



AI TAKAMUL COMPANY FOR ENGINEERING
TESTS AND PROFESSIONAL SAFETY LIMITED
Lifting Inspection

Doc No: QC-LIF-P-001

Level: 3

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Title: Inspection Procedure of Hand Operated Chain Blocks

Rev: 2

Established By: Ashraf Elsaid

Position: Lifting Supervisor

Approved By: Ahmed
Mohamed

Position: Operation Manager

Date: JULY-2022

Inspection Procedure of Hand Operated Chain Blocks



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1. YOUR SAFETY IS FIRST:

Your safety wear is mandatory at job sites including in general: suit, shoes, helmet, gloves, ear plugs, glasses, and mask.

2. SCOPE:

This procedure covers the inspection and testing of hand operated chain blocks.

3. REFERENCE STANDARDS:

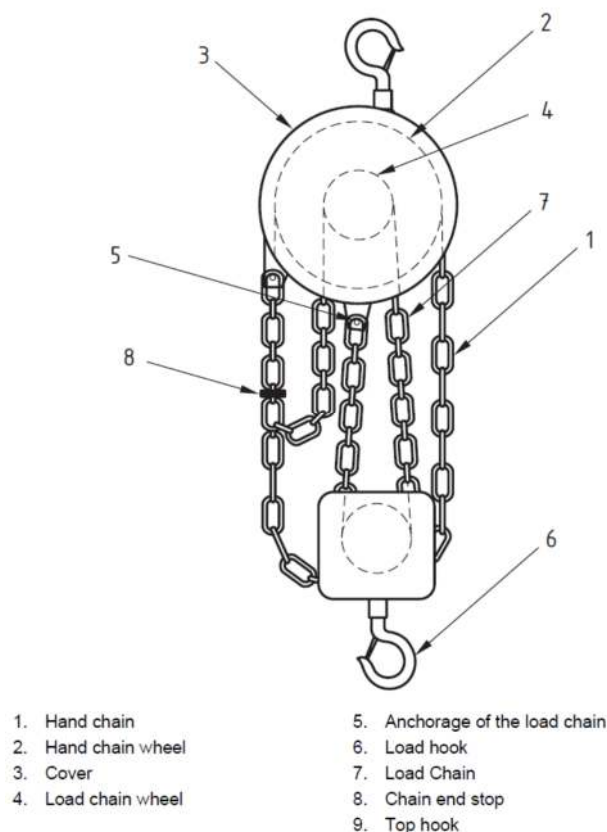
BS EN 13157: 2004 + A1: 2009	<i>Cranes – Safety – Hand Powered Lifting Equipment</i>
AS 2550.1-2011	<i>Cranes, hoists and winches - Safe use General requirements</i>
AS 1418.1-2002 AMDT 1	<i>Cranes, hoists and winches - Safe use General requirements</i>
ASME B30.16 - 2022	<i>Overhead Underhung and Stationary Hoists</i>

4. HAND OPERATED CHAIN BLOCKS:

Devices for lifting and lowering a load suspended from one chain (the load chain) by means of human effort applied to another chain (the hand chain) and for holding this load.

FIGURE 1 shows an example of hand operated chain block (hand chain block) and its components.

FIGURE (1): Manual (hand operated) chain block components



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5. PERIODIC VERIFICATION AND TESTING:

Hand operated chain blocks fall under the heading of '*lifting equipment*', and should be examined by a competent person at periods not exceeding 12 months.

6. THOROUGH EXAMINATION:

During the thorough examination the following should be checked

Body and fittings:

The body condition shall be checked for cracks, distortion.

Marking shall be clear and legible (name of manufacturer, ID mark, Class of use, load chain information, WLL)

Covers (casing) shall be checked for damage.

Top and bottom hooks shall be inspected for damage, distortion, cracks.

Safety latches shall be checked for presence and functionality

Springs, safety devices shall be checked.

Hand chain and Hand chain wheel shall be checked

Chains:

Chains shall be checked for any signs of wear, twisting.

The connecting links of the hand chain shall be checked for deformation, notches, bends, stretching, and corrosion, the Maximum allowable reduction in diameter is 8%, the maximum allowable elongation is 3%.

The free end of the load chain shall be fitted with a chain end stop to prevent it from passing through completely.

Operation:

No slippage of the load, chain jumping, or cracking noises are acceptable during lifting or lowering, the operation of gears shall be smooth. If any of the previously mentioned points are observed during operation testing, remove the cover and perform the examination.

The braking system shall be checked by a light load test: Hand chain blocks shall be subjected a test load of between 2% and 10% of the WLL which shall be raised and lowered through a height of between 250 mm and 500 mm.

When the hand chain is released at any point during raising and lowering cycle, the brake shall hold the load.

The following figure shows an example of possible defects:

FIGURE (2): Inspection points and possible defects of hand operated chain blocks.





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7. PROOF LOAD TEST:

After repair or exceptional circumstances, for proof load test the chain block is installed on a suitable suspension point, then subjected to a static / dynamic test

A static test consisting of suspending a load of: 1,5 times the WLL for WLL less than 20 t and 1,25 the WLL equal to or greater than 20 t for at least 10 minutes.

The lifting path of the load chain shall be at least 300 mm per cycle to achieve at least one complete revolution of the load chain wheel.

Proof load test is also conducted if a repair is performed using non-certified load bearing components. Following the proof load test, the hand operated chain block shall be thoroughly examined. The test shall be considered satisfactory if no cracks, permanent deformation or damage that would adversely affect the function or safety of the lifting equipment is visible, and the connections have not become loose or damaged and if the braking device can hold the load without slipping and if it is possible to perform the dynamic test (as per BS EN 13157) with the same lifting equipment after the static test.

A dynamic test consisting of subjecting the hand operated chain block to a dynamic load of 1,1 times the WLL. This test shall be carried out for each lifting equipment movement under the most unfavorable conditions. The tests shall comprise repeated stopping and starting for each machine movement. The test shall be considered satisfactory if the lifting equipment has carried out all its functions, and that when examined after the test, there is no damage to the mechanisms or structural elements, and that the connections have not become loose or damaged.

8. MARKING:

All hand operated chain blocks shall have a permanent identification plate located in a clearly visible position, which gives the information listed below:

- a) the name and address of the manufacturer;
- b) the series or type designation;
- c) the serial number, if it exists;
- d) the WLL on the cover and on the bottom block;
- e) year of manufacture;
- f) the dimensions and quality of the load chains.

If the item is not already marked, it shall be clearly stamped or marked with an identification number, and if the test is satisfactory, the WLL and date of the test.

9. REPORTING AND CERTIFICATION:

A certificate of test and thorough examination will be issued upon the satisfactory completion of the examination, i.e. the lifting equipment is safe to operate

A defect report will be issued if the lifting equipment fails to meet the requirements.

10. Inspector Competency and Qualification:

Inspector shall have minimum qualification of LEEA Foundation – LEEA Lifting Equipment General- LEEA Lifting Machines Manual