

# Web Slings





## WHY LIFT-ALL SLING WEBBING?

All of the sling webbing contained in this catalog is recommended for general purpose lifting. Military webbing, sometimes designated as "Mil-Spec", has not been designed for, nor do we recommend it for general lifting applications.

### What is the Difference?

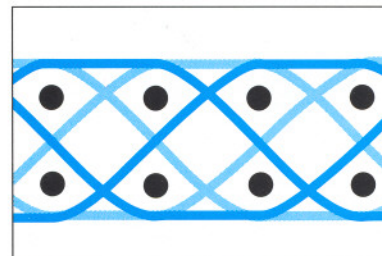
Refer to Mil-Spec Webbing Diagram

- Mil-Spec webbing does not have red core yarn warning system.
- Mil-Spec webbing supports the entire load with exposed surface yarns. *Lift-All* sling webbing uses a combination of internal protected yarns and surface yarns.
- Damage to the surface of Mil-Spec webbing causes greater strength reduction of the webbing.

Refer to *Lift-All* Sling Webbing Diagram

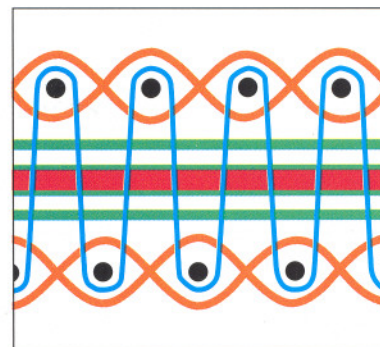
- Sling webbing, as shown, has its surface yarns connected from side to side, which not only protect the core yarns, but positions all surface and tensile yarns to work together to support the load.
- Wear or damage to Sling Webbing face yarns cause an immediate strength loss. This is why Sling Webbing has red core yarns to visually reveal damage and act as a basis for sling rejection.

### Mil-Spec Webbing



- Combination binder/surface yarns cover each side and carry virtually all of the load.
- Transverse pick yarns inter-relate with binder/surface yarns.

### Lift-All Sling Webbing



- Transverse pick yarns inter-relate with binder/surface yarns.
- Woven surface yarns cover each side and carry a portion of the load.
- Strip of longitudinal core yarns bears majority of load.
- Binder yarns secure the surface yarns to web core yarns.
- Red core warning yarns.

## ENVIRONMENTAL CONSIDERATIONS

### ⚠ WARNING

Read Definition on page 3

- Nylon and polyester are seriously degraded at temperatures above 200°F.
- Prolonged exposure to ultraviolet light adversely affects nylon and polyester. Slings become bleached and stiff when exposed to sunlight or arc welding.
- Many chemicals have an adverse effect on nylon and polyester. See Chemical chart (this page).

### Chemical Environment Data

General guide only. For specific temperature, concentration and time factors, please consult *Lift-All* prior to purchasing or use.

CHEMICAL	OK NO	
	NYLON	POLYESTER
Acids		*
Alcohols		
Aldehydes		
Strong Alkalis		**
Bleaching Agents		
Dry Cleaning Solvents		
Ethers		
Halogenated Hydro-Carbons		
Hydro-Carbons		
Ketones		
Oils Crude		
Oils Lubricating		
Soap & Detergents		
Water & Seawater		
Weak Alkalis		

\* Disintegrated by concentrated sulfuric acid.

\*\* Degraded by strong alkalis at elevated temperatures.



## DEFINITION

### **WARNING**

as used throughout this catalog, serves to alert users to potentially hazardous situations which often occur in the use of these products. Failure to read, understand and follow the accompanying instructions on how to avoid these situations could result in death or serious injury.

## HOW TO USE THIS CATALOG

If this is your first venture into slings we suggest you read "Help" pages 3 through 11 to learn about the different types of slings and general safety rules. When you move on to the section containing your sling type, specific information regarding that type is located there.

If you know the type of sling you need, locate the section by looking for the colored page tab.

Specific ordering instructions are shown in each section of the catalog.

**Note:** All Dimensions and Specifications are Subject to Change Without Notice. Hardware dimensions are nominal and may vary depending on source. If dimensions are critical to your application, please specify your requirements.

## INTRODUCING *LIFT-ALL*®

### Company Profile

Started in 1964, *Lift-All* has grown to be the largest sling manufacturer in North America. The over 200 employees work in eight manufacturing locations around the United States. Corporate headquarters and the largest facility are located in Landisville, Pennsylvania. Manufacturing facilities and warehouses are strategically located throughout the U.S. and Canada. Sales representatives cover the entire U.S., Canada and Mexico.

Sound engineering principles, and a serious concern for safety have been the standard by which innovative lifting products have been produced by *Lift-All* for over 35 years.

### Disclaimer of Warranties and Limitation of Liability

Seller warrants that its goods are free from defects in materials and workmanship. Accordingly, Seller's liability is limited to replacing without charge or refunding the purchase price, or making fair allowance for any non-compliance with any specifications or any defects in materials or workmanship in its products existing at the time of delivery. Seller requires written notice and the return of the product to establish any claim. SELLER MAKES NO OTHER WARRANTY OF ANY KIND WHATEVER, EXPRESS OR IMPLIED, AND ALL IMPLIED WARRANTIES OR MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE WHICH EXCEED THE ABOVE OBLIGATION ARE HEREBY DISCLAIMED BY SELLER AND EXCLUDED. Seller will not be liable for any consequential damages, loss or expense arising in connection with the use or inability whatever, regardless of whether damage, loss, or expense results from any act or failure to act by Seller, whether negligent or willful, or from any other reason.

Throughout this catalog trade names are shown in italic type.

All trade names are the property of *Lift-All* unless specifically identified by footnote as the property of another company.

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## SAFETY IN LIFTING

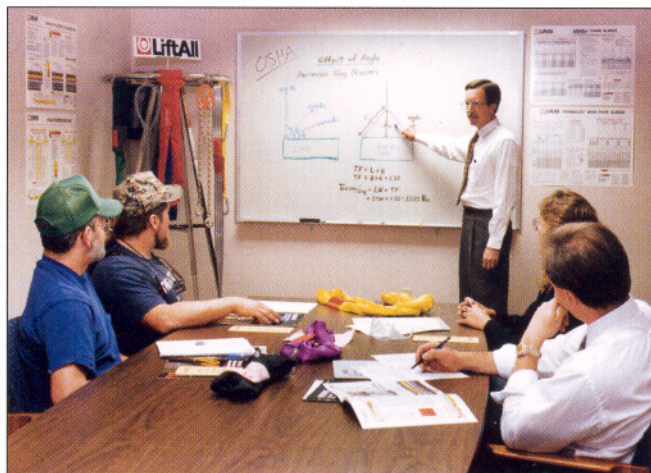
### Safety Video Available



"Safety In Lifting", a 22 minute video is available from *Lift-All*. It covers all types of slings: Web, Roundslings, Wire Rope, Chain and Wire Mesh. The Video suggests the best type of sling for common lifting applications, shows safe lifting procedures (in accordance with OSHA and ASME B30.9 guidelines), the proper inspection, care and maintenance of the various sling types, and more. Your in-plant training and safety program may be just a bit easier with some help from *Lift-All*.

### Safety Seminar

*Lift-All* representatives are available to present a "Safety in Lifting" seminar at your location, improving your employees knowledge of slings in general and answering specific questions about your applications.



For details about the Video and/or "Safety in Lifting" Seminars call: *Lift-All* at 1-800-909-1964.

## INSPECTION SERVICES

### Sling Safety Inspection Services

OSHA and ASME B30.9 regulations require that all chain slings receive a thorough inspection at least once per year by a competent person. You now have the opportunity to have a thorough, documented inspection performed by a factory trained *Lift-All* representative. Chain, wire rope, web, roundslings and mesh all can be inspected in one survey by a representative from the only company that makes them all ... *Lift-All*. Call 1-800-909-1964.



