Working Safely at Height with Liebherr Mobile and Crawler Cranes
Collective and personal fall protection for working with Liebherr cranes

Liebherr is very aware of its responsibility when it comes to providing the greatest possible safety at work for crane operating personnel. As well as this, the provisions of the European Union Machinery Directive must also be respected, together with the standards and guidelines of safety institutions and national safety authorities.

To ensure this, we have developed an extremely effective concept which, as well as collective safety measures, also integrates personal fall protection. A particular advantage here is the rapid, flexible, and easy way in which these devices can be put to use.

Collective fall prevention devices are, for example, railings and handles. Their purpose is to prevent accidents from happening in the first place. Personal fall protection comes into effect if the use of collective systems is not feasible from the technical point of view, or if it becomes a hindrance to working activity. It consists of a catching system with a safety harness. It may not be possible to avoid accidents and falls entirely, but the consequences can be made a great deal less serious.
Working Safely at Height

- Special holder at the crane for safe positioning of the ladder
- Height-adjustable suspension clip at the provided ladder
- Non-slip covering on the boom
- Safe access to the cab
- Securing by railings
- Special holder at the crane for safe positioning of the ladder
Collective fall prevention arrangements

These devices are the best means of providing safety, because they avoid the risk of falling from the crane in the first place. They are easy to use, and they can be used by a number of people at the same time.

- A considerable number of easily erected railings
- A large number of handles
- Retaining points for the secure positioning of ladders
- Non-slip coverings
Working Safely at Height
Personal protection equipment (PPE) is a necessary requirement for work where the provision of collective protective measures is not feasible from the technical point of view. It may not always be possible to avoid injuries, but the protection system means they will be much less serious than might have been the case.

Every new crane is equipped with a fall protection system. Small units are supplied with a single-line system. All telescopic cranes for which a luffing fly jib can be provided and all lattice boom cranes, are fitted with a two-line system, and have steel cables running along the boom into which the fall protection system can be suspended.

The protection equipment has been subjected to extensive and stringent tests, and has already been certified by the safety authorities of numerous countries.

In the event of a fall, within just a few seconds the device blocks the safety belt immediately. This ensures that even if someone falls from a low height they will still not land on the ground, but will be caught and held in the air.

Thanks to the special design of the harness, it is also guaranteed that a person will be held with their legs downwards. Even if they fall head first, they will be turned in the air during the fall, and so held by the safety harness in the natural position.
Every Liebherr crane is also equipped with a rescue system, in order for anyone who falls to be rescued in the shortest time possible. This consists of a karabiner hook, a hand-operated winch, and a telescopic rod for positioning the rescue cable. The winch is used to draw the person who has fallen sufficiently far upwards that the load can be taken off the safety harness and the harness detached. The person concerned will then be lowered using the winch.
In the opinion of the Government Presidium of Tübingen, the personal protection equipment selected and tested by Liebherr can be used as a constituent part of the fall protection system for telescopic and lattice mast cranes.

The technical fall protection system for telescopic and lattice mast cranes has been optimized, taking account of the specific location circumstances.

It consists of the personal fall protection equipment (safety harness and height securing device) and the attachment points intended for these. The attachment points are fixed points and also movable attachments points for the securing cables running on both sides of the walkway on the telescopic and lattice mast booms intended for assembly purposes.

The selection and handling of the personal protection equipment, in conjunction with the fixed attachment points, is regarded as a particularly positive arrangement. Liebherr, as manufacturers of telescopic and lattice mast cranes, are acting here as the interface to protection at work, in a highly responsible and conscientious manner.
The manufacturing company IKAR confirms that the fall protection system, consisting of a fall protection harness and a height securing device, is properly suited for use as a protection system against falls during assembly and inspection work when used in accordance with regulations and specifications and with due account taken of the risk assessment of “Personal protection equipment on Liebherr mobile cranes for fall protection”.

