TECNI® INSPIRED SOLUTIONS™

SAFE USE DATA SHEET - FLAT WEBBING and ROUND SLINGS

The information in this leaflet should be passed to the user of the equipment

Inspection of Round Slings and Flat Webbing Slings in Service

Before first use of the sling it should be ensured that:

- the sling corresponds precisely to that specified on the order;
- the manufacturer's certificate is to hand;
- the identification and Working Load Limit (WLL) marked on the sling correspond with the information on the certificate.

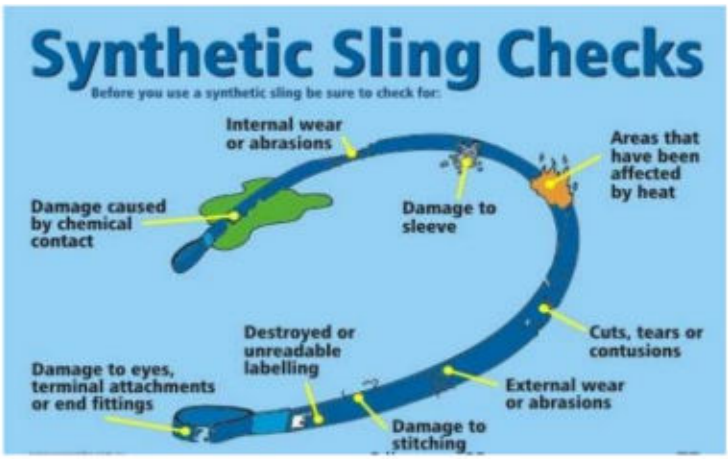
Before each use:

- Inspect the sling for defects or damage
- Check the identification and specification are correct. A sling that is unidentified or defective should never be used but should be referred to a competent person for examination.

During use:

- Make frequent checks for defects or damage, including damage concealed by soiling, which might affect the continued safe use of the sling.
- Checks should extend to any fittings and lifting accessories with the sling.
- If any doubt exists as to the fitness for use, or if any of the required markings have been lost or become illegible, the sling should be removed from service for examination by a competent person.

Defects or damage. The following defects or damage are likely to affect the fitness of slings for continued safe use. Any damage evident in the cover of a roundsling indicates potential damage to the load bearing core.



- **Surface chafe.** In normal use, some chafing will occur to the surface fibres of roundsling covers and flat webbing slings. This is normal and has little effect. However, with flat webbing slings, the effects are variable and as the process continues, some loss of strength should be expected. Any substantial chafe, particularly localised, should be viewed critically. Local abrasion, as distinct from general wear, can be caused by sharp edges whilst the sling is under tension and can cause serious loss of strength in the case of flat webbing slings, or can lead to a roundsling cover becoming cut.
- **Cuts.** Look for cross or longitudinal cuts, cuts or chafe damage to the edges, cuts or damage to the stitching or eyes.
- **Chemical attack.** Chemical attack results in local weakening and softening of the material. This is indicated by flaking of the surface which may be plucked or rubbed of.
- **Heat or friction damage.** This is indicated by the fibres of the sling cover material taking on a glazed appearance and in extreme cases fusion of the fibres can occur.
- **Damaged or deformed fittings.**

Correct Selection and Use of Round Slings and Flat Web Slings

When selecting and specifying round slings and flat web slings, consider the:

- Required working load limit. Take into account the mode of use and the nature of the load to be lifted.
- Size, shape and weight of load
- Intended method of use
- Working environment
- Nature of the load
- Termination of flat web slings i.e. whether fittings or soft eyes are required
- Any ancillary fittings and lifting devices which should be compatible with the slings.

The selected sling should be both strong enough and of the correct length for the mode of use. If more than one sling is used to lift a load, these slings should be identical. The material from which the sling is made should not be affected adversely by the environment or the load.

When using flat webbing slings with soft eyes, **the minimum eye length for a sling** for use with a hook should be not less than 3.5 times the maximum thickness of the hook and in any event the angle formed in the eye of the sling should not exceed 20 degrees.

When connecting a sling with soft eyes to a lifting appliance, the part of the lifting appliance which bears on the sling should be essentially straight, unless the bearing width of the sling is more than 75mm in which case the radius of curvature of the lifting appliance attachment should be at least 0.75 times the bearing width of the sling. Wide webbings may be affected by the radius of the inside of the hook as a result of the curvature of the hook preventing uniform loading across the width of the webbing.