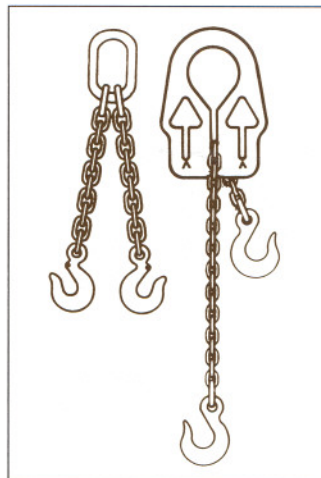
## SLING SELECTION

Which Type of Sling Should I Choose?

### General Use of Different Types of Slings

**Chain Slings** - Alloy chain slings combine superior strength, ease of handling and durability. The combination of heavy loads, elevated working temperatures and severe lift conditions usually dictate that an alloy chain sling be used. Typical chain sling applications are found in steel mills, foundries, and heavy machining operations requiring repetitive lifts.

**Wire Rope Slings** - The most common and lowest cost per ton of lift of all slings. Used in the construction industry and other industries where heavy loads and rugged conditions exist.

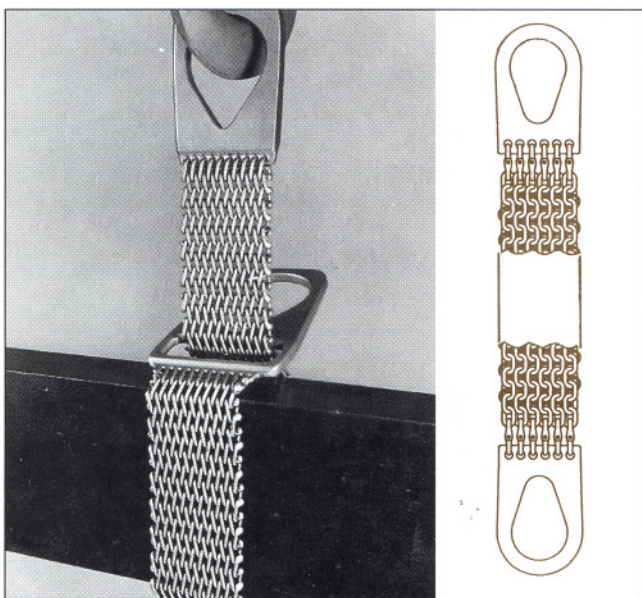




## Help

**Mesh Slings: Wire and Chain** - These slings excel in lifting objects that are hot or have sharp edges, such as bar stock or plate steel. Mesh slings greatly enhance load balancing due to their wide load bearing surface. Machine shops and steel warehouses typically have good applications for mesh slings.

**Synthetic Slings** - Both Web Slings and Roundslings are used where loads must be protected from damage. The lift weight and flexibility of synthetic slings reduce fatigue and strain on riggers. *Tuflex* Roundslings, with their color coded capacities, and ease of use and inspection, are rapidly gaining in popularity.



## Why Lift-All?

### **Lift-All Promotes User Safety**

- Safety Seminars and Sling Inspections are available to all sling users.
- *Lift-All* quality assurance procedures produce consistently superior products.
- Warning, inspection and operating practices information is supplied with every order.
- By manufacturing all types of slings, *Lift-All* will, without prejudice, recommend the best sling for the application.
- Traceability of all slings through serial numbers.

### **Lift-All Saves You Time**

- *Lift-All* is the only source that can manufacture all of your sling needs.
- Our engineering staff can design the slings or lifting devices needed for special lifting applications.
- Local manufacturing and warehousing from eight U.S. and two Canadian locations assures prompt delivery.
- *Lift-All* trained distributors are well qualified to assist the user in sling selection and application decisions.

### **Lift-All Saves You Money**

- Our combination of uncompromising product quality, service and technology makes *Lift-All* your best choice in long term value.



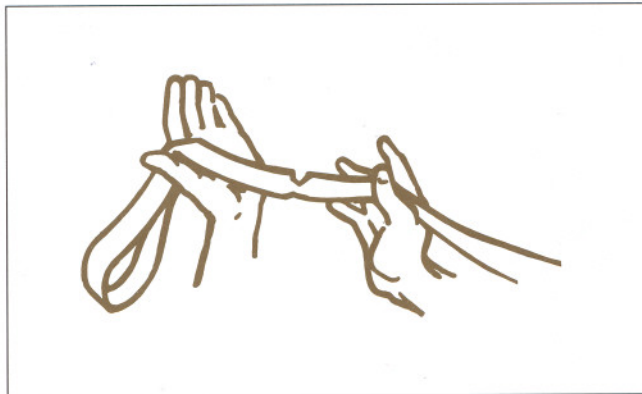
## GENERAL OSHA AND MANUFACTURER REQUIREMENTS FOR ALL SLINGS

### ⚠ WARNING

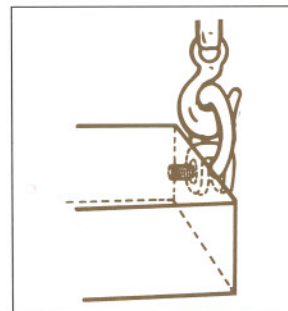
Read Definition on page 3

#### Safe Operating Practices

- Inspect slings prior to each use and do not use if damaged. (See specific sling type for inspection criteria.)

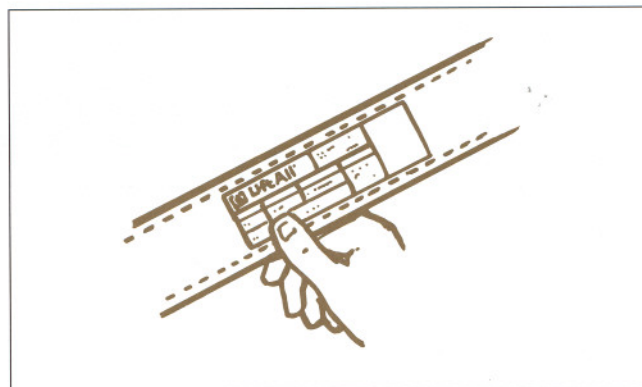


- Loads must be rigged to prevent slippage.

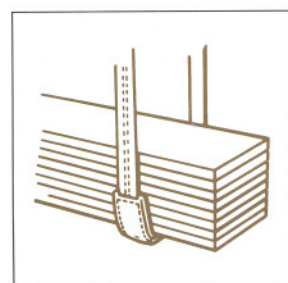
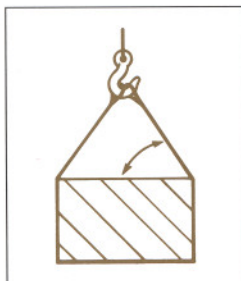


- Slings shall be securely attached to their loads

- Slings shall not be loaded in excess of their rated capacities. Rated capacities (Working Load Limits) must be shown by markings or tags attached to all slings.

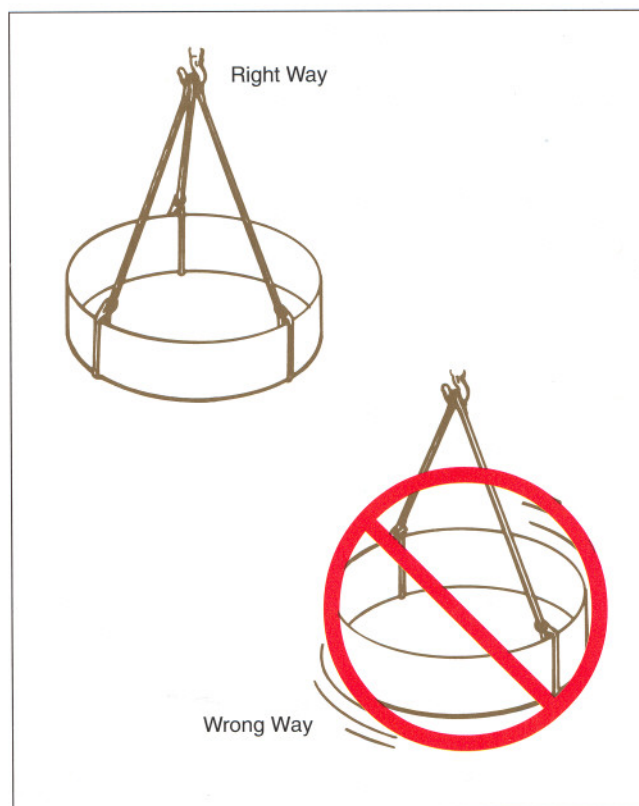


- Angle of lift must be considered in all lifts. See page 10.



