



GROUNDWORKS

LIFTING CHAINS

User Guide



GENERATION
HIRE & SALE

LW/10.22

Lifting Chains

All lifting operations are to be controlled by an appointed person in accordance with 8S7121 and LOLER regulations. Generation UK offers lifting equipment for hire which is intended to be used in conjunction with specific Generation proprietary products. This booklet provides IMPORTANT SAFETY INFORMATION for the safe use of chain slings and it is important that IT SHOULD BE PASSED TO THE USER of the equipment. N.B. This user information should be read in conjunction with the proprietary product user information for which it is intended to be used.

Method of Rating Chain Slings

Generation have adopted the Uniform method of rating given in EN 818, which will enable customers to use the slings for general purpose lifting as well as for their intended applications.

Warning

The Working Load Limits are not valid if any one of the following factors occur:

- Twisting
- Shock/jerking of loads
- Angles greater than those shown
- Corrosion and wear
- Permanent deformation of components
- Uses different from those to which the chain is intended

DAMAGE OR FAILURE OF THE MASTER RING MAY RESULT IF IT IS SUBJECTED TO BENDING DURING LIFTING OPERATIONS

Lifting Sling Certificates

Customers will receive the following documentation with each sling:

Older slings re-rated to EN 818 - Test Certificate

Newer slings manufactured to EN 818 - Manufacturer's Certificate (or if the sling has been repaired since manufacture, a Test Certificate)


If it is more than 6 months from the date of the test certificate or manufacturer's certificate, a report of thorough examination is also supplied.

The documentation carries the following:

- The sling's Serial Number (also carried by the sling)
- The sling's Working Load Limit
- The date of test/thorough examination

Generation Groundwork depot staff will have checked certificates and reports of thorough examination are valid before issue, but users are requested to double check this before using the slings on site, and to **return them to Generation for re-examination before their expiry dates**. (Certificates and reports of thorough examination are only valid for a maximum of 6 months from the date of the test or examination).

Working Load Limits - Multi-Leg Chain Slings

Chain Link Dia. (mm)	Leg Length (m)	No. of Legs (Config.)	Approx. Wt. (kg)	Working Load Limits:- Uniform Load Method of Rating. General Purpose Lifting EN 818 Part 4 Table 3	
					
				0° to 45°	45° to 60°
7	4	4	24	3.15t	2.24t
10	2.5	4	30	6.7t	4.75t
10	4	4	47	6.7t	4.75t
10	10	2	61	4.25t	3.15t
10	5	2	41	4.25t	3.15t
10	4.5	4	54	6.7t	4.75t
10	3	4	37	6.7t	4.75t
13	4	4	72	11.2t	8t
13	4	4	84	11.2t	8t
13	4.5	4	86	11.2t	8t
13	4.5	4	86	11.2t	8t
13	10	4	174	14.0t	10.1t
16	2.03	2	38	11.2t	8t
16	1	2	32	11.2t	8t
16	5	4	147	17.0t	11.8t
16	5	2	78	11.2t	8t

Working Load Limits - Single Leg Chain Slings

Chain Link Dia. (mm)	Leg Length (m)	No. of Legs (Config.)	Approx. Wt. (kg)	Working Load Limits:- Uniform Load Method of Rating. General Purpose Lifting EN 818 Part 4 Table 3
10	1.46	1	5	3.15t
16	1.6	1	18	8t
16	0.6	1	10	8t
16	1	1	15	8t
19	1.5	1	25	11.2t
13	6	1	25	4.2t (in choke hitch)

Care & Safe Use of Chain Slings

This 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:

- Store and handle chain slings correctly.
- Inspect chain slings and accessories before use and before placing into storage.
- Follow safe slinging practices.
- Fit slings carefully, protect them from sharp edges and position hooks to face outward from the load.
- Apply the correct mode factor for the slinging arrangement.
- Back hook free legs onto the master link.

NEVER:

- Attempt to shorten a 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 a hook.
- Expose chain slings to chemicals, particularly acidic conditions, without consulting the supplier.
- Use chain slings at temperatures above 200° C or below minus 40° C without consulting the supplier.
- Shock load chain slings.

Selecting the Correct Sling

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, single, two, three or four leg.
- Capacity - the sling must be both long enough and strong enough for the load and the slinging method.
- Apply the mode factor for the slinging method.
- If adjustment of the leg length is necessary select a sling with chain shortening clutches.
- For use at temperatures exceeding 200° C or below minus 40° C refer to the suppliers instructions.
- Where slings may come into contact with chemicals, particularly acids or acidic fumes, 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 increases as the angle between the legs increases and this must be taken into account.

Care & Safe Use of Chain Slings

Storing and Handling Chain Slings

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

If damaged, return to a Generation depot for inspection and repair.

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

Do NOT alter, modify or repair a chain sling but refer such matters to a Competent Person.

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

Using Chain Slings Safely

Do NOT attempt lifting operations unless you understand the 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 or fittings into position; they must fit freely. Check the correct engagement of fittings and appliances.

Position hooks of multi-leg slings facing outward from the load. Do NOT lift on the point of the hook and ensure that the chain is not twisted or knotted.

Back hook free legs to the master link to avoid lashing legs which might accidentally become engaged or otherwise become a hazard.

Take the load steadily and avoid shock loads.

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 the following defects, refer the sling to a Competent Person for thorough examination; illegible markings; distortion of fittings; worn, stretched, bent or twisted links; ineffective safety catches; cuts, nicks, gouges, cracks, corrosion, heat discolouration or any other defect apparent to the chain or fittings.

General Purpose Slings Practice

ALWAYS:

- Plan the lift, establish the weight 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 and 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 tensioning the slings and when landing the 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.
- Stand under a suspended load.
- Shock load slings.

In-service Inspection and Maintenance

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 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.

General Purpose Slings Practice

Operative Training

Slings should only be used by trained operatives who understand slinging techniques, 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 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 twisted, 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 angle must not exceed 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 signals 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.

General Purpose Slinging Practice

- 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 aushing.
- 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.

Uses of Connector Chain

The chain is intended to be connected to a crane hook via the master ring or the lifting eye of an excavator quick hitch or bucket via the 'D' shackle. (If the excavator is fitted with a 'D' shackle, the connector chain should be attached via the master ring). The 'D' shackle at the other end of the chain is connected to the component as shown below.

Notes

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Groundworks Numbers:

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**YOUR LOCAL
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