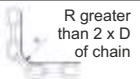
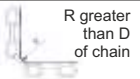
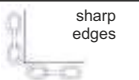


SLINGS - USER MANUAL

In accordance with the Machinery Directive 2006/42 / EC of May 17, 2006. the sling is replaceable equipment that modifies the functions of the machine and is subject to its requirements. Users of slings should have the competences specified in the PN-ISO 12480-1 standard.

Before starting work, check compliance of the sling with the order, declaration of conformity and data plate / label. Check that the load being lifted is not anchored in the ground. It is important that the weight of the load be determined. If the load weight is not specified, it should be estimated using instructions, tables. The sling operator should make sure that the load will not cause damage to the sling and vice versa, the sling will not damage the load. If this is the case, use appropriate protection. Check the technical condition of the sling.

In the case of unfavorable working conditions for the sling, the load capacity should be reduced.

Recommended reduction factor for Permissible Working Load		
1	0,7	0,5
		

For loop rope slings, make sure that the diameter of the pin at the point of contact with the rope is two times greater than the diameter of the rope.

Attention, it should be noted at what temperature the sling will operate. Exposing the sling to elevated but allowed temperatures does not permanently reduce the DOR. However, when the sling has been exposed to a higher temperature than those given below, it should be taken out of service. Permissible operating temperatures for individual slings:

- rope with fiber core, crimped with aluminum or steel sleeve, braided.
- Temperature on the rope surface from -40 to 100°C,
- fiber PES, PA up to 100°C, PP up to 80°C,
- chain, according to the table.

Steel grade	DOR percentage				
	Temperature in °C				
	-40 to 200°C	200 to 300°C	300 to 400°C	400 to 475°C	Above 475°C
4	100	100	75	50	Forbidden
8	100	90	75	Forbidden	
10	100	Forbidden			

If the slings will work below -40°C or in contact with chemicals, please contact the manufacturer.

During lifting operations, it is recommended that the load center of gravity be between the sling attachment points. In order to avoid and tip over the load, the following rules should be observed:

- for three- and four-leg slings, the attachment points should be level and evenly distributed around the center of gravity and directly above it,
- for two-leg slings, the attachment point should be lie on both sides of the center of gravity and above it,
- for single-leg and endless slings, the attachment point must be directly above the center of gravity.

If a smaller number of legs is used in the multi-leg sling, its DOR should be reduced according to the following table.

Number of legs in the sling	Number of used legs	DOR reduction factor
2	1	1/2
3 or 4	2	1/3
3 or 4	1	2/3

If the load weight is unevenly distributed, it is allowed to rely on the capacity of one leg for two-leg slings and on the capacity of two legs for three and four-leg slings (in unfavorable situations only on one!)

Always consider the angle of deviation of individual legs from the vertical. As this angle increases, the lifting capacity of the sling decreases. **Deviation of the tendon from the vertical by more than 60° is not allowed.**

When using the sling by tying, you cannot exceed 80% of the capacity of the individual cable. The hooks of multi-leg slings should be attached in such a way behind the ears that their corners are outside. The loop opening angle of suspended slings must not exceed 20°.

Endless slings should be used in such a way that their connection is on a free section of the sling. Slings must not be shortened by twisting or tying them. This instruction does not assume the presence of particularly dangerous conditions (lifting people, potentially hazardous materials, working on the quay, in an area at risk of explosion. In such cases, the degree of danger should be assessed by a competent person.

Lifting load. Move the hook vertically over the center of the load and then grasp the load with a sling. All persons who take part in the lifting operation must see each other and be able to communicate with signaling codes known to all.

The load should be carefully raised to the correct height, make sure that it does not tilt and hangs securely. Only then can it be transported.

In the event of load fluctuations, use blanking. You can use the so-called referral links. A suitable storage location should be prepared. It is recommended to prepare appropriate sleepers to avoid tightening the sling and securely placing the load. Before releasing the legs completely, make sure that the load settles firmly on the ground and that it will not move uncontrolled.

Do not leave suspended loads unattended. Personnel should use appropriate personal protective equipment.

IT IS FORBIDDEN FOR PEOPLE TO BE UNDER SUSPENDED LOADS.

It is recommended to store slings hung on racks, protecting them from the effects of atmospheric, chemical and mechanical factors. Steel slings can be protected against corrosion by oiling.

Inspections. During the entire period of use, the personnel carrying out the lifting operation should carry out ongoing checks. The personnel performing the lifting operation are responsible for complying with the sling load in terms of DOR.

In the event of excessive wear of the sling, it should be forwarded to the cassation, and in doubtful situations for detailed inspection.

The Detailed Inspection should be carried out at least once every 12 months, and more frequently if used intensively. This check should be carried out by a competent person. As a result of a detailed inspection, all slings are inspected and measured and evaluated in accordance with the withdrawal criteria.

In doubtful cases slings should be subjected to a test load of 2 x DOR. Gripping and hooking devices must be loaded with a force of 1.5 x DOR for a minimum of 5 minutes.

Retraction criteria for slings: corrosion, color changes, missing or illegible markings, component deformation and cracks, fasteners locking, no hook protection.

Wire rope slings - distorted rope structure (visible core, cages, loops, flattening, curvature, corrosion combined with loss of rope elasticity, wiping of clamps). Narrowing of the rope diameter at any point greater than 10% of the nominal size. Cracked wires according to criteria (3 adjacent wires in a strand or 6 randomly spaced wires 6xD in length, but no more than 14 wires 30xD in length).

Webbing slings - deformation caused by high temperature or chemical substances. Seam damage, chafing of the protective loop. Cutting, tearing of the tape in suspension over a width exceeding 10%.

Round slings - visible core, torn or split sleeve, seam damage. Sleeve deformation due to high temperature or chemicals.

Chain slings - reduction of rod thickness by more than 10% (result averaged from cross measurement) Extension of the rod length by more than 3% (measurement taken outside), Excessive corrosion, scratches, notches, bent links.

It is not allowed to make independent repairs to the sling. However, leveling of slight notches and depressions is allowed by gentle grinding. However, such operations cannot reduce the nominal dimension by more than 10%. In rope slings it is allowed to break out protruding wires from the strand by means of forceps. Repairs should be recorded.