- Slings shall be padded or protected from the sharp edges of their loads.

- Lift must be stable with respect to the center of gravity - balanced.



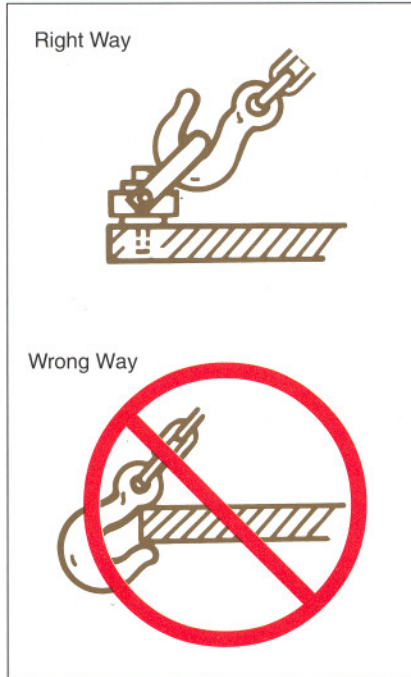


## GENERAL OSHA AND MANUFACTURER REQUIREMENTS FOR ALL SLINGS

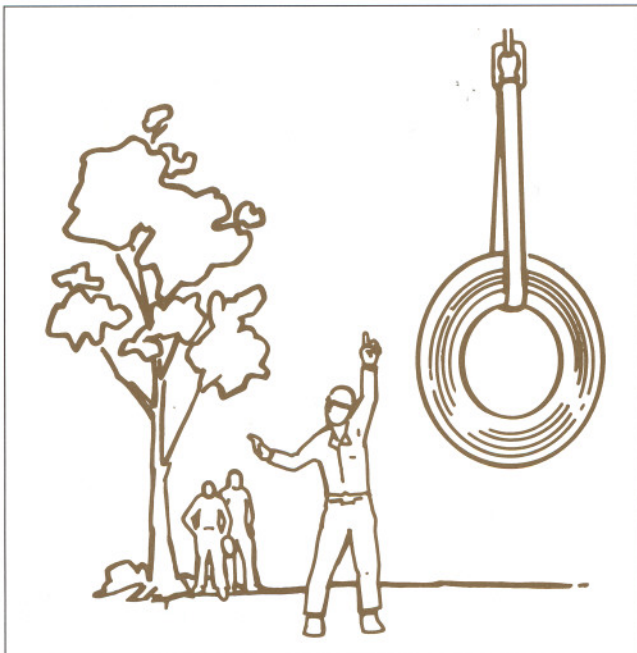
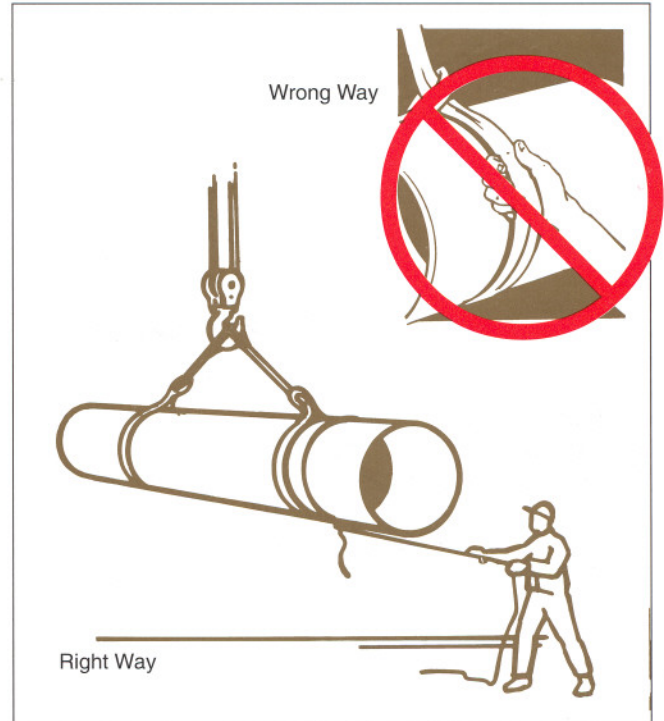
### ⚠ WARNING

Read Definition on page 3

- Do not point load hooks - center load in base of hook.



- Hands and fingers shall not be placed between the sling and load while the sling is being tightened around the load. After lifting, the load should not be pushed or guided by employees hands directly on the load. Ropes or "tag lines" should be attached for this purpose.



- Suspended loads shall be kept clear of all obstructions.
- All persons shall be kept clear of loads to be lifted, and suspended load.



- Do not shock load. Jerking the load could overload the sling and cause it to fail.

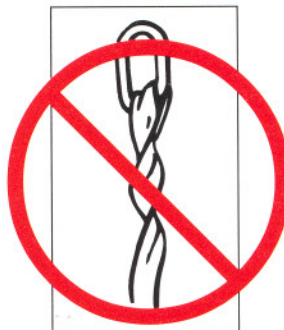
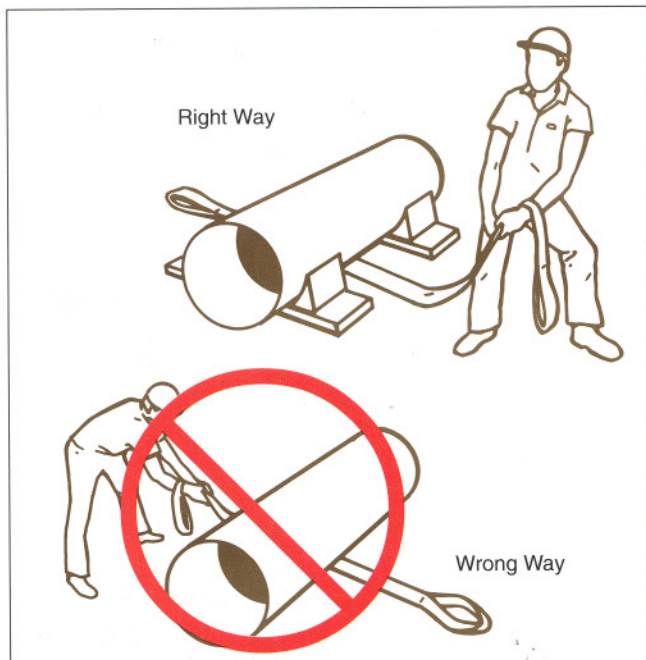


## GENERAL OSHA AND MANUFACTURER REQUIREMENTS FOR ALL SLINGS

### ⚠ WARNING

Read Definition on page 3

- A sling shall not be pulled from under a load when the load is resting on the sling. Before a load is lifted, a place should be prepared where it is to be put down. Lumber can be used to allow space to remove the sling and prevent shifting of the load.

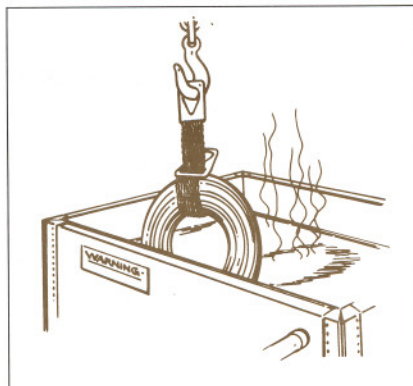


- Sling legs shall not be kinked or twisted.

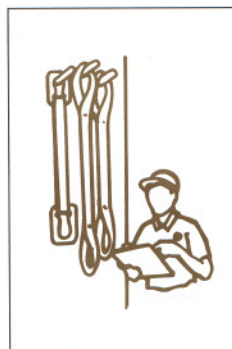
- Slings shall not be dragged on floor.



- Temperature and chemical environment must be considered (see specific sling types for data).



- Slings shall not be shortened with knots, bolts, or makeshift devices.



- Slings shall be stored in cool, dark, dry areas, preferably on racks.



