

# Yale

## TEXTILE LIFTING SLINGS



COLUMBUS MCKINNON

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## Textile Lifting Slings User information

# SAFE

This user information presents a general overview regarding the application of textile lifting slings and does not substitute the existing operating instructions for specific products!

Lifting operations with textile slings may be carried out by competent users (trained in theory and practice) only.

When operated correctly, our textile slings offer the highest degree of safety in line with long life expectancy and avoid damage to products and people.

### Limitations of use

#### Loading

Textile lifting slings must not be overloaded. The capacities for the most important lifting/sliding methods are indicated on the identity label. Always observe the maximum angle from the vertical (angle  $\beta$ )!

#### Temperature

Textile lifting slings made from polyester are admitted for applications at temperatures between  $-40\text{ }^{\circ}\text{C}$  and  $+100\text{ }^{\circ}\text{C}$ . This temperature area may change in chemical environments. The woven structure of the drenched textiles at temperatures below  $0\text{ }^{\circ}\text{C}$  are susceptible to damage due to the formation of ice. Ice will reduce the flexibility of the lifting sling! At temperatures below  $0\text{ }^{\circ}\text{C}$ , dry lifting equipment should be used only! In dry condition, polyester features a high electrical resistance and provides an insulating effect between load and crane hook (e.g. during welding jobs – observe temperatures!).

#### Shock loading

Textile lifting and lashing equipment should not be subjected to sharp jerks and jolts in order to avoid heavy forces which may be considerably higher than the actual load weight!

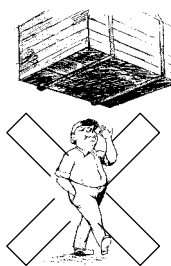
#### Chemicals

Particular caution is required when using textile lifting equipment in areas where chemicals are present. Polyester has good resistance against mineral acids but will be destroyed by alkaline – consult our experts for advice in your specific application!

Acid may cause material brittleness to steel fittings of textile lifting slings! Harmless acid solutions may concentrate by evaporation to an extent that they provoke damages. Affected textile lifting equipment must be thoroughly rinsed in cold water, dried in open air and inspected by a competent person.

#### Transport of people

Transport of people with textile lifting equipment is generally forbidden!



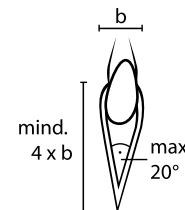
#### Operation in danger zones

Lifting or transport of loads must be avoided while personnel are in the danger zone.

People are not allowed to pass over or under a suspended load!

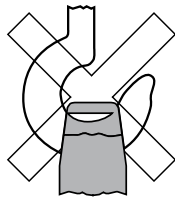
#### Application advices

- The operator may start moving the load only after it has been correctly attached and all personnel are clear of the danger zone.
- Loads must not be left unattended in raised or tensioned condition for a longer period of time.
- Flat webbing or round slings must not be used in knotted, tied or twisted condition and may only be used for the attachment of loads.
- Prior to every use, textile lifting and lashing equipment must be examined with regard to obvious defects. Ensure that their identity and dimensions are correct and that they are provided with a legible capacity label. Never use lifting equipment which is defective or not labelled!
- Damage of the capacity label can be avoided by keeping it away from the load, the hook or choke hitch operations!
- The angle of the eye must not exceed  $20^{\circ}$  in order to avoid inadmissible strain on the seams! This will be ensured when the eye length is approx. 4 times the width of the hook.
- Hooks or other lifting devices in loaded condition must not be attached in the area of sewn overlaps or at the seam of the round sling sleeve. Make sure that the seams are positioned in the straight part of the lifting device!



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- Hooks should be provided with sufficient radius. The contact area of the web sling must be straight, so that the entire cross section of the sling is loaded equally. If the carrying width of flat webbing sling is below 75 mm, the radius curve of the lifting device must be at least  $\frac{3}{4}$  of the width of the webbing sling.



- Take care that round slings do not overlap in the crane hook. They must have sufficient space in the hook mouth as well as at the load, so they can assume their natural, flattened profile and provide even loading over the full width of the round sling.

- Flat webbing slings should be applied in such a way that they can carry the load over the full sling width. Greater angles from the vertical will strain the edges of the slings and possibly lead to breakage!

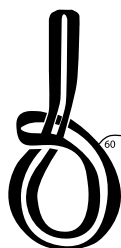
- Textile lashing equipment must be protected against sharp edges, friction and abrasion at both load and lifting device. A radius edge is classed as sharp, if it is less than the thickness of the flat webbing or round sling (in flat, loaded condition).

- Never push or place the load onto the lifting device! Never pull the load over rough surfaces or edges and do not drag from underneath a load!

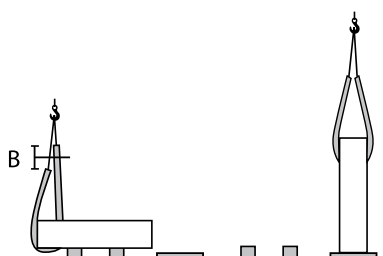
- In "choke hitch" the textile sling should be positioned so that it can form a natural angle of  $60^\circ$  and that heat due to friction is avoided.

Never re-adjust the choke hitch and prevent heat development by friction (slipping of load).

In order to lift loads with plain or slippery surface we recommend double choke hitch.



