

Catalog 2017



Lifting Products · Tiedowns · Slings



| |
|------------------|
| Help |
| Sling Protection |
| Specials |
| Web Slings |
| Hull Savers |
| Tuflex |
| Wire Rope |
| LiftAlloy Chain |
| Mesh |
| Load Huggers |
| Hoist Rings |
| Plate Clamps |
| Hoists |
| Custom Devices |

TABLE OF CONTENTS

| | |
|--|--------------|
| HELP | 3-13 |
| How to Use This Catalog..... | 3 |
| Introducing <i>LIFT-ALL</i> ®..... | 3 |
| Why <i>LIFT-ALL</i> ®?..... | 4 |
| Sling Inspection Services..... | 4 |
| Quality and Engineering Services..... | 5 |
| Safety in Lifting..... | 5 |
| Sling Selection..... | 6 |
| General OSHA & Manufacturer Requirements for All Slings..... | 7 |
| Effect of Angle of Lift on a Sling's Rated Capacity..... | 12 |
| Lifting Application Worksheet..... | 13 |
| SLING PROTECTION | 14-19 |
| Sling Shield™..... | 14 |
| Edge Defender™..... | 15 |
| Wear Pads..... | 16 |
| SPECIALS | 20-27 |
| <i>Hose Halters</i> ™..... | 20 |
| <i>Tow-All</i> ™ Vehicle Straps..... | 22 |
| Gas Bottle Web Cradles..... | 24 |
| Drum Handling Slings..... | 25 |
| Bucket, Cooler & Trash Barrel Slings..... | 26 |
| RFID Tagging..... | 27 |
| WEB SLINGS | 30-54 |
| Why <i>Lift-All</i> Web Slings?..... | 30 |
| <i>Lift-All</i> Web Selector — Quick Comparisons..... | 31 |
| Standard Web Sling Types..... | 32 |
| Web Sling Eye Treatments..... | 33 |
| Environmental Considerations & Outdoor Use..... | 34 |
| How To Order..... | 35 |
| Web Sling Hardware..... | 36 |
| <i>Tuff-Edge II</i> ®..... | 38 |
| <i>Tuff-Edge II</i> ® and <i>Webmaster</i> ®1600 Slings..... | 40 |
| <i>Dura-Web</i> ® Nylon Slings..... | 43 |
| <i>Webmaster</i> ® 1200 Slings..... | 44 |
| Reverse Eye Slings..... | 45 |
| <i>Tuff-Edge II</i> ® Hardware / Bridle Slings..... | 46 |
| Wide-Lift Slings..... | 48 |
| Stone Handling Slings..... | 49 |
| Inspection Criteria for Web Slings..... | 50 |
| Web Sling Weights (Approx.)..... | 52 |
| HULL SAVER™ BOAT SLINGS | 56-58 |
| TUFLEX® ROUNDSLINGS | 60-75 |
| The <i>Tufflex</i> ® Difference..... | 60 |
| How to Order..... | 61 |
| Using <i>Tufflex</i> ® Roundslings..... | 62 |
| Direct Connect Hooks™..... | 63 |
| <i>Tufflex</i> ® Endless Roundslings..... | 64 |
| <i>Tufflex</i> ® Eye and Eye..... | 65 |
| Braided <i>Tufflex</i> ® Roundslings..... | 66 |
| <i>KeyFlex</i> ™ Aramid Roundslings..... | 68 |
| <i>KeyFlex</i> ™ Ultra..... | 70 |
| <i>Tufflex</i> ® Hardware / Bridle Slings..... | 71 |
| <i>Steelflex</i> ™ Roundslings..... | 72 |
| Polyester Stage Slings - Black..... | 73 |
| <i>Steelflex</i> ™ & Polyester Stage Sling Information..... | 73 |
| Wide-Lift <i>Tufflex</i> ®..... | 73 |
| Inspection Criteria for <i>Tufflex</i> ® / <i>KeyFlex</i> ™..... | 74 |

| | |
|--|----------------|
| WIRE ROPE & SLINGS | 77-98 |
| Wire Rope and Sling Basics..... | 77 |
| How to Order Wire Rope Slings..... | 78 |
| <i>Permaloc</i> ™ Wire Rope Slings..... | 79 |
| <i>Permaloc</i> ™ Bridle Slings..... | 80 |
| Grommets and Endless Slings..... | 81 |
| <i>E-Z Flex</i> ™ Cable Laid Slings..... | 82 |
| <i>E-Z Flex</i> ™ Two Leg Bridle Slings..... | 83 |
| <i>E-Z Flex</i> ™ Endless Slings..... | 84 |
| Hidden Tuck Hand Spliced Slings..... | 85 |
| Multi-Part Cabled Slings..... | 86 |
| Multi-Part Braided Slings..... | 87 |
| Swaged Threaded Studs..... | 88 |
| Swaged Socket Assemblies..... | 89 |
| Winch Lines, Hoist Lines and Buttons..... | 90 |
| Wire Rope..... | 91 |
| Cable & Components..... | 92 |
| Sling Attachments, Hooks, etc..... | 94 |
| Inspection Criteria for Wire Rope Slings..... | 96 |
| Sling Weights (Approx.)..... | 97 |
| LIFTALLOY™ CHAIN SLINGS | 101-113 |
| <i>LiftAlloy</i> ™ Chain Sling Basics..... | 101 |
| How to Order Chain Slings..... | 101 |
| Rated Capacity for <i>LiftAlloy</i> ™ Chain Slings..... | 102 |
| <i>LiftAlloy</i> ™ Single and Double Chain Slings..... | 103 |
| <i>LiftAlloy</i> ™ Triple, Quad and Basket Type Chain Slings..... | 104 |
| <i>LiftAlloy</i> ™ Adjustable and Endless Basket Chain Slings..... | 105 |
| <i>Adjust-A-Link</i> ™ Grade 100 Chain Slings..... | 106 |
| Hooks, Master Links, etc..... | 107 |
| Chain..... | 111 |
| Inspection Criteria for Chain..... | 112 |
| ROUGHNECK® MESH SLINGS | 115-118 |
| <i>Roughneck</i> ™ Wire Mesh Slings..... | 115 |
| Inspection Criteria for Wire Mesh Slings..... | 117 |
| <i>Roughneck</i> ™ Chain Mesh Slings..... | 118 |
| LOAD HUGGER® CARGO CONTROL | 121-128 |
| <i>Load Hugger</i> ® Basics..... | 121 |
| Web Selection..... | 122 |
| Ratchet Assemblies..... | 123 |
| Wear Pads and Corner Protectors..... | 126 |
| Winch Strap Assemblies and Winches..... | 127 |
| E-Track and Van Interior Assemblies..... | 128 |
| Tie Down and Chain and Binders..... | 128 |
| HOIST RINGS | 130-132 |
| PLATE CLAMPS | 134-135 |
| HOISTS | 137-140 |
| Hurricane 360° Hand Chain Hoist..... | 137 |
| CM® Manual Chain Hoists..... | 138 |
| CM® Lever Pullers..... | 139 |
| CM® Mini-Ratchet Lever Hoists..... | 140 |
| LIFTING BEAMS & CUSTOM ENGINEERED LIFTING DEVICES | 142-146 |
| Basic Information and How to Order..... | 142 |
| Custom Spreader Beams..... | 143 |
| Custom Alloy S and J Hooks..... | 144 |
| Standard J Hooks..... | 145 |
| Custom Coil and Pallet Lifters..... | 146 |
| CONVERSION and WEIGHT TABLES | 147 |

DEFINITION

⚠ WARNING

As used throughout this catalog, this warning icon 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 12 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 with over 250 employees working in five 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. 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 50 years.

Lift-All's Mission Statement

Our mission is to be the trusted name in quality lifting and securement products and services by dedicating ourselves to customer satisfaction while providing exceptional value. Our long-term success will be accomplished by a skilled workforce, committed to the principles of teamwork, integrity and performance.

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 noncompliance 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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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 five U.S. 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.

SLING INSPECTION SERVICES

OSHA 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 slings, wire rope slings, web slings, roundslings and wire mesh slings all can be inspected in one survey by a representative from the only company that makes them all — *Lift-All*.

The Inspection Procedure

Each sling is individually recorded and reported by location, serial number (if available), size, type, reach and condition.

If desired, we will affix a warning to those slings found to be damaged.

A Sling Survey Report will be printed and submitted to you for your records, showing the above details and including graphs for a quick representation of your inspection.

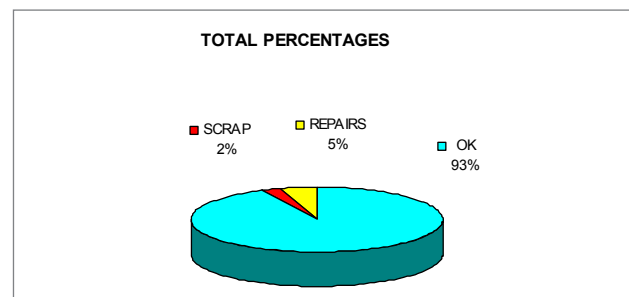
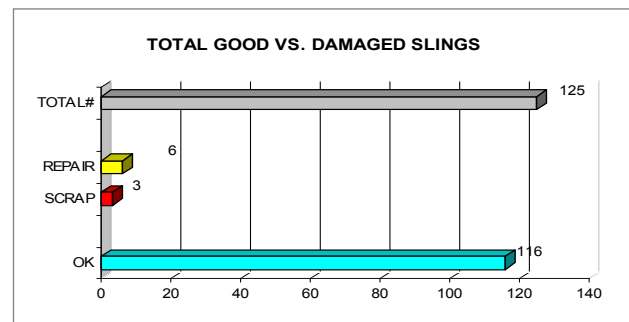
Let us help you reduce your overall cost of slings and make your lifts safer by identifying recurring problems and offering solutions to keep your slings in service longer.

If you wish to repair or replace any of the damaged slings, we will provide cost estimates to do so.



Sling Inspections not only help to ensure safe lifting equipment but also increase employee awareness of sling safety, creating a safer workplace for all.

To inquire about or arrange for your Sling Inspection, please call our directed toll-free phone number (800) 909-1964.



QUALITY AND ENGINEERING SERVICES

Quality Standards

Lift-All ensures top quality products through a Quality Program, based predominately on Military Specification MIL-I-45208, which includes:

1. Detailed specifications for each product.
2. Testing of raw material prior to product manufacturing.
3. Product testing in conformance with industry standards.
4. Proof testing as required (certificates available).
5. Final inspection of products prior to shipment.

Lift-All is dedicated to manufacturing and developing products for material handling that meet or exceed current industry and government requirements, including OSHA and ASME B30.9 for lifting slings. *Lift-All* products conform to the following:

| Product Type | Standard /Specification |
|------------------|----------------------------------|
| Cargo Securement | US DOT, FMCSA 393.102, WSTDA |
| Chain Slings | OSHA 1910.184, ASME B30.9, NACM |
| Hoists | ASME B30.16, B30.21 |
| Roundslings | ASME B30.9, WSTDA |
| Webbing Slings | OSHA 1910.184, ASME B30.9, WSTDA |
| Wire Mesh Slings | OSHA 1910.184, ASME B30.9 |
| Wire Rope Slings | OSHA 1910.184, ASME B30.9 |

Engineering Services

Fee-based engineering services are available for lifting applications or custom product design and review. Contact Lift-All for details on this program.

SAFETY IN LIFTING

Safety Video Available

"Safety in Lifting," a 22 minute presentation is available in DVD format in both English and Spanish. 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.



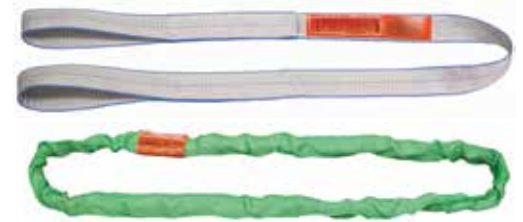
For details about the Video and/or "Safety in Lifting" seminars call: *Lift-All* at 1-800-909-1964.

SLING SELECTION

Which Type of Sling Should I Choose?

General Use of Different Types of Slings

Synthetic Slings — Both Web Slings and Roundslings are used where loads must be protected from damage. The lightweight 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.



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.



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.



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.



GENERAL OSHA & MANUFACTURER REQUIREMENTS FOR ALL SLINGS

WARNING

Read Definition on page 3

Safe Operating Practices

- 1. Sling users must be trained** in operating practices, including sling selection, use, inspection, rigging practices, cautions to personnel and effects of environment.
- 2. Inspect sling at least daily** and remove from service if damaged.
- 3. Protect sling from being cut or damaged** by corners, protrusions or from contact with edges that are not well rounded.
- 4. Use sling properly.** Do not exceed a sling's rated capacities and always consider how the sling angle affects the amount of tension on the sling.
- 5. Stand clear of load.** Do not stand on, under or near a load, and be alert to dangers from falling and moving loads, and the potential for snagging.
- 6. Maintain and store sling properly.** Sling should be protected from mechanical, chemical and environmental damage.

1. Training

Sling Users must be Trained and Knowledgeable

Sling users must be knowledgeable about the safe and proper use of slings and be aware of their responsibilities as outlined in all applicable standards and regulations.

ASME B30.9 states, "Sling users shall be trained in the selection, inspection, cautions to personnel, effects of the environment and rigging practices."

OSHA Sling Regulation 29 CFR 1910.184 states that a qualified person is one *"who, by possession of a recognized degree or certificate of professional standing in an applicable field, or who, by extensive knowledge, training, and experience, has successfully demonstrated the ability to solve or resolve problems relating to the subject matter and work."*

If you are unsure whether you are properly trained and knowledgeable, or if you are unsure of what the standards and regulations require of you, ask your employer for information and/or training — **DO NOT** use web slings if you are unsure of what you are doing. Lack of skill, knowledge or care can result in severe **INJURY** or **DEATH** to you and others.

2. Inspections

Each day before being used, the sling and all fastenings and attachments shall be inspected for damage or defects by a competent person designated by the employer. Additional inspections shall be performed during sling use, where service conditions warrant. Damaged or defective slings shall be immediately removed from service.
 (OSHA Wording)

Inspection Frequency

Initial Inspection — Each new sling must be inspected by a designated person to help ensure that the correct sling has been received, is undamaged and meets applicable requirements for its intended use.

