	D mm
0.5	60	30.5	2.5	2
1.0	60	30.5	2	1.5
1.6	68	35.5	2	1.5
2.0	68	35.5	2	1.5
3.2	68	35.5	2	1.5
5.0 - 50.0	85	45.5	2.5	2

B = inner diameter C = normal measurement

A = outer diameter D = replacement limit

Table 1

Replacement limits for Pawl



kg	A mm	B min mm
500	14.5	13.5
1000	25	23.5
1600 - 3200	30	27.5
5000 - 50000	35	33.5

Table 2

Replacement limits for Ratchet Brake System

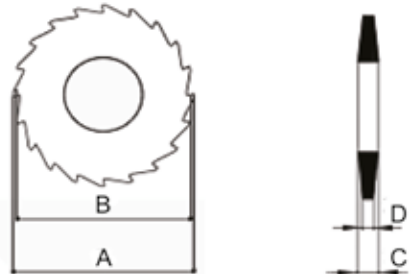
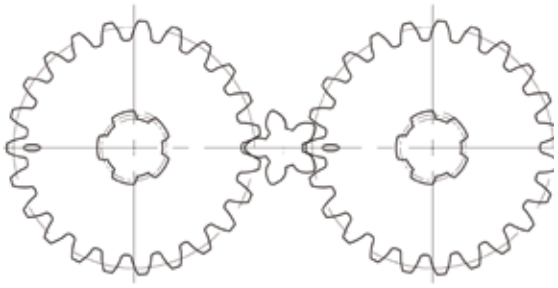


Figure 4

kg	A mm	B min mm	C mm	D min mm
500	68	66	2	1.5
1000	68	67	2	1.5
1600 - 3200	80	78	2	1.5
5000 - 50000	100	98	2.5	2

Table 3

Gear Alignment



0.5t - 50t

Figure 5

LUBRICATION

C4 Chain Hoist

Recommended lubricant type: Mobilgrease XHP™ 222

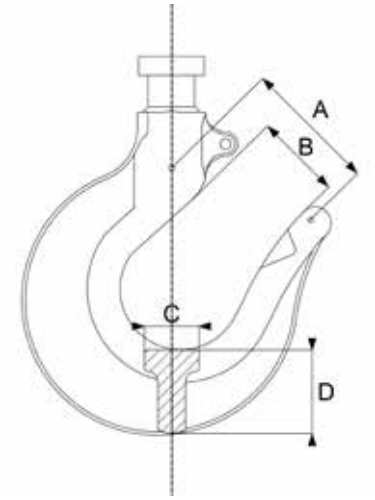
C4 Chain Hoist Load Chain

Recommended Lubricant: Lear Chem ACF-50 fluid or Lear Chem Corrosion Block Fluid

TORQUE VALUE TABLE

Bolt/nut size	Min Nm	Max Nm
M5	5	6
M6	6	8
M8	20	22
M10	22	24
M12	25	27

C4 DIMENSIONS AND DISCARD CRITERIA



Capacity t	A (mm)		B (mm)		C (mm)		D (mm)	
	Nominal	Discard	Nominal	Discard	Nominal	Discard	Nominal	Discard
0.5	42.5	46.8	26.5	29.2	14.2	12.8	20.0	18.0
1.0	49.0	53.9	32.5	35.8	15.0	13.5	21.1	19.0
1.6	51.5	56.7	34.5	38.0	19.0	17.1	26.5	23.9
2.0	54.5	60.0	34.0	37.4	19.5	17.6	27.8	25.0
3.2	61.0	67.1	42.5	46.8	24.4	22.0	31.2	28.1
5.0	85.0	93.5	52.6	57.9	34.0	30.6	45.4	40.9
7.5	89.0	97.9	63.5	69.9	40.0	36.0	60.4	54.4
10.0	89.0	97.9	63.5	69.9	40.0	36.0	60.4	54.4
15.0	-	-	83.0	91.3	56.0	50.4	84.8	76.3
20.0	-	-	83.0	91.3	56.0	50.4	84.8	76.3

Warranty

When supplied new the C4 hoist will be supplied with a Declaration of Conformity which sanctions the use of the product for a maximum period of 12 months before re-certification is required by a competent person.

The C4 is a lifting appliance and should be thoroughly examined by a competent person at least every 12 months, or following each period of deployment.

Only original William Hackett spare parts should be used.

William Hackett guarantee the performance of the C4 hoist for a period of 12 months from the date of sale subject to the purchaser and users complying with the safe use, storage, routine maintenance and servicing instructions, and there being no excessive wear and tear or misuse of the product.

These points do not affect the purchasers statutory rights.

William Hackett
Lifting Products Limited

DUAL PURPOSE DOCUMENT

EC DECLARATION OF CONFORMITY — **A**

DECLARATION

I DECLARE THAT THE ITEMS DESCRIBED ON THIS DOCUMENT COMPLY WITH THE REQUIREMENTS OF THE MACHINERY DIRECTIVE 2006/42/EC

MANUFACTURER'S CERTIFICATE — **B**

CERTIFIED ON BEHALF OF THE COMPANY

T.J. BURGESS 08/06/2017

Delivery Address

ABC DISTRIBUTORS
ALPHABET DRIVE
ALPHABETTUS
YOURCOUNTY
YO13 ABC

Supplied To:	ABC001
Certificate Number:	**L029385**
Customer Order No:	SAMPLES
Date Received:	08/06/2017

PRODUCTS REQUIRING A DECLARATION OF CONFORMITY ARE INDICATED BY (A) THOSE REQUIRING JUST A MANUFACTURER'S CERTIFICATE BY (B)

Authorised person for the configuration of the declaration documents: Tim Burgess, William Hackett Lifting Products, Alnwick, UK

A/B	Batch	Lot No / Serial No	Product	Description	Qty	Working Load Limit	Proof Load	Min Breaking Load
A	P76146	60750429	HN022.053	500KG HACKETT CHAIN BLOCK 3 MTR HOL C4 to EN13157	1	500KG	750KG	
A	P77042	70220010	HN022.SS.053	500KG HACKETT SUBSEA CHAIN BLOCK 3MT HOL C4 to EN13157	1	500KG	750KG	
A	P75108	61560889	HN033.075	800KG HACKETT LEVER HOIST 1.5 MTR HOL L4 to EN13157	1	0.80 TONNE	1.2 TONNE	

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