SLINGMAX® RIGGING SOLUTIONS

HELIX

Helix® Sling User Manual

⚠ WARNING

- Death or Injury can occur from improper use or care.
- For use only by a competent and/or qualified person as defined by OSHA.
- Stay clear of the load at all times.
- Do not exceed rated capacity.
- Sling can fail if damaged, misused or overloaded.
- Inspect before each use. Damaged sling shall not be used.
- User shall protect sling from being cut by load edges, corners, protrusions and abrasive surfaces.
- Do not expose to damaging chemicals and temperatures over 180° F/ 82° C.

For additional important safety, inspection, removal and repair information, follow Slingmax® Guidelines, ASME B30.9, WSTDA RS 1HP and Cordage Institute CI 1905 standards.

BEFORE EACH USE

⚠ **DEATH or INJURY** can occur from improper use or care.

1. **Sling users shall be trained.** Do not use this sling unless you are properly trained. *See page 6 for training.*
2. Read and follow all instructions and warnings in this manual.
3. Check tag to confirm that sling is adequately rated for the load. *See page 7 for chart.*
4. Inspect sling for damage including:
    - Missing or unreadable Identification Tag
    - Holes, tears, cuts, abrasive wear or snags
    - Acid or caustic burns
    - Exposed core yarn
    - Broken or damaged core yarn
    - Weld splatter or heat damage
    - Excessive foreign matter such as dirt or grit that has entered the sling
    - Fittings that are pitted, corroded, cracked, bent, twisted, gouged or broken
    - Any other condition, including visible damage, that causes doubt as to the continued use of the sling

⚠ **IF ANY OF THESE ARE DETECTED - SLING SHALL BE REMOVED FROM SERVICE IMMEDIATELY**

Inspection Frequencies

1. All slings and rigging shall be inspected before each use.
2. Documented periodic inspections shall be completed at least annually or more frequently depending on service.
    - Refer to ASME B30.9 and / or contact manufacturer for recommendations for guidance on service intervals.

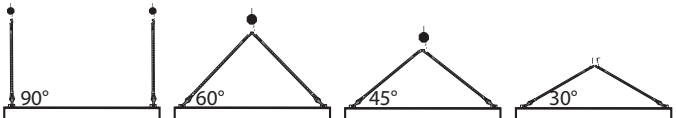
USE

1. Determine the weight and center of gravity of the load. For special lifts consult manufacturer for additional support and/or suggested products.

2. Check the sling tag to confirm that the sling is rated adequately for the load in the manner or hitches that it will be used. Refer to load angle, choke angle and other relevant charts.

LOAD ANGLE CHART

Angle factor must be applied to calculate the **reduced sling capacity** when lifting force is not at 90˚ to the plane of the load!



90°	60°	45°	30°
1,000 lbs	866 lbs	707 lbs	500 lbs

Multiply angle factor x sling's vertical rated load to calculate the reduced capacity at the angle.

Angle	Factor	Angle	Factor	Angle	Factor	Angle	Factor
90˚	1.0000	70˚	0.9397	55˚	0.8192	40˚	0.6428
80˚	0.9848	65˚	0.9063	50˚	0.7660	35˚	0.5736
75˚	0.9659	60˚	0.8660	45˚	0.7071	30˚	0.5000

CHOKE ANGLE EFFECT

ANGLES OF CHOKE	SLING RATED LOAD PERCENTAGE OF SLING RATED CAPACITY IN A CHOKER HITCH
Over 120	100%
90 - 120	87%
60 - 89	74%
30 - 59	62%
0 - 29	49%

⚠ Use caution with lifts at angles less than 45˚ and do not make lifts with slings at less than 30˚. When possible, use longer slings to minimize angular tension by increasing the angle. Severe angles can greatly reduce sling strength.

3. Check chemical resistance. Helix™ slings are generally resistant to common chemicals. Resistances in this chart are based on common concentrations at room temperature. Elevated concentrations and temperatures may affect chemical resistance. Contact Slingmax for more information when using in environments with elevated concentrations of chemicals and/or temperatures

⚠ Do not expose to damaging chemicals and/or temperatures over 180˚F/82˚C. Refer to manufacturer for additional information.

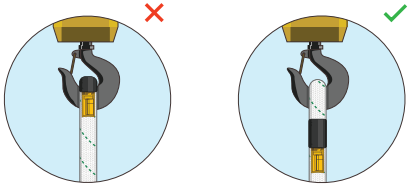
Chemical	Resistance
Hydrocarbons	Excellent
Hydraulic Fluid	Excellent
Crude Oil	Excellent
Gasoline	Excellent
Kerosene	Excellent
Diesel Fuel	Excellent
Acids	Excellent
Sulfuric Acid	Excellent
High Concentration Sulfuric Acid	Fair
Hydrochloric Acid	Excellent
Phosphoric Acid	Excellent
Boric Acid	Excellent

Chemical	Resistance
Alkalis	Excellent
Chlorine bleach	Poor
Sodium Hydroxide	Fair
High Concentration Sodium Hydroxide	Poor
Other	
Salt Water	Excellent
Ammonia	Fair
Most Solvents	Excellent
Ethanol	Excellent
Methanol	Excellent
Toluene	Excellent
d-limonene	Poor

USE (Continued)

4. Select compatible fittings. Use Helix slings with hardware with equal or greater load ratings. In absence of a hardware load rating, use a D/d ratio higher than 1.0.

