



■ **STEEL WIRE
ROPE SLINGS**

Information on usage and maintenance information of steel wire rope slings in general lifting applications

Usage information

1- General

The adequacy of steel wire rope slings; should be decided by checking that it is capable of lifting the load without allowing the load to be released.

2- Use in unsuitable environmental conditions

The steel rope slings in use must be taken into account for the highest possible temperature.

a. High and low temperatures

Reduced working load limit depending on temperature

Termination Type	Clamp Material	Wire Rope Core	(% Reduced Working Load Limit (WLL))					
			Temp. Range T, °C	40 < T ≤ 100	100 < T ≤ 150	150 < T ≤ 200	200 < T ≤ 300	300 < T ≤ 400
Back Twisted Eye	Aluminum	Fiber	100	Out of use	Out of use	Out of use	Out of use	Out of use
Back Twisted Eye	Aluminum	Steel	100	100	Out of use	Out of use	Out of use	Out of use
Flemish Eye	Steel	Fiber	100	Out of use	Out of use	Out of use	Out of use	Out of use
Flemish Eye	Steel	Steel	100	100	90	75	65	Out of use
Hand Splice	-	Fiber	100	Out of use	Out of use	Out of use	Out of use	Out of use
Hand Splice	-	Steel	100	100	90	75	65	Out of use

Steel wire rope slings are not affected up to the temperature of -40 °C. If the temperature lower than -40 °C it is advised to refer to the manufacturer for further use.

b. Acidic environments

The steel wire rope slings must not be used in such a way as to be affected by immersion in the acid solution or by the acid vapor. In such cases, advice should be taken from the manufacturer.

c. Chemical - corrosive environments

If the steel wire rope slings are in contact with chemicals especially at high temperature, contact with the manufacturer.

3. Dangerous conditions

Lifting applications on seaside, molten metals, corroded and cracked materials and humans should not be carried out. In such cases, the dangerous situation and the working load limits must be determined by the authorized person.

4. Precautions to be taken before first time use

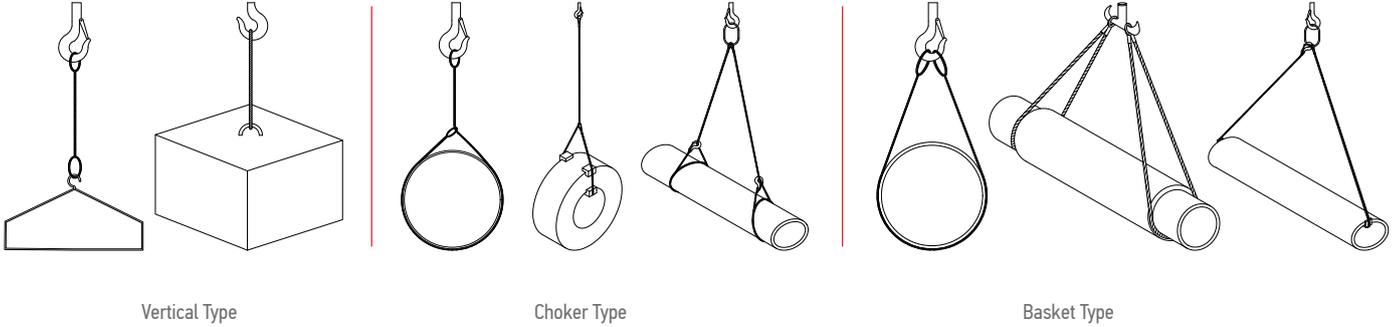
- ★ The received sling should be the same as the sling ordered.
- ★ Manufacturer’s certificate should be available.
- ★ The sling label and certificate must be compatible.
- ★ In the sling certificate, all details required in the standard must be available.
- ★ Sling should not be used out of intention.