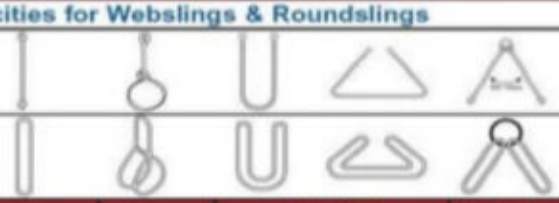
Slings should not be overloaded: the correct mode factor should be used. Working load limits for some modes are shown on the label. In the case of multi-leg slings the maximum angle to the vertical should not be exceeded.

WEBSLING & ROUNDSLING SAFETY CHART

Rated Capacities for Webslings & Roundslings

Duplex and Single Webslings

Roundslings and Endless Webslings



Working Load limit (WLL) = Sling rating x Mode Factor (M*)
All loads in tonnes

Factor of Safey for all Webslings & Roundslings is 7:1

Colour coding only applicable within the E.U for industrial use.
DOES NOT APPLY TO SHIPS EQUIPMENT

	Straight Pull M*=1	Choke Hitch M*=0.8	Basket Hitch Parallell M*=2	Basket Hitch 90° M*=1.4	Two Leg sling Max 90° M*=1.4	4 Leg Sling Max 90° M*=2
VIOLET	1.0	0.8	2.0	1.4	1.4	2.0
GREEN	2.0	1.6	4.0	2.8	2.8	4.0
YELLOW	3.0	2.4	6.0	4.2	4.2	6.0
GREY	4.0	3.2	8.0	5.6	5.6	8.0
RED	5.0	4.0	10.0	7.0	7.0	10.0
BROWN	6.0	4.8	12.0	8.4	8.4	12.0
BLUE	8.0	6.4	16.0	11.2	11.2	16.0
ORANGE	10.0	8.0	20.0	14.0	14.0	20.0
ORANGE	12.0	9.6	24.0	16.8	16.8	24.0