5. Center the sling and the load on the hardware being used.



⚠ Do not rig on the black sleeve! Do not place the identification tag in the bite of the choker hitch.

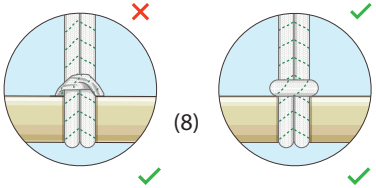
⚠ To avoid injury, it may be necessary to use multiple persons or an overhead lifting device to lift the slings and rigging.

6. Do not place identification tag in the bite of the hook, shackle or any other piece of hardware. Identification tag should be placed 18"-24" away from the lifting hooks, hardware and facing away from the load.

7. Protect sling from abrasive surfaces, pinch hazards, and edges. Use abrasion protection for abrasive surfaces and cut protection for edges on the hardware or load. *See page 5 for Cut and Abrasion Protection.*

⚠ Do not drag sling over any surface.

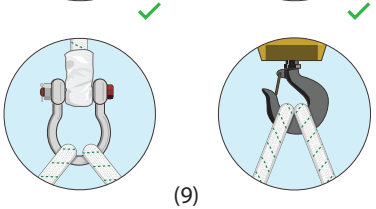
8. Ensure sling is smooth in the hitch without any twisting or bunching at connection point.



(8)

⚠ Sling shall not be twisted, tied into knots, or joined by knotting.

9. When placing multiple Helix Slings in hooks or hardware place the slings side by side.



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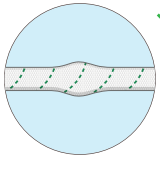
10. Lumps or bulges in the Helix sling are temporary and will pull down when the sling is put under load.



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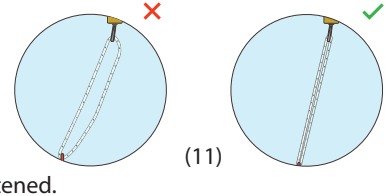
11. Equalize the slack by hand. Do not equalize the sling by using the crane or hoist to create tension.



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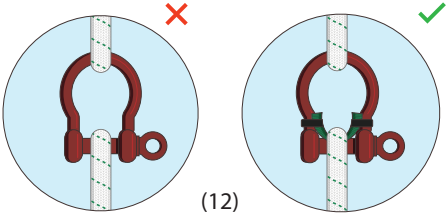
⚠ Keep hands clear when the sling is being tightened.

USE (Continued)

12. Always use protection when rigging on the pin of a shackle. See cut / abrasion protection on Page 5.



(12)

13. Carefully lift the load. Be alert for snagging of the load.

⚠ Balance, maintain control and avoid sudden movement or jerking of the load.

⚠ STAND CLEAR OF LOAD AT ALL TIMES.

⚠ DO NOT RIDE ON SLING OR LOAD.

⚠ STOP THE LIFT IMMEDIATELY if the load does not lift evenly, or any other observed failure of the rigging is detected.

CARE

Store slings to prevent contact with possible mechanical damage, corrosion, dust, grit and extreme temperatures.

To clean: use mild soap and water and allow to air dry before storing.

Do not machine wash or dry, to avoid damaging the sling.

REPAIR

Field repair is not permitted. Return sling to a Slingmax® Dealer for for evaluation. Visit www.slingmax.com for list of authorized Slingmax® Dealers.

⚠ Attempting to repair sling can result in sling failure, load drop, and death or serious injury.

DISPOSAL

Before disposing of Helix™ slings, the slings shall be cut in half to prevent inadvertent use.

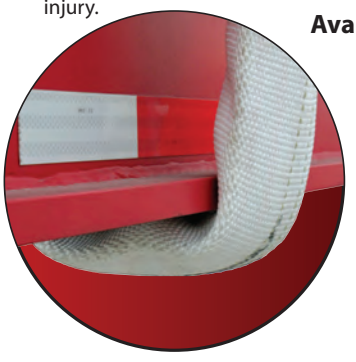
Waste must be disposed of in accordance with national and local environmental regulations.

CUT AND ABRASION PROTECTION

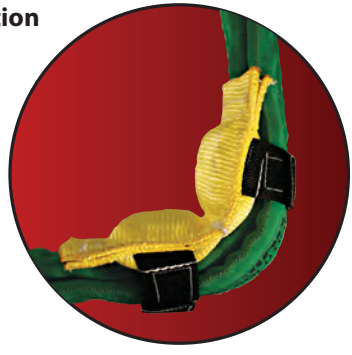
Slings in contact with edges, corners, protrusions, abrasive surfaces or connecting hardware shall be protected with a material of sufficient strength, thickness and construction to prevent damage. Cut protection shall be rated and labeled for its intended use.

