



WARNING TO THE USERS OF SYNTHETIC PRODUCTS

The  **WARNING** Icon, used in our product information is done to alert sling users to potentially hazardous conditions and situations.

 **WARNING** It is your explicit responsibility to consider all risk factors prior to using any rigging device or product. Read and understand the information contained in this bulletin, in our catalog, on our web site www.lift-it.com and follow OSHA and ASME guidelines. Use by untrained persons is hazardous.

The American Society of Mechanical Engineers, in the Sling Safety Standard, ASME B30.9-2003, clearly establishes the requirement for training. Sections 9-5.1 and 9-6.1-Training states, "Synthetic webbing and round sling users shall be trained in the selection, inspection, cautions to personnel, effects of the environment and rigging practices, covered by this chapter."

 **WARNING** All Products supplied and manufactured by Lift-It® Manufacturing are sold with express understanding that the purchaser and user are thoroughly familiar with the safe and proper use and application of the product. The qualified person and sling user has the responsibility for use and application, and should have sufficient training and knowledge of all applicable standards to responsibly use our products.

 **WARNING** Failure to follow proper use, care and inspection criteria could result in severe personal injury or death. Synthetic products will fail if damaged, abused, misused, overused, or improperly maintained.

WHEN ORDERING OR USING, ALWAYS CONSIDER:

- Type of hitch
- Chemical Environment
- Sling-to-Load angle
- Adequate wear protection

Sling Hitches

Slings carry their loads in one of three primary hitches. The work load limit of the sling is affected by the hitch that is used. Most slings can be used in all three hitches, but some slings are designed for use in only one hitch. Slings have the largest work load limit when used in a basket hitch. The work load limit of a vertical hitch is 50% of the basket hitch. The same sling would be assigned a different work load limit for the choker hitch. The choker work load limit is a maximum of 80% of the vertical work load limit per ASME recommendation.



CHOKER HITCH

Sling passes through one eye around the load. The other eye is free to be placed on the hook..



VERTICAL HITCH

One eye is on the hook, while the other eye is attached directly to the load. Use a tagline to prevent load rotation.



BASKET HITCH

The sling cradles the load while both eyes are attached overhead.

Chemical Considerations

It is important to select a sling that has the proper chemical characteristics, making the sling compatible with its environment.

PERFORMANCE CHARACTERISTICS OF SYNTHETIC FIBERS

POLYESTER

Polyester is not significantly affected by most compounds of the following classes: alcohols, dry cleaning solvents, halogenated hydrocarbons, ketones, soaps and synthetic detergents or water (including sea water). Polyester also has good to excellent resistance to aqueous solutions of most weak acids at the boil and to most acids at room temperature, but is disintegrated by concentrated sulfuric acid (95%) at room temperature. Polyester products also have good resistance to most aqueous solutions or strong alkalis at room temperature, but are degraded by the same solution at the boil. Oxidizing agents and bleaching treatments ordinarily used by the textile industry also do not degrade polyester fiber. Stretch at work load limit is approximately 3-4% and polyester does not lose strength as a result of moisture absorption. The acceptable temperature exposure range is -40°F (-40°C) to a maximum of 194°F (90°C).

ARAMID

Aramid fibers are resistant to most weak acids, alkalis, ketones, alcohols, hydrocarbons, oils and dry cleaning solvents. Strong acids and bases and sodium hypo-chlorite bleach attack Aramid fibers, particularly at elevated temperatures of high concentrations. Stretch at work load limit is approximately 1%.

K-SPEC®

K-Spec® fibers are a specialty high performance combination of High Molecular Polyethylene and Aramid fibers. Chemical and performance characteristics are those of the primary fibers, Aramid and High Molecular Polyethylene. Stretch at work load limit is approximately 1% and the acceptable temperature exposure range is -40°F (-40°C) to a maximum of 194°F (90°C).

HIGH MOLECULAR POLYETHYLENE

Resists many chemical agents and retained 100% of the original fiber strength when immersed for 6 months in the following:

- 1M Hydrochloric acid
- Gasoline
- Sea water
- 5M Sodium Hydroxide
- Toluene
- 10% detergent solution
- Perchloroethylene
- Kerosene
- Hydraulic fluid
- Glacial acetic acid
- Hypophosphite solution (10%)
- Ammonium Hydroxide (29%)

Clorox® degraded High Molecular Polyethylene Fiber by approximately 10% after a 6 month immersion test. Stretch at work load limit is approximately 1% and maximum temperature exposure is 140°F (60°C).