Practical information on safe use of wire rope slings

- ★ Before starting the lifting operation, it must be ensured that the load is free to move, connected to the lifting points and there are no obstructions.
- ★ Where the rope is in contact with the load, it may damage the rope because the sharp edges of the rigid material may damage the rope, bend or otherwise be subjected to high pressure; The enclosure may be required to protect the rope, the load or both. It is recommended to use corner guards to prevent this type of damage.
- ★ Dangerous oscillation of the load must be avoided during lifting. Damage may occur during release.
- ★ In case of sudden acceleration and deceleration of loads, the tension of the ropes will increase due to dynamic loads. Before starting the lifting operation, the gaps of the slings should be removed and shock loads should be avoided . Shock load will have a negative effect on the service life of the slings.

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- ★ The weight of the material to be lifted and the location of the center of gravity should be known. Therefore, it is determined safely that what kind of slings to be used and from which points the load to be lifted.



- ★ The working load limits in EN 13414-1 are given for rope slings in different configurations and size ranges. The working load limits (WLL) values given here are determined on the basis of the symmetrical loading of the wire rope sling. When this load is lifted, means that the steel wire rope sling legs are at the same angle with vertical and arranged symmetrically.
- ★ During lifting, hands and other parts of the body should be kept away from the sling to prevent accidents until slack is removed. When ready to lift, rope should be tightened. Lift the load slightly and check that the process is safe. The operator must be aware of the potential danger associated with the swinging and overturning of the load.
- ★ If the number of legs in use is less than the number of legs of the sling, the working load limits in the following table should be taken into account.

Type of Sling	Number of Legs	Working Load Limit
2 legs	1	1/2
3 or 4 legs	2	2/3
3 or 4 legs	1	1/3

- ★ Working load limits must be taken into account and selected slings does not exceed the working load limit.
- ★ While unloading, the circumstances must be eliminated which might be harmful for worker and the environment. Steel wire rope sling disassembly operations should be done without damaging the sling and the load.
- ★ Wire rope slings are not in use should be stored in properly designed shelves. Slings should not be laid on the floor where they might get damaged.
- ★ When wire rope slings are out of use, must be cleaned, dried and protected against corrosion (slightly lubricated).

Inspection, scrapping and maintenance

1- Inspection

Slings are exposed to many factors that will adversely affect their safety during their service life. For this reason, the slings should be checked as long as they are in use. Slings should be checked before each use to determine whether there is a physical deterioration. When any suspicions case of the sling determined, it should be taken out of service and checked. If the sling labels are illegible or lost, the slings should be taken out of service directly.

Before using, the slings must be checked by an expert person in the light of the following criteria and should be discarded when necessary.

- ★ Unlegible sling identification (such as slingshot identification and/or working load limit).
- ★ Wear, deterioration and/or breakage of upper or lower end terminations and/or clamps.
- ★ Detection of broken wires.
- ★ Serious rope distortions such as wire extensions or protrusions.
- ★ Significant rope wear.
- ★ Corrosion.
- ★ Heat damage.

2- Scrapping

A complete review of the slings should be performed at the times specified in the safety rules. This time the sling operating conditions may vary. These inspections must be recorded.

- ★ If the definition of the sling or the marking is illegible
- ★ Wearing and breaking of upper and lower connections
- ★ In case of damage to the rope terminators
- ★ In case of broken wires
- ★ In case of damage to the user and loss of capacity
- ★ Detection of 6 wire breaks in 6d rope length and 14 wire breaks in 20d rope length.
- ★ In case of 3 neighboring wire breaks in one strand
- ★ Formation of kinks, crushes, birdcages, core protrusions and other type of deformations.
- ★ In case of reduction of the diameter of the rope up to 10% of the nominal diameter
- ★ In case of serious corrosion
- ★ Corruption due to corrosion of wires due to electric arc, lubricant loss and color loss of wires in case of proven thermal damage, the slings must be taken out of service

3- Maintenance

Each modified component of the wire rope sling must comply with the standard specified for this component. Cracked or severely corroded, visibly deformed or twisted, components must be scrapped and replaced.

Minor damages, such as notches and cavities, can be removed by careful grinding or filing for the end fittings. The surface must be matched smoothly with the neighboring material without causing an unexpected cross - section change. In order to clean the damage completely, the nominal thickness of the section shall be reduced by no more than 10% or less than the smallest dimensions defined by the manufacturer.