## INSPECTION

### ⚠ WARNING

Read Definition on page 3

#### Daily Inspection

Each day before using, the sling, all fastenings and attachments shall be inspected for damage or defects by a competent person designated by the employer. Additional inspections shall be performed prior to each use where severe conditions warrant. Damaged or defective slings shall be immediately removed from service.

#### Periodic Inspection

OSHA specifies that alloy steel chain slings shall have a thorough periodic inspection by a competent person at least once every 12 months. *Lift-All* recommends that all slings have a thorough inspection by a competent person at least once every 12 months. These inspections must be recorded and maintained for each individual sling. See the following pages for specific

inspection recommendations: Web Slings: 15, *Tuflex* Roundslings: 37, Wire Rope Slings: 53, *Lift Alloy* Chain Slings: 74, Roughneck Mesh Slings: 88 & 90, Lifting Beams and Custom Devices: 96. The warning sheets that accompany each order must be read and understood by all sling users. See sling abuse illustrations in their respective section of this catalog.

In some instances, it is possible to repair slings, proof test and return them to service. Damaged components and sections of chain or wire mesh can be replaced. Hooks, links and other components that are in good condition can be salvaged from a damaged web or round sling, rewedded, proof tested by *Lift-All* and returned to service.

#### Repair

*Lift-All* strongly advises that damaged slings be repaired only by the manufacturer.

## PHYSICAL FACTORS

### ⚠ WARNING

Read Definition on page 3

#### Physical Factors Affecting Strength of Slings

Your care in the use and handling, will prolong sling life significantly. The following physical factors should be considered when using any of the slings in this catalog:

1. Cutting of synthetic slings, Nicking or Gouging of steel slings. Probably the number one cause of sling failure. Usually caused by a sharp or small diameter load edge against the sling. It can be prevented with proper padding.
2. Improper Loading - Shock Loading, unbalanced loading, over loading and inadequate consideration for the effect of angle factors can adversely affect safety. Make sure the load weight is within the rated capacity of the sling(s) being used for both type of hitch and angle of lift. See "Effect of Angle of Lift" diagrams on page 10.
3. Temperature - Avoid loads and environments where temperatures exceed the limits of the slings being used. All slings can be damaged by excessive heat. See Web Slings page 14, *Tuflex* Roundslings page 37, Wire Rope Slings page 53, Roughneck Mesh Slings page 88 & 90, *Lift-Alloy* Chain Slings page 76.
4. Punctures & Abrasions seriously degrade sling strength. Rough load surfaces and dragging slings on the ground will damage all slings, steel or synthetic. Use proper padding between slings and rough loads. Never drag slings on ground or concrete floors.
5. Foreign Matter - Material such as metal chips and

heavy grit can damage web slings, both internally and externally. Both synthetic and steel slings can be damaged by weld spatter and heat from a welding torch. Avoid contact with foreign matter whenever possible.

6. Ultraviolet Light - Nylon and polyester web slings are adversely affected by prolonged exposure to UV light, i.e. sunlight or arc welding. Inspect and remove if slings appear bleached and stiff. Store slings properly when not in use (see No. 7 below).
7. Improper Storage - Even in storage, synthetic and steel slings can degrade if not kept in clean, dry conditions. *Lift-All* recommends hanging slings on a rack. Web sling should be stored in a dark area to avoid unnecessary sunlight/UV degradation.
8. Chemical Environment - Slings exposed to certain chemicals or the vapors of these chemicals can lose some or all of their strength. When using slings in a chemical environment, contact *Lift-All* to assure sling compatibility. See the following pages for specific information: Web Slings: 14, *Tuflex* Roundslings: 37, Wire Rope Slings: 53, *Lift-Alloy* Chain Slings: 76, Roughneck Mesh Slings: 88 & 90.



## Effect of Angle of Lift on a Sling's Rated Capacity

### ⚠ WARNING

Read Definition on page 3

Using slings at an angle **can become deadly** if that angle is not taken into consideration when selecting the sling to be used. The tension on each leg of the sling is increased as the angle of lift, from horizontal, decreases. It is most desirable for a sling to have a larger angle of lift, approaching 90°. Lifts with angles of less than 30° from horizontal are not recommended. If you can measure the angle of lift or the length and height of the sling as rigged, you can determine the properly rated sling for your lift.

### What would be the rating of each sling rigged at this angle?

#### 1. Calculate the Reduction Factor [RF].

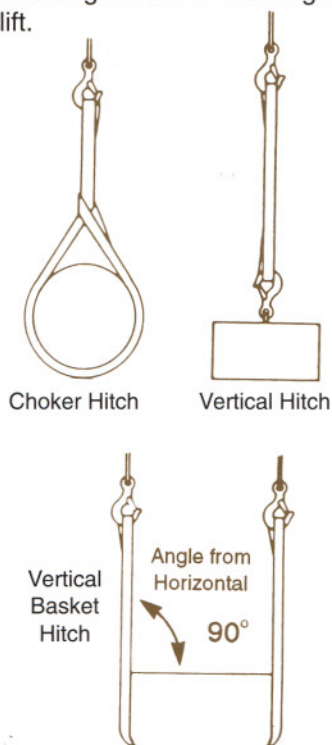
- Using the angle from horizontal, read across the Angle Chart to the corresponding number of the Reduction Factor column.

- OR -

- Divide sling height\* [H] by sling length\* [L].

#### 2. Reduction Factor [RF] x the sling's rated capacity for the type hitch that will be used = Sling's Reduced Rating.

\* Measured from a common horizontal plane to the hoisting hook.



### What capacity sling do I need?

- Determine the weight that the sling will be lifting [LW].

#### 2. Calculate the Tension Factor [TF].

- Using the angle from horizontal, read across the angle chart to the corresponding number of Tension Factor column.

- OR -

- Divide sling length\* [L] by sling height\* [H].

#### 3. Lifting Weight [LW] x the Tension Factor [TF] = Minimum Sling Rating for the type of hitch that will be used.

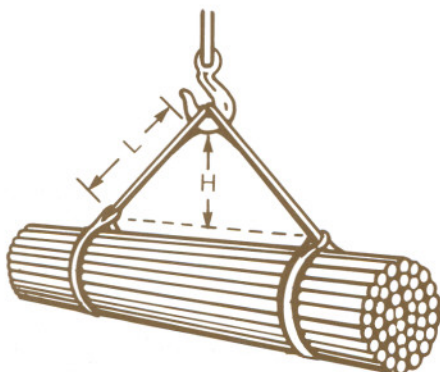
\* Measured from a common horizontal plane to the hoisting hook.

### Effect of Angle Chart

Reduction Factor (RF)	Angle From Horizontal	Tension Factor (TF)
1.000	90°	1.000
0.996	85°	1.004
0.985	80°	1.015
0.966	75°	1.035
0.940	70°	1.064
0.906	65°	1.104
0.866	60°	1.155
0.819	55°	1.221
0.766	50°	1.305
0.707	45°	1.414
0.643	40°	1.555
0.574	35°	1.742
0.500	30°	2.000

Sling capacity decreases as the angle from horizontal decreases. Sling angles of less than 30° are not recommended.

### Reduced Capacity



Example:

Vertical Choker rating of each sling = 6,000 lbs.

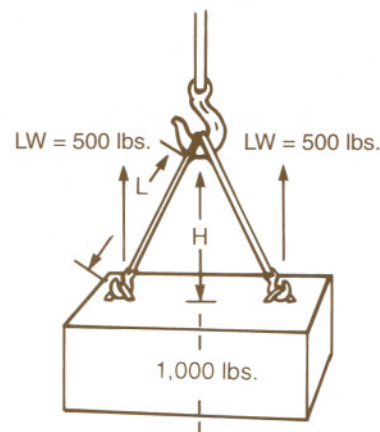
Measured Length (L) = 6 ft.

Measured Height (H) = 4 ft.

Reduction Factor (RF) = 4 (H) ÷ 6 (L) = .667

Reduced sling rating in this configuration = .667 (RF) x 6,000 lbs. = 4,000 lbs. of lifting capacity per sling

### Increasing Tension



Example:

Load weight = 1,000 lbs.