Frequent Inspection — The sling must be inspected by a designated person before each day or shift in **Normal** service conditions, or before each use in applications where a rapid rate of sling wear or other degradation may exist. (**Severe** service conditions).

Periodic Inspection — Every sling must be inspected "periodically." The designated person should be someone other than the person performing the frequent inspection.

The frequency of periodic inspections should be based on the sling's actual or expected use, severity of service and experience gained during the inspection of other slings used in similar circumstances, but must not exceed a one year interval. General guidelines for the frequency of periodic inspections are:

- Normal service — yearly
- Severe service — monthly to quarterly
- Special service — as recommended

A written record of the most recent periodic inspection must be maintained. (See WSTDA WS-1 for definitions of service conditions.)



For specific inspection criteria, see the information at the end of each product section.

The Safety Bulletin that accompanies each sling must be read and understood by all sling users. See sling abuse illustrations in their respective section of this catalog. Damaged slings should never be used, but 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, rewedged, proof tested by Lift-All and returned to service.

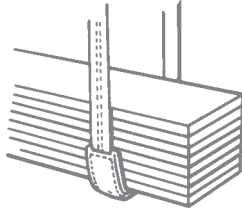
GENERAL OSHA & MANUFACTURER REQUIREMENTS FOR ALL SLINGS

3. Protect Slings

⚠ WARNING

Read Definition on page 3

Slings shall be padded or protected from the sharp edges of their loads.
 (OSHA Wording)



The cutting of synthetic slings is the main cause of sling failure, usually caused by a sharp or small diameter load edge against the sling. Proper protection must be used to avoid cutting. (See Sling Protection Section page 14.)

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.

Sling Protection

A qualified person must select materials and methods that adequately protect slings from edges or surfaces. Sleeves, wear pads, corner protectors or other softeners are examples of materials commonly used as protection devices. However, no protective device is “cut proof.”

Some protection devices provide abrasion resistance, but offer virtually no protection against cuts. Several “test” lifts, done in a non-consequence setting, may be necessary to determine the suitability of each protection device. After each “test” lift, inspect **all** slings and protection devices for damage.

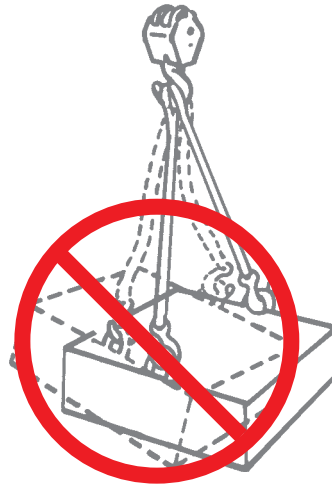
Foreign Matter — Material such as metal chips and heavy grit can damage slings, both internally and externally. Avoid contact with foreign matter whenever possible.

4. Use Slings Properly



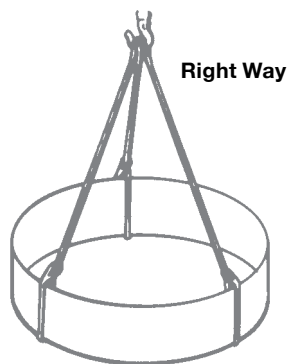
Slings shall not be dragged on floor.

Improper Loading — Shock Loading, unbalanced loading, overloading 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.
 (OSHA Wording)



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

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



Right Way



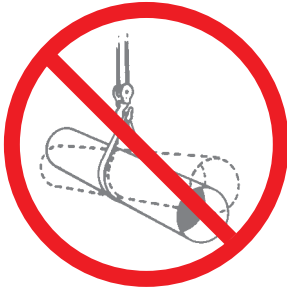
Wrong Way

GENERAL OSHA & MANUFACTURER REQUIREMENTS FOR ALL SLINGS

⚠ WARNING

Read Definition on page 3

Slings used in a basket hitch shall have the loads balanced to prevent slippage. (OSHA Wording)



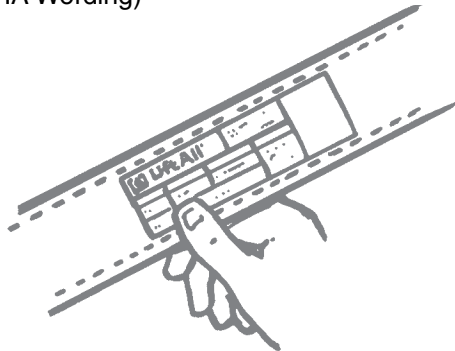
Angle of lift must be considered in all lifts. See page 12.

Temperature — Avoid loads and environments where temperatures exceed the limits of the slings being used. All slings can be damaged by excessive heat, including heat from welding torches and weld spatter.

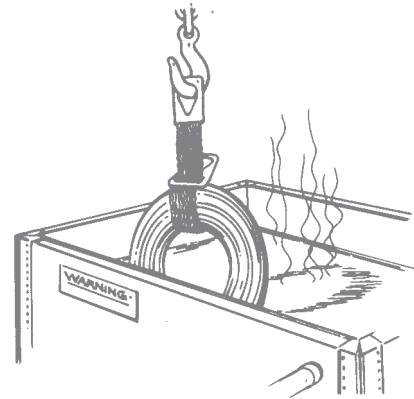
Chemical Environment — Slings exposed to certain chemicals or the vapors of these chemicals can lose some or all of their strength. When using slings in a chemical environment, contact *Lift-All* to ensure sling compatibility.

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

Slings shall not be loaded in excess of their rated capacities. (OSHA Wording)

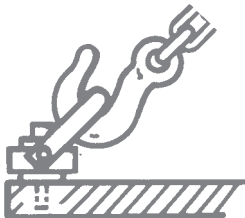


Rated capacities (Working Load Limits) must be shown by markings or tags attached to all slings.



Slings shall be securely attached to their loads. (OSHA Wording)

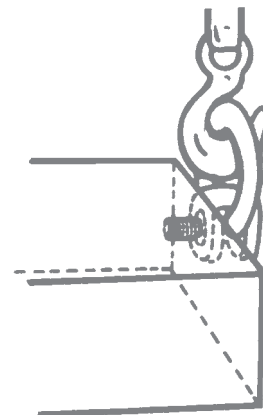
Right Way



Wrong Way



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



GENERAL OSHA & MANUFACTURER REQUIREMENTS FOR ALL SLINGS

⚠ WARNING

Read Definition on page 3

5. Stand Clear of the Load

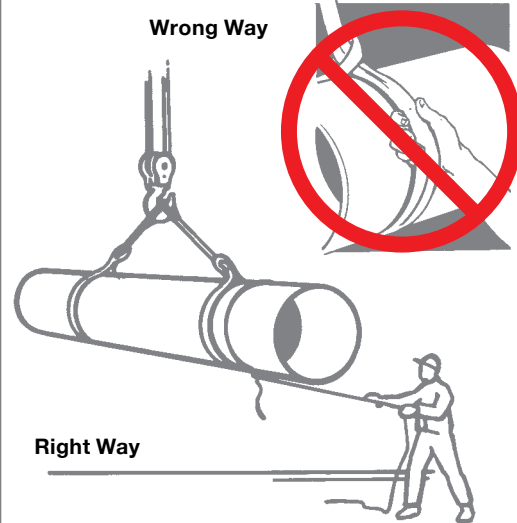
Slings shall not be shortened with knots or bolts or other makeshift devices.
(OSHA Wording)



Sling legs shall not be kinked.
(OSHA Wording)



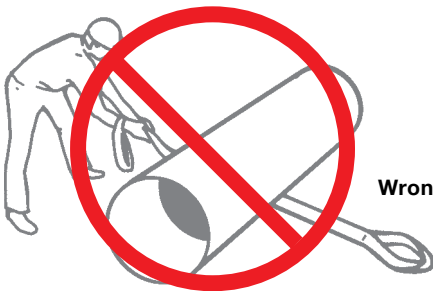
Hands or fingers shall not be placed between the sling and its load while the sling is being tightened around the load.
(OSHA Wording)



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.

A sling shall not be pulled from under a load when the load is resting on the sling.
(OSHA Wording)

Right Way

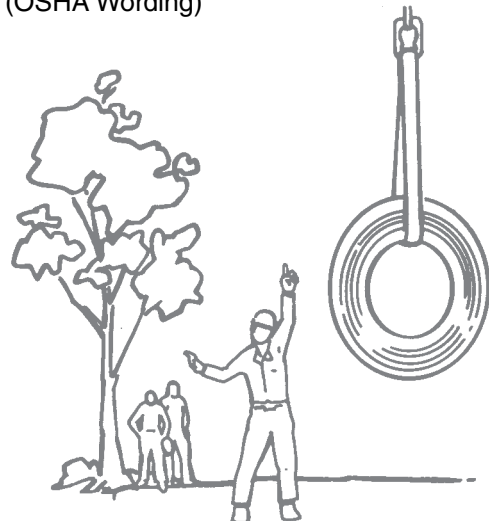


Wrong Way

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.

Suspended loads shall be kept clear of all obstructions.

All employees shall be kept clear of loads about to be lifted and of suspended loads.
(OSHA Wording)



GENERAL OSHA & MANUFACTURER REQUIREMENTS FOR ALL SLINGS

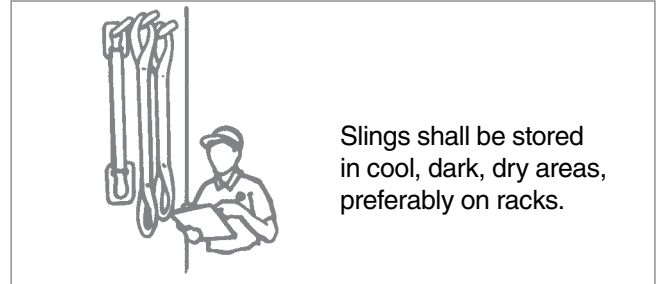
⚠ WARNING

Read Definition on page 3

6. Maintain and Store Slings Properly

Attempt to keep slings clean and free of dirt, grime and foreign materials.

When not in use, slings should be stored in an area free from environmental or mechanical sources of damage, such as weld spatter; splinters from grinding or machining; or sources of UV, heat or chemical exposure; etc.

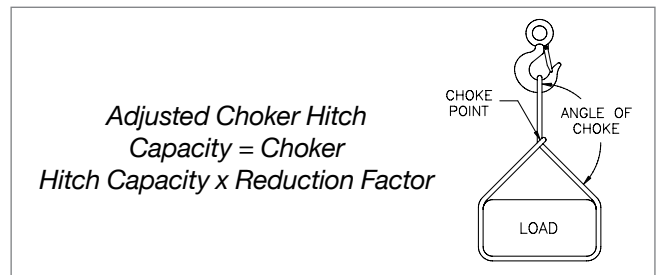


Additional Factors to consider when handling loads

- Integrity of the attachment points
- Structural stability of the load
- Loose parts that could fall from load
- Power lines in the area
- Secure a clear load path and avoid any contact with objects that would impede load movement
- Tag lines can often be attached to the load and be used to aid in controlling load position

Choker Hitch Angles

When a choke hitch is used, and the angle of choke is less than 120°, the sling choker hitch capacity decreases. To determine the actual sling capacity at a given angle of choke, multiply the sling capacity rating (for a choker hitch) by the appropriate reduction factor determined from the tables below.



Reduction in rated capacity as a function of angle of choke

| Synthetic Slings | | |
|------------------|-----|--------|
| Angle of Choke | | Factor |
| > or = | < | |
| 120 | 180 | 1.00 |
| 105 | 120 | .82 |
| 90 | 105 | .71 |
| 60 | 90 | .58 |
| 0 | 60 | .50 |

| Wire Rope Slings | | |
|------------------|-----|--------|
| Angle of Choke | | Factor |
| > or = | < | |
| 120 | 180 | 1.00 |
| 90 | 120 | .87 |
| 60 | 90 | .74 |
| 30 | 60 | .62 |
| 0 | 30 | .49 |

Sling capacity decreases as choke angle decreases.

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 Customer Service
Phone: 800-843-2763
www.asme.org

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
www.osha.gov

EFFECT OF ANGLE OF LIFT ON A SLING'S RATED CAPACITY

⚠ WARNING

Read Definition on page 3

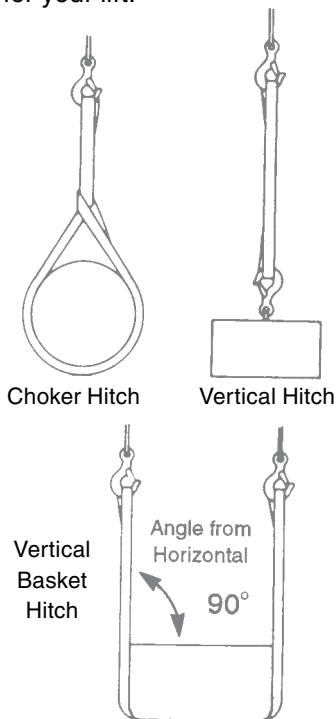
Using slings at an angle **can become deadly** if that angle is not taken into consideration when selecting the sling to be used. The tension on each leg of the sling is increased as the angle of lift, from horizontal, decreases. It is most desirable for a sling to have a larger angle of lift, approaching 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.

INCREASED TENSION

What capacity sling do I need?

1. Determine the weight that the sling will be lifting [LW].
2. Calculate the Tension Factor [TF].
 - a. Using the angle from horizontal, read across the angle chart to the corresponding number in the Tension Factor column.
- OR
- b. 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.



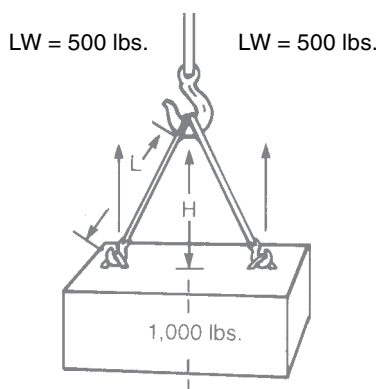
REDUCED CAPACITY

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

1. Calculate the Reduction Factor [RF].
 - a. Using the angle from horizontal, read across the Angle Chart to the corresponding number in the Reduction Factor column.
- OR
- b. 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.