- Round slings and flat webbing slings will stretch under load by approx. 3 - 5%. This has to be strictly considered as it may cause abrasion resp. damages at sensible surfaces. As prevention we recommend the use of protective sleeves and edge protectors. In case of (intended) load movements during lifting operations and resulting friction, e.g. during assembling or turning of goods, the surface or edges of the load must be secured by protective sleeves or corner protectors, which will safeguard the lashing device and leave sufficient space for movement and alignment without greater friction (see dim. B in the following drawing).



- If more than one sling is used to lift a load, these should be of same type with preferably same length in order to avoid different elongation behaviour and allow carrying ability over the full width (employ smallest angle from the vertical or use spreader beam instead).
- Textile lifting equipment must be stored in a clean, dry and well ventilated area. Avoid exposure to direct sunlight and other sources of UV. Keep them away from other heat sources, chemicals, fumes and corroded surfaces as they will have a negative effect on the life expectancy of the sling. Slings should not be dried near open fires or other hot places.
- Textile slings with obvious damages, overloading or other detrimental influences must be taken out of use and may be returned to service after inspection and possible repair only.

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## Textile Lifting Slings User information

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### Maintenance and repair

Inspections and tests must be performed by competent persons or specialist workshops only.

### Inspections

Depending on application, textile lifting equipment must be subjected to regular inspections by competent persons, at least once per year. The inspection must be visual and extended to the following deficiencies:

- Complete and legible identity label.
- Damages by chemical influence, e.g. local soaking, chipping of yarns or heat (hardening).
- Steel links must not show deformations, grooves or reduction to the cross section of more than 10%. Check for cracks; possible welding points must be visible and not covered by the webbing.
- Inspections have to be recorded.
- Defective slings have to be taken out of service immediately and must be stored separately!

### Criteria for disposal

**Textile slings must not be used any longer if e.g.:**

- The marking (identity label) is missing or illegible.
- Detrimental impacts have occurred, e.g. overloading, shock loading, chemical influence or heat.

**Flat webbing slings:**

- Damages of selvage, defects of the woven structure by abrasion, cuts or yarn breakages have occurred. If 10% or more of the webbing sling cross section is damaged the sling must be discarded.
- Heavy deformation or melting of yarns due to heat (shiny surface and/or hardened webbing) can be recognized.
- Load bearing seams are defective.

**Round slings:**

- The outside (sleeve) is damaged by cuts or abrasion.
- The inside (polyester yarns) of the sling is visible.
- The seams of the sleeve are damaged.








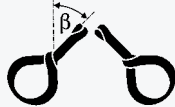
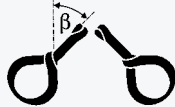
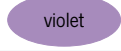


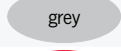



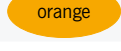
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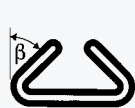

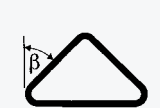
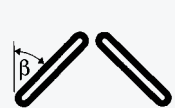
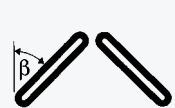





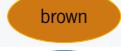

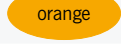
Yale hoists and trolleys are not designed for passenger elevation applications and must not be used for this purpose.

**Textile Lifting Slings** User information

**Webbing slings** Rated capacities for different slinging methods

		WLL (kg) with one webbing sling					WLL (kg) with two webbing slings			
		straight pull	choke hitch	basket angle $\beta$			straight angle $\beta$		choke hitch angle $\beta$	
				up to 7°	7°- 45°	45°- 60°	7°- 45°	45°- 60°	7°- 45°	45°- 60°
Factor										
		1.0	0.8	2.0	1.4	1.0	1.4	1.0	1.12	0.8
1000 kg		1000	800	2000	1400	1000	1400	1000	1120	800
2000 kg		2000	1600	4000	2800	2000	2800	2000	2240	1600
3000 kg		3000	2400	6000	4200	3000	4200	3000	3360	2400
4000 kg		4000	3200	8000	5600	4000	5600	4000	4480	3200
5000 kg		5000	4000	10000	7000	5000	7000	5000	5600	4000
6000 kg		6000	4800	12000	8400	6000	8400	6000	6720	4800
8000 kg		8000	6400	16000	11200	8000	11200	8000	8960	6400
10000 kg		10000	8000	20000	14000	10000	14000	10000	11200	8000

**Round slings** Rated capacities for different slinging methods

		WLL (kg) with one round sling					WLL (kg) with two round slings					
		straight pull	choke hitch	basket angle $\beta$			straight angle $\beta$		choke hitch angle $\beta$			
				up to 7°	7°- 45°	45°- 60°	7°- 45°	45°- 60°	7°- 45°	45°- 60°		
Factor												
		1.0	0.8	2.0	1.4	1.0	0.7	0.5	1.4	1.0	1.12	0.8
1000 kg		1000	800	2000	1400	1000	700	500	1400	1000	1120	800
2000 kg		2000	1600	4000	2800	2000	1400	1000	2800	2000	2240	1600
3000 kg		3000	2400	6000	4200	3000	2100	1500	4200	3000	3360	2400
4000 kg		4000	3200	8000	5600	4000	2800	2000	5600	4000	4480	3200
5000 kg		5000	4000	10000	7000	5000	3500	2500	7000	5000	5600	4000
6000 kg		6000	4800	12000	8400	6000	4200	3000	8400	6000	6720	4800
8000 kg		8000	6400	16000	11200	8000	5600	4000	11200	8000	8960	6400
10000 kg		10000	8000	20000	14000	10000	7000	5000	14000	10000	11200	8000