Rigging - 2 slings in vertical hitch

Lifting Weight (LW) per sling = 500 lbs.

Measured Length (L) = 10 ft.

Measured Height (H) = 5 ft.

Tension Factor (TF) = 10 (L) ÷ 5 (H) = 2.0

Minimum Vertical Rated Capacity required for this lift = 500 (LW) x 2.0 (TF) = 1000 lbs. per sling



# Help

## Lift Evaluation and Operating Practices

### ⚠ WARNING

Read Definition on page 3

**Important Considerations** - Before buying or using a sling, know as much as possible about the lift you will make to minimize the potential dangers to personnel, product and property. All of the following items should be evaluated.

### Environment

- Crane and load foundation
- Obstruction in path of travel and for head height
- Power lines or other hazards
- Chemical conditions
- Temperature of load and surroundings
- Location of people - away from danger
- Inspect all equipment

### Load

- Weight of load
- Center of gravity (drain liquids)
- Pick-up point integrity, including location and number
- Edges that may damage sling
- Abrasive areas that may damage sling
- Secure or remove loose parts
- Structural integrity (bending and crushing)

### Rigging

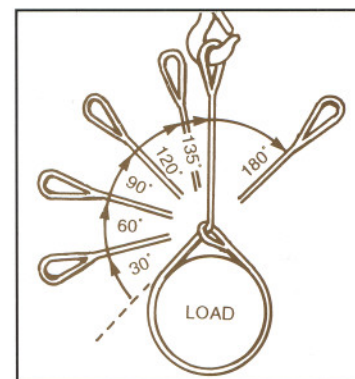
- Type of sling required, including number of legs
- Type of hitch required
- Balance of load and stability, including flexing
- Prevention of load shift and movement against sling
- Angle of lift
- Tag line and spotter requirements
- Plan and procedures

See page 118 for our Lifting Application Worksheet.

### Choker Hitch Angles

### ⚠ WARNING

Read Definition on page 3

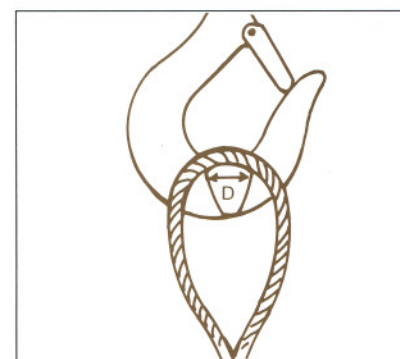


When lifting and turning a load using a choker hitch, it is not uncommon to bend the body of the sling around the choker loop and have a severe bend occur around the body at this point.

For choker angles of 120° or less, the choker rating must be reduced by multiplying the corresponding factor times the slings standard choker rating.

Angle of Choke	Factor
Over 120°	1.00
90° - 120°	.87
60° - 89°	.74
30° - 59°	.62
0° - 29°	.49

Sling capacity decreases as choke angle decreases.



### Effect of Anchor Shackle Pin or Crane Hook on Sling Eye

### ⚠ WARNING

Read Definition on page 3

Damage to slings can occur if the wrong size pin or hook is used. The width of the pin or hook should never exceed the natural inside width of the eye.

The eye dimension for each type and size of sling are shown in the capacity tables of this catalog. If your pin or hook is large, request an oversized eye for the sling.

Lift-All is dedicated to manufacturing and developing products for material handling that meet or exceed current industry and government requirements (OSHA and ASME B30.9). Ultimately, the life and strength of any sling depends on those who inspect, use and maintain it.

The ASME B30.9 Sling Safety Standard can be obtained from:  
 ASME Order Department  
 22 Law Drive Fairfield, NJ 07007-2300  
 Phone: 201-882-1167

Occupational Safety and Health Administration (OSHA) "Industrial Slings"  
 Regulations are published by the Office of the Federal Register, National Archives and Records Administration - Part 29 1910.184.



## INSPECTION CRITERIA

### ⚠ WARNING

Read Definition on page 3

#### Inspection Criteria for Synthetic Web Slings

Refer to illustrations of damaged webbing

Remove from service if any of the following is visible:

- Capacity tag is missing or illegible
- Red core warning yarns are visible
- Sling shows signs of melting, charring or chemical damage
- End fittings are excessively pitted, corroded, distorted, cracked or broken
- Cuts on the face or edge of webbing
- Holes, tears, snags or crushed web
- Signs of excessive abrasive wear
- Broken or worn threads in the stitch patterns
- Any other visible damage which causes doubt as to its strength

**Red Core Yarns** - warn of dangerous sling damage. All Lift-All Web Slings shown in this section of the catalog have this warning feature. When red yarns are visible, the sling should be removed from service immediately. The red core yarns become exposed when the sling surface is cut or worn through the woven face yarns. For other inspection criteria see OSHA/Manufacturer regulations on pages 6 through 11.

#### Examples of Web Sling Abuse

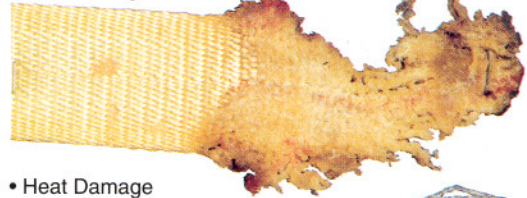
Most of the damage shown here would cause immediate catastrophic failure of the sling. Not all of the damage you will see will be this obvious or extreme, but still requires removal from use.

**Elasticity** - The stretch characteristics of web slings depends on the type of yarn and the web finish. Approximate stretch at RATED SLING CAPACITY is:

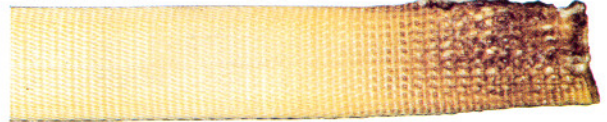
NYLON		POLYESTER	
Treated	10%	Treated	7%
Untreated	6%	Untreated	3%

Prior to sling selection and use, review and understand the "Help" section.

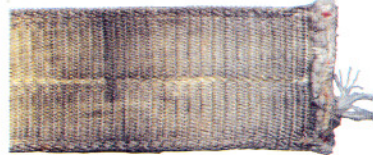
• Acid Damage



• Heat Damage



• Cuts



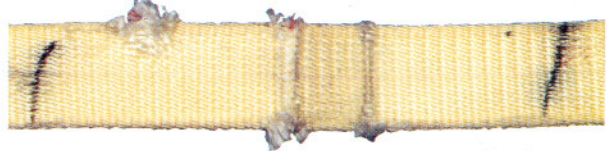
• Cut & Tensile Damage



• Abrasion Damage



• Face Cuts



• Punctures & Snags



• Tensile Break



• Illegible or Missing Tag





## STANDARD WEB SLING TYPES

### Hardware Slings

*Unilink* and *Web-Trap* hardware can help to extend sling life by protecting the webbing from abrasion on rough crane hooks. Hardware can often be reused, lowering sling replacement costs.

**Type U (UU)** - Has the preferred and economical *Unilink* fitting on each end for use in a vertical, choker or basket hitch. *Unilinks* allow choking from either end to save time and vary wear points. See page 18.

**Type 1 (TC)** - Has a *Web-Trap* triangle and choker fitting on either end. Typical use is in a choker hitch. Can also be used in vertical and basket hitches.

**Type 2 (TT)** - Has a *Web-Trap* triangle on each end. Normally used in a basket hitch, but can also be used in a vertical hitch. They cannot be used as a choker.

### Eye Type

**Type 3 (EE)** - Flat Eye slings are very popular and can be used in all three types of hitches. They are easier to remove from beneath the load than sling types, 1, 2 and 4. Unless type 4 is requested, type 3 will be supplied as the standard EE sling.