NOMEX®

Nomex® is resistant to most ketones, alcohols, dry cleaning solvents and many other organic solvents. Its acid resistance is superior to that of nylon, but is not as good as that of polyester. Nomex® shows good resistance to alkalis at room temperature, but is degraded by strong alkalis at higher temperatures. Nomex® is compatible with fluorine-containing elastomers, resins and refrigerants at high temperatures and is resistant to fluorine compounds in concentrations usually encountered in stack gases from metallurgical and rock-processing operations. The resistance of Nomex® to oxides of sulfur at temperatures above the acid dew point is superior to that of polyester. Below the dew point, concentrated sulfuric acid may condense on the fiber and cause a progressive loss in strength.

 **WARNING** Our Products may contain chemicals known to cause cancer, birth defects and/or other reproductive harm.

Sling-To-Load Angle

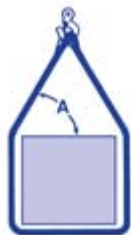
Slings with adequate work load limits to handle the "scale" weight of the load have catastrophically failed because of an inadequate consideration of the sling angle and the increased tension.

Any load rigged in a hitch that is not vertical, develops increased tension on the sling. When selecting a sling, always consider the sling to load angle (horizontal angle) and the tension that will be applied to the sling.

Whenever a choker Hitch results in an angle of choke that is less than 120 degrees, the work load limit must be adjusted.

Simply multiply the choke hitch work load limit by the appropriate loss factor to determine the sling's actual work load limit.

SLING-TO-LOAD ANGLE

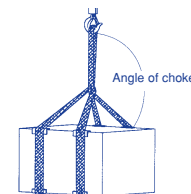


The horizontal angle formed between the sling leg and the "top" of the load.



ILLUSTRATED ABOVE- INCREASED LOAD STRESS IS MAGNIFIED BY ANY CHANGE FROM VERTICAL TOWARD HORIZONTAL LIFTING. THE SAME STRESS IS IMPOSED UPON SLING LEGS ATTACHED TO THE LOAD AT VARIOUS ANGLES.

Angle of Choke (Degrees)	Loss Factor
120 - 180	1.000
90 - 119	.820
60 - 89	.710
30 - 59	.600
0 - 29	.480



ANGLE "A" DEGREES	LOSS FACTOR	ANGLE "A" DEGREES	LOSS FACTOR
90	1.000	55	.8192
85	.9962	50	.7660
80	.9848	45	.7071
75	.9659	40	.6428
70	.9397	35	.5736
65	.9063	30	.5000
60	.8660	25	.4226

A BASKET WORK LOAD LIMIT OF 10,000 LBS. CHANGES AS THE SLING-TO-LOAD ANGLE CHANGES:

AT 90° - WORK LOAD LIMIT = 10,000 LBS.
 AT 60° - WORK LOAD LIMIT = 8,660 LBS.
 AT 45° - WORK LOAD LIMIT = 7,071 LBS.
 AT 30° - WORK LOAD LIMIT = 5,000 LBS.

SLING-TO-LOAD ANGLE (DEGREES)	90°	60°	45°	30°
WORK LOAD LIMIT X LOSS FACTOR	10,000 LBS. X 1.000	10,000 LBS. X .866	10,000 LBS. X .7071	10,000 LBS. X .500
ACTUAL SLING WORK LOAD LIMIT	10,000 LBS.	8660 LBS.	7071 LBS.	5000 LBS.

SLING ANGLES OF LESS THAN 45 DEGREES SHOULD NOT BE USED, UNLESS APPROVED BY A QUALIFIED PERSON.

Wear Protection

Synthetic slings can be damaged, abraded or cut as tension and compression between the sling, the connection points and the load develops. Edges and abrasive surfaces in contact with the sling must be "padded" with materials of sufficient strength and/or thickness to prevent damage and catastrophic sling failure.

The edge of the load need not be "razor" sharp to damage the sling. A combination of non-positive sling to load contact (sling slipping across the load) and inadequate wear protection materials may result in wear protection damage and sling failure. The result is uncontrolled load descent.