⚠ Failure to use proper protection can result in sling failure, load drop, and death or serious injury.

Available Cut Protection



CornerMax® Sleeve is made from tough high performance fiber that is specifically woven to provide cut protection for a variety of edges and surfaces. CornerMax® Sleeves can be used in many different angles and applications. Rated for 25,000 lbs per inch of sling width.



The CornerMax® Pad creates a "tunnel" of cut protection which is known as the No Touch Zone. The corner of the load does not come in contact with the pad or the sling. The CornerMax® Pad is specifically designed to be used in 90˚ angle applications. Rated for 25,000 lbs per inch of sling width.

Available Abrasion Protection

Spider Sleeve prevents jacket damage when slings are tightly choked, facilitates easy release after choking, and avoids bursting when rigging on tight or narrow hardware. Designed to eliminate the 'bite' of the cover, the Spider Sleeve allows the sling to glide into position in situations where the sling cover comes in contact with itself or rough hardware.

The pin area of a shackle can damage synthetic slings. Placing synthetic slings on the pin should be avoided. Shackles may have a sharp edge where the pin goes through the shackle ear. If the sling is rigged on this area, it could become severely damaged. If you must rig on the pin, protect your sling with a **Shackle Pin Pad**.

Additional cut & abrasion protection information available from the manufacturer.

TRAINING & RESOURCES

Per ASME B30.9 & OSHA

Sling users shall be trained. Qualifying persons performing rigging functions shall meet the applicable criteria and shall, through education, training, experience, skill, and physical ability, as necessary, be competent and capable to perform the job. Rigging training is widely available through your local Slingmax® Dealer.

For training information please contact your local Slingmax® Dealer or visit www.slingmax.com.

ASSOCIATIONS

For additional information on the safe use, inspection, and training requirements, please consult the standards and reference items below:

- **WSTDA-RS-1HP**
- **ASME B30.9**
- **CI 1905**
- **OSHA 29 CFR, 1910.184**
- **Slingmax Rigging Handbook**

For additional information visit our website www.slingmax.com

Note: Capacities shown are for one complete sling. Sling ratings based on commercial fittings of equal or greater capacity. Conforms to ANSI/ ASME B30.9 Chapter 7, NAVFAC P-307 Section 14.7.4.3, the Cordage Institute Roundsling Standard and the Web Sling & Tie Down Association Roundsling Standard. This chart is based on a 5:1 Design Factor (DF) but any other DF can be fabricated. Higher capacity slings are available. CAPACITIES ARE IN POUNDS (LBS.)

Helix® Sling Stock No.	Vertical	Choker	Vertical Basket	Basket Hitches		Approximate Weight (Lbs. per Ft.) (Bearing - Bearing)	Diameter (Inches)*	Minimum Recommended Hardware Diameter (Inches)	Minimum Bending Radius (Inches)
			90°	60°	45°				
Helix500	5,000	4,000	10,000	8,660	7,070	0.19	0.6	0.50	0.25
Helix1000	10,000	8,000	20,000	17,320	14,140	0.24	0.7	0.63	0.32
Helix1500	15,000	12,000	30,000	25,980	21,210	0.29	0.8	0.75	0.38
Helix2000	20,000	16,000	40,000	34,640	28,280	0.42	0.9	0.86	0.43
Helix2500	25,000	20,000	50,000	43,300	35,350	0.49	1	1.00	0.50
Helix3000	30,000	24,000	60,000	51,960	42,420	0.56	1.2	1.10	0.55
Helix4000	40,000	32,000	80,000	69,280	56,560	0.84	1.4	1.40	0.70
Helix5000	50,000	40,000	100,000	86,600	70,700	0.99	1.5	1.50	0.75
Helix6000	60,000	48,000	120,000	103,920	84,840	1.24	1.8	1.50	0.75
Helix7000	70,000	56,000	140,000	121,240	98,980	1.41	2	1.84	0.92
Helix8500	85,000	68,000	170,000	147,220	120,190	1.57	2.1	1.84	0.92
Helix10000	100,000	80,000	200,000	173,200	141,400	1.93	2.2	2.00	1.00
Helix12500	125,000	100,000	250,000	216,500	176,750	2.27	2.4	2.50	1.25
Helix15000	150,000	120,000	300,000	259,800	212,100	2.62	2.5	2.50	1.25
Helix17500	175,000	140,000	350,000	303,100	247,450	3.31	2.9	2.80	1.40
Helix20000	200,000	160,000	400,000	346,400	282,800	3.81	3	3.00	1.50

*Dimensions can vary according to the hardware or bearing points the slings are used with.

METRIC SLINGS AVAILABLE