cromox®

PREMIUM BRAND OF KETTEN WÄLDER GMBH

USER MANUAL
cromox® CHAIN HOIST

Chain Hoist CCH-63, CCH-100, CCH-200 (load capacity from 0.63 tonnes to 2.0 tonnes)
Grade 60, AISI 316L / 318LN Duplex
Configurations: 1 fall / 2 fall

FIG.: CCH-200,
VERSIONS VARY

VERSION: NOVEMBER 2024

TABLE OF CONTENTS

1. CRITICAL INFORMATION AND CAUTIONS

1.1. TERMINOLOGY AND OVERVIEW

This manual includes steps and procedures that may involve hazardous situations.

CAUTION This points out a situation that could be dangerous but may only result in minor or moderate injury or property damage if not handled properly.

WARNING This indicates a potentially hazardous situation which, if not avoided, could lead to death or severe injury and property damage.

DANGER This indicates a situation that is extremely hazardous and, if not avoided, will lead to death or severe injury and property damage.

NOTICE This provides important information regarding installation, operation, or maintenance, which is not directly related to safety.

CAUTION

Ignoring any of the specified limitations in this document may result in serious bodily harm or death, and/or property damage.

The instructions given in this manual are generally meant for standard operations. If there is any uncertainty about whether the information applies to your specific operations, it is advised to contact the manufacturer.

Do not modify or alter the product's ratings without the manufacturer's approval.

When using a below-the-hook lifting device or sling with the hoist, adhere to your local regulations for safe lifting.

Only use cromox® authorized replacement parts when servicing or maintaining this hoist.

This hoist should only be used in conjunction with other equipment if the lifting plan is prepared by a competent and trained individual.

WARNING

All personnel tasked with installing, inspecting, testing, maintaining, and operating the hoist should read and understand this manual's contents thoroughly.

It is the responsibility of the owner or user to ensure that the hoist is installed, inspected, tested, maintained, and operated in accordance with the applicable local requirements.

If the hoist is a part of a larger lifting system the owner/user must also comply with any additional requirements specific to that system.

For further clarification or additional information, the owner/user should contact the manufacturer or the hoist distributor.

Do not engage in any activities with this hoist unless the provided information is fully understood.

NOTICE

Ensure a regular inspection schedule for the hoist is established in compliance with local regulations. These inspections should be documented and preserved for the duration of the product's operational life. Keep these records and files on hand.

GO TO TABLE OF CONTENTS

2. TECHNICAL DATA

Type	WLL [t]	Load chain [mm]	Hand chain [mm]	Hoist weight w/o chains [kg, approx.]	Standard lift [m]	No. of strands	Operation force at WLL [N]	Weight per m additional lift [kg]	Test force [kg]
CCH-63	0.63	CHK-6.3x19.1	NHC-5x25	6.1	3	1	205	1.76	945
CCH-100	1.00	CHK-7.1x21.2	NHC-5x25	6.3	3	1	280	2.02	1,500
CCH-200	2.00	CHK-7.1x21.2	NHC-5x25	7.7	3	2	280	2.02	3,000

Tested according to DIN EN 13157

Safety factors: WLL 1 x, MPF 2.5 x, BF 4 x

2.1. ENVIRONMENTAL CONDITIONS

- Operating temperature: -40 to +60 °C
- Suitable for corrosive environments
- Maximum relative humidity: 100%
- Applicable in explosion-risk areas after consulting the manufacturer
- Suitable for clean rooms after consulting the manufacturer

2.2. DIMENSIONS

Type	a min. [mm]	b [mm]	c [mm]	d [mm]	Mouth width g [mm]
CCH-63	375	150	150	150	25
CCH-100	375	150	150	150	32
CCH-200	560	175	150	150	40

Dimensions are subject to variations as shown in Fig. 1 for model CCH-200.