Increased Tension



Example:

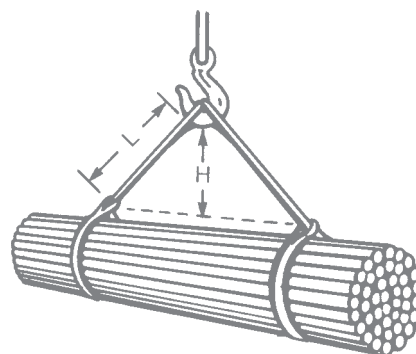
Load weight = 1,000 lbs.
 Rigging — 2 slings in vertical hitch
 Lifting Weight (LW) per sling = 500 lbs.
 Measured Length (L) = 10 ft.
 Measured Height (H) = 5 ft.
 Tension Factor (TF) = 10 (L) ÷ 5 (H) = 2.0
 Minimum Vertical Rated Capacity required for this lift = 500 (LW) x 2.0 (TF) = 1000 lbs. per sling

Effect of Angle Chart

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

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

Lifting Application Worksheet

Please fill in as much information as possible in order to aid in selecting the proper lifting equipment

Distributor: _____
Date: _____
Contact Name: _____
Telephone: _____
Fax: _____

Description of the load being lifted

What is the load: _____

Size of the load:

Weight: _____
Width: _____
Height: _____
Length: _____
Diameter: _____
Other Notes: _____

Lifting Conditions

Overhead Height Clearance: _____

(From top of load)

Operating Temperature:

☐ Room ☐ Other _____ °F

Other Notes: _____

If exposed to chemicals:

Chemical: _____

Conc: _____ %

Temperature: ☐ Room ☐ Other _____ °F

Lifting Operation

☐ Lift and Transport ☐ Pull/Drag Load Only

☐ Lift and Turn ☐ Lift Load Only

Other Notes: _____

Lifting equipment being used (excluding slings)

Check the following equipment that performs the lift:

☐ A single hook/hoist/crane. Hook sizes used: _____

☐ Two hooks/hoists/cranes. Hook sizes used: _____

☐ Fork lift. Width/thickness of the forks: _____

Distance between the
inside edges of the forks: _____ in.

Is a lifting beam to be used? ☐ Yes ☐ No

If Yes, Beam Span: _____ ft. _____ in.

Is it adjustable? ☐ Yes ☐ No

Is a new beam needed? ☐ Yes ☐ No

Other Notes: _____

Rigging Configuration

Number of pick-up points: _____

Connection point information: _____

☐ Ring/Eye/Shackle

Size: ID: _____ " OD: _____ " THK: _____ "

☐ Wrapped around the load

☐ Trunnion/Pin Diameter: _____ "

Is center of gravity an equal
distance from all pick-up points? ☐ Yes ☐ No

Sling/legs attached to the load in a:

☐ Vertical Hitch ☐ Choker Hitch

☐ Basket Hitch ☐ Other

☐ Double Wrap Basket Hitch

☐ Double Wrap Choker Hitch

☐ Is edge protection needed?

Other Notes: _____

Attach drawing of load and intended rigging
configuration with dimensions.

SLING SHIELD™

Pat. # 9039337

The number one cause of synthetic sling failure is cutting. **Sling Shield Edge Protectors** prevent synthetic slings from being cut by load edges. Low weight, high strength extruded aluminum body provides a full 1" radius to protect your slings from even the sharpest of load edges.

Stop replacing your synthetic slings and wear pads due to cutting.

Use the new Lift-All Sling Shields.



Features:

- Aluminum bar with 1" radius supports basket or choker sling tensions of up to 25,000 lbs. per inch of sling width.
- Polycarbonate end restraints help keep slings on bar when lifting at angles.
- Magnet keeps **Sling Shield** in place on steel loads while rigging the lift
- Hook & Loop straps help keep sling in position prior to lift

Benefits:

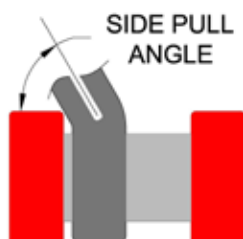
- Improves Safety – Eliminates dropped loads caused by load edges cutting the sling
- Saves Time - Magnet and Hook & Loop straps greatly reduce rigging time
- Saves Money – No cut slings or wear pads means fewer replacement purchases



| Lift-All Part # | SS Inside Width (In.) | SS Overall Length (In.) | SS Weight (Lbs.) | Widest Web Sling (In.) | Largest Appropriate Tuflex Size | | Largest Appropriate Keyflex Size | |
|-----------------|-----------------------|-------------------------|------------------|------------------------|---------------------------------|------------|----------------------------------|------------|
| | | | | | Single Leg | Double Leg | Single Leg | Double Leg |
| SS14 | 4.50 | 7.50 | 2.7 | 4 | EN360 | EN120 | KEN80K | KEN15K |
| SS16 | 6.75 | 10.00 | 3.2 | 6 | EN1000 | EN240 | KEN100K | KEN40K |
| SS112 | 12.75 | 16.00 | 4.8 | 12 | EN1000 | EN1000 | KEN100K | KEN100K |

LOAD RATINGS

The load rating of **Sling Shields** is 25,000 lbs. of sling tension per inch of sling width using a basket or choker hitch. This rating is reduced when lifting at side pull angles of less than 70°. Do not exceed listed sling tensions. Prevent **Sling Shield** from sliding when using at an angle. Do not use at side pull angles less than 45°. See Safety Bulletin for more detailed information.



| Side Pull Angle | Basket Choker Rating (Lbs.)* |
|-----------------|------------------------------|
| 65° | 17,500 |
| 60° | 15,000 |
| 55° | 13,000 |
| 50° | 11,000 |
| 45° | 8,000 |

*Ultimate rating regardless of width.
Lifting in a vertical hitch reduces the ratings by half.

EDGE DEFENDER™

Pat. Pending

Edge Defender pads are our best synthetic product for protecting slings from being cut by load edges and protecting load edges from being marred due to lifting equipment.

Protect your loads and your slings now by using the new Lift-All **Edge Defender**!

Sling Protection



Features:

- Three layers of webbing sewn together with Kevlar[®] thread
- A layer of orange vinyl is sandwiched between the first and second layer to aid inspection
- Synthetic material is flexible under load
- Hook & Loop straps help keep sling in position prior to lift

Benefits:

- Improves Safety – Thick pad sewn with Kevlar[®] thread gives excellent cut resistant protection to the sling
- Saves Time - Hook & Loop straps help to keep pad positioned on the sling to reduce rigging time
- Saves Money – This longer lasting pad protects slings better, extends sling life and reduces replacement purchases



| Standard Pad Widths & Maximum Appropriate Sling Sizes | | | | Part Numbers for Standard <i>Edge Defender</i> Lengths | | | | |
|---|----------------------------|------------------|-------------------|--|-----------|-----------|-----------|-----------|
| Pad Width (In.) | Max. Web Sling Width (In.) | Max. Tuflex Size | Max. KeyFlex Size | 12 In. | 18 In. | 24 In. | 30 In. | 36 In. |
| 3 | 2 | EN30 | NA | ED3X12IN | ED3X18IN | ED3X24IN | ED3X30IN | ED3X36IN |
| 4 | 3 | EN60 | NA | ED4X12IN | ED4X18IN | ED4X24IN | ED4X30IN | ED4X36IN |
| 6 | 4 | EN150 | KEN20K | ED6X12IN | ED6X18IN | ED6X24IN | ED6X30IN | ED6X36IN |
| 8 | 6 | EN240 | KEN50K | ED8X12IN | ED8X18IN | ED8X24IN | ED8X30IN | ED8X36IN |
| 10 | 8 | EN600 | KEN90K | ED10X12IN | ED10X18IN | ED10X24IN | ED10X30IN | ED10X36IN |

Kevlar[®] is a registered trademark of E.I. du Pont de Nemours and Company

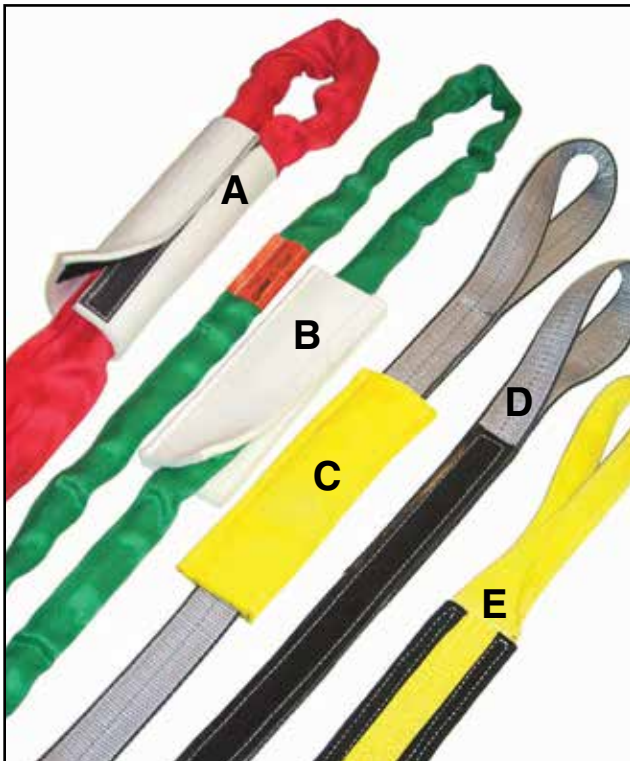
WEAR PADS

The Importance of Wear Pads

Wear Pads can help protect slings against cutting and abrasion. The number one cause of synthetic sling failure is cutting. When slings are cut, property damage and personal injury or death can result. Wear pads can help to reduce this problem by acting as a buffer between the load edge and the sling. When used with steel slings, wear pads help protect both sling and load from damage along points of contact.

Always protect slings from being cut or damaged by corners, edges and protrusions by using protection sufficient for each application.

"We have been using the Lift-All Flat Quick Sleeves for a little over a year now and love them. They have made our slings last a lot longer and are great to work with". - Jan W. Materials Dept. Tulsa, OK



- A - Tubular Quick Sleeve using Pukka Pad Material
- B - Flat Quick Sleeve using Pukka Pad Material
- C - Flat Sewn Sleeve using Webmaster 1600
- D - Sewn-On Wear Pad using PVC
- E - Edgeguard using texturized nylon

Features, Advantages and Benefits

Promotes Safety

- Helps avoid sling cutting that can cause property damage, personal injury or death.

Saves Money

- Helps protect both sling and load from damage
- Increases sling life

Primary Causes of Cutting - How to avoid

- Edges - Edges do not need to be "sharp" to cause sling failure. Increase radius of all edges in contact with slings
- Movement - restrict sling movement against edges
- Pressure - reduce by using wider or additional slings

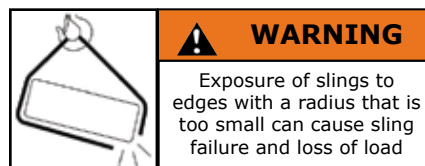
! WARNING

Wear pads may not prevent cutting or other sling damage. To avoid severe personal injury or death, keep all personnel clear of loads about to be lifted and suspended loads.

Safe Operating Practices

A qualified person must select materials and methods that adequately protect the slings from damage. *Lift-All* recommends that, prior to making a lift, the load be raised slightly, then lowered so that the slings and wear pads can be inspected for damage. If there is evidence of cutting, the lift should be tested again using different pad materials and/or methods.

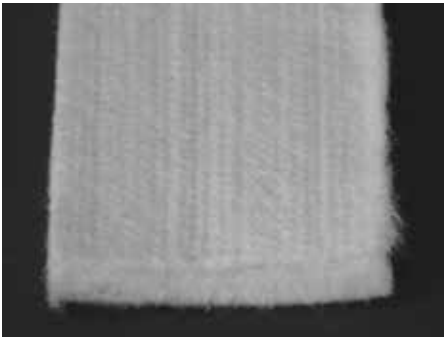
Do not ignore warning signs of misuse. Cut marks detected during any sling inspection serve as a clear signal that sling protection must be added or improved.



WEAR PAD STYLES

| | | | |
|--|----------------------|--|---|
| SLEEVE TYPE Preferred for slings that are used in a variety of lifting situations. Easily repositioned along sling body to accommodate loads of various sizes. Sleeve allows sling to adjust to lift without movement against load edge. | | | |
| A | Tubular Quick Sleeve | Use with: <i>Tuflex</i> Roundslings Chain and Wire Rope Slings Available materials: All (except PVC) | High strength Hook & Loop straps for secure positioning, tubular design gives maximum useable surface and maximum pad life. |
| B | Flat Quick Sleeve | Use with: All Slings Available materials: All (except PVC) | Hook & Loop straps allow easy installation and removal. Friction keeps sleeve in place when rigging. |
| C | Flat Sewn Sleeve | Use with: All Slings Available materials: All (except PVC) | Preferred for long term use on single sling. May be repositioned as needed along sling length. May require factory installation on slings with hardware and on single leg <i>Tuflex</i> . |
| Poly Pads | | Use with: Web Slings (Limited range of sizes) Available materials: PVC | Slides easily along sling length for convenient sling protection. Must be installed at factory for web slings with hardware. |
| SEWN-ON TYPE For use on web slings where repetitive lifting situations subject known areas of the sling to cutting and/or abrasion. Eliminates the need to position pad before each lift. | | | |
| D | Sewn-On Wear Pad | Use with: Web Slings Only Available materials: All except Ballistic nylon | For sling protection at expected wear points. Can be sewn anywhere on the sling, be any length and be on one or both sides. |
| E | Edgeguard | Use with: Web Slings Only Available materials: Texturized nylon or light duty leather | Helps protect edges of sling. Both edges will be covered to the length and position required. |

WEAR PAD MATERIALS



Pukka-Pads (P) 5/16" Thick

- A high density, polyester felt.



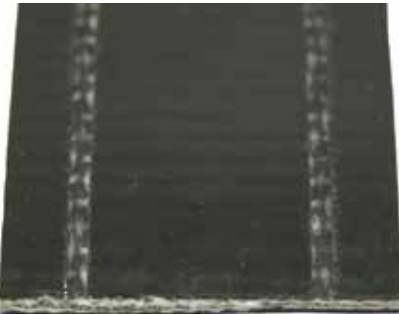
Webmaster 1600 (N) 3/16" Thick

- Heavy nylon sling webbing with red core warning yarns.



Heavy Leather (HL) 5/32" Thick

- Genuine top-grain cowhide (may require multiple pieces for longer lengths.)



PVC Belting (PVC) 1/8" Thick

- Non-absorbent conveyor type belting.



