Instructions for the use of Chain Slings

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<u>This information should be made available to the user of the equipment.</u>

This document is issued in accordance with the requirements of the Health and Safety at Work etc Act 1974, amended March 1988 and the Supply of Machinery (Safety) Regulations 2008 (Machinery Directive). It outlines the care and safe use of chain slings and is based on section 14 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 detailed in this document, the principles of which may be applied to the use of chain slings.

The information is of a general nature only covering the main points for the safe use of chain slings. It may be necessary to supplement this information for specific applications.

ALWAYS

- Ensure the operator is properly trained to use chain slings.
- Store and handle chain slings correctly.
- Inspect chain slings and accessories before use and before placing in storage.
- Follow safe slinging practices as detailed in this document.
- Fit chain slings carefully, protect them from sharp edges and position hooks to face outwards from the load.
- Apply the correct mode factor for the slinging arrangement.
- Back hook free legs to the master link.

NEVER

- Attempt to shorten a chain sling leg other than by means of an integral chain clutch.
- Force, hammer or wedge chain slings or their fittings into position.
- Lift on the point of the hook
- Expose chain slings to chemicals, particularly acidic conditions without consulting the supplier.
- Shock load chain slings.

Selecting the correct sling

Some common types of Chain Sling

Single leg

Reevable

Two-Leg

Three-leg

Four-leg

Chain slings are available in a range of material grades, sizes and assemblies, select the slings to be used and plan the lift taking the following into account:

- Type of sling to be used – endless, reevable, single, two, three or four leg.
- Capacity – the sling must be both long enough and strong enough for the load and the slinging method, consult the tag on the sling.
- Apply the mode factor for the slinging method.
- For use at temperatures above 200°C or below -40°C refer to the suppliers' instructions.
- Where slings may come into contact with acids or chemicals always consult the supplier.
- In the case of multi leg slings the angle between the legs should not be less than 30° or exceed the maximum marked.
- Multi-leg slings exert a gripping force on the load which must be taken into account, this increases as the angle between the legs increases.

Storing and Handling Chain Slings

Never return damaged or contaminated slings to storage. They should be dry, clean and protected from corrosion.

Store chain slings on a rack and not lying on the ground. The storage area should be dry and free of any contaminants which may harm the sling.

Do not modify, alter or repair a chain sling but refer such matters to a competent person.

Never galvanise or subject a chain sling to any plating process without the express approval of the supplier.

Using Chain Slings Safely

Do not attempt lifting operations unless you understand the use and limitations to use of the equipment, the slinging procedures and the mode factors to be applied.

Do not use defective slings or accessories.

Do not force, hammer or wedge chain slings into position, they must fit freely. Check to ensure correct engagement of fittings and appliances.

Position hooks of multi-leg slings facing outward from the load. Do not lift on the point of a hook.

Ensure that the chain sling is not twisted or knotted.

Always back hook free legs of multi-leg slings to the master link to avoid loose legs becoming accidentally trapped or becoming a hazard.

Take the load steadily and avoid shock loading.

Do not leave suspended loads unattended, in an emergency cordon off the area.

In Service Inspection and Maintenance

Maintenance requirements are minimal. Keep chain slings clean and protect from corrosion.

Regularly inspect chain slings and in the event of any of the following defects refer to a competent person for thorough examination:

- Illegible markings or missing tag.
- Distorted, worn or damaged fittings.
- Worn stretched, bent or twisted links.
- Ineffective safety catches.
- Cuts, nicks, gouges or cracks.
- Corrosion pitting.
- Heat damage, discolouration or weld spatter.

In the event of re-selling or hire of the equipment this information must be passed on to the end user.

Further information can be found in The Code of Practice for the Safe Use of Lifting Equipment published by the Lifting Equipment Engineers Association and available as a free download on www.leeaint.com/downloads

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 previously 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 weight of the load and prepare the landing area ensuring it will take the weight.
- Check slings and equipment are free of damage, use slings/slinging methods suitable 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 when positioning slings and landing loads.
- Ensure 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, two, 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 while roundslings are only supplied in endless form. The maximum load 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 appear underutilised although this should not hinder the user. Where the maximum utilisation is required, reference should be made to the competent person who understands the factors involved and 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 (i.e., SWL-20%)
3. With multi leg slings when using less than the full number if legs, reduce the maximum load in proportion to the number of legs being used. Simply multiply the SWL by the number of legs being used as a proportion of the whole (e.g., using three legs of four is ¾ SWL, one of two is ½ SWL etc.)

Operator Training

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

Safe Use of Slings

Good slinging practice must ensure 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 slings 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. Attach the slings firmly to the load onto lifting points or shackles etc. The sling must not be twisted, knotted or kinked in any way.

Use packing to protect the sling from damage and to protect the load.

Do not exceed the SWL or rated angle. Any choke angle must not exceed 120^{o} and any basket 90^{o}.

Do not hammer, force or wedge slings or accessories into position, they must fit freely.

When attaching more than one sling to the lifting appliance hook use a shackle to join the slings and avoid overcrowding the hook.

Use an established code of signals to instruct the crane driver.

Ensure the load is free to be lifted and not fixed down.

Check for overhead obstructions such as power lines.

Keep fingers, toes etc clear to ensure they do not get trapped.

Make a trial lift by raising the load a little to check for balance, stability and security., if not, lower and adjust the slinging arrangement.

Where appropriate use a tag line to control the load.

Except where special provision is made do not allow anyone to pass under or ride upon the load. Keep the area clear.

Make a trial set down, ensuring the slings will not become trapped and the load will not tip once the slings are released. Use supports which are strong enough to sustain the load without crushing.

Never drag slings across floors or attempt to 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 caught.

Never use slings in contact with chemicals or heat without the manufacturer's approval

Never use damaged or contaminated slings.

On completion of the lift return all equipment to proper storage.