Instructions for the safe use of: Lifting Beams and Spreaders

The information in this leaflet should be passed to the user of the equipment

This document is issued in accordance with the requirements of Section 6 of the Health and Safety at Work etc Act 1974, amended March 1988. It outlines the care and safe use of LIFTING BEAMS AND SPREADERS and is based on Section 20 of the LEEA Code of Practice for the Safe Use of Lifting Equipment. It should be read in conjunction with the requirements for general purpose slinging practice, given overleaf, which form an integral part of these instructions.

This information is of a general nature only covering the main points for the safe use of lifting beams and spreaders, including lifting frames. It may be necessary to supplement this information for specific applications.

ALWAYS:

- Store and handle lifting beams correctly.
- Refer to the safe use instructions for slings and attachments used with the beam.
- Include the self weight of the beam and attachments when calculating the load imposed on the crane hook.
- Ensure the load will remain stable when lifted.
- Ensure that no one lifting point becomes overloaded by the slinging or handling methods.
- Use tag lines to control long loads.

NEVER:

- Use lifting beams to handle loads other than those for which they are designed.
- Fit lifting beams to a hook other than those for which they are designed.
- Use damaged or distorted lifting beams and attachments.
- Unevenly load lifting beams.
- Allow lifting beams to alter attitude during use.
- Allow lifting beams to foul the underside of the crane or any other obstructions in the area.

Selecting the Correct Lifting Beam

Lifting beams, frames and spreaders are usually designed and built for a specific purpose. The range of designs and capacities is therefore only limited by practicality. Select the beam to be used and plan the lift taking the following into account:

Application requirements - to reduce headroom, provide multiple lift points, to provide adjustable lifting centres, to handle out of balance loads, to remove or control inward or crushing forces, to allow for special load attachments.

Capacity, both of the overall beam and of the individual lift points.

Accessories and attachments - slings, grabs, shackles, hooks etc.

Storing and Handling Lifting Beams

Never return damaged lifting beams to storage. They should be clean and, where necessary, protected from corrosion.

Lifting beams should be stored in a manner that will provide protection from damage whilst in store. Stands or packing should be provided where this is not built into the beam. Ensure the beam is stable and cannot topple over.

Using Lifting Beams Safely

Lifting beams may incorporate various loose and detachable items of lifting gear. Refer to the separate requirements for the safe use of those items.

Do not use defective or distorted beams or attachments.

Lifting beams are generally designed for a specific purpose and should not be used for other purposes without consulting the supplier. This will include the size of crane hook from which they are suspended. On no account should lifting beams be suspended from unsuitable size hooks.

The weight of the beam, together with its attachments, must be added to the weight of the load when calculating the total load that will be imposed on the crane hook.

Ensure that the SWL on the individual lift points is not exceeded. Extra care is needed where these are adjustable.

Ensure the load is stable and that the beam remains at its intended attitude during use. Particular care is needed when lifting and setting down as not only may the load become unstable but individual lift points may become overloaded.

Use tag lines to control long loads.

Do not allow the beam to foul the underside of the crane, or any other obstructions, when raising or transporting loads.

Refer to the requirements of BS 7121: Part 1 when using beams with cranes in tandem.

In-service Inspection and Maintenance

Maintenance requirements are minimal for lifting beams. Ensure that bolted joints are sound and that corrosion damage is prevented. Refer to the individual maintenance requirements for associated loose gear and attachments.

Regularly inspect lifting beams and, in the event of the following defects, refer the beam to a Competent Person for thorough examination: beam distorted, damaged or corroded; worn, loose or missing bolts; cracked welds; attachment points worn, damaged or distorted, holes and eyes worn or elongated; any other visible defects.

Further information is given in:
The Code of Practice for the Safe Use of Lifting Equipment, published by:

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GENERAL PURPOSE SLINGING PRACTICE

The following information is based on Section 1 - Appendix 1.5 of the LEEA Code of Practice for the Safe Use of Lifting Equipment. It should be read in conjunction with the instructions for the safe use, given overleaf, of which it forms an integral part and with any specific instructions issued by the supplier.

This information is of a general nature only covering the main points for the safe use of various types of slings for general lifting purposes.