Texturized Buffer (TN) 3/32" Thick

- A bulked fiber is used to produce a thin webbing that has good abrasion resistance.



Ballistic Nylon (BN) 1/16" Thick

- A thin, 2-ply wear resistant fabric made of bulked nylon fiber, appropriate for wider sleeves and bundling applications.

WEAR PADS

Flat Quick Sleeves

Flat Quick Sleeve Widths and Appropriate Sling Sizes



| Part No. | Sleeve Width ¹ (in.) | Web Sling Width ² (in.) | Tuflex | | | | Keyflex | | Wire Rope Sling Dia. (in.) | Chain Sling Size (in.) |
|----------|---------------------------------|------------------------------------|---------------|---------------|------------------|------------------|---------------|---------------|----------------------------|------------------------|
| | | | Single Leg EN | Double Leg EE | 6-Part Braid B6E | 8-Part Braid B8E | Single Leg EN | Double Leg EE | | |
| 3FQS | 3 | 1 | | | | | 10K | | 1/4 - 7/16 | |
| 4FQS | 4 | 2 | 30 - 60 | 30 | | | 15 - 20K | | 1/2 - 3/4 | 7/32 - 9/32 |
| 5FQS | 5 | 3 | 90 - 150 | 60 | | | 25 - 30K | 10K | 7/8 - 1 1/8 | 3/8 |
| 6FQS | 6 | 4 | 180-240 | 90 - 120 | 30 | | 40 - 80K | 15 - 20K | 1 1/4 - 1 1/2 | 1/2 |
| 8FQS | 8 | 6 | 360 | 150 - 240 | 60 | 30 | 90 - 125K | 25 - 30K | 1 3/4 - 2 1/4 | 5/8 |
| 10FQS | 10 | 8 | 600 - 800 | 360 | 90 - 120 | 60 - 90 | 150 - 175K | 40 - 80K | 2 1/2 | 3/4 - 7/8 |
| 12FQS | 12 | 10 | 1000 | 600 | 150 - 180 | 120 - 150 | 200K | 90 - 125K | | 1 |

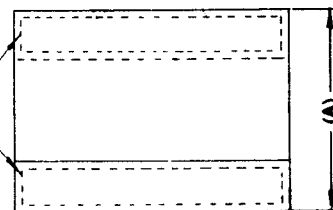
Note: 1. Width of sleeve depends on the material being used. This chart is based on using Pukka Pad material.

2. One or two ply only. For three or four ply, go to the next larger sleeve.

Tubular Quick Sleeves



Hook & Loop Straps



Tubular Quick Sleeve Widths and Appropriate Sling Sizes

| Part No. | Open Sleeve Width ¹ (A) (in.) | Tuflex | | | | Keyflex | | Wire Rope Sling Dia. (in.) | Chain Sling Size (in.) |
|----------|--|---------------|---------------|------------------|------------------|---------------|---------------|----------------------------|------------------------|
| | | Single Leg EN | Double Leg EE | 6-Part Braid B6E | 8-Part Braid B8E | Single Leg EN | Double Leg EE | | |
| 4TQS | 4 | | | | | | | 1/4 | |
| 5TQS | 5 | | | | | | | 5/16 - 1/2 | |
| 6TQS | 6 | 30 - 60 | | | | 10K | | 9/16 - 7/8 | 7/32 |
| 8TQS | 8 | 90 - 150 | 30 - 60 | | | 15 - 30K | | 1 - 1 1/2 | 9/32 - 3/8 |
| 10TQS | 10 | 180 - 240 | 90 - 120 | 30 - 60 | 30 | 40 - 50K | 10 - 15K | 1 3/4 - 2 | 1/2 - 5/8 |
| 12TQS | 12 | 360 | 150 - 180 | 90 | 60 | 60 - 80K | 20 - 30K | 2 1/2 | 3/4 |
| 14TQS | 14 | 600 - 800 | 240 | | 90 | 90 - 125K | 40 - 50K | | 7/8 - 1 |
| 16TQS | 16 | 1000 | 360 | 120 - 150 | 120 | 150 - 175K | 60 - 80K | | 1 1/4 |
| 18TQS | 18 | | 600 | 180 - 240 | 150 - 180 | 200K | 90 - 100K | | |
| 20TQS | 20 | | 800 | | | | 125K | | |
| 22TQS | 22 | | 1000 | 360 | 240 | | 150 - 175K | | |
| 24TQS | 24 | | | | | | 200K | | |
| 26TQS | 26 | | | 600 | 360 | | | | |
| 30TQS | 30 | | | 800 | 600 | | | | |
| 34TQS | 34 | | | 1000 | 800 | | | | |

Note: 1. Tubular Pukka Pads not available under 10" open sleeve width.

Edgeguard (Code EG)



Texturized Web

Sewn-On Wear Pads (Code WP)



PVC

WEAR PADS

Standard Sewn-Sleeves

Sewn-Sleeve Widths and Appropriate Sling Sizes

| Part No. | Sleeve Width ¹ (in.) | Web Sling Width ² (in.) | Tuflex | | | | Keyflex | | Wire Rope Sling Dia (in.) | Chain Sling Size (in.) |
|----------|---------------------------------|------------------------------------|---------------|---------------|------------------|------------------|------------|------------|---------------------------|------------------------|
| | | | Single Leg EN | Double Leg EE | 6-Part Braid B6E | 8-Part Braid B8E | Single Leg | Double Leg | | |
| 3SS | 3 | 1 | 30 - 60 | | | | | | 1/4 - 3/4 | 7/32 |
| 4SS | 4 | 2 | 90 - 150 | 30 - 60 | | | 10 - 15K | | 7/8 - 1 1/8 | 9/32 - 3/8 |
| 5SS | 5 | 3 | 180 - 240 | 90 - 120 | 30 | | 20 - 30K | | 1 1/4 - 1 1/2 | 1/2 |
| 6SS | 6 | 4 | 360 | 150 - 180 | 60 | 30 | 40 - 80K | 10 - 15K | 1 3/4 | 5/8 |
| 8SS | 8 | 6 | 600 - 800 | 240 - 360 | 90 - 120 | 60 | 90 - 100K | 20 - 40K | 2 - 2 1/2 | 3/4 - 7/8 |
| 10SS | 10 | 8 | 1000 | 600 | 150 - 180 | 90 - 150 | 125 - 175K | 50 - 80K | | 1 |
| 12SS | 12 | 10 | | 800 - 1000 | 240 | 180 | 200K | 90 - 125K | | 1 1/4 |

Note: 1. Width of sleeve depends on the material being used. This chart is based on using Pukka Pad material.
 2. One or two ply only. For three or four ply, go to the next larger sleeve.

Poly Pads

Easily movable Poly Pads are made of tough, woven polyester fabric impregnated and coated with PVC. Easy to position on both web slings and tiedowns. Poly Pads are designed to give protection when lifting on load edges or abrasive loads.

| Part No. | Poly Pad | Web Width (in.) |
|----------|------------|-----------------|
| 60115 | 3 1/2 x 12 | 1 - 2 |
| 60116 | 6 x 12 | 3 - 4 |



How To Order

1. Choose code for width and style

TQS Tubular Quick Sleeve
FQS Flat Quick Sleeve
SS Flat Sewn Sleeve
WP Sewn-On Wear Pad
EG Edgeguard
 Poly Pad (Use Part No.)

2. Choose a Material

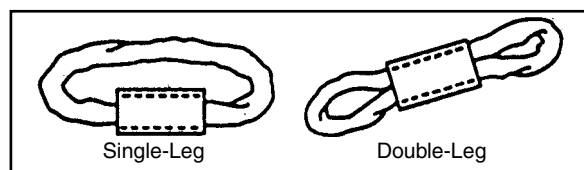
P 5/16" Heavy Duty Pukka-Pad
N Webmaster 1600 Nylon
HL Heavy Leather
TN Texturized Buffer
BN Ballistic Nylon (Tubular only)
PVC (Sewn-on Wear Pads only)

3. Length of Sleeve

(if sewn-on pad, describe position on sling)
 Feet

4. For Use On

 Web Sling - Code or Width
 Tuflex Single-Leg - Code
 Double-Leg - Code



 Chain Sling Size inches
 Wire Rope Sling - Dia. inches

WARNING

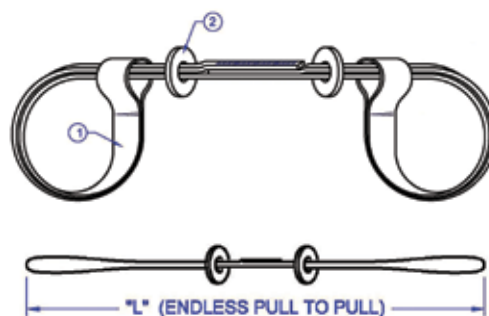
Wear pads may not prevent cutting or other sling damage. To avoid severe personal injury or death, keep all personnel clear of loads about to be lifted and suspended loads.

WEB PIPE AND HOSE HALTERS™

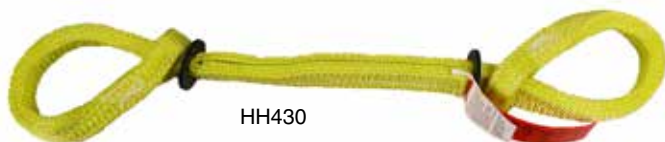
Help protect your workers from injury and your equipment from damage

To reduce damage to equipment and injury to personnel when pipes or hoses accidentally disconnect while under pressure, be sure to use Lift-All *Hose Halters™*. Suitable for use on pneumatic, water and hydraulic pipes and hoses, these easy to install straps are made from strong, flexible nylon webbing. Slide the rubber grommets (2) to keep choked eyes snug on the hose. The available standard lengths will accommodate pipes and hoses with inside diameters from 1/4" up to 6". Meets both OSHA and Canada OHS requirements for restraining devices on pipe and hose connections.

Available in Four Different Strengths



HH230



HH430



OSHA 1926.603(a)(10) states: Safety chains, or equivalent means, shall be provided for each hose connection to prevent the line from thrashing around in case the coupling becomes disconnected.

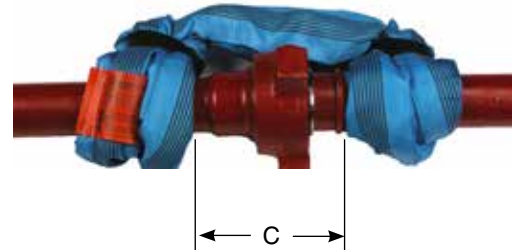
| Part # | Length (L) | Recommended for Use on the Following Pipe and Hose Inside Diameters | | | | | | | |
|--------|------------|---|--------|--------|-------|-------|-------|-----|-----|
| | | 1/4" | 1/2" | 3/4" | 1" | 2" | 3" | 4" | 6" |
| | | Hose Maximum Internal Pressure (PSI) at Above Hose I.D. | | | | | | | |
| HH130 | 30" | 26,000 | 6,500 | 2,900 | 1,650 | 400 | - | - | - |
| HH140 | 40" | - | - | - | 1,650 | 400 | 175 | 100 | - |
| HH230 | 30" | 52,000 | 13,000 | 5,800 | 3,300 | 750 | - | - | - |
| HH244 | 44" | - | - | - | 3,300 | 750 | 350 | 200 | - |
| HH264 | 64" | - | - | - | - | 750 | 350 | 200 | 90 |
| HH330 | 30" | - | 29,000 | 13,000 | 7,300 | 1,800 | - | - | - |
| HH344 | 44" | - | - | - | 7,300 | 1,800 | 820 | 460 | - |
| HH364 | 64" | - | - | - | - | 1,800 | 820 | 460 | 200 |
| HH430 | 30" | - | 37,000 | 16,000 | 9,400 | 2,300 | - | - | - |
| HH444 | 44" | - | - | - | 9,400 | 2,300 | 1,040 | 580 | - |
| HH464 | 64" | - | - | - | - | 2,300 | 1,040 | 580 | 260 |

RoundOne™ PIPE & HOSE HALTERS™

The Heavy Duty Solution for Coupling Safety

Help protect your workers from injury and your equipment from damage when pipe or hose couplings fail under pressure.

RoundOne PIPE & HOSE HALTERS offer protection for a wide range of pipe and hose sizes and pressures. Suitable for use on pneumatic, water and hydraulic pipes and hoses. Available sizes cover I.D.'s from 1/2" through 8" and pressures up to 85,100 psi. Complies with OSHA, Canada OHS and WorkSafe BC requirements for restraining devices on pipe and hose connections.



C = Length between choke points

What size do you need?

1. In the chart below, find the row for your **Pipe/Hose Inside Diameter**.
2. Read across that row until you come to a **Maximum Hose Pressure** that exceeds the maximum pressure that will go through your pipe/hose.
3. The appropriate Halter part number for that assembly is at the top of that column.

| PART # | HHS9 | HHS12 | HHS15 | HHS18 | HHS24 | HHS28 | HHS36 |
|------------------|------------------------------------|--------|--------|--------|--------|--------|--------|
| Std. Min. Length | 24" | 36" | 36" | 36" | 36" | 36" | 36" |
| Pipe/ Hose I.D. | MAXIMUM PIPE / HOSE PRESSURE (PSI) | | | | | | |
| 0.5" | 76,000 | N/A | N/A | N/A | N/A | N/A | N/A |
| 0.75" | 33,700 | 42,600 | 53,100 | 67,400 | 85,100 | N/A | N/A |
| 1" | 19,000 | 23,900 | 29,800 | 37,900 | 47,800 | 57,400 | 70,100 |
| 1.5" | 8,400 | 10,600 | 13,200 | 16,800 | 21,200 | 25,500 | 31,100 |
| 2" | 4,700 | 5,900 | 7,400 | 9,400 | 11,900 | 14,300 | 17,500 |
| 3" | 2,100 | 2,660 | 3,300 | 4,200 | 5,300 | 6,300 | 7,700 |
| 4" | 1,180 | 1,490 | 1,860 | 2,370 | 2,900 | 3,500 | 4,300 |
| 5" | 760 | 950 | 1,190 | 1,510 | 1,910 | 2,200 | 2,800 |
| 6" | 520 | 660 | 820 | 1,050 | 1,320 | 1,500 | 1,940 |
| 8" | 290 | 370 | 460 | 590 | 740 | 800 | 1,090 |
| Length Adder | 0.9 | 1.2 | 1.5 | 1.8 | 2.4 | 2.8 | 3.6 |

What length do you need?