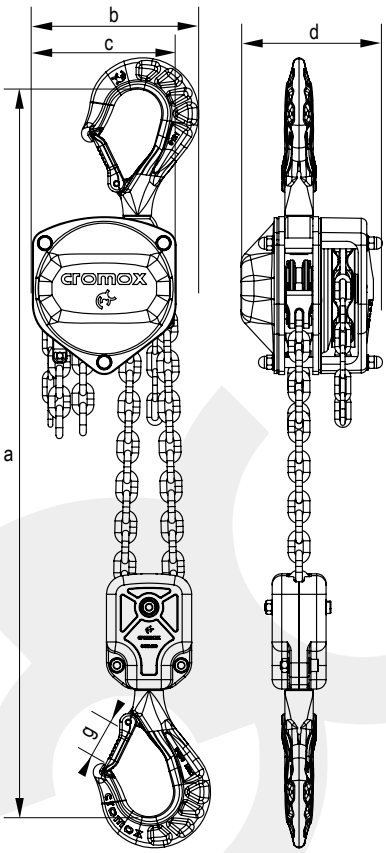


Fig. 1: CCH-200, versions vary

GO TO TABLE OF CONTENTS

3. INSPECTIONS BEFORE USE

3.1. PRE-USE CHECKLIST

Always ensure the following before operating the hoist:

- Confirm that the nameplates are legible and that the hoist is rated for the intended lift.
- The hoist and chains must be cleaned prior to any inspection.
- Ensure the load chain is not twisted or entangled before operating the hoist.
- Inspect the load chain for wear or damage, such as bent, distorted, or corroded links.
- Make sure both top and bottom hooks rotate freely without any load applied.
- Ensure that hook latches fit properly into hook tips; verify that hooks are not opened or widened.
- Without a load, the hand chain should turn clockwise, producing a clear clicking sound as the brake ratchet engages.
- For the CCH-200 model with dual chain falls, ensure chain sheaves rotate freely without a load.
- Inspect the external hoist body for any damage, which could indicate improper use.
- Verify the load chain wheel is clear of debris and undamaged.
- Check that all fixings, including split pins, circlips, and nuts, are tight and in good condition.
- Ensure the chain guides and strippers are clean and in good condition.

3.2. INSTALLATION OF HOIST

Confirm that the mounting point is secure and firmly fixed before elevating the chain block.

Hook latch must be engaged.

4. OPERATION GUIDELINES

4.1. DOS AND DON'TS DURING OPERATION

WARNING

Be aware that not following these instructions might lead to severe injuries or even death, as well as potential damage to property.

Don'ts

To prevent such incidents, the **OPERATOR MUST**:

- **NEVER** use the hoist with a chain that is twisted, kinked, damaged, or worn out.
- **NEVER** lift loads over individuals.
- **NEVER** exceed the hoist's rated capacity.
- **NEVER** remove or disable the safety latch on the hook.
- **NEVER** expose the hoist to shock loads.
- **NEVER** utilize a hoist that is damaged or not functioning correctly.
- **NEVER** apply a load unless the load chain is correctly positioned in the hoist.

GO TO TABLE OF CONTENTS

- **NEVER** alter the chain length beyond what is specified on the data sheet.
- **NEVER** leave a load suspended when the hoist is unattended.
- **NEVER** use the hoist if the bottom hook is inverted.
- **NEVER** use the hoist for lifting, supporting, or transporting people.
- **NEVER** operate the hoist with excessive or insufficient load chain lubrication.

Dos

To ensure safe operation, the **OPERATOR SHOULD**:

- **ALWAYS** follow the manufacturer's instructions for load attachment and removal.
- **ALWAYS** perform a pre-use inspection of the hoist, checking for visible signs of wear or damage to the load chain, hooks, and controls.
- **ALWAYS** ensure that all personnel are clear of the load path and aware of the hoisting operation.
- **ALWAYS** ensure the hoist is properly installed and securely attached to a stable and adequate support structure.
- **ALWAYS** stop operation immediately if you hear unusual noises or experience any malfunction and investigate the issue before proceeding.
- **ALWAYS** ensure the load is correctly balanced and securely attached.
- **ALWAYS** operate the hoist smoothly, avoiding sudden starts or stops.
- **ALWAYS** adhere to local safety regulations and guidelines while using the hoist.
- **ALWAYS** maintain clear communication with all personnel involved in the lifting operation.