WARNING Wear protection may not prevent cutting or other forms of sling damage. Personnel should never be under or on the load, while the lift is in progress.

"Cut proof" wear protection does not exist. Materials must be evaluated and selected based upon the application and type of exposure. Some materials are suitable for abrasion resistance, but offer virtually no protection against the effects of cutting. Twin-Path® Extra, High Performance Fiber Slings can develop a 25,000 pound per inch of width, work load limit. A web sling can develop a 12,800 pound per inch of width, work load limit. Certain materials used in the construction of wear protection and protectors have been evaluated for cut resistance. Magnetic corner protectors, Cornermax® and Meshguard® wear protectors have been evaluated and are rated for cut resistance, exceeding the 12,800 pounds per inch loading requirement.

WARNING Materials of sufficient strength and resistance to damage must be employed to prevent injury, death and/or property damage.

SLEEVES

Sleeves cover both sides of the sling and can be shifted to a specific location. The sleeve can also be re-positioned for quick and easy inspection of the sling.

Available in six different materials: Cordura®, Heavy Duty Nylon, Leather, Neoprene, Felt and Aramid. Available in sewn edge, tubular and quick-sleeve constructions.



WEAR PROTECTION INFORMATION

Lift-It® wear protection is constructed from the following:

MATERIALS	THICKNESS
Cordura®	3/32"
Nylon/Polyester (9) Heavy	3/16"
Nylon/Polyester (6) Light	1/8"
Leather	3/32" - 1/8"
Neoprene	1/8" - 3/16" - 1/4"
Polyester Felt	1/8" - 1/4" - 3/8"
Aramid Felt	1/8" or 1/4"

WEAR PROTECTION DIMENSIONS

SLEEVE WIDTHS	FOR SINGLE LEG	FOR DOUBLE LEG
3"	RS 30-50-60	
4"	RS 90	RS 30-50-60
5"	RS 120-150-180	RS 90-120
6"	RS 240-360	RS 150-180
8"	RS 400-600	RS 240-360
10"	RS 800	RS 400
12"	RS 1000	RS 600-800
14"		RS 1000

MAGNETIC CORNER PROTECTOR

Magnetic corner protectors are fabricated from a durable synthetic material that protects synthetic and wire rope slings from damage. They work on any 90 degree "cornered" load and keep the sling from contacting the load.



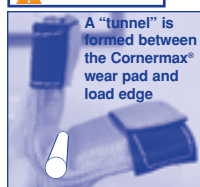
Magnetic corner protectors are "protection rated" at 12,500 PSI. Available in 9, 12 and 18 inch lengths. Application temperatures range from -20°F (-29°C) to 220°F (104°C). Heavy duty protectors, featuring larger diameters are also available.

WARNING The magnets are designed to keep the protector from falling from metallic loads and are not intended to prevent the protector or sling from sliding. Slings and protectors should be vertical or perpendicular to the load. The farther from vertical that the slings and protectors are, the more likely the protectors and slings will slide to become vertical and result in load instability and uncontrolled load descent. When using magnetic corner protectors always inspect for damage, prior to use. Keep magnets clean and free of debris.

CORNERMAX®

Cornermax® wear protection is truly remarkable because its design forms a tunnel between the load edge and the wear pad. This "barrier" greatly reduces the possibility of cutting.

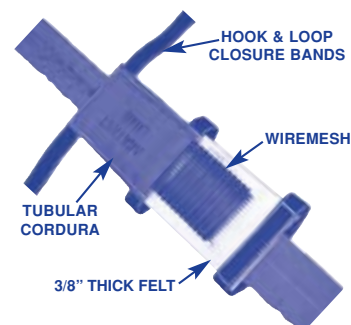
WARNING No form of wear protection is cut proof.



CORNERMAX® PART NUMBER	SLING WIDTH (INCHES)	CORNERMAX® WIDTH (INCHES)	PROTECTION RATING (LBS)
CM-6	1 - 2 IN.	6	25,000
CM-8	UP TO 5 IN.	8	60,000
CM-10	UP TO 6 IN.	10	100,000
CM-12	UP TO 8 IN.	12	100,000
CM-14	UP TO 12 IN.	14	100,000

MESH GUARD

Lift-It® Mesh guard features a unique combination of wear protection materials. A layer of felt buffers the sling, while carbon steel wire mesh covers the load edge.