Certificate of conformity

AT4473612

I. APPLICANT
- Applicant: Mr. Josef SGPK
  LIEBHERR Werk Ettlingen GmbH & Co. KG, D-78618 Ettlingen, Germany
- Company: LIEBHERR Werk Ettlingen GmbH & Co. KG, D-78618 Ettlingen, Germany

II. IDENTIFICATION OF THE EQUIPMENT
- Type of equipment: Anchor device - class C
- Trade name: LIEBHERR
- Reference: LIEBHERR Werk Ettlingen GmbH & Co. KG, D-78618 Ettlingen, Germany
- Manufacturer: LIEBHERR Werk Ettlingen GmbH & Co. KG, D-78618 Ettlingen, Germany

III. CONDITION FOR USE OF THE EQUIPMENT
This anchor device is not a personal protective equipment (PPE) against falls from a height, but is intended to be used with PPE.

IV. DESCRIPTION
- This anchorage device can be used by two persons maximum
- ø of cable: 10 mm
- Span (way between structural arches): Minimal 3 m, maximal 15 m.
- UV proof without extension
- Extremity anchorage reference: 988497158

V. REFERENTIAL
- The assessment of conformity was conducted taking into account the provision of European standard EN 795: 1996 and EN 365: 1998.

VI. CONCLUSION
- The anchor device - class C: Retaining Ropes on Liebherr - is defined in the report n°473612-001-1 to conform to the requirements of the standard EN 795:1996.

Date: 4 March 2009

Technical Manager
Guillaume QUININ

IKAR-GmbH Fulda

Fulda, 12-03-2010

IKAR GmbH
Industriepark West
D-66541 Fulda

bestätigt hiermit, dass das nachstehend beschriebene Aufhangsystem bezeichnet aus:

Aufhangurt IK G2B und Höhenstirnungsgerät HVD 2 R,
aufgrund der Ergebnisse der am 18.02.2010 durchgeführten Fallsuche an
Liebherr Mobilkranen mit zwei Haltesystemen als Aufhangsystem
zur Sicherung gegen Abstürze bei Montage- bzw. Inspektionsarbeiten
bei bestimmungsgemäßer Anwendung und der Beachtung der
Ergebnisse der Risikobeurteilung persönliche Schutzausrüstung an
Liebherr-Mobilkranen für Absturzsicherung, geeignet ist.

Fulda den 27.03.2010

IKAR GmbH
Certificate of All Test & Inspection, Inc.

Certificate of Intended Performance

Certificate of All Test & Inspection, Inc. Report Number SG11-10920

Presented to: Liebherr-Werk Ehingen GmbH
Dr. Hans-Liebherr-Straße 1
89582 Ehingen, Germany

Equipment Description: Fall Arrest/Lifeline Tie-Off System Concept for Deep Section Liebherr Crane Boom Sections

Identification: Anchor Device - Class C

This Certificate of Intended Performance is based on review of United States OSHA 1926.502 and 1926.453 codes as they relate to the Fall Arrest Tie-Off System Concept for Deep Section Liebherr Crane Boom Sections. The described equipment has been issued Certificate of Conformity #1414410512 by Cnaulmar Controls, Inc., Technical Manager, APIS, that this equipment conforms to the requirements of the United States OSH 1926.1006. This is to certify the following:

"Based on the test report provided and interpretation of OSHA 1926.1006 and 1926.502 sections that pertain to fall protection, it is our opinion that the Liebherr fall restraint system permanently applied to boom sections provides reasonable fall restraint and therefore meets the intent of these OSHA regulations when used as intended by the manufacturer."

Please refer to opinion letter dated March 10, 2011 by Bernard M. Rung, C.E., All Test & Inspection, Inc.

Bernard M. Rung, C.E.

Date

All Test & Inspection, Inc. • 9688 Goodhue Street NE •
Blaine, MN 55449

PN 394.01.E09.2011

The illustrations contain also attachments and special equipment, which are not included in the standard scope of delivery.

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