1. Order Halters by the flat length. To determine a minimum appropriate length, add the Outside Pipe/Hose Diameter + the Length Adder (See chart), multiply x 7 and add the minimum desired length between the choke points (C).
2. Round up to the next even 6" increment.
3. Example: You have a 1" I.D. hose carrying 30,000 PSI. In the 1" row, the first Hose Halter to exceed that rating is an HHS18. The O.D. of your hose is 1.5" and if you want 16" between choke points, the calculation is $(1.5 + 1.8) \times 7 + 16 = 39.1"$, rounded up to 42 in. The complete part number is: **HHS18X42IN**.

Minimum Length =
(Hose OD + Length Adder) X 7 + C



TOW-ALL VEHICLE STRAPS

Vehicle Recovery Straps aid in removing vehicles stranded in snow, mud, sand and ditches.

Tow-Alls stretch and elastic properties are important features that aid in the recovery of disabled vehicles.

Tow-All Features, Advantages and Benefits

Promotes Safety

- No dangerous hooks or metal parts
- Elongates 5% at Towing Capacity to help absorb the energy of sudden loading

Saves Money

- Polyester/nylon material is easy on painted and plated surfaces

Saves Time

- Lightweight, flexible, easy to use and store

⚠ WARNING

Read Definitions on page 3

Safe Operating Practices

- Do not use a damaged or defective strap - inspect before each use
- Do not exceed Towing Capacity
- Do not tie knots in strap
- Do not attach to bumpers
- Avoid dragging strap on ground
- Strap is permanently damaged when exposed to temperatures in excess of 200°F. Avoid muffler and hot exhaust systems.
- Stand clear of strap and vehicles when under load
- Always protect straps from being cut by corners and edges.
- Store in cool, dry and dark location

Note: Lift-All believes tow straps with metal end fittings are dangerous and, therefore, will not put metal hardware on *Tow-All* straps.

WEB Tow-All VEHICLE RECOVERY STRAPS



Web *Tow-All* Vehicle Recovery Straps are made from strong durable *Tuff-Edge II* webbing with sewn eyes, lined with premium abrasion resistant webbing, on each end. The webbing is weather resistant and will not rot or mildew. It attaches quickly to vehicle frames or towing hooks.

| Part No. | Ply | Web Width | Assembly Breaking Strength* (lbs.) | Towing Capacity (lbs.) |
|----------|-----|-----------|------------------------------------|------------------------|
| TS1802T | 1 | 2 | 16,000 | 5,300 |
| TS2802T | 2 | 2 | 32,000 | 10,700 |
| TS1803T | 1 | 3 | 24,000 | 8,000 |
| TS2803T | 2 | 3 | 43,000 | 14,300 |
| TS1804T | 1 | 4 | 32,000 | 10,600 |
| TS2804T | 2 | 4 | 57,500 | 19,100 |
| TS1806T | 1 | 6 | 48,000 | 16,000 |
| TS2806T | 2 | 6 | 81,500 | 27,100 |

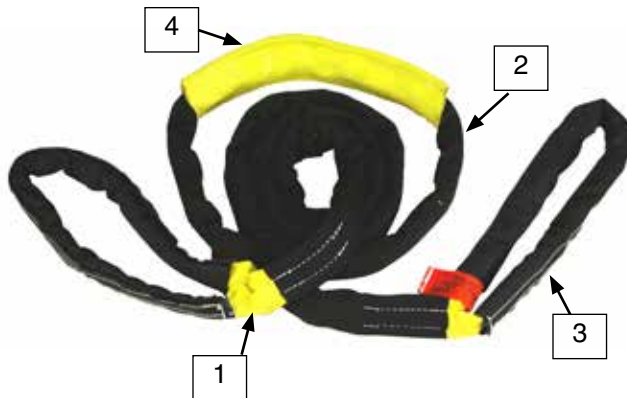
* Assembly breaking strength when new.
Do not exceed Towing Capacity

TOW-ALL VEHICLE STRAPS

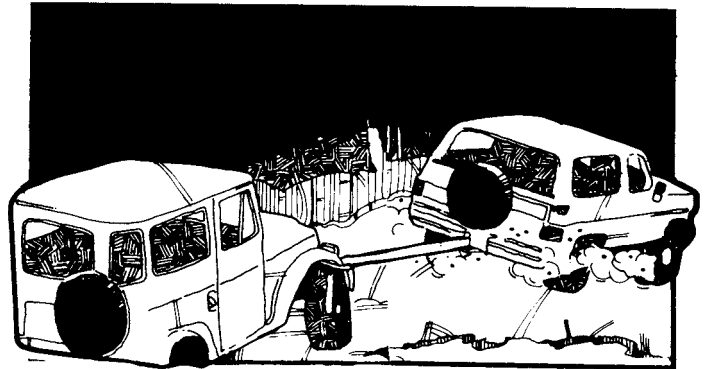
TUFLEX Tow-All VEHICLE RECOVERY STRAPS

The heavy duty recovery straps!

In addition to the standard *Tow-All* features, **Tuflex Tow-Alls** are designed to prevent dangerous recoil if broken.



Our **Tuflex** version of the *Tow-All* straps offers the most rugged synthetic strap on the market. We start with our standard **Tuflex** roundsling (1) and add an additional jacket of texturized, abrasion resistant nylon (2) over the body of the sling, making it into an eye & eye style. The eyes are then covered with ballistic nylon webbing (3) for additional protection. An 18" long sliding sleeve wear pad (4) provides added protection against load edges.



| Part No. | Assembly Breaking Strength* | Towing Capacity (lbs.) |
|----------|-----------------------------|------------------------|
| TSEN90 | 42,000 | 14,000 |
| TSEN120 | 52,500 | 17,500 |
| TSEN150 | 66,000 | 22,000 |
| TSEN180 | 84,000 | 28,000 |
| TSEN240 | 105,900 | 35,300 |
| TSEN360 | 154,800 | 51,600 |
| TSEN600 | 249,900 | 83,300 |
| TSEN800 | 330,000 | 110,000 |
| TSEN1000 | 450,000 | 150,000 |

* Assembly breaking strength when new.
Do not exceed Towing Capacity.

Inspection Criteria for Web *Tow-All* Straps

Remove from service if any of the following are visible:

- Signs of melting, charring or chemical damage
- 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

Refer to photographs of damaged webbing on pages 50 & 51.

Inspection Criteria for **Tuflex** *Tow-All* Straps

Remove from service if any of the following are visible:

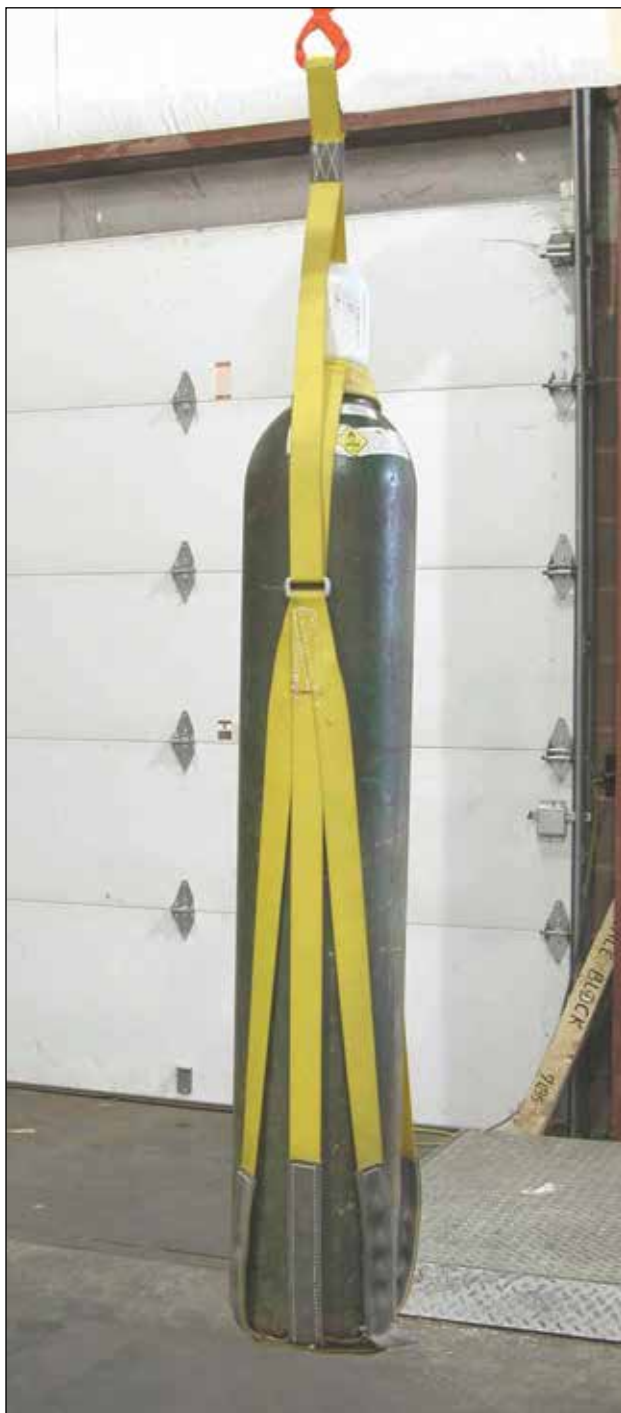
- Cuts to the covers that expose the internal core yarns
- Holes, snags, pulls or abrasion that exposes the internal core yarns
- Evidence of heat or chemical damage
- Knots
- Illegible or missing identification tag

Refer to photographs of damaged **Tuflex** roundslings on pages 74 & 75.

GAS BOTTLE WEB CRADLES

These specialty web slings make for easy and secure lifting of your gas bottle cylinders into position using cranes, hoists, forklifts, etc. Two standard versions are available. **GBS1N** automatically adjusts to accommodate 9" Dia. x 50" H to 13" Dia. x 39" H bottles. **GBS2N** is designed for the convenient tandem lifting of one oxygen and one acetylene bottle as used in most welding operations. Each assembly is rated to lift 1,000 lbs.

Specials



Leather reinforced eyes for extended sling life.

Top assembly collar fits around standard valve caps to secure top of cylinder

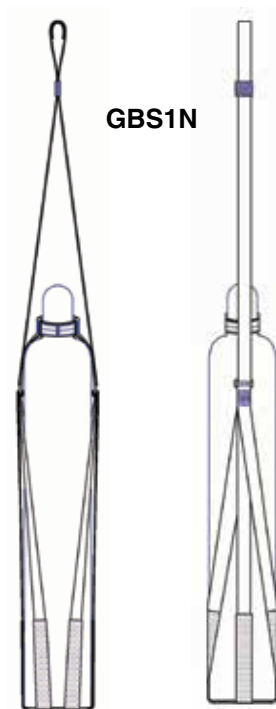
Square rings connect bottom and top assemblies and allow for automatic adjustment

Six legs on bottom assembly surround and secure base of cylinder.

Abrasion resistant webbing lines both sides of legs at bottom for longer sling life.

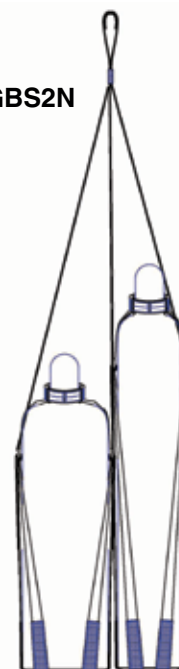
2 ply leather base provides additional protection from abrasion and cutting

GBS1N



GBS2N

The GBS2N has the same construction features as the GBS1N, but has been designed specifically to lift one each of the standard size oxygen and acetylene bottles commonly used in welding operations.



DRUM HANDLING SLINGS

Lift-All Drum Handling Slings provide an easy, inexpensive way to handle steel drums. Available in two styles to suit your needs for handling drums in the vertical or horizontal position.

Vertical Drum Handling Slings

Easily lift standing drums for transport. Tilt suspended drums to pour from open top or spigot. For use with ribbed steel drums, the ratcheting belly band tightens securely below the first rib.

Lightweight version (**DSV601D**) uses 1" polyester sling webbing and is rated for 300 lb. loads.

Heavyweight sling (**DSV602D**) uses 2" polyester sling webbing and is rated at 850 lbs.

Promotes Safety

- A wear pad, sewn on one side of the lifting strap, helps to avoid cutting of the sling.
- Ratchet tightens securely.

Saves Time

- Free end of ratchet strap sewn to stay properly threaded.
- Vertical legs sewn to belly band to maintain proper position.



Vertical

To Order, specify Part No. and drum diameter in inches. i.e.: DSV602Dx24
(The standard 55 gal. drum has a 24" diameter.)



Horizontal

Note: If using in a chemical environment, contact *Lift-All* for sling material advice.

Horizontal Drum Handling Slings

Ideal for the quick and easy moving of steel drums in the horizontal position.

Part No. **DSH601D** uses 1" polyester sling webbing and is rated at 1,500 lbs.

Promotes Safety

- Strong 1" polyester webbing pulls drum hooks securely into rims at both ends of the drum during lift.

Saves Time

- One sling fits multiple size drums.
- Easy to disconnect.
- Uses 1/2" oblong link at top for easy connection to hoist hook.

To Order, specify Part No. DSH601D.

BUCKET, COOLER & TRASH BARREL SLINGS

Help protect your workers from injury with these three new slings

Specials

Bucket Sling



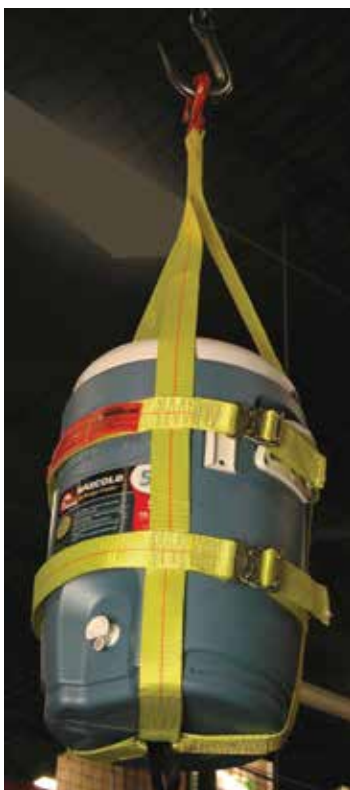
Lift-All **Bucket Slings** are designed to lift 5 gallon buckets filled with up to 200 pounds of material.