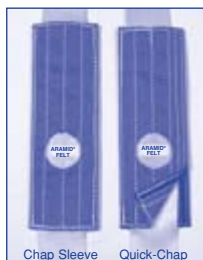
Hook and loop closure bands make attachment and removal quick and easy.

CHAP SLEEVES

Lift-It® Chap Sleeves blend two wear protection materials: Polyester Felt, covered by Tubular Cordura®. Chap Sleeves provide protection from abrasion damage, caused by contact with rough surfaces.

Quick Chaps are available with hook and loop tape, making installation and removal, quick and easy.

Please specify sleeve width and length.



SHACKLE PIN PROTECTOR PADS



If you must rig on the pin, protect your sling with a shackle pin protector pad.

- Full length protection, including the ear seams.
- Three connection points secure pad to shackle
- Installation and removal in seconds.

Design Features

COVER SELECTIONS



SINGLE POLYESTER • Stock No. RS90



DOUBLE CONTRASTING OUTER-CORDURA®
INNER-POLYESTER • Stock No. RS90DC



DOUBLE POLYESTER CONTRASTING COLORS
Stock No. RS90D



SINGLE CORDURA® • Stock No. RS90C



WARNING Polyester Fibers are adversely affected by aldehydes, ethers, concentrated sulfuric acid and alkalis at elevated temperatures. Nylon fiber is adversely affected by acids and bleaching agents. Some round slings feature a bulked nylon, Cordura® cover and polyester load carrying yarns. In active chemical environments, where a combination of chemicals could be deleterious to either or both yarn types, the sling user or competent person must make a hazard assessment.

SLING TAG / WARNING TAG



Date of Mfg.
Unique I.D. Number

A heavy duty, branded, leather tag is attached to all slings. The necessary information required by the various regulatory agencies is hot branded into genuine leather, resulting in the most durable tag available. Hitch diagrams, date of manufacture and a unique sling identification number are also included. Custom tags can also be attached for a nominal charge. In addition to the sling tag, a warning tag is also attached. It contains important safety information in icon format to transcend language, literacy and comprehension barriers. The warning tag also contains information for removal from service, from an OSHA and ASME perspective. Proper use, care, inspection and loss control measures are enhanced by the Lift-It® tag and warning system.

Sling Inspection

INSPECTION SYSTEM

INITIAL INSPECTION - Before any round sling is placed into service it shall be inspected by a designated person to ensure that the correct sling is being used, as well as to determine that the round sling meets the requirements of the specifications contained in this publication, and to all applicable requirements. The sling shall also be inspected to ensure that no damage occurred during transit. The sling(s) must also be verified to be correct, as ordered and that they comply with the manufacturer's specifications. Without printed product specifications this comparison cannot be accomplished. If written records for individual slings are to be maintained, the specific sling information should be initiated at this level of inspection.

FREQUENT INSPECTION - This inspection shall be made by a qualified person handling the round sling before each use. Proper sling selection, hazard recognition and removal from service shall also be accessed by the sling user or competent person.

PERIODIC INSPECTION - This inspection shall be conducted by a designated person. Frequency of inspection should be based on: frequency of use, severity of the service conditions and experience gained on the service life of round slings used in similar applications.

Periodic inspection intervals shall not exceed one year intervals. ASME states that guidelines for the inspection time intervals are as follows:

Normal Service- Yearly

Severe Service--Monthly or Quarterly

Special Service--As recommended by a qualified person

Written records of the most recent periodic inspection shall be maintained. Records and documentation should be kept in the safety office or at the specific sling storage area.

REMOVAL FROM SERVICE CRITERIA

ASME B30.9 – REMOVAL FROM SERVICE CRITERIA

Slings shall be inspected throughout their entire length for evidence of damage. Core integrity is determined by a hand over hand inspection of the entire sling, combined with a thorough visual inspection.