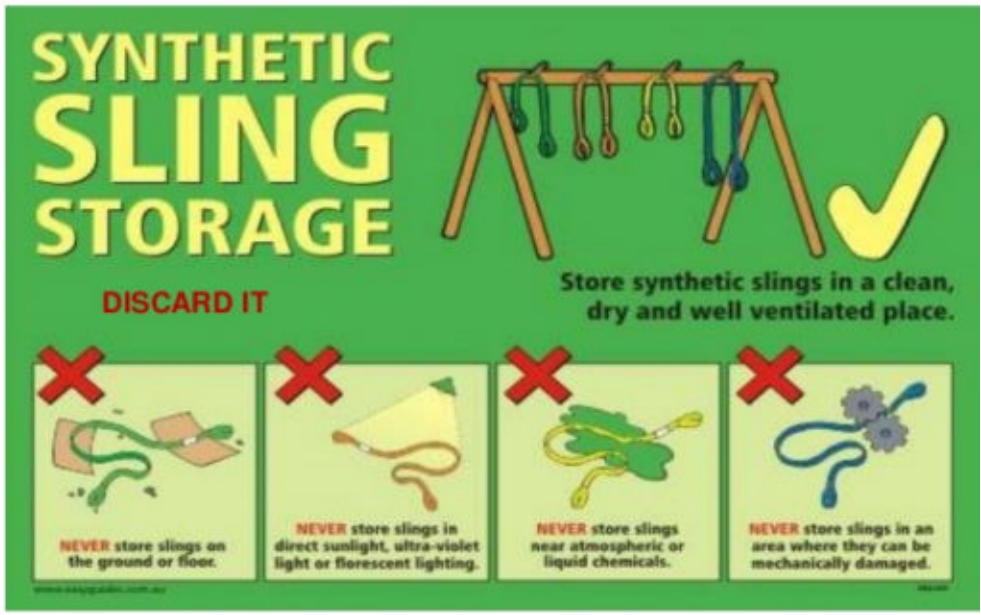
Good Slinging Practices

- The slinging, lifting and lowering operations should be planned before commencing the lift.
- Slings should be correctly positioned and attached to the load in a safe manner.
  - Round slings should be placed on the load such that they are able to adopt the flattened form and the loading is uniform across their width.
  - Flat webbing slings should be placed on the load such that the loading is uniform across their width. Slings should never be knotted or twisted.
- Stitching should never be placed over hooks or other lifting devices: the stitching should always be placed in the standing part of the sling.
- Damage to labels should be prevented by keeping them away from the load, the hook and the angle of choke.
- In the case of multi-leg slings, the WLL values have been determined on the basis that the loading of the sling assembly is symmetrical. This means that when the load is lifted the sling legs are symmetrically disposed in plan and subtended at the same angle to the vertical.
- In the case of three leg slings, if the legs are not symmetrically disposed in plan the greatest tension is in the leg where the sum of the plan angles to the adjacent legs is greatest. The same effect occurs in 4 leg slings except that the rigidity of the load should also be taken into account.

NOTE: With a rigid load the majority of the weight may be taken by only three, or even two, of the legs, with the remaining legs only serving to balance the load.

- Slings should be protected from edges, friction and abrasion, whether from the load or the lifting appliance. Where reinforcements and protection against damage from edges and/or abrasion is supplied as part of the sling, this should be correctly positioned. It may be necessary to supplement this with additional protection.
- The load should be secured by the sling(s) in such a manner that it cannot topple or fall out of the sling(s) during the lift. Sling(s) should be arranged so that the point of lift is directly above the centre of gravity and the load is balanced and stable. Movement of the sling over the lifting point is possible if the centre of gravity of the load is not below the lifting point.
- When using basket hitch, the load should be secure since there is no gripping action as with choke hitch and the sling can roll through the lifting point. For slings which are used in pairs, the use of a spreader is recommended so that the sling legs hang as vertically as possible and to ensure that the load is equally divided between the legs.
- When a sling is used in choke hitch, it should be positioned so as to allow the natural (120 degrees) angle to form and avoid heat being generated by friction. A sling should never be forced into position nor an attempt made to tighten the bite. A double choke hitch provides greater security and helps to prevent the load sliding through the sling.
- Care should be taken to ensure the safety of personnel during the lift. Persons in the danger area should be warned that the operation is to take place and, if necessary, evacuated from the immediate area.
- Hands and other parts of the body should be kept away from the sling to prevent injury as the slack is taken up.
- Reference should also be made to ISO 12480-1 for planning and management of the lifting operation and the adoption of safe systems of working.

- A trial lift should be made. The slack should be taken up until the sling is taut. The load should be raised slightly and a check made that it is secure and assumes the position intended. This is especially important with a basket or other loose hitches where friction retains the load.
- If the load tends to tilt, it should be lowered and attachments repositioned. The trial lift should be repeated until the stability of the load is ensured.
- Care should be taken when making the lift to ensure that the load is controlled, e.g. to prevent accidental rotation or collision with other objects.
- Snatch or shock loading should be avoided as this will increase the forces acting on the sling.
- A load in the sling or the sling itself should not be dragged over the ground or rough surfaces.
- The load should be lowered in an equally controlled manner as when lifted.
- Trapping the sling when lowering the load should be avoided. The load should not rest on the sling, if this could cause damage and pulling the sling from beneath the load when the load is resting on it should not be attempted.
- On completion of the lifting operation the sling should be returned to proper storage. When not in use, slings should be stored in clean, dry and well ventilated conditions, at ambient temperature and on a rack, away from any heat sources, contact with chemicals, fumes, corrodible surfaces, direct sunlight or other sources of ultra-violet radiation.
- Prior to placing in storage, slings should be inspected for any damage which may have occurred during use. Slings should never be returned damaged to storage.
- Where slings have come into contact with acids and/or alkalis, dilution with water or neutralisation with suitable media is recommended prior to storage.



- Depending on the material of the sling and the chemicals in point it may be necessary to refer to the supplier for additional recommendations on the cleaning procedure.

Examination and repair

- Examination periods should be determined by a competent person, taking into account the application, environment, frequency of use and similar matters, but in any event, slings should be visually examined at least annually by a competent person to establish their fitness for continued use.
- Records of such examinations should be maintained.
- Damaged slings should be withdrawn from service. Never attempt to carry out repairs to the slings yourself.