- Made from 1" wide yellow polyester sling webbing. Rated capacity – 200 lbs.
- Designed for buckets with an 11 inch diameter base.
- Two belly bands keep bucket secure
- Overall sling height is 28".

Part No. BS5
Weight - 0.8 lbs.

Custom sizes also available.

Cooler Sling



Lift-All **Cooler Slings** will adjust to lift 3, 5 or 10 gallon water coolers safely and securely to elevated work stations. Connect 2 or 3 together to save crane time.

- Made from 2" wide yellow polyester webbing. Rated capacity – 500 lbs.
- 3 lifting legs hold both cooler and lid securely.
- Buckles on the 2 belly bands allow for easy rigging, a snug fit and quick connection.
- Extra loop on bottom of sling allows for easy attachment of additional hook top cooler slings.
- Overall height - 44".

Hook top # CSH10 - 4.3 lbs.
Eye top # CSE10 - 3.3 lbs.
Custom sizes also available.

Trash Barrel Sling



Lift-All **Trash Barrel Slings** are designed to lift 32 gallon plastic trash barrels. Use your forklift or overhead crane to make easy work of moving those heavy barrels.

- Made from 2" wide yellow polyester sling webbing. Rated capacity – 1,000 lbs.
- 4 lifting eyes are tapered and wrapped to help avoid abrasion, extend sling life.
- Overall height - 51".

Part No. TBS32
Weight - 3 lbs.

Custom sizes also available.

RFID TAGGING

Lift-All now offers a high frequency, passive RFID tagging service for new slings.

RFID chips allow end users with RFID software and readers to electronically track a slings history to assist with the maintenance, inspection, traceability and compliance of their slings.

The **synthetic slings** will have a 5/8" diameter, plastic coated, high frequency chip inserted underneath the standard *Tuff-Tag* I.D. tag. A marker tape with "RFID" printed on it will stick out from the *Tuff-Tag* to make its presence obvious.



Plastic Coated RFID Chip
Part # RFIDW



Wire rope and chain slings are offered with a high frequency, RFID chip permanently set into a machined, teardrop shaped piece of steel, attached to the sling with a wire cable. Wire rope sling placement is between the Tuff-Tag and the swaged sleeve. Chain sling attachment is beside the I.D. tag on the connector link.

Tag Information

| | |
|----------------------|-----------------------------|
| RF Protocol: | ISO15693 / ISO10443 |
| Operating Frequency: | HF - 13.56 MHz |
| IC Type: | SLI Icode 1024 Bit |
| Memory Config.: | 64 UID Bits (16 digits) |
| Functionality: | Read and Write |
| Security: | 64 Bit Kill Access Password |
| Read Range: | Less than 1.0" |
| Quality Guarantee: | 100% |
| IP Classification: | 68 |



Steel Encased
RFID Chip
Part # RFIDS



P504

P503

1.0M

1.0M

1.0M

5

Web Slings



WHY LIFT-ALL WEB SLINGS?

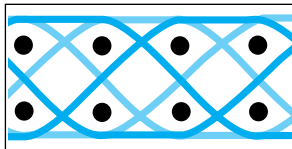
Lift-All web slings meet or exceed OSHA, ASME B30.9 and WSTDA standards and regulations.

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.

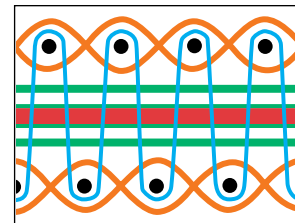


Mil-Spec Webbing

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

Refer to *Lift-All* Sling Webbing Diagram

- Sling webbing, as shown, has its surface yarns connected from side to side, which not only protects 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.



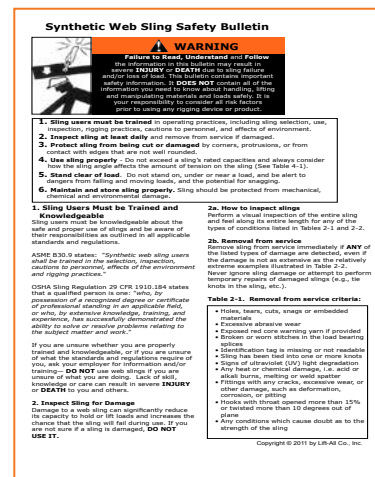
Lift-All Sling Webbing

- 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.

Tuff-Tag and Safety Bulletin

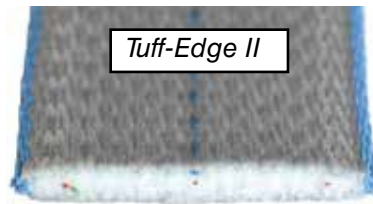


OSHA requires all web slings to show rated capacities and type of material. The *Lift-All Tuff-Tag* is made from an abrasion resistant polymer that will remain legible far longer than any leather or vinyl tags. In fact, *Tuff-Tags* will consistently outlast the useful life of slings.

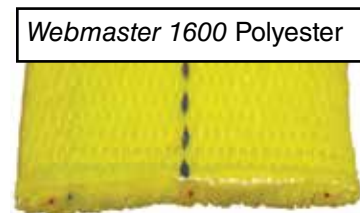


A Safety Bulletin is included with every web sling order from *Lift-All*. The bulletin lists inspection information and operating practices applying to synthetic web slings.

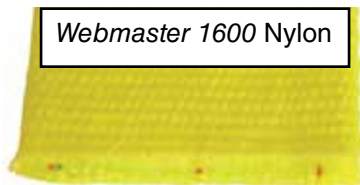
LIFT-ALL WEB SELECTOR - QUICK COMPARISONS



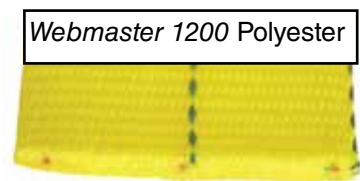
Tuff-Edge II



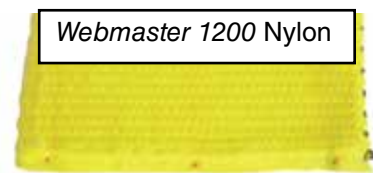
Webmaster 1600 Polyester



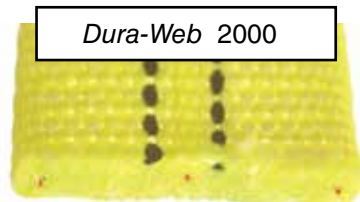
Webmaster 1600 Nylon



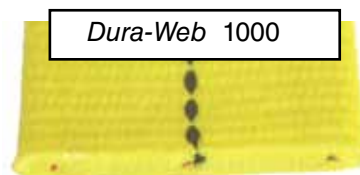
Webmaster 1200 Polyester



Webmaster 1200 Nylon



Dura-Web 2000



Dura-Web 1000

| Approx. Thickness | Single Ply Rated Capacity Per In. of Width | Available Material | Identify by: | Choose from: |
|-------------------|--|--------------------|---|---|
| 3/16" | 1600 Lbs. | Polyester | Blue edge Blue center stripe Silver surface | Daily use under good to rugged lifting conditions. 2x edge cut resistance. Our best seller.* |
| 3/16" | 1600 Lbs. | Polyester | Blue center stripe | Daily use under good to moderate lifting conditions. Polyester stretches less for better load control, reduced abrasion.* |
| 3/16" | 1600 Lbs. | Nylon | No center stripe | Daily use under good to moderate lifting conditions. Nylon stretches more to help avoid shock loading.* |
| 1/8" | 1200 Lbs. | Polyester | Blue center stripe Black yarn one edge | Less frequent use under good lifting conditions. Polyester stretches less for better load control, reduced abrasion.* |
| 1/8" | 1200 Lbs. | Nylon | No center stripe Black yarn one edge | Less frequent use under good lifting conditions. Nylon stretches more to help avoid shock loading.* |
| 5/16" | 2000 Lbs. | Nylon | Two black center stripes | Heavy use under moderate to rugged lifting conditions. Abrasion resistant yarns cover entire surface.* |
| 3/16" | 1000 Lbs. | Nylon | One black center stripe | Daily use under moderate lifting conditions. Abrasion resistant yarns cover entire surface.* |



Always protect synthetic slings from being cut by corners and edges. (See Page 14 for Sling Protection information)

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 36.

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 for premium wear resistance.



Type U



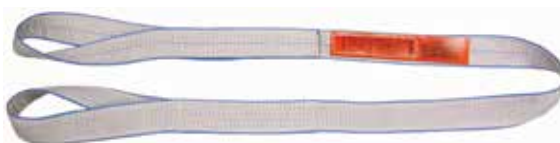
Type 1



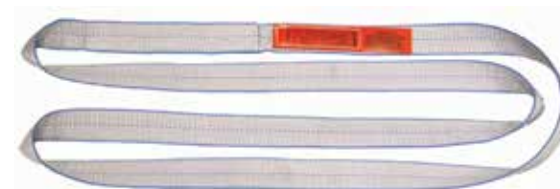
Type 2



Type 3



Type 4



Type 5



Type 6

WEB SLING EYE TREATMENTS

Eye Wear Pads - The eyes of web slings are often subjected to the harsh treatment of rough crane hooks. Specialty eye treatments are available to help reduce the wear in that area, thereby extending sling life. The following photos illustrate the more common eye treatments using wear resistant webbing in various forms. Should you want non-standard eye treatment on your eye & eye web slings, please specify using the terminology below.

Type 3 - Flat Eyes

F

Standard Style

G

Lined Bearing Point

H

Fully Lined Eye

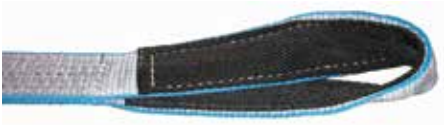
I

Wrapped Bearing Point

J

Fully Wrapped Eye

Type 4 - Twisted Eyes

T**U****V****W****X**

Textured nylon wear resistant webbing is standard for these eye treatments.
Other pad materials are available (see page 14).

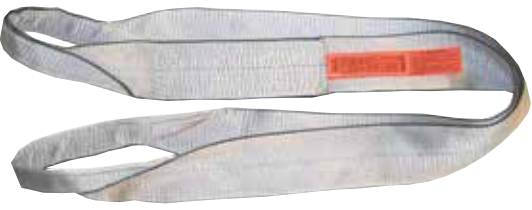
Tapering Eyes - As a standard practice, the eyes, or bearing points of sling Types 3 and 4 are tapered to accommodate a crane hook on slings that are 3" and wider. Untapered eyes are available upon request. Type 5 (Endless) slings are NOT tapered unless specified on order. Dura-Web 2000 slings are not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



Type 3 - Flat Eyes



Type 4 - Twisted Eyes

Type 5 - Endless
(Showing Taper)

ENVIRONMENTAL CONSIDERATIONS & OUTDOOR USE

⚠ WARNING

Read Definition on page 3

Sunlight / UV Exposure Service Life

Exposure to sunlight, and other environmental factors such as dirt or gritty matter and cyclical changes in temperature and humidity, can result in an accelerated deterioration of web slings. The rate of this deterioration varies with the level of exposure and with the thickness of the sling material.

Nylon and polyester web slings possess a limited useful outdoor service life due to the degradation caused by exposure to sunlight, or other measurable sources of UV radiation.

Visible indication of such environmental deterioration can include the following:

- Fading of webbing color
- Uneven or disoriented surface yarn of the webbing
- Shortening of the sling length
- Reduction in elasticity of the sling due to exposure to sunlight, often evident by accelerated abrasive damage to the surface yarns of the sling
- Breakage or damage to yarn fibers, often evident by a fuzzy appearance of the web
- Stiffening of the web, evident when web slings are exposed to outdoor conditions

Lift-All web slings that are regularly exposed to outdoor conditions should be identified with the date they are placed into service, and should be proof tested to twice their rated capacity every six months. Lift-All nylon and polyester web slings shall be permanently removed from service when the cumulative outdoor exposure has reached these limits:

- 2 years for 1 ply and 2 ply web slings
- 3 years for 3 ply and 4 ply web slings

Temperature

Nylon and polyester are seriously degraded at temperatures above 200°F.

Anti-Abrasion Treatment

As a standard, *Lift-All* webbing is treated for abrasion. Natural, untreated webbing is available upon request.

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

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.

Sling Length Tolerance for Web Slings

| Sling Type | Tolerance * |
|------------|---------------------------------|
| 1 Ply | ± (1.5" + 1.5% of sling length) |
| 2 Ply | ± (2.0" + 2% of sling length) |
| 3 & 4 Ply | ± (3.0" + 3% of sling length) |

* For web sling widths wider than 6", add 1/2" to these values. For tighter tolerance or matched set length requirements, please consult with Customer Service.