4.2. OPERATING PROCEDURES

Follow these steps to operate the cromox® chain hoist safely and effectively:

1. **Pre-Operation check:**

- Inspect the hoist for visible damage or wear.
- Confirm that the load chain is correctly lubricated as per the guidelines.
- Ensure that the load chain and hooks are free from kinks and corrosion.
- Verify that all safety features, including the safety latch on the hooks, are intact.
- Latch needs to be positioned inside hook.

2. **Attaching the load:**

- Ensure the load does not exceed the hoist's rated capacity.
- Attach the load securely using appropriate rigging equipment.
- Position the hoist directly above the load to prevent side loading.
- Ensure that the load is balanced.

3. **Lifting the load:**

- Gradually apply tension to the load chain by pulling the hand chain clockwise, ensuring smooth engagement.
- Once the load is lifted, check that it is stable and balanced before proceeding with further lifting.
- Lift the load to the desired height while monitoring for any irregularities.

4. **Lowering the load:**

- Slowly lower the load by releasing tension on the hand chain counterclockwise.
- Ensure the path below the load is clear of personnel and obstacles.
- Continue lowering until the load is safely resting on a stable surface.

5. **Post-Operation:**

- Remove the load attachment and inspect the hoist for any signs of wear or damage.
- After using in aggressive environment the hoist needs to be cleaned accordingly to the chemicals used in the environment. A neutralisation should be achieved.
- Store the clean hoist in a dry, protected location.
- Record any maintenance or repair needs.

NOTICE: Always use the hoist in accordance with the manufacturer's recommendations and safety standards.

5. INSPECTION AND TESTING

5.1. GENERAL REQUIREMENTS

NOTICE: Only qualified personnel should perform these inspections. Routine inspection of the hoist is crucial to ensure it functions properly and safely. Regular inspections help identify wear, damage or malfunctions that could compromise safety.

Normal service - yearly*

Heavy service - semiannually*

Severe service - quarterly*

*Service should meet local rules and guidelines, owners guidelines or written scheme of examination whichever is more thorough.

5.2. TYPES OF INSPECTIONS

There are three primary types of inspections: **Frequent**, **Periodic**, and **Special**.

1. **Frequent inspections**: These are brief inspections conducted before each shift to ensure the hoist is in safe working condition. They focus on checking the load chain, hooks, and controls for any visible signs of damage or wear.
2. **Periodic inspections**: Conducted at regular intervals (monthly, quarterly, or annually), these inspections are more thorough. They involve detailed checks of the hoist's mechanical and structural components, following the manufacturer's guidelines and any applicable regulations.
3. **Special inspections**: These occur following specific events, such as when the hoist has been subjected to abnormal operating conditions, major repairs, or when the hoist has been idle for an extended period.

5.3. INSPECTION PROCEDURES AND STANDARDS

Frequent inspections

General condition: Inspect the overall state of the hoist, looking for signs of damage to the housing or components.

Operation controls: Confirm all controls operate smoothly and correctly. Look for any wear or malfunction in the brake system.

GO TO TABLE OF CONTENTS

Load chain and hooks: Examine for wear, twisting, or damage. Check that the chain is lubricated properly and that the hooks are not bent or distorted. Ensure the safety latches function correctly.

Periodic inspections

Lubrication: Ensure all moving parts are adequately lubricated.

Structure and mounting: Inspect the hoist's mounting points and structure for any signs of deformation and wear.

Gear and drive components: Open the housing to inspect gears and drive mechanisms for wear or damage. Look for loose or missing parts.

Load chain and guiding wheels: Perform a detailed inspection for wear and corrosion. Ensure sheaves are aligned properly and turn freely.