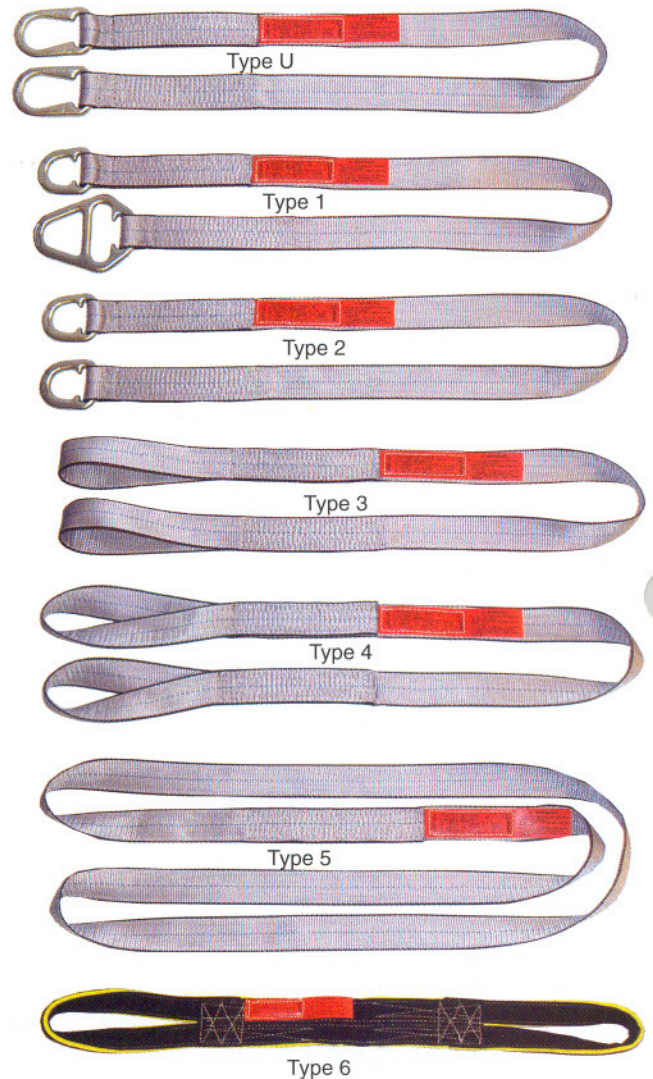
**Type 4 (EE)** - Twisted Eye slings are similar to Type 3 except the eyes are turned 90° to form a better choker hitch. The eyes of a Type 4 nest better on the crane hook.

### Endless Type

**Type 5 (EN)** - Endless slings are versatile and the most economically priced. They can be used in all three types of hitches. The sling can be rotated to minimize wear. The sling legs can be spread for improved load balance.

### Reverse Eye Type

**Type 6 (RE)** - An endless sling with butted edges sewn together to double the sling width. They have reinforced eyes and wear pads on both sides of body and eyes. The result is an extremely strong and durable sling.



### Lift-All Web Selector - Quick Comparisons

Type of Webbing	Thickness	Relative Strength/Width Factor A	Price/Strength Factor B	Advantages
Webmaster	1600	$\frac{3}{16}$ "	100%	Webmaster webs are the industry standard.
	1200	$\frac{1}{8}$ "	75%	Wider bearing surface per capacity.
Tuff-Edge		$\frac{3}{16}$ "	105%	Tuff-Edge fights edge abrasion and cutting - the #1 cause of web sling damage. Up to 30% better against cuts.
Dura-Web	2000	$\frac{5}{16}$ "	125%	Dura-Web lasts 25% longer against surface abrasion.
	1000	$\frac{3}{16}$ "	62.5%	Wider bearing surface per capacity.

FACTOR A - Relative strength factor. This column compares the strength of the various webs to *Webmaster 1600* in the same widths.

FACTOR B - Price to strength comparison. This column compares the relative cost per capacity of the various webs to *Webmaster 1600* using a 2" x 10' Type 3 sling.



# Web Slings

## Tapering Eyes

As a standard practice, the eyes, or bearing points, of sling types 3 and 4 are tapered to accommodate a crane hook on slings that are 3" and wider. Untapered eyes are available upon request. Type 5 (Endless) slings are NOT tapered unless specified on order. *Dura-Web 2000* slings are not tapered in any width.



## HOW TO ORDER

### Definition of Web Sling Order Code

#### Sling Type (Two Letters)

UU - Type U - *Unilink* on each end

TC - Type 1 - Triangle & Choker

TT - Type 2 - Triangle on each end

EE - Type 3 - Eye & Eye  
(Flat eye is standard)

Type 4 - Eye & Eye  
(Twisted Eye option)

WL - Wide Lift

SH - Stone Handling

#### Number of Plies (One Digit)

1, 2, 3 or 4

#### Web Class - (One or Two Digits)

2 - *Dura-Web 2000*

1 - *Dura-Web 1000*

8 - *Webmaster 1600* or *Tuff-Edge*

6 - *Webmaster 1200*

SH - Stone Handling

EE 1 - 8 01 T x 12

#### Sling Length

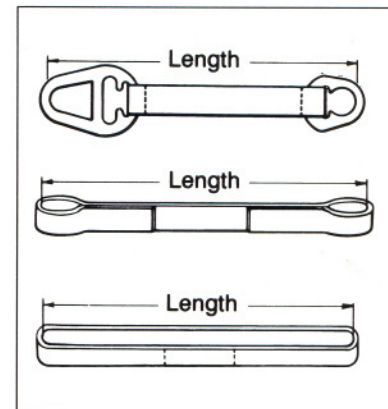
Use actual pull to pull length (Reach) in feet.<sup>1</sup>

#### Web Material

For *Tuff-Edge* polyester webbing add letter "T".

For other polyester webbing add letter "D".

#### Sling Width in inches (Two Digits)



Always measure sling pull to pull when flat.

#### Note:

1. *Lift-All* manufactures slings to a tolerance of  $\pm 2\%$  for one and two ply slings. Tolerance for three and four ply slings is  $\pm 4\%$ . Specify matched lengths if required and call local plant for special requirements.
2. To order Bridle Slings see page 28.

## Anti-Abrasion Treatment

*Lift-All* recommends that web slings be manufactured from abrasion resistant latex treated webbing:

Treatment is standard on both nylon and polyester web slings.

Natural, untreated webbing is available upon request.

Note: Heavy duty treatments are available as a supplemental process for greater protection.

## Tuff-Tag and Warning Sheet

OSHA requires all web slings to show rated capacities and type of material. The *Lift-All Tuff-Tag* is made from an abrasion resistant polymer that will remain legible far longer than any leather or vinyl tags. In fact, a *Tuff-Tag* will consistently outlast the useful life of a sling.

A Warning Sheet is included with every web sling order from *Lift-All*. The sheet lists inspection information and operating practices applying to synthetic web slings.





## WEB SLING HARDWARE

### Steel *Unilink* Web Sling Hardware Combination Triangle and Choker Fitting U. S. Patent No. 4789193

This forged, high carbon steel fitting, functions as both a triangle and choker.

#### Features, Advantages and Benefits

##### Promotes Safety

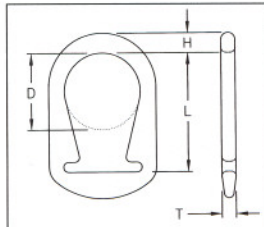
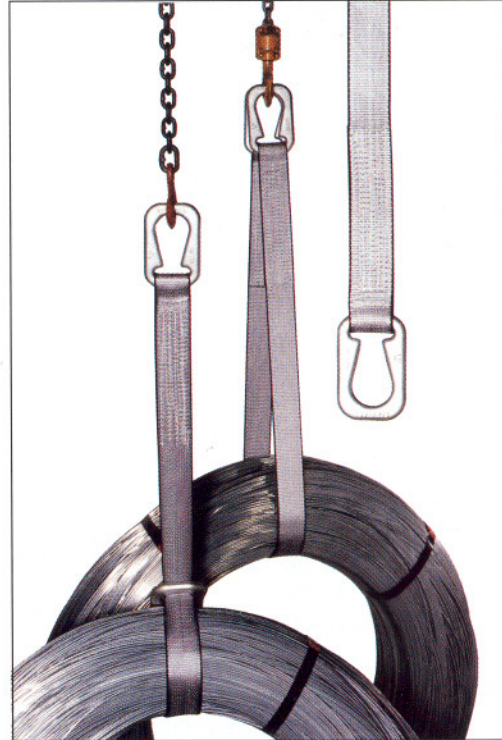
- Forged steel for strength and reliability
- Smooth rounded profile helps protect sling, worker and load

##### Saves Money

- May be rewedged to reduce cost
- Zinc dichromate plated for longer life
- *Unilinks* cost less than triangle/choker combinations

##### Saves Time

- Large Crane hook opening - speeds rigging
- Positive *Web-Trap* capture - no need to stop and reposition web
- Functions both as a triangle and a choker - choke with either end



#### *Unilink* Codes And Specifications

Web Width (in.)	Code	Dimensions (in.)				Weight (lbs.)
		L	D	H	Thick	
2	SU2	3 $\frac{11}{16}$	2	$\frac{11}{16}$	$\frac{9}{16}$	1.1
3	SU3	5 $\frac{1}{16}$	3	$\frac{7}{8}$	$\frac{5}{8}$	2.4
4	SU4	6 $\frac{3}{16}$	4	1	$\frac{3}{4}$	4.0

Avoid contact of hardware with load edges.  
*Unilink* has the same rated capacities as TT or TC slings.