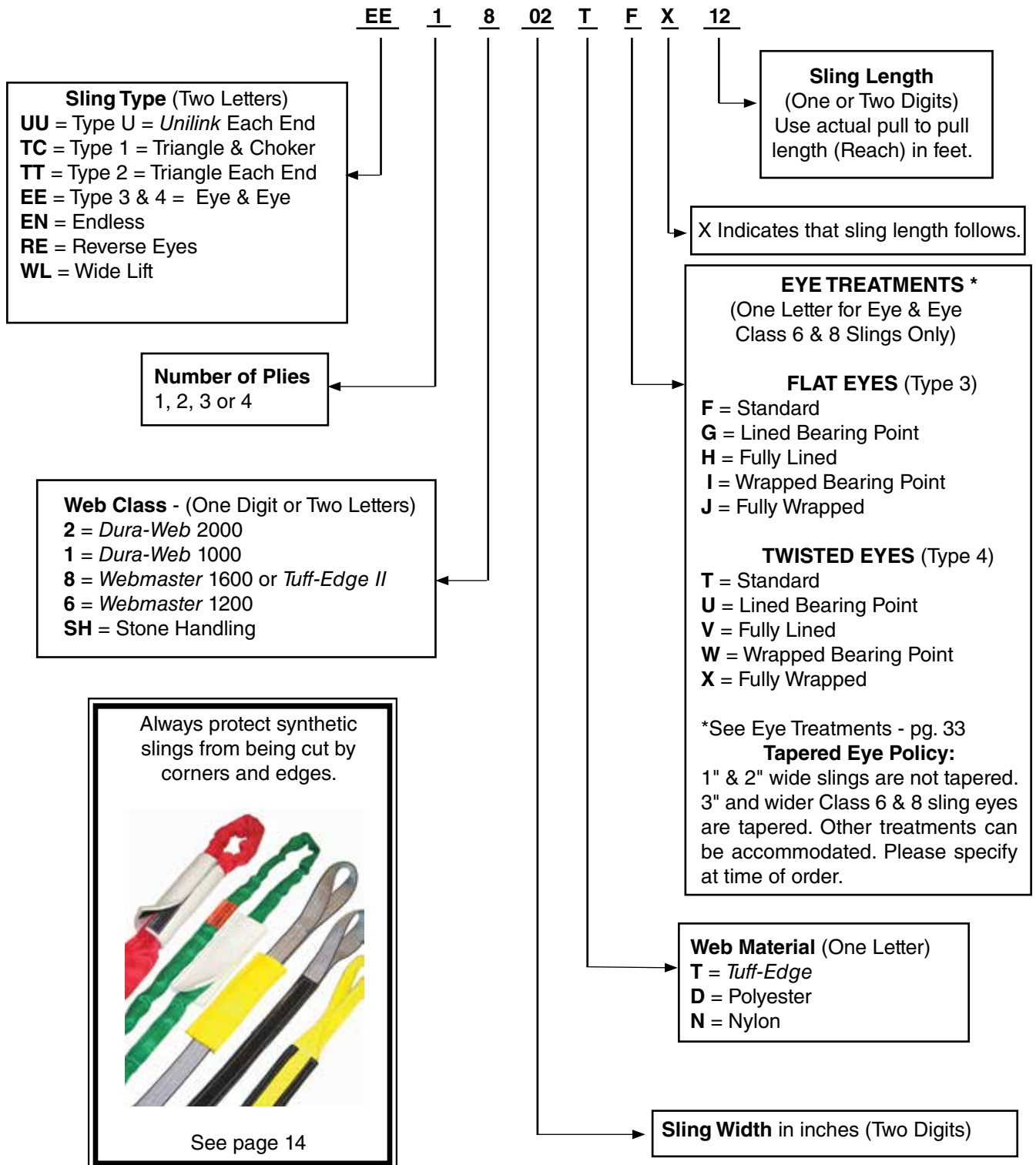
Chemical Environment Data

Many chemicals have an adverse effect on nylon and polyester. The Chemical chart below is a general guide only. For specific temperature, concentration and time factors, please consult *Lift-All* prior to purchasing or use.

| CHEMICAL | OK | NYLON | POLYESTER |
|---------------------------|----|-------|-----------|
| | NO | | |
| Acids | | | * |
| Alcohols | | | |
| Aldehydes | | | |
| 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.

HOW TO ORDER



WEB SLING HARDWARE

Steel *Unilink* Web Sling Hardware Combination Triangle and Choker Fitting

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

Features, Advantages and Benefits

Promotes Safety

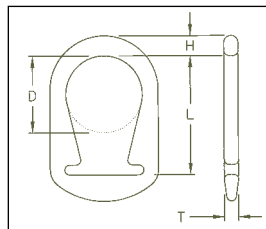
- Forged steel for strength and reliability
- Smooth rounded profile helps protect sling, worker and load

Saves Money

- May be rewedded to reduce cost
- Powder coated finish 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.) | Part No. | Dimensions (in.) | | | | Weight (lbs.) |
|-----------------|----------|------------------|---|-------|-------|---------------|
| | | L | D | H | Thick | |
| 2 | SU2 | 3 11/16 | 2 | 11/16 | 9/16 | 1.1 |
| 3 | SU3 | 5 1/16 | 3 | 7/8 | 5/8 | 2.4 |
| 4 | SU4 | 6 3/16 | 4 | 1 | 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.

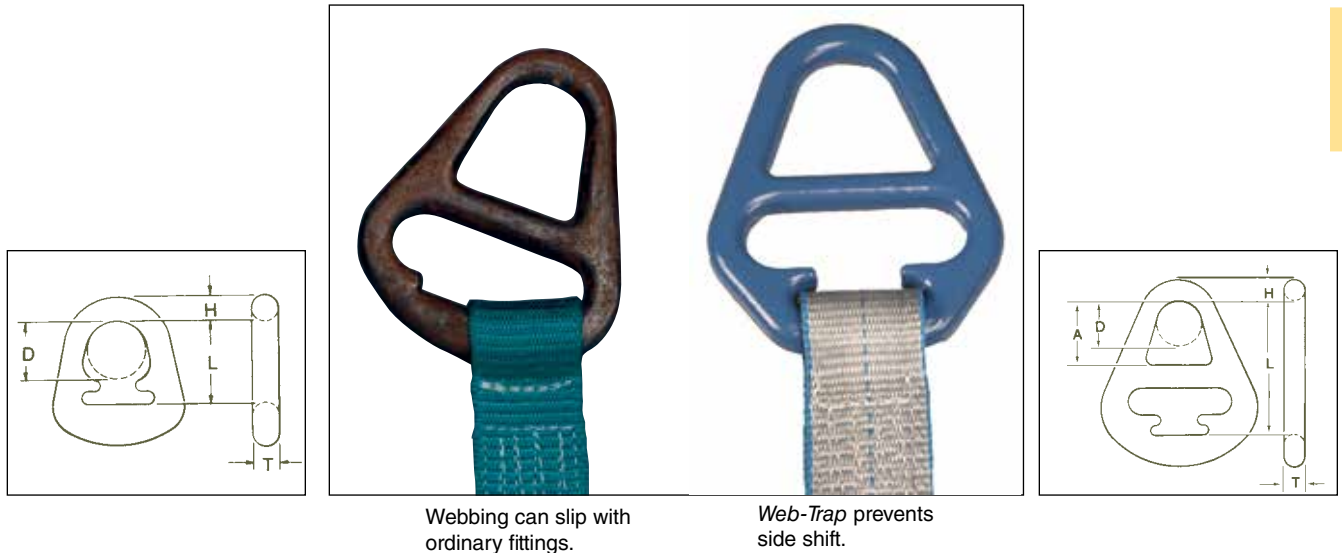
Forged from aircraft aluminum, this tough alloy is stronger than mild steel. Aluminum has the advantages of being lightweight, non-sparking and does not rust.

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 powder coated finish to inhibit rust.



Web
Slings

Alloy Steel - For One Or Two Ply Slings

| Web-Trap Triangles | | | | | | | Web-Trap Chokers | | | | | | |
|--------------------|----------|------------------|-------|------|--------|---------------|------------------|------------------|--------|-------|------|--------|---------------|
| Web Width | Part No. | Dimensions (in.) | | | | Weight (lbs.) | Part No. | Dimensions (in.) | | | | | Weight (lbs.) |
| | | L | D | T | H | | | L | A | D | T | H | |
| *2" | ST-2 | 2 3/8 | 1 3/4 | 9/16 | 5/8 | 1.0 | SC-2 | 5 | 2 7/16 | 1 3/4 | 9/16 | 11/16 | 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 |
| 6" | ST-6 | 5 9/16 | 3 1/8 | 3/4 | 1 1/16 | 6.3 | SC-6 | 8 7/8 | 4 3/4 | 3 1/8 | 3/4 | 1 1/16 | 12 |

Alloy Steel - For One Ply Slings

| Web-Trap Triangles | | | | | | | Web-Trap Chokers | | | | | | |
|--------------------|----------|------------------|-------|-----|--------|---------------|------------------|------------------|-------|-------|-----|--------|---------------|
| Web Width | Part No. | Dimensions (in.) | | | | Weight (lbs.) | Part No. | Dimensions (in.) | | | | | Weight (lbs.) |
| | | L | D | T | H | | | L | A | D | T | H | |
| 8" | ST1-8 | 6 1/2 | 4 | 1/2 | 1 1/4 | 8 | SC1-8 | 11 1/4 | 7 1/2 | 4 | 1/2 | 1 7/16 | 16 |
| 10" | ST1-10 | 8 1/4 | 5 | 3/4 | 1 7/16 | 16 | SC1-10 | 12 7/8 | 8 1/4 | 5 | 3/4 | 1 1/2 | 28 |
| 12" | ST1-12 | 8 3/4 | 5 1/2 | 3/4 | 1 3/4 | 20 | SC1-12 | 14 1/2 | 10 | 5 1/2 | 3/4 | 1 3/4 | 40 |

Alloy Steel - For Two Ply Slings

| Web-Trap Triangles | | | | | | | Web-Trap Chokers | | | | | | |
|--------------------|----------|------------------|-------|-----|--------|---------------|------------------|------------------|-------|-------|-----|--------|---------------|
| Web Width | Part No. | Dimensions (in.) | | | | Weight (lbs.) | Part No. | Dimensions (in.) | | | | | Weight (lbs.) |
| | | L | D | T | H | | | L | A | D | T | H | |
| 8" | ST2-8 | 6 1/2 | 4 | 3/4 | 1 1/4 | 12 | SC2-8 | 11 1/4 | 7 1/2 | 4 | 3/4 | 1 7/16 | 25 |
| 10" | ST2-10 | 8 1/4 | 5 | 1 | 1 7/16 | 21 | SC2-10 | 12 7/8 | 8 1/4 | 5 | 1 | 1 1/2 | 38 |
| 12" | ST2-12 | 8 3/4 | 5 1/2 | 1 | 1 3/4 | 27 | SC2-12 | 14 1/2 | 10 | 5 1/2 | 1 | 1 3/4 | 54 |

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

TUFF-EDGE® II

2X Stronger After Abrasion
2X Better Edge Cut Resistance

Tuff-Edge II Polyester Web Slings

You can expect longer sling life and lower overall costs when you switch to **Tuff-Edge II** slings. Resistance to the two properties that can rapidly degrade webbing, abrasion and edge cutting, is greatly improved with the use of our **Tuff-Edge II** webbing.

Using Federal Test Method 191A, **Tuff-Edge II** webbing was tested against standard yellow polyester webbing. After being subjected to the same number of hex bar abrasion cycles, the **Tuff-Edge II** webbing, with its' special silver treatment, achieved average break strengths that were twice that of the standard yellow webbing!

In a test developed specifically to measure edge cutting properties, the cut depth on the **Tuff-Edge II** webbing with special polymer edge yarns cut less than half the depth of the standard yellow polyester without the special edge yarns.

Although you should **always** pad and protect synthetic slings from load edges, normal wear and tear should be greatly reduced when using **Tuff-Edge II**, giving you greater sling life and reduced sling costs.



Tuff-Edge II 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

- Special polymer coated edge yarns reduce edge 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, blue edges, blue center stripe

Always protect synthetic slings from being cut by corners and edges.



See page 14

TUFF-EDGE WORKS!

WIRE ROPE & RIGGING CONSULTANTS

Ship/Hall • 9428 Old Pacific Hwy
Woodland, WA 98674

CRANE & EQUIPMENT TRAINING

Voice • (800) 727-6355 • (360) 227-4100
Fax • (360) 227-4122
www.wrrc.com • E-Mail • rig@right@ind.com

January 4, 2001

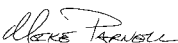
We have about 400 slings in use at our Crane & Rigging Training Center in Woodland, WA, along with a major assortment of rigging hardware from almost every major manufacturer in the U.S. In the training center, our participants rig and move loads which are 1 to 6 ton. Most of the loads are rigged with synthetic web slings and some roundslings. We have about 80 LiftAll slings on the property, which are used with our gantry and mobile cranes.

Our rigging takes a beating like everyone else's, even using wear pads on most lifts. Mr. Dave Pelkey, one of our Woodland based trainers helps instruct our students to inspect their slings on a use-by-use basis. As a result of the lift-by-lift, daily, monthly and annual inspections he discovered something that really surprised all of us.


Your Tuff-Edge web slings have an amazing ability to endure heavy usage where other web slings do not. Every training program we watch our students use the Tuff-Edge slings right along with other sling types in reasonably equal amounts. They seem to do a much better job resisting the common types of abrasion, crushing and surface nicking. We seem to be rejecting only 1 Tuff-Edge type sling for every 10 regular synthetic web slings.

Even though we instruct our students to use wear pads, it is not always feasible for every lift. Often slight damage occurs against a semi-smooth surface as a result of high p.s.i. and righting during the lift. The Tuff-Edge slings seem to survive extremely well, when other slings made of standard nylon or polyester begin to show physical evidence of wear and tear.

Due to our independent place in the crane and rigging industry, we rarely make comments about the products manufactured for general use. In this case, I thought we should at least extend a compliment to the developers and designers of the Tuff-Edge sling. We intend on replacing our inventory with Tuff-Edge slings as the other brands wear out. It will be an excellent investment for us, with a great return. Keep up the good work!




Mike Pernell
President



Chairman, Member
Association of Crane
& Rigging Professionals

WRC & CET are divisions of Industrial Training International, Inc.



ISO 9001 Certified

THE OHIO BROACH & MACHINE COMPANY

13201 HOPKINS RD., STEEL PARKWAY • WILLOUGHBY, OHIO 44094 • U.S.A.
PHONE: (440) 944-1100 • FAX: (440) 944-1101 • E-MAIL: info@ohio-broach.com

February 12, 2001

While looking over our current inspection report, it occurred to me that we really haven't been disposing of as many slings as we have in the past. Upon closer review, it appears that most of the slings that Ohio Broach has in service are your silver Tuff-Edge type.


A couple of years back when Ohio Broach started to replace the bad slings with your Tuff-Edge slings, the rejection rate during inspections of our nylon slings was at least in the +50% range. Since then the rejection rate has dropped dramatically. This past year it was as low as 18%.

Having our slings last longer has saved the company money and more importantly, it provides Ohio Broach with a safer work environment.

I would definitely recommend your Tuff-Edge product to anyone who uses nylon slings.

Thank you for your time and efforts that keep our work place safe.

Sincerely,

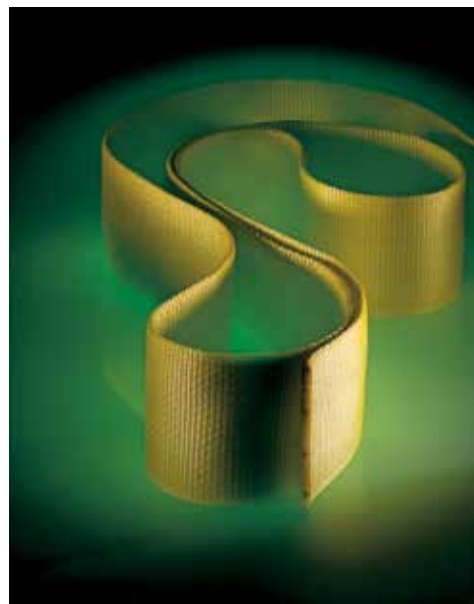


Neil Van De Motter
Production Control Manager

BROACHES • OHIO BROACHING MACHINES • BROACH SHAPENING • PRODUCTION BROACHING

Webmaster 1600 Nylon and Polyester* Slings The Traditional Standard for Heavy Duty Slings

This grade of synthetic web sling is popular because most users consider its' strength and service life to be a good buy.



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

- Yellow treatment for abrasion resistance and extended sling life
- Tuff-Tag provides required OSHA information for the life of the sling, not just the life of the tag.

* Note: Polyester web is identified by single blue surface stripe.

TUFF-EDGE AND WEBMASTER 1600 POLYESTER SLINGS

Type U Unilink Hardware Slings

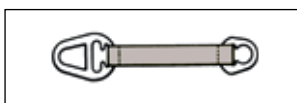


(Also available as Types 1 & 2 at same Rated Capacities)

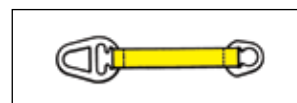


| | Tuff-Edge II Part No. | Web Width | Rated Capacity (lbs.)* | | | Webmaster Part No. *** |
|---------|-----------------------|-----------|------------------------|--------|-----------|------------------------|
| | | | Vertical | Choker | V. Basket | |
| One Ply | UU1802T | 2 | 3,200 | 2,500 | 6,400 | UU1802D |
| | UU1803T | 3 | 4,800 | 3,800 | 9,600 | UU1803D |
| | UU1804T | 4 | 6,400 | 5,000 | 12,800 | UU1804D |
| Two Ply | UU2802T | 2 | 6,400 | 5,000 | 12,800 | UU2802D |
| | UU2803T | 3 | 8,800 | 7,040 | 17,600 | UU2803D |
| | UU2804T | 4 | 11,500 | 9,200 | 23,000 | UU2804D |

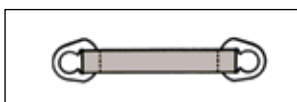
Type 1 (TC) and Type 2 (TT) Web-Trap Hardware Slings



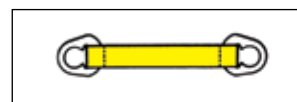
Type 1 (TC)



Type 1 (TC)



Type 2 (TT)



Type 2 (TT)

| | Tuff-Edge II Part No. | | Web Width (in.) | Rated Capacity (lbs.)* | | | Webmaster Part No. *** | |
|---------|-----------------------|----------|-----------------|------------------------|--------|-----------|------------------------|----------|
| | Type 1 | Type 2** | | Vertical | Choker | V. Basket | Type 1 | Type 2** |
| One Ply | TC1806T | TT1806T | 6 | 9,600 | 7,700 | 19,200 | TC1806D | TT1806D |
| | TC1808T | TT1808T | 8 | 12,800 | 10,200 | 25,600 | TC1808D | TT1808D |
| | TC1810T | TT1810T | 10 | 16,000 | 12,800 | 32,000 | TC1810D | TT1810D |
| | TC1812T | TT1812T | 12 | 19,200 | 15,400 | 38,400 | TC1812D | TT1812D |
| | TC1816T | TT1816T | 16 | 25,500 | 20,400 | 51,000 | TC1816D | TT1816D |
| | | | | | | | | |
| Two Ply | TC2806T | TT2806T | 6 | 16,800 | 13,400 | 33,600 | TC2806D | TT2806D |
| | TC2808T | TT2808T | 8 | 22,400 | 17,900 | 44,800 | TC2808D | TT2808D |
| | TC2810T | TT2810T | 10 | 28,000 | 22,400 | 56,000 | TC2810D | TT2810D |
| | TC2812T | TT2812T | 12 | 33,600 | 26,800 | 67,200 | TC2812D | TT2812D |
| | TC2816T | TT2816T | 16 | 44,800 | 35,800 | 89,600 | TC2816D | TT2816D |
| | | | | | | | | |

Note:

2", 3" and 4" Hardware Slings feature *Unilink* fittings.

(See dimensions page 36.)

Web-Trap Triangles and Chokers are also available.

(See dimensions page 37.)

Three and four ply hardware slings and wider width hardware slings are available upon request.

** Type 2 (TT) can not be used in a choker hitch.

*** Replace the "D" with an "N" to order nylon.
(See "How to Order" on page 35.)

WARNING

Do not exceed rated capacities. Sling tension increases as the angle from horizontal decreases. Slings should not be used at angles of less than 30°. Refer to Effect of Angle chart page 12.

TUFF-EDGE AND WEBMASTER 1600 POLYESTER SLINGS

Eye and Eye Slings (Flat or Twisted)



Type 3 (Flat Eye-F)



Type 4 (Twisted Eye-T)

| | Tuff-Edge II Part No.** | Web Width (in.) | Rated Capacity * (lbs.) | | | Webmaster Part No. *** |
|--------------|----------------------------|-----------------------|----------------------------|--------|-----------|---------------------------|
| | | | Vertical | Choker | V. Basket | |
| One Ply | EE1801TF | 1 | 1,600 | 1,280 | 3,200 | EE1801DF |
| | EE1802TF | 2 | 3,200 | 2,500 | 6,400 | EE1802DF |
| | EE1803TF | 3 | 4,800 | 3,800 | 9,600 | EE1803DF |
| | EE1804TF | 4 | 6,400 | 5,000 | 12,800 | EE1804DF |
| | EE1806TF | 6 | 9,600 | 7,700 | 19,200 | EE1806DF |
| | EE1808TF | 8 | 12,800 | 10,200 | 25,600 | EE1808DF |
| Two Ply | EE1810TF | 10 | 16,000 | 12,800 | 32,000 | EE1810DF |
| | EE1812TF | 12 | 19,200 | 15,400 | 38,400 | EE1812DF |
| | EE2801TF | 1 | 3,200 | 2,500 | 6,400 | EE2801DF |
| | EE2802TF | 2 | 6,400 | 5,000 | 12,800 | EE2802DF |
| | EE2803TF | 3 | 8,800 | 7,040 | 17,600 | EE2803DF |
| | EE2804TF | 4 | 11,500 | 9,200 | 23,000 | EE2804DF |
| Three Ply | EE2806TF | 6 | 16,500 | 13,200 | 33,000 | EE2806DF |
| | EE2808TF | 8 | 19,200 | 15,400 | 38,400 | EE2808DF |
| | EE2810TF | 10 | 22,400 | 17,900 | 44,800 | EE2810DF |
| | EE2812TF | 12 | 26,900 | 21,500 | 53,800 | EE2812DF |
| | EE3801TF | 1 | 4,100 | 3,300 | 8,200 | EE3801DF |
| | EE3802TF | 2 | 8,300 | 6,600 | 16,600 | EE3802DF |
| Four Ply | EE3803TF | 3 | 12,500 | 10,000 | 25,000 | EE3803DF |
| | EE3804TF | 4 | 16,000 | 12,800 | 32,000 | EE3804DF |
| | EE3806TF | 6 | 23,000 | 18,400 | 46,000 | EE3806DF |
| | EE3808TF | 8 | 30,700 | 24,500 | 61,400 | EE3808DF |
| | EE3810TF | 10 | 36,800 | 29,400 | 73,600 | EE3810DF |
| | EE3812TF | 12 | 44,000 | 35,200 | 88,000 | EE3812DF |
| Four Ply | EE4801TF | 1 | 5,000 | 4,000 | 10,000 | EE4801DF |
| | EE4802TF | 2 | 10,000 | 8,000 | 20,000 | EE4802DF |
| | EE4803TF | 3 | 14,900 | 11,900 | 29,800 | EE4803DF |
| | EE4804TF | 4 | 19,800 | 15,800 | 39,600 | EE4804DF |
| | EE4806TF | 6 | 29,800 | 23,800 | 59,600 | EE4806DF |
| | EE4808TF | 8 | 39,700 | 31,700 | 79,400 | EE4808DF |
| Four Ply | EE4810TF | 10 | 49,600 | 39,600 | 99,200 | EE4810DF |
| | EE4812TF | 12 | 59,500 | 47,600 | 119,000 | EE4812DF |

Always protect synthetic slings from being cut by corners and edges.



See page 14

Note:
Tapering - Types 3 and 4 slings are tapered at 3" and wider unless otherwise specified.
** Replace the "F" with a "T" for Twisted Eyes.
*** Replace the "D" with an "N" to order nylon.
(See "How to Order" on page 35.)

WARNING

Do not exceed rated capacities. Sling tension increases as the angle from horizontal decreases. Slings should not be used at angles of less than 30°. Refer to Effect of Angle chart page 12.

Eye Length (Applies to all Web Slings)

| Plies of Web | Sling Width (in.) | | | | | | | |
|-----------------|-------------------|----|----|----|----|----|----|----|
| | 1 | 2 | 3 | 4 | 6 | 8 | 10 | 12 |
| 1 | 8 1/2 | 10 | 11 | 12 | 16 | 20 | 24 | 24 |
| 2 | 8 1/2 | 10 | 11 | 12 | 16 | 20 | 24 | 24 |
| 3 | 10 | 12 | 14 | 16 | 18 | 24 | 24 | 24 |
| 4 | 10 | 12 | 14 | 16 | 18 | 24 | 24 | 24 |

TUFF-EDGE AND WEBMASTER 1600 POLYESTER SLINGS

Endless Slings



Type 5



Type 5

| | Tuff-Edge II Part No. | Web Width (in.) | Rated Capacity * (lbs.) | | | Webmaster Part No. *** |
|--------------|--------------------------|-----------------------|----------------------------|--------|-----------|---------------------------|
| | | | Vertical | Choker | V. Basket | |
| One Ply | EN1801T | 1 | 3,200 | 2,500 | 6,400 | EN1801D |
| | EN1802T | 2 | 6,400 | 5,000 | 12,800 | EN1802D |
| | EN1803T | 3 | 8,800 | 7,040 | 17,600 | EN1803D |
| | EN1804T | 4 | 11,500 | 9,200 | 23,000 | EN1804D |
| | EN1806T | 6 | 16,500 | 13,200 | 33,000 | EN1806D |
| | EN1808T | 8 | 19,200 | 15,400 | 38,400 | EN1808D |
| | EN1810T | 10 | 22,400 | 17,900 | 44,800 | EN1810D |
| | EN1812T | 12 | 26,900 | 21,500 | 53,800 | EN1812D |
| Two Ply | EN2801T | 1 | 6,200 | 4,900 | 12,400 | EN2801D |
| | EN2802T | 2 | 12,400 | 9,900 | 24,800 | EN2802D |
| | EN2803T | 3 | 16,300 | 13,000 | 32,600 | EN2803D |
| | EN2804T | 4 | 20,700 | 16,500 | 41,400 | EN2804D |
| | EN2806T | 6 | 28,600 | 23,000 | 57,200 | EN2806D |
| | EN2808T | 8 | 30,700 | 24,500 | 61,400 | EN2808D |
| | EN2810T | 10 | 33,600 | 26,800 | 67,200 | EN2810D |
| | EN2812T | 12 | 37,600 | 30,000 | 75,200 | EN2812D |
| Three Ply | EN3801T | 1 | 8,000 | 6,400 | 16,000 | EN3801D |
| | EN3802T | 2 | 16,000 | 12,800 | 32,000 | EN3802D |
| | EN3803T | 3 | 21,500 | 17,200 | 43,000 | EN3803D |
| | EN3804T | 4 | 28,700 | 23,000 | 57,400 | EN3804D |
| | EN3806T | 6 | 40,700 | 32,500 | 81,400 | EN3806D |
| | EN3808T | 8 | 46,000 | 36,800 | 92,000 | EN3808D |
| | EN3810T | 10 | 51,500 | 41,200 | 103,000 | EN3810D |
| | EN3812T | 12 | 59,200 | 47,300 | 118,400 | EN3812D |
| Four Ply | EN4801T | 1 | 10,000 | 8,000 | 20,000 | EN4801D |
| | EN4802T | 2 | 19,800 | 15,800 | 39,600 | EN4802D |
| | EN4803T | 3 | 26,700 | 21,300 | 53,400 | EN4803D |
| | EN4804T | 4 | 35,600 | 28,400 | 71,200 | EN4804D |
| | EN4806T | 6 | 50,500 | 40,400 | 101,000 | EN4806D |
| | EN4808T | 8 | 57,600 | 46,000 | 115,200 | EN4808D |
| | EN4810T | 10 | 67,200 | 53,700 | 134,400 | EN4810D |
| | EN4812T | 12 | 80,700 | 64,500 | 161,400 | EN4812D |

Always protect synthetic slings from being cut by corners and edges.



See page 14

Note: Type 5 (Endless) slings are Not tapered unless specified.

***Replace the "D" with an "N" to order nylon.

(See "How to Order" page 35)

*

⚠ WARNING

Do not exceed rated capacities. Sling tension increases as the angle from horizontal decreases. Slings should not be used at angles of less than 30°. Refer to Effect of Angle chart page 12.

Tuflex is an Alternative ...

For three and four ply slings wider than 6", *Tuflex* Roundslings should be seriously considered. *Tuflex* offers increased flexibility, ease of use and lower cost. (See page 64.)

DURA-WEB NYLON SLINGS

Best in Abrasion Resistance

Available in two strength classes, all *Dura-Web* slings feature premium abrasive resistant yarns covering all surfaces, for extended sling life and long term value.

Dura-Web Features, Advantages and Benefits

Promotes Safety

- Red core yarn warning system aids in the inspection process
- Striped webbing helps identify proper capacity

- *Tuff-Tag* provides serial numbered identification for traceability

Saves Money

- Abrasion resistant fibers cover both faces and edges for greater sling life

- *Tuff-Tag* provides required OSHA information for the life of the sling, not just the life of the tag.

Saves Time

- Striped capacity for quick identification

Dura-Web 2000 Capacity

Two Black stripes = 2,000 lbs. per inch of width (one ply only). 25% stronger than other webbing. The strongest abrasion resistant sling available.