ALWAYS:

- Plan the lift, establish the wei ght of the load and prepare the landing area ensuring that it will take the weight.
- Check slings and equipment are free of damage, use slings/slinging methods suit able for the load and protect slings from sharp edges and corners.
- Attach the sling securely to the load and appliance and position hooks to face outwards.
- Ensure the load is balanced and will not tilt or fall.
- Keep fingers, toes etc clear w hen tensioning slings and when landing loads.
- Ensure that the load is free to be lifted.
- Make a trial lift and trial lower.

NEVER:

- Use damaged slings or accessories.
- Twist, knot or tie slings.
- Hammer slings into position.
- Overload slings due to the weight of the load or the mode of use.
- Trap slings when landing the load.
- Drag slings over floors etc or attempt to pull trapped slings from under loads.
- Allow personnel to ride on loads.

Sling Configurations and Rating

Slings are available in single, tw o, three and four leg or endless form. In practice it will be found that chain, wire rope and fibre rope slings are available in any of these configurations but that flat woven webbing is limited to single leg and endless whilst roundslings are only supplied in endless form. The maximum load that a sling may lift in use will be governed by the slinging arrangement (mode of use) and may vary from the marked SWL. In the case of textile slings the SWL for the various modes of use is usually given on the information label. In other cases it is necessary to multiply the marked SWL by a mode factor.

The following three simple rules will ensure that the sling is not overloaded. In some cases this will mean that the sling will be under utilised although this is unlikely to hinder the user unduly. Where the maximum utilisation is required reference should be made to a Competent Person who understands the factors involved and who can perform the necessary calculations.

(1) For straight lift never exceed the marked SWL and in the case of multi-leg slings the specified angle or range of angles.

(2) When using slings in choke hitch multiply the marked SWL by 0.8 to obtain the reduced maximum load the sling may lift ie reduce the safe working load by 20%.

(3) With multi-leg slings, when using less than the full number of legs, reduce the maximum load in proportion to the number of legs in use. Simply multiply the marked SWL by the number of legs in use ex pressed as a fraction of the total thus: one leg of a two leg sling = ½ marked SWL, three legs of a four leg sling = ¾ marked SWL and so on.

Operative Training

Slings should only be used by trained operatives who understand the methods of rati ng and application of mode factors.

Safe use of Slings

- Good slinging practice must ens ure that the load is as safe and secure in the air as it was on the ground and that no harm is done to the load, lifting equipment, other property or persons.
- Establish the weight of the load, ensure the lifting method is suitable and inspect the sling and attachments for obvious defects. Prepare the landing area making sure the floor is strong enough to take the load. Follow any specific instructions from the supplier.
- Ensure the lifting point is over the centre of gravity. Any loose parts of the load should be removed or secured. Secure the sling firmly to the load by hooks onto lifting points or shackles etc. The sling must not be twis ted, knotted or kinked in any way.
- Use packing to prevent damage to the sling from corners or edges and to protect the load.
- Do not exceed the SWL or rated angle. Any choke angle must not exceed 120° and any basket 90°.
- Do not hammer, force or wedge slings or accessories into position; they must fit freely.
- When attaching more than one sling to the hook of the appliance use a shackle to join the slings and avoid overcrowding the hook.
- Use an established code of si gnals to instruct the crane driver.
- Ensure the load is free to be lifted and not, for example, bolted down.
- Check that there are no overhead obstacles such as power lines.
- Keep fingers, toes etc clear ensuring they do not become trapped when lifting, lowering or controlling loads.
- Make a trial lift by raising the load a little to ensure it is balanced, stable and secure and if not lower it and adjust the slinging arrangement.
- Where appropriate use tag lines to control the load.
- Except where special provision is made, do not allow anyone to pass under or ride upon the load. The area should be kept clear.
- Make a trial set down, ensure the sling will not become trapped and the load will not tip when the slings are released. Use supports which are strong enough to sustain the load without crushing.
- Never drag slings over floors etc or attempt to drag a trapped sling from under a load.
- Never use a sling to drag a load.
- Place the hooks of free legs back onto the master link and take care to ensure that empty hooks do not become accidentally engaged.
- Never use slings in contact with chemicals or heat without the manufacturers approval.
- Never use damaged or contaminated slings.
- On completion of the lift return all equipment to proper storage.

Further information is given in:

LEEA Code of Practice for the Safe Use of Lifting Equipment.

Various British Standards covering individual products.

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