#### Forged Aluminum Triangles and Chokers

##### **WARNING**

Read Definition on page 3

Aluminum is severely degraded by alkali, caustic environments, acids and salt water.

Aluminum Triangles and Chokers are available but may only be used with single ply web slings within the rated capacities shown in the table. They should not be used with *Dura-Web* 2000 webbing.

Forged from aircraft aluminum, this tough alloy is stronger than mild steel. Aluminum has the advantages of being light weight, non-sparking and does not rust.

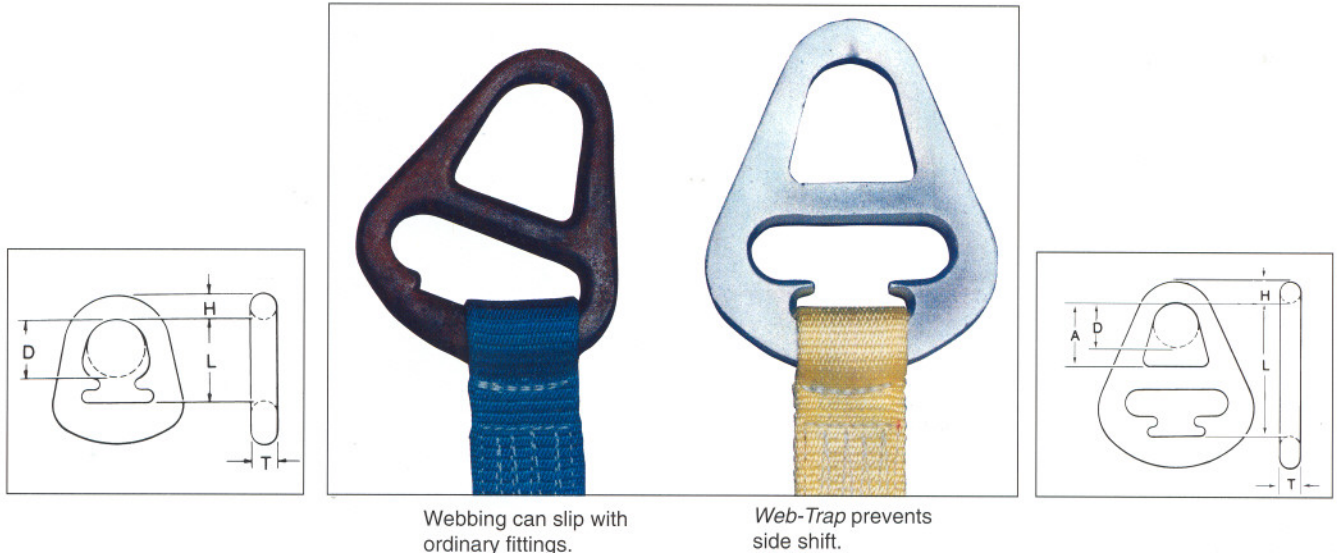
Note: Aluminum triangles and chokers DO NOT offer the advantages of the *Web-Trap* feature. Aluminum fittings are not as durable and cost more than steel.



## WEB SLING HARDWARE

### Web-Trap Steel Sling Hardware - Triangles and Chokers

A significant improvement in triangle and choker design - featuring positive web capture. Webbing can slip to the side of ordinary fittings, not with *Web-Trap*. These fittings feature alloy steel for lighter sling weight and a zinc dichromate plating to inhibit rust.



### Alloy Steel - For One Or Two Ply Slings

Web-Trap Triangles							Web-Trap Chokers						
Web Width	Code	Dimensions (in.)				Weight (lbs.)	Code	Dimensions (in.)					Weight (lbs.)
		L	D	T	H			L	A	D	T	H	
*2"	ST-2	2 3/8	1 3/4	1/2	5/8	1.0	SC-2	5	2 3/8	1 3/4	1/2	5/8	1.9
*3"	ST-3	3 7/16	2	1/2	3/4	1.9	SC-3	6 1/4	3 3/8	2	1/2	3/4	3.6
*4"	ST-4	4 1/8	2 3/8	1/2	13/16	2.8	SC-4	7	4	2 3/8	1/2	13/16	5.1
5"	ST-5	4 13/16	2 3/4	1/2	7/8	3.7	SC-5	7 15/16	4 3/4	2 3/4	1/2	1	6.9
6"	ST-6	5 1/2	3 1/8	3/4	1 1/16	6.6	SC-6	9 1/2	5 1/2	3 1/8	3/4	1 1/16	12.1

### Alloy Steel - For One Ply Slings

Web-Trap Triangles							Web-Trap Chokers						
Web Width	Code	Dimensions (in.)				Weight (lbs.)	Code	Dimensions (in.)					Weight (lbs.)
		L	D	T	H			L	A	D	T	H	
8"	ST1-8	7 3/4	4	1/2	1 1/4	8.1	SC1-8	11 1/4	7 1/2	4	1/2	1 7/16	16.1
10"	ST1-10	8 1/2	5	3/4	1 7/16	16.4	SC1-10	12 7/8	8 1/4	5	3/4	1 1/2	28.2
12"	ST1-12	8 1/2	5 1/2	3/4	1 3/4	20.3	SC1-12	14 1/2	10	5 1/2	3/4	1 3/4	40.2

### Alloy Steel - For Two Ply Slings

Web-Trap Triangles							Web-Trap Chokers						
Web Width	Code	Dimensions (in.)				Weight (lbs.)	Code	Dimensions (in.)					Weight (lbs.)
		L	D	T	H			L	A	D	T	H	
8"	ST2-8	7 3/4	4	3/4	1 1/4	12.2	SC2-8	11 1/4	7 1/2	4	3/4	1 7/16	24.5
10"	ST2-10	8 1/2	5	1	1 7/16	21.3	SC2-10	12 7/8	8 1/4	5	1	1 1/2	37.6
12"	ST2-12	8 1/2	5 1/2	1	1 3/4	27.0	SC2-12	14 1/2	10	5 1/2	1	1 3/4	53.6

\* Unlink is standard fitting - Triangle and chokers available on special order only.



# TUFF-EDGE

THE NEW STANDARD FOR HEAVY DUTY INDUSTRIAL SLINGS!

- 30% More Resistant to Edge Cutting!
- 67% More Resistant to Edge Abrasion!!
- 100% More Resistant to Becoming an Ordinary Web Sling !!!

## Tuff-Edge™ Polyester Web Slings

U. S. Patent No. 4856837

Most web sling damage starts on the edge and progresses across the face of the webbing. Polymer coated yarns are woven into the edges of Tuff-Edge sling webbing to reduce damage and increase its useful life.

Independent lab tests prove Tuff-Edge to be 30% more resistant to edge cutting and 67% more resistant to edge abrasion than standard sling webbing. Laboratory results may differ from individual applications, but improved results should be expected. Unilink hardware is standard on all 2", 3" and 4" Tuff-Edge hardware slings.



