

A.1.5.11 Storage of wire rope slings

When not in use wire rope slings should normally be kept on a properly designed rack. They should not be left lying on the ground where they may be damaged.

If the wire rope slings are to be left suspended from a crane hook, the sling hooks should be engaged in an upper link to reduce the risk of sling legs swinging freely or snagging.

If it is likely that wire rope slings will be out of use for some time they should be cleaned, dried and protected from corrosion, e.g. lightly oiled.

A.2 Inspection, thorough examination and maintenance

A.2.1 General

During service, wire rope slings are subjected to conditions that affect their safety. It is necessary, therefore, to ensure, as far as is reasonably practicable, that the sling is safe for continued use.

The sling should be inspected for any obvious signs of deterioration before each use, see A.2.2.

If, at any time there is reason to doubt the safe condition of the sling, it should be withdrawn from service and subjected to a thorough examination, see A.2.3.

If the tag or label identifying the sling and its working load limit becomes detached and the necessary information is not marked on the master link, or by some other means, the sling should be withdrawn from service.

A.2.2 Inspection

An inspection is a visual check on the condition of the sling to identify any obvious damage or deterioration that might affect its fitness for use.

The sling should be withdrawn from service and referred to a competent person for thorough examination if any of the following is observed before each use:

- a) Illegible sling markings, i.e. sling identification and/or working load limit.
- b) Wear, distortion and/or cracking of the upper or lower terminals and/or ferrules.
- c) Concentration(s) of broken wires.
- d) Severe rope distortion, such as kinks or protrusion of the core.
- e) Significant rope wear.
- f) Corrosion.
- g) Heat damage.



A.2.3 Thorough examination and discard criteria

A.2.3.1 General

A thorough examination should be carried out at intervals not exceeding twelve months. This interval should be less where deemed necessary in the light of service conditions.

To facilitate examination, slings may need to be cleaned so as to be free from oil, dirt and rust prior to examination. This can usually be accomplished by using a wire brush. Other methods may be used providing that the parent metal is not damaged. Methods to avoid are those using acids, overheating or removal of metal.

Records of such examinations should be maintained.

The sling should be withdrawn from service if any of the conditions in A.2.3.2 to A.2.3.9 are present, reached or exceeded.

A.2.3.2 Sling markings

The sling markings, i.e. information on the sling identification and /or the working load limit, are illegible.

A.2.3.3 Damaged upper and lower terminals

Wear, distortion or cracking of the upper or lower terminals.

NOTE Particular attention should be paid to signs of opening up, distortion or cracking of the hook, distortion and wear of links or the closing of the thimble, indications that the sling may have been overloaded.

A.2.3.4 Damaged rope terminations

Wear, distortion or cracking of ferrules or the pulling out of a splice.

A.2.3.5 Broken wires

A.2.3.5.1 General

Broken wires are detrimental because of

- a) the possibility of injury to the user's hands;
- b) the loss of strength in the rope.

Broken wires are usually caused by mechanical damage, although corrosion may also be a factor.

The appearance of well distributed broken wires may have no marked effect on the strength of the sling but the discard criteria in A.2.3.5.2 and A.2.3.5.3 should be adopted for randomly distributed broken wires and concentrated broken wires respectively.

NOTE To prevent injury to the user's hands, protruding broken wires can be broken off in the valleys between the strands by reverse bending the wire, with the help of pliers, until fracture occurs. Such actions should be recorded.

A.2.3.5.2 Randomly distributed broken wires

6 randomly distributed broken outer wires in a length of $6d$ but no more than 14 randomly distributed broken wires in a length of $30d$ where d is the nominal rope diameter.

A.2.3.5.3 Concentrated broken wires

3 adjacent broken outer wires in one strand.

A.2.3.6 Rope distortion

Kinking, crushing, birdcaging or core protrusion or other damage which distorts the rope structure.

NOTE NOTE: The main thing to look for is wires or strands that are pushed out of their original positions in the rope. Slight bends in a rope where wires or strands are still relatively in their original positions would not be considered serious damage.

A.2.3.7 Rope wear

10% of the nominal rope diameter (d).



A.2.3.8 Corrosion

Pitting of the wires or loss of flexibility of the rope due to severe internal corrosion.

NOTE Corrosion may occur where slings have been improperly stored or have been used in particularly corrosive conditions, such as moving loads in and out of acid/alkali baths. The effect is readily identified through the loss of flexibility and roughness to the touch. While light surface rusting is unlikely to affect the rope strength, it may be indicative of internal corrosion, the effect of which is not predictable.

A.2.3.9 Heat damage

Heat damage as evidenced by discolouration of the wires, loss of lubrication or pitting of the wires caused by electric arcing.

A.2.4 Maintenance

Any replacement component or part of the wire rope sling should be in accordance with the appropriate European Standard for that component or part.

Components that are cracked, visibly distorted or twisted, severely corroded or have deposits that cannot be removed should be discarded and replaced.

Minor damage such as nicks and gouges to terminal fittings may be removed by careful grinding or filing. The surface should blend smoothly into adjacent material without abrupt change of section. The complete removal of the damage should not reduce the thickness of the section at that point to less than the manufacturer's specified minimum dimensions or by more than 10% of nominal thickness of the section.