Round slings shall be removed from service if any of the following is visible:

- A) Missing or illegible work load limit tag.
- B) Acid or Caustic burns
- C) Discoloration and brittle or stiff areas that may indicate Chemical or UV/Sunlight damage.
- D) Melting, charring or weld spatter of any part of the sling.
- E) Holes, tears, cuts, embedded particles, abrasive wear, or snags that expose the load carrying yarns.
- F) Broken, cut or damaged load carrying yarns.
- G) Slings that are knotted.
- H) Fitting distortion: elongated, damaged, cracked, twisted bent, gouged, pitted, corroded or broken
 - I) For hooks, removal criteria as stated in ASME B30.10
 - J) For applicable fittings, removal criteria as stated in ASME B30.26
- K) Other conditions, including visible damage that may cause doubt as to the continued use of the sling.

MANUFACTURER'S RECOMMENDATIONS

- 1) Broken or Worn Stitching in the cover exposing core yarns
 - 2) Bunched or wadded yarns
 - 3) Empty or void areas throughout the sling, that do not contain. An even or uniform distribution of load carrying yarn.
 - 4) For slings equipped with ✓ Fast™ Inspection:
 - External Warning Indicator (EWI) is not visible
 - The ✓ Fast™ Ribbon pulls out of the sling cover
- Slings removed from service that are not capable of repair shall be destroyed and rendered completely unfit for future use.



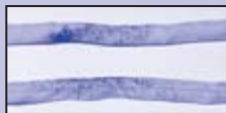
IF ANY DAMAGE SUCH AS THE FOLLOWING, IS VISIBLE, THE SLING SHALL BE REMOVED FROM SERVICE IMMEDIATELY.



ILLEGIBLE TAG



MELTING



WELT SPATTER



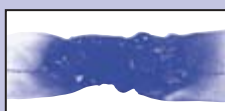
KNOTS



YARN VISIBILITY



SNAGS or
PUNCTURES



CHEMICAL
DETERIORATION



EMBEDDED
PARTICLES



DISTORTED
FITTINGS



BUNCHED OR
WADED YARNS

Recommended Diameters

Lift-It® Round Sling product specifications reflects minimum hardware diameters for choker, vertical and basket hitches. These recommendations are the result of work done by the Round Sling Technical Sub-Committee, Web Sling and Tiedown Association. The minimum diameter recommendations and other valuable information can be found in the Recommended Standard Specification for Synthetic Polyester Round Slings- WSTDA- RS-1.

Round Sling Stock No.	Vertical WLL (LBS)	Hardware Size		Hardware Size	
		Choker and Vertical Hitches		Basket Hitch	
		Minimum Diameter Or Thickness	Minimum Effective Contact Width	Minimum Diameter Or Thickness	Minimum Effective Contact Width
RS 30	2,650	.50	1.00	.62	1.25
RS 50	4,000	.50	1.25	.62	1.75
RS 60	5,300	.62	1.25	.88	1.75
RS 90	8,400	.75	1.62	1.00	2.25
RS120	10,600	.87	1.75	1.25	2.50
RS150	13,200	1.00	2.00	1.38	2.75
RS180	16,800	1.00	2.12	1.62	3.00
RS240	21,200	1.38	2.62	1.75	3.62
RS360	31,000	1.62	3.60	2.00	4.38
RS400	40,000	2.25	4.25	2.38	5.00
RS 600	53,000	2.40	5.00	2.75	5.50
RS 800	66,000	2.40	5.30	3.00	6.50
RS1000	90,000	3.00	7.40	3.50	7.38

Round Sling Bearing Stress

Another approach to determine the correct relationship between round slings and connection hardware is also found in the abovementioned specification. While not relying on tables, this system establishes a maximum bearing stress at 7000 PSI and provides instruction in calculating this maximum value.

Slings are subjected to compression and tension factors. The lower the compressive forces, the higher the breaking strength of the sling. Likewise, the higher the compressive force, the lower the sling breaking strength.

Damage at the sling connection point is a result of pressures exceeding the maximum allowable compression limit per square unit of exposed surface area.

The first step to determine the bearing stress is to calculate the LOAD BEARING AREA. To accomplish this, the effective contact width must be computed. The effective contact width is obtained by multiplying the effective inside width by the diameter of the interfacing hardware. The effective inside width for straight bearing surfaces equals 100% of the actual inside width of the connection point. The effective contact width for a curved bearing surface is 75% of the actual inside width of the connection point.

Once the LOAD BEARING AREA has been calculated, divide the APPLIED FORCE by the LOAD BEARING AREA to determine the BEARING STRESS.