## Tuff-Edge Features, Advantages and Benefits

### Promotes Safety

- Red Core yarn warning system aids in the inspection process
- Tuff-Tag provides serial numbered identification for traceability
- Proven sling web construction

### Saves Money

- Polymer coated edge yarns resist cutting and abrasion to extend sling life
- Silver colored web treatment fights abrasion for additional sling life
- Tuff-Tag provides required OSHA information for the life of the sling, not just the life of the tag

### Saves Time

- Easy identification - silver body, black edges, blue center stripe

Always use Wear Pads to protect synthetic slings from being cut by load edges.



See page 110



# KeyFlex<sup>TM</sup> ARAMID ROUNDSLINGS



*Your Key to lifting heavy loads using the lightest, most flexible sling available !*

## KeyFlex<sup>TM</sup> Roundslings Share Most of the Benefits of Standard Tuflex<sup>TM</sup> Roundslings

### Promote Safety

- Synthetic materials won't cut hands
- Consistent matched lengths for better multiple sling control
- No loss of strength from abrasion on double walled jacket
- Tuff-Tag<sup>TM</sup> provides serial numbered identification for traceability
- Conforms to shape of load to grip securely
- Load bearing yarns protected from UV degradation
- Contrasting color core yarns provide visual warning of sling damage  
(KeyFlex<sup>TM</sup> : Orange jacket, Gold Core Yarns)
- Endless style promotes load stability by spreading sling legs

### Inspection Criteria

Remove from service when:

- Cuts to sling cover expose gold core yarns
- Holes, tears, snags or abrasion expose gold core yarns
- End fittings are pitted or corroded, cracked, distorted or broken
- The sling shows signs of melting, charring or chemical damage
- Capacity tag is illegible or missing
- Other visible damage causes doubt as to strength of the sling

### Environmental Considerations

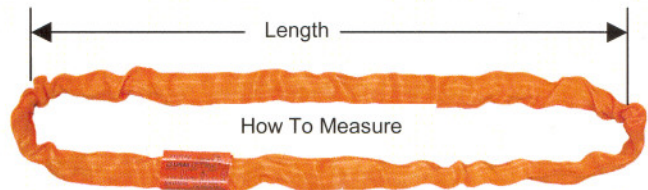
- CHEMICAL - Do not use in a chemical environment without first contacting the Lift-All engineering department at 717-898-6615. Please provide specific chemical, concentration, temperature and time factors.
- TEMPERATURE - KeyFlex<sup>TM</sup> are approved for use up to 350°F.

### Saves Time

- Independent core yarns choke tightly, but release easily after use

### Saves Money

- Double wall cover for greater sling life
- Soft cover won't scratch load surface
- Conforms to shape of load to reduce load damage
- Seamless – no sewn edges to rupture prematurely, requiring removal from service
- Tufhide wear resistant nylon jacket for extra sling life standard KEN60K and larger sizes
- Tuff-Tag provides required OSHA information for life of the sling, not just the life of the tag
- Wear points can be shifted to extend sling life
- Endless version is the most versatile style of sling
- KeyFlex<sup>TM</sup> roundslings with damaged covers may be returned to our factory for inspection and possible repair and proof test.



### Ordering Information

Specify the sling code and length in feet (bearing point to bearing point). KeyFlex<sup>TM</sup> are made to a tolerance of  $\pm 1\%$  of the specified length ( $\pm 1$ " minimum tolerance) and can stretch 1% at rated capacity.

*Note: Matched lengths of slings must be specified at time of order. Available in endless style only.*



# KeyFlex™ ARAMID ROUNDSLINGS



## The Strongest and Lightest Slings in the World

Rigging injuries decrease when lighter, less cumbersome slings are used. Light, flexible **KeyFlex™** Roundslings help prevent injuries.

### Sling Weights per Capacities

On the average, **KeyFlex™** Roundslings are:

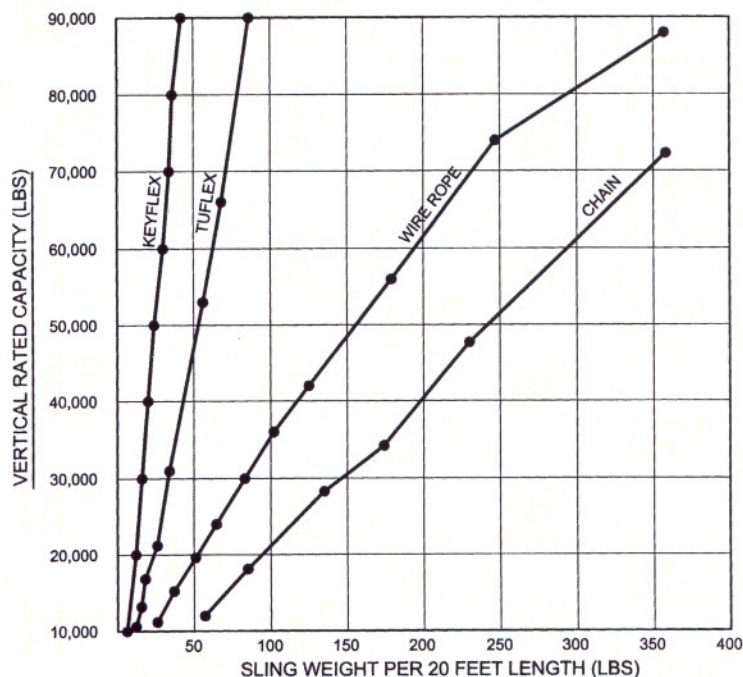
- 53% lighter than **Tuflex™** Roundslings,
- 82% lighter than Wire Rope Slings,
- 89% lighter than G80 Chain Slings

The chart at the right plots the weights of 20 ft. long slings at five different capacities:

Sling Type	Vertical Rating	Weight
<b>KeyFlex™</b>	90,000 lbs.	42 lbs.
<b>Tuflex</b>	90,000 lbs.	86 lbs.
Wire Rope	88,000 lbs.	357 lbs.
Chain	72,300 lbs.	358 lbs.

### KeyFlex™ Benefits:

- Lowest weight per capacity reduces risk of back and other injuries to riggers.
- Low stretch (1% at rated capacity) reduces elastic bounce for better load control – allows for use in most low headroom situations – reduces sling and load abrasion.
- Aramid load yarns allow sling use up to 350°F versus 200°F for other synthetics.
- Light weight and compact size promotes speedier rigging, transport and storage when compared to any other type of sling.



### KeyFlex™ Capacities and Measurements

Part No.	Rated Capacity (lbs.)			Min. Length (ft.)	Approximate Measurements			Minimum Hardware Dia. (in.)
	Vertical	Choker	Basket		Weight (lbs./ft.)	Body Dia. Relaxed (in.)	Width at Load (in.)	
KEN10K	10,000	8,000	20,000	3	.3	1	1 3/4	7/8
KEN15K	15,000	12,000	30,000	3	.5	1 1/8	2	1
KEN20K	20,000	16,000	40,000	3	.6	1 1/4	2 1/4	1-1/4
KEN25K	25,000	20,000	50,000	3	.7	1 1/4	2 1/2	1-3/8
KEN30K	30,000	24,000	60,000	8	.8	1 3/8	2 3/4	1-1/2
KEN40K	40,000	32,000	80,000	8	1.0	1 3/4	3	1-1/2
KEN50K	50,000	40,000	100,000	10	1.2	1 7/8	3 1/2	1-3/4
KEN60K	60,000	48,000	120,000	10	1.5	2	3 3/4	2
KEN70K	70,000	56,000	140,000	10	1.7	2 1/8	4	2-1/2
KEN80K	80,000	64,000	160,000	10	1.8	2 1/4	4 1/4	2-1/2
KEN90K	90,000	72,000	180,000	10	2.1	2 1/2	4 3/4	2-1/2
KEN100K	100,000	80,000	200,000	10	2.6	2 3/4	5	2-1/2
KEN125K	125,000	100,000	250,000	10	3.0	3	5 1/4	3
KEN150K	150,000	120,000	300,000	10	3.5	3 1/4	5 1/2	3-1/2
KEN175K	175,000	140,000	350,000	10	4.0	3 1/2	6	3-1/2
KEN200K	200,000	160,000	400,000	10	4.5	3 3/4	6 1/4	3-1/2