

SPECIFICATIONS

DESCRIPTION

RIGGING AND WIREROPE TESTING EQUIPMENT – STRUCTURAL LIFTING FRAME ARRANGEMENT

This invention relates to a lifting apparatus or frame arrangement for the purpose of
5 testing the loading capacity of cranes situated on maritime vessels as well as the
tensile strength of the wire-ropes which are used by the vessels' cranes to lift loads or
cargoes on and off such vessels.

Background

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The testing of cranes in regard to their load weight capacity was typically hampered
either to the need to use one large fixed weight or a plurality of smaller individual
weights which on aggregate, could not provide for testing of the load weight to the
capacity of 1400 tonnes. This was typically cumbersome and logistically difficult
15 especially for testing of cranes on vessels.

Solution Provided by / Advantages of the Invention

By using weights which are essentially water bags that are filled with sea-water that is
20 readily available on-site, the invention provides for a much greater test weight
capacity to be achieved. Furthermore the device or apparatus not only provides for a
plurality of weights to provide and accommodate for various sizes and types of cranes

(as well as the various different tension / tensile strengths of the individual crane's wire ropes), it also represents a more versatile method of load testing in a less cumbersome and less costly manner.

- 5 The lifting apparatus or device is primarily a single point lifting arrangement that can be used for the invention also provides for savings in costs in that it is characterized by the use of water bags which are re-fillable and can be subsequently decanted or emptied leaving only the canvas bags to be folded and stored away.
- 10 The apparatus or device can also be dis-mantled or dis-assembled into smaller structural components so that it may be transported or stored away in a less cumbersome manner.

With reference to Figure 1, the lifting arrangement or device comprises of (1) a Safe
15 Working Load (otherwise known as an "S.W.L") lifting frame, (2) an S.W. L. double-column spreader frame with trunnions placed on each head of the columns, (3) a pair of single column spreader beams with equally spaced trunnions on the sides of the column, (4) refillable water bags which act as test weights / loads, (5) rigging gear such as shackles, pins, wire-rope slings, (6) lifting lugs, load cells, and double-
20 aperture link plates.

Figures 2 to 4 show different perspectives of the lifting apparatus or structural lifting

frame arrangement.

Figures 5 to 8 are drawings of the spreader frame arrangement which are expanded views / drawings showing (2) the S.W. L. double-column spreader frame with
5 trunnions placed on each head of the columns as well as (3) a pair of single column spreader beams with equally spaced trunnions on the sides of the column.

Figures 9 to 12 are drawings depicting the (1) S.W.L lifting frame.

10 One mode of carrying out the invention would be to hook the said lifting apparatus underneath a crane for the purpose of testing the load capacity of the crane by loading the lifting apparatus with a plurality of test weights. These test weights are re-
fillable water bags, and are positioned or suspended, from lifting frames, such as the spreader beams, double-column spreader beam or the rectangular lifting frame, as
15 the case may be, which are secured vertically below the crane. Based on the transmittal of the weight of the filled water bags and lifting structure directly to the crane, the desired test weightage for crane-testing can be achieved.

Preferred Embodiment

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Based on this method and apparatus for load testing of a crane by way of a single point lifting arrangement, and depending on the test weight required, the preferred

embodiments are illustrated in Figures 1, 5 and 9.

Obviously, other modifications and variation of the present invention may be possible in light of the foregoing descriptions, explanation of methods and teachings. It is
5 therefore to be understood that within the scope of the appended claims, the invention may be practised otherwise than as specifically described and such variants may also include devices or apparatus with different test load capacities apart from those that have been particularly described.

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CLAIMS

Claims

1. An apparatus or device, to test the lifting capacity of a crane and/or the tensile or tension strength of the wire ropes used by the crane for lifting, wherein a plurality of water bags as test weights are used and characterized in that the test weights are suspended from the spreader beams as well as the rectangular lifting frame, with the double-column spreader beam suspending the pair of spreader beams, as the case may be, at a location vertically underneath the crane, such that the maximum lifting capacity of the apparatus is between 700 to 1400 tonnes.
2. An apparatus or device according to claim 1, further characterized in that the rectangular lifting frame comprises lifting lugs welded at the corners of both the under and upper sides of the framework and using a combination of shackles, wire ropes and slings, are connected to and suspended below a centric wide body shackle that is secured with a link plate to a load cell which is hooked or otherwise roped to the wire ropes of the crane.
3. An apparatus or device according to claim 1, further characterized in that the S.W.L. spreader frame is made of two column beams, which are joined or otherwise welded together at the two ends of the structure complete with securing secondary members and trunnions which are welded or otherwise

placed at the heads of the columns.

4. A method for testing and determining the lifting capacity of a crane and/or otherwise the tensile or tension strength of the wire ropes used by cranes for lifting loads, characterized by:

the use of a plurality of water bags as test weights through a single-point lifting arrangement;

- 10 the suspension of the said test weights from spreader beams as well as a rectangular lifting frame, and

- the said arrangements are flexible in terms of the number of water bags to be used and/or the number of spreader beams, as may be required in order to test the required loads.