A round sling with a vertical work load of 8400 lbs. is connected to the rounded bow of a 5/8" anchor shackle. The shackle has an inside width of 2 inches and a diameter of .625.

The sling will be loaded (applied force) to 6,000 lbs. Will the shackle be suitable, with a bearing stress, less than 7,000 PSI?

1) Calculate Effective Contact Width

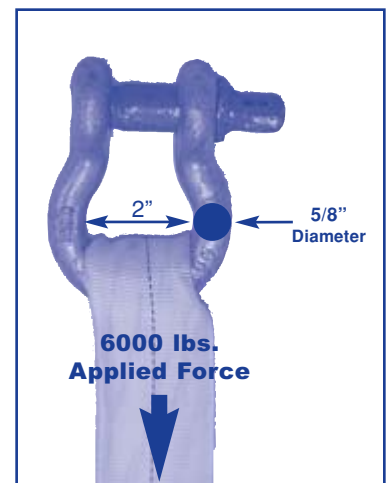
$$\begin{array}{rclcl} \text{Actual Inside Width} & \times & \text{Curved Adjustment} & = & \text{Effective Contact Width} \\ 2.0 \text{ Inch} & \times & .75 & = & 1.5 \text{ Inch} \end{array}$$

2) Calculate Load Bearing Area

$$\begin{array}{rclcl} \text{Effective Contact Width} & \times & \text{Hardware Diameter} & = & \text{Load Bearing Area} \\ 1.5 \text{ Inch} & \times & .62 & = & .93^2 \end{array}$$

3) Calculate Bearing Stress

$$\begin{array}{rclcl} \text{Applied Force} & \times & \text{Load Bearing Area} & = & \text{Bearing Stress} \\ 6000 \text{ lbs.} & \times & .93^2 & = & 6,451 \text{ PSI} \end{array}$$



Mechanical Operations and Considerations

Select the sling having the most suitable characteristics for the type of load, hitch and environment.

Determine that the weight of the load is within the work load limit of the sling.

Slings shall not be loaded in excess of the work load limits. Consideration should be given to the angle of lift, (sling-to-load angle) which affects the work load limit of the sling. Diameters of pins and load contact edges also may affect the work load limit of the sling.

WARNING Do not exceed work load limits.

You are cautioned that all published work load limits and break strengths apply to only new and unused slings, assemblies and hardware. Work load limits are based upon: material strength, design factor, type of hitch, angle of loading, the diameter and curvature that the sling contacts, and destruction testing done in laboratory controlled, testing conditions, which will never be duplicated during actual usage. Working Load limits are also based on a moderately dynamic lifting or pulling operation. Instantaneous changes (drops or sudden pick ups) in excess of 10% of the work load constitute hazardous shock loading and THE WORKING LOAD LIMITS AS STATED, DO NOT APPLY.

Do not accelerate or de-accelerate the load too fast. The “G” force on a 1000 lbs. load dropped 3 feet could surpass the ultimate strength of the sling. A load picked up too fast can develop a stretch/friction/surface heat that will surpass the melting temperature of the sling.

WARNING Working load limits for Multi-Leg Bridle Assemblies are based on the following conditions:

1. Even load weight distribution on all legs.
2. The bridle legs being same length. If the legs are not sharing the load equally, the assembly design factor is reduced.
3. All bridle legs used at the same horizontal angle. If the conditions of the lift vary from those above, the work load limit must be recalculated.

The sling shall be securely attached to the load and rigged in a manner to provide for load control. The sling must be rigged to prevent slipping and sliding along the load edge. Slings “skipping” through hardware components in the sling system can become damaged. Balancing and controlling the load is critical and necessary to prevent sling damage and failure. Multiple factors must be taken into consideration to ensure that load control and stability are attained.

WARNING A load with a “high” center of gravity can rotate in certain sling hitches.

Sling legs should contain or support the load from the sides above the center of gravity when using a basket hitch.

Load edges in contact with the sling must be “padded” with materials of sufficient thickness or strength to prevent sling damage. The protection must be installed and evaluated for suitability by raising the load, slightly and then lowering the load for an inspection of the sling and the protection devices. Several “test” lifts may be necessary to determine the proper form of protection for a successful lift.

WARNING Wear protection may not prevent cutting or other forms of sling damage. To avoid severe personal injury or death, personnel should be kept away from the load and never be under or near the load, while it is being lifted or suspended. Never stand near or in line with a sling, under tension.