	Inspection methods	Criteria	Action
1. Functional operating mechanisms	Visual and auditory	Ensure all components are properly adjusted and free of deformations, scratches, or unusual noises. Reference specific sections for detailed criteria.	Repair or replace as needed.
2. Hooks - latch	Visual	Latch needs to be positioned inside hook.	Contact manufacturer.
3. Hooks - fretting	Visual	Look for surface defects like gouges or significant corrosion. Follow specified limits in relevant tables.	Replace when required.
4. Hooks - surface condition	Visual	Check for visible damage, such as dents or wear, according to set guidelines.	Replace.
5. Hooks - deformation	Visual	Hooks must be free from deformations or twists. See detailed table for limits.	Replace.
6. Hooks - yoke assembly	Visual	Ensure assembly is free from rust, wear, or elongation issues. Adhere to specific guidelines in tables.	Tighten, replace, or repair.
7. Hooks - swivel	Visual and functional	Bearing parts should be free from wear and grime, allowing smooth operation without resistance.	Lubricate or replace as needed.
8. Hooks - latch	Visual and functional	Verify latches are not deformed, with secure and smooth operation.	Replace latch.
9. Top pin condition	Visual	Examine pins for deformation or significant wear.	Replace if necessary.
10. Yoke - chain pin hole deformation	Visual	Check against discard values to determine acceptability.	Replace yoke if required.
11. Chain condition - pitch and wear diameter	Measurement	Compare against tables for pitch and wear diameter limits.	Inspect or replace chains.
12. Load chain - surface condition	Visual	Ensure links are free from defects and properly align without gaps.	Replace as necessary.
13. Load chain - lubrication	Visual and functional	Ensure proper lubrication to prevent dirt accumulation and ensure quiet operation.	Clean and lubricate.
14. Load chain - reeving	Visual and functional	Inspect for proper chain reeving, ensuring no entanglements or twists.	Correct reeving issues.
15. Lifting system components	Visual	Components should not show deformation or significant wear.	Repair or replace as required.
16. Braking system - general	Visual and measure	Examine brake components for defects or wear.	Replace worn parts.
17. Braking system - brake pawl and spring	Visual and measure	Ensure no deformation or scratches affect performance.	Replace as necessary.
18. Braking system - brake surface	Visual	Surfaces should be smooth without grooves or significant damage.	Replace brake pads if damaged.
19. Braking system - wear	Visual and measure	Measure against limits for wear, corrosion, or grease contamination.	Replace if measurements exceed specifications.
20. Braking system - bushing wear	Visual	Check bushings for lubrication or visible damage.	Replace as required.

Special Inspections

- **Recommissioning of hoists**: If the hoist has been out of use, inspect all components before returning it to service.
- **Post-event examination**: After unusual events, such as overloads or impacts, immediately perform an inspection by qualified personnel. Pay special attention to structural integrity. Latch needs to be positioned inside hook, if not please contact manufacturer.

GO TO TABLE OF CONTENTS

NOTICE Follow the inspection intervals as recommended by the manufacturer and comply with any local regulations.

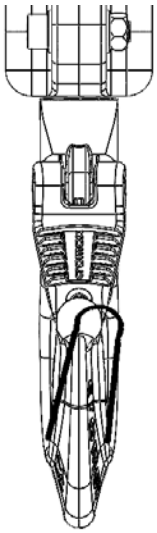


Fig. 2: Twisted hook

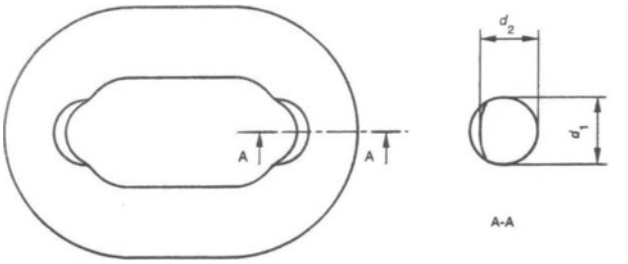
Load and hand chain

Always ensure that both chains are well lubricated (recommendation: Prolan Protective Lanolin Heavy, Denrex).

NOTICE Unsmooth running as well as noises due to the chains are an indication that the wear limit has been reached. If the chain needs to be replaced, it has to be exchanged with a cromox® chain of the same type.

Visual check: Check the load chain for rust, damage and deformation.

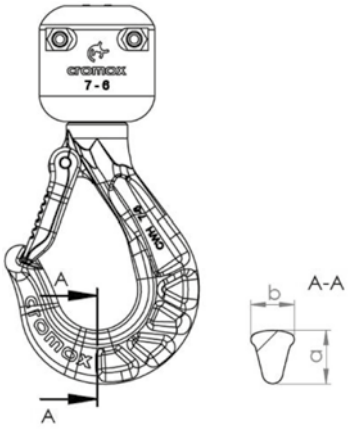
Dimensional accuracy: The chains have to be replaced when the nominal thickness of a chain link is < 90% due to wear. This measurement has to be carried out on 10 chain links, equally spaced over the complete length of the chain.



$$\frac{d_1 + d_2}{2} \leq 0{,}9 \cdot d_n$$

Before the first use, the dimensions a and b have to be measured on the hooks in the load pick-up point at the bottom of the hook.

Within the periodical inspection the values of a and b are compared to the values before the first use. The dimensions a and b are not allowed to be less than 98% of the original value.



GO TO TABLE OF CONTENTS

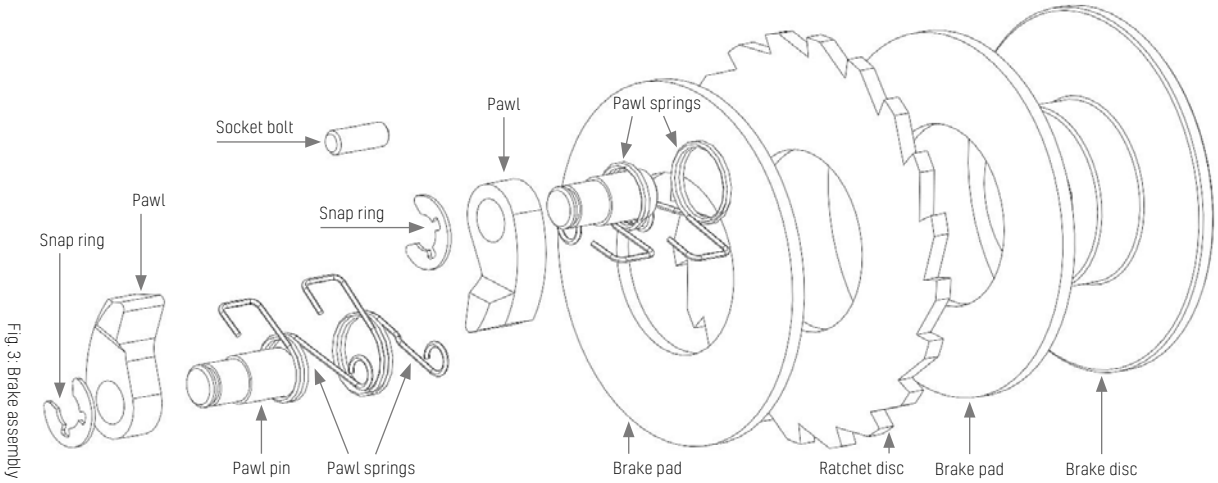


Fig. 3: Brake assembly

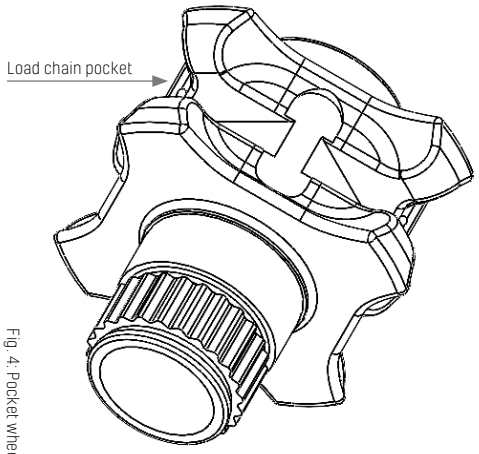
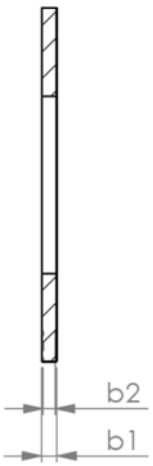


Fig. 4: Pocket wheel

Break unit



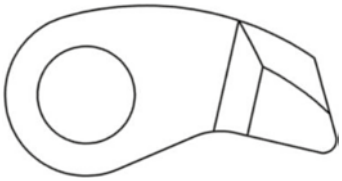
Visual check: The break unit has to be free of dirt, water and oil.
The braking surface may not have any damaged areas (scratches, grooves or foreign bodies).

Functional check: When the operator takes his hands off the hand chain, the load may not lower.
The load on the hand chain has to be constant during lowering.

Wear: As part of the periodic inspection, the brake discs have to be checked for wear. The brake discs have to be replaced from a value of b2. The brake pads must be worn evenly. If this is not the case, consult Ketten Wälder GmbH. The brake discs must also be replaced **every 2 years**.

CCH type	b1 [mm]	b2 [mm]
63	2.00	1.80
100	2.00	1.80
200	2.00	1.80

Locking latch

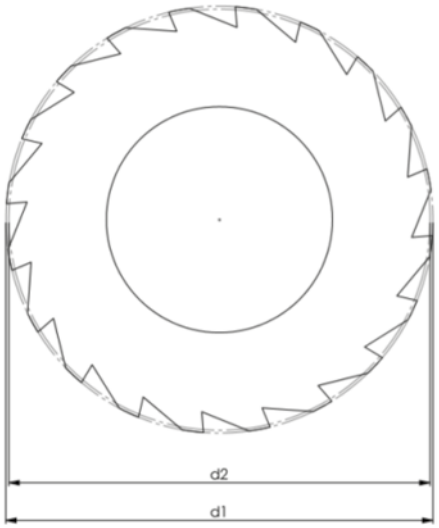


Surface wear is allowed on the locking latch, but surface deformation is not allowed. The spring of the locking latch may not be deformed or rusty.

Ratchet pinion

The ratchet pinion must be checked for wear and rust, from a value of d = d2 the ratchet pinion has to be replaced.

CCH type	d1 [mm]	d2 [mm]
63	68.0	67.5
100	68.0	67.5
200	68.0	67.5



6. MAINTENANCE AND CARE

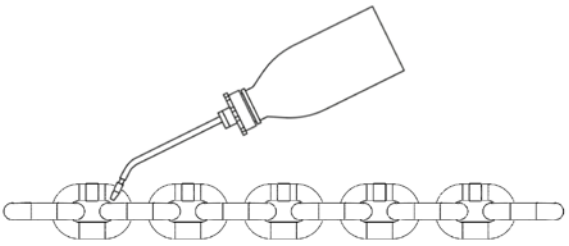
Proper maintenance ensures the longevity and reliability of the hoist. Regular upkeep helps prevent unexpected breakdowns and maintains safety standards.

6.1. LUBRICATION

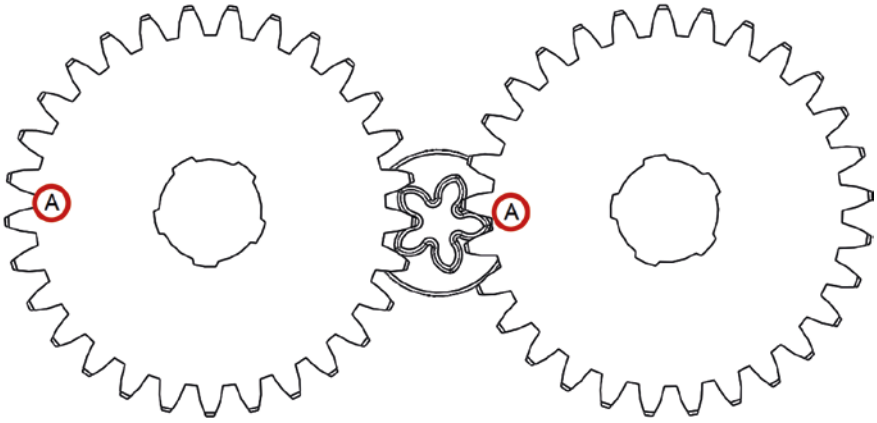
Frequency: Lubricate the load chain and all moving parts regularly. The frequency depends on usage, environmental conditions, and manufacturer recommendations.

Type of lubricant: Use lubricants suitable for the operating conditions and compliant with the manufacturer's specifications (Nevastane food grade grease XS320). For environments with extreme temperatures or corrosive conditions, select appropriate lubricants to maintain performance after consulting the manufacturer.

Load chain: For longer life, the load chain should be lubricated. The load chain lubrication should be accomplished after cleaning the load chain with an acid free cleaning solution. Apply industrial general lithium grease to the bearing surfaces of the load chain links. Also apply the grease to the areas of the load chain that contact the load sheave. The chain should be lubricated every 3 months (more frequently for heavier usage or severe conditions). For dusty environments, it is acceptable to substitute a dry lubricant.



Position gear pinion: The gear pinions have to be aligned according to marking "A" as shown in the picture.



GO TO TABLE OF CONTENTS

Hooks and suspension components: Hooks - Bearings should be cleaned and lubricated at least once per year for normal usage. Clean and lubricate more frequently for heavier usage or severe conditions.

6.2. STORAGE GUIDELINES

Environment: Store the hoist in a dry, clean location, protected from environmental elements such as moisture, dust, and corrosive substances.

Position: Keep the hoist in a position that prevents stress on the chains or hooks. If possible, hang the hoist by its top hook to relieve tension from the load chain.

Inspection before storage: Inspect the hoist for wear or damage before storage. Address any issues found to ensure the hoist is ready for use when needed.

Long-Term storage: If storing for an extended period, apply a protective coating to metal parts to prevent corrosion. Re-inspect the hoist before returning it to service.

6.3. HANDLING OUTDOORS

Weather conditions: If using the hoist outdoors, dry and store accordingly after usage.

Protective measures: Use protective covers or housings to shield the hoist from environmental elements. Regularly check for moisture or debris buildup.

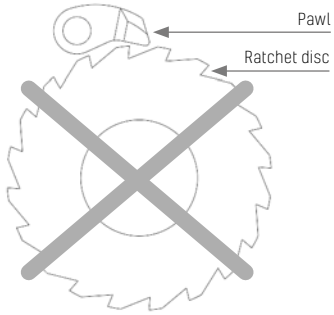
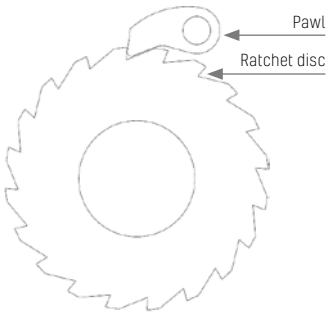
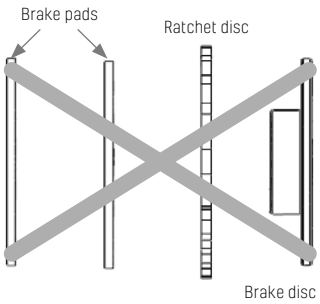
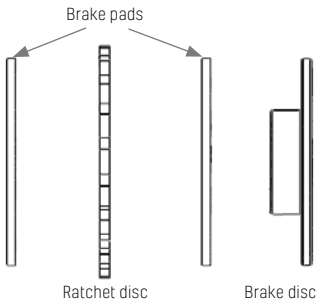
Regular checks: Inspect the hoist frequently for signs of corrosion or damage, especially after exposure to harsh conditions.

7. TROUBLESHOOTING GUIDE

Below is a troubleshooting guide to address common issues with the hoist.
If problems persist, contact a qualified technician or the manufacturer for assistance.

Problem	Possible cause	Solution
Chain slips or binds	Lack of lubrication	Apply lubricant to the chain following manufacturer guidelines.
	Bent or damaged chain	Repair or replace the chain to ensure smooth operation.
	Misaligned sheaves or guides	Correctly align the components to prevent binding.
Hoist fails to lift or lower load	Load exceeds hoist capacity	Reduce the load to meet the hoist's weight limit.
	Brake malfunction	Inspect, adjust, or replace the brake system as needed.
	Damaged chain or gear system	Check for damage and replace faulty components if necessary.
Erratic hoist operation	Mechanical obstruction	Remove any obstructions from the hoist's moving parts.
Excessive noise during operation	Worn-out gears or bearings	Inspect and replace any worn-out parts.
	Insufficient lubrication	Ensure all moving parts are properly lubricated.
	Foreign debris in hoist mechanism	Clear debris and thoroughly clean the hoist components.
Hooks or chains show wear	Overloading or improper handling	Use the hoist correctly and do not exceed the specified capacity.
	Corrosion or environmental damage	Perform regular maintenance and replace any corroded or damaged parts.

NOTICE Always prioritize safety measures during hoist troubleshooting and repairs.

Troubleshooting guide		
NOTICE on proper operation: - When lowering and moving the hand wheel, the hoist should operate without clicking sounds. - When lifting and moving the hand wheel, the hoist should produce clicking sounds.		
Symptom	Cause	Remedy
No lifting – slight clicking	Incorrect assembled: ratchet disc installed backward or incorrect contact with pawl. 	Reassemble the pawl and ratchet disc correctly. Ensure clicking sounds are audible before reuse. 
No lifting – no clicking	Contamination between pawl and pawl shaft.	Clean and lubricate the pawl and pawl shaft.
	Faulty pawl spring.	Replace the pawl spring.
Hoist lifts intermittently - slight or irregular clicking	Faulty pawl spring causing poor pawl movement. The spring is loose or damaged.	Conduct maintenance or repair to ensure proper operation.
	Pawl spring is incorrectly assembled.	Reassemble the pawl spring correctly and check for proper clicking sounds before reuse.
Hoist idles or drifts during operation	Improper chain-reeving leading to poor contact between load sheave and load chain.	Re-reeve the chain correctly and ensure the hoist lifts smoothly before putting it back into use.
Hoist does not lift at all (multiple fall hoists)	Hook is capsized.	Reset the capsized hook to its correct position.
Hoist does not lift load smoothly	Improper gear assembly or broken bearing.	Disassemble and correctly reassemble the gear train, or replace the bearing if necessary.
Lowering of load not possible	Brake too tight, shock load.	Pull down firmly on the hand chain to loosen the brake.
Slipping of loaf when lowering	Contamination between friction surfaces.	Clean/replace brake pads if needed.
	Mis-assembly of brake pads as shown: 	Reassemble correctly: 
	Damaged pads by overload.	Replace and use hoist as intended.
	Worn out brake pads.	Standard hoist maintenance.

WARNING
Dry brake system, do not apply oil/grease.

GO TO TABLE OF CONTENTS

8. WARRANTY DETAILS

cromox® chain hoists come with a standard warranty that ensures protection against defects in material and workmanship. Please review the following details for specific conditions and exclusions:

- **Warranty duration**: The standard warranty is valid for 12 months from the date of purchase.
- **How to file a claim**: To start a warranty claim, contact the retailer or distributor where you purchased the hoist. Be sure to provide proof of purchase and a detailed description of the problem.
- **Warranty coverage**: The warranty covers both parts and labor for repairs resulting from manufacturing defects. It does not cover damage caused by misuse, neglect, or unauthorized modifications.
- **Exclusions**: The warranty does not include coverage for normal wear and tear, damage due to misuse, unauthorized alterations, or issues resulting from improper maintenance.

9. SCOPE OF DELIVERY

Standard scope of delivery:

- Mounted CCH hoist with rotatable load hooks (top and bottom)
- 3 m load chain
- 1.5 m hand chain
- User manual

Additional information

Contact information:

For additional support, please reach out to your cromox® authorized dealer or contact our customer service team at:

Email: info@ketten-waelder.de

Phone: +49 (0)8053 2029-0

Website: www.ketten-waelder.de

GO TO TABLE OF CONTENTS

10. NOTES HOOK DIMENSIONS

	Dimensions pick-up hook		Dimensions load hook	
	a [mm]	b [mm]	a [mm]	b [mm]
Before first use				
Scrap dimension (98% of the original value)				

Date	Dimensions pick-up hook		Dimensions load hook		Auditor	Signature
	a [mm]	b [mm]	a [mm]	b [mm]		

GO TO TABLE OF CONTENTS

Date	Dimensions pick-up hook		Dimensions load hook		Auditor	Signature
	a [mm]	b [mm]	a [mm]	b [mm]		

GO TO TABLE OF CONTENTS

KETTEN WÄLDER GMBH
IM GEWERBEGEBIET 5
83093 BAD ENDORF
GERMANY

+49 (0)8053 2029-0
INFO@KETTEN-WAELDER.DE

KETTEN-WAELDER.DE