Synthetic slings shall not be shortened, lengthened, tied in knots, or joined by knotting.

Twisting and kinking the sling legs shall be avoided.

Slings used in a choker hitch must be of adequate length for the choke action to occur on the sling body. The choke action should not occur on the fitting, at the base of the fitting or the sling tag.

Slings used in a choker hitch shall not be forced to tighten around the load by pounding with hammers or other objects. Choker hitches are the least efficient way to use a sling based on work load limit. Two slings should be used to balance the load. One sling used in a choker hitch may result in a situation where an unbalanced load could lead to an accident.

A sling rigged in a choke hitch (not double wrapped) does not make full contact with the load. Use multiple slings, and wrap the load, when practical to ensure full contact. Do not allow the slings to cross over each other.

Always refer to the sling tag to determine the sling work load limit. Keep the sling tags and labels away from the load, the hook and the choke action of the sling. The sling tag should be maintained and kept legible during the life cycle of the sling by the sling user.

Synthetic products stretch when the load is applied. Stretching can be reduced by using slings with larger work load limits or by selecting a low elongation, High Performance Fiber, Twin-Path® Sling.

WARNING Do not use Polypropylene Round Slings at temperatures above 176°F (80°C). Contact and exposure temperatures in excess of 176°F (80°C) reduce the sling Work Load Limit by 50%, causing an overload which may result in severe personal injury and/or death.

WARNING Polyester Fibers are adversely affected by aldehydes, ethers, concentrated sulfuric acid and alkalis at elevated temperatures. Nylon fiber is adversely affected by acids and bleaching agents. Some round slings feature a bulked nylon, Cordura® cover and polyester load carrying yarns. In active chemical environments, where a combination of chemicals could be deleterious to either or both yarn types, the sling user or competent person must make a hazard assessment.

WARNING Aluminum Hardware is severely degraded by alkali, caustic and acidic environments. Salt water also degrades aluminum. Aluminum hardware should never be exposed to chlorine environments or cleaned with chlorine based solutions. Steel hardware is not impervious to these elements. Chemical and environmental compatibility must be assessed and suitability determined by the user. Avoid contact of hardware with load edges.

WARNING The hook latch is designed to retain slings under slack conditions. The hook latch is not intended to support the load.

Caution: The use of G Links™ on larger stock diameters than recommended may lower the design factor.

WARNING Placing synthetic slings on the shackle pin should be avoided. Even a new shackle can have damaging, exposed threads. If the synthetic sling contacts this area, it can be cut and fail catastrophically. If you must rig on the pin, protect your sling with a shackle pin protector pad.

WARNING The use of improper fittings and/or materials may result in severe personal injury or death.

Synthetic slings shall not be constricted or bunched between the ears of a clevis or shackle, or in a hook.

All hooks, shackles and other fittings must be free of edges and surfaces that could damage the sling.

All loads applied to the lifting hook should be centered in the “bowl” of the hook to prevent point loading

The opening in the fitting should be one of the proper shape and size to ensure that the fitting will seat properly in the lifting hook or other points of attachment.

The fittings used in a sling system must be of the proper shape, size and diameter to prevent damage to the sling. The “sling-fitting” relationship must be proper to ensure that the sling will seat properly and, in doing so, derive the greatest work load limit.

Attached sling hardware may be returned to the manufacturer for possible reuse. It must be tested to twice the work load limit.

Slings shall not be dragged on the ground, floor or over abrasive surfaces

Slings shall not be pulled from under loads when the load is resting on the sling.

Loads resting on the sling could damage the sling. If feasible, place blocks under the load prior to setting down the load to allow removal of the sling.

Synthetic slings should never be used to pull an object in a snagged or constricted condition. Synthetic slings are designed to stretch; the recoil caused by any sudden release of a lifting constraint could result in a dangerous projection of the load.

During the lift, with or without load, personnel shall be alert for possible snagging.

Do not drop objects on slings or slings equipped with metal fittings.

Do not run over slings with trucks or other equipment.

Personnel should stand clear of the load and shall not ride the load

Personnel should never be under, or on a live or suspended load.

Portions of the human body shall not be placed between the sling and load or between the sling and lifting hook.

Synthetic slings shall not be used as bridles on suspended personnel platforms.

WARNING Steam cleaning at temperatures in excess of 194 degrees F (90 degrees C) can damage the sling. Power or pressure washing can force residue inside web and yarn fibers. The foreign material can cause internal yarn and fiber damage.

Environmental Considerations

TEMPERATURE

Conventional synthetic products should never be used at temperatures in excess of 194°F (90°C). Cold temperature exposure to 40°F/(-40°C) does not affect the strength of the synthetic sling. Temperature exposure outside the acceptable range must be considered and evaluated by the user.

STORAGE

When not in use, store slings in a cool, dry, dark location, free of mechanical and environmental damage. The storage location should be ventilated and not exposed to heat sources, weld splatter, or grit and splinters from grinding.

FOREIGN MATERIAL

Metal chips, weld splatter or heavy grit can damage a sling both externally and internally.

CHEMICAL

Chemically active environments can affect the strength of synthetic products in varying degrees ranging from moderate to total degradation. Before slings are used, the chemical compatibility between the sling components and the environment must be considered. Consult the sling manufacturer before purchasing to insure the synthetic products are chemically compatible with the environment.

SALT WATER

Slings that have been exposed to saltwater should be thoroughly rinsed and allowed to dry, preferably out of direct sunlight.



WARNING TO THE USER OF SYNTHETIC SLINGS

WARNING Failure to follow proper use, care and inspection criteria could result in severe personal injury or death. Synthetic products will fail if damaged, abused, misused, overused, or improperly maintained.

WARNING It is your explicit responsibility to consider all risk factors prior to using any rigging device or product. Read and understand the information contained in this bulletin, in our catalog, on our web site www.lift-it.com and follow OSHA and ASME guidelines. Use by untrained persons is hazardous.

The American Society of Mechanical Engineers, in the Sling Safety Standard, ASME B30.9-2003, clearly establishes the requirement for training. Sections 9-5.1 and 9-6.1-Training states, "Synthetic webbing and round sling users shall be trained in the selection, inspection, cautions to personnel, effects of the environment and rigging practices, covered by this chapter."

WARNING All Products supplied and manufactured by Lift-It® Manufacturing are sold with express understanding that the purchaser and user are thoroughly familiar with the safe and proper use and application of the product. The qualified person and sling user has the responsibility for use and application, and should have sufficient training and knowledge of all applicable standards to responsibly use our products.

ACCIDENT PREVENTION THROUGH EDUCATION

If you are not trained in the use of synthetic lifting slings, you and your employer should consider the Lift-It® Sling Safety Program. The benefits of educating synthetic sling users, prior to death or injury, clearly outweigh any effort done in reaction to a liability incident. The Lift-It® Sling Safety Program is concise and coordinates the users, the inspection process and your facility. The program results in an ongoing and viable system that protects the sling user, property and the corporate bottom line.

The Sling Safety Program provides detailed instruction to all parties who are involved in rigging and hoisting loads. Participants should include specialized and incidental riggers, sling inspectors, safety and training, loss control, quality assurance, tool room and purchasing personnel.

Our goal is accident prevention through education. The cost for our services is truly incidental when compared to expense of a single "incident". If together we prevent just one accident, then we have accomplished our objective. Contact us for a mutually convenient training date and take the first step to improve overall efficiency and safety consciousness.

ON-SITE PROGRAMS

Thousands of sling users and inspectors have been educated, on location, through the Lift-It® Sling Safety Program.

The preferred program is a two day seminar. Day one features either an eight hour sling user /inspector class or two of the four classes. Day two features a sling inspector class and a facility program. Arrange the four hour class modules in any sequence desired to attain your specific scheduling and training objectives. Invite other interested parties to your program and "share" not only the cost, but the benefit.



*"When Only the Best
is Good Enough"*



LIFT-IT® MANUFACTURING COMPANY, INC.

4780 CORONA AVENUE • LOS ANGELES, CA 90058-3808
(323) 582-6076 • FAX (323) 587-1630 • E-mail: liftit@pacbell.net
Visit our web site at www.lift-it.com

© 2006, Lift-It® Manufacturing Co., Inc.

Copyright infringements will be actively pursued and violators will be prosecuted to the fullest extent of the law.
Printed in the U.S.A.

RPIB1-Rev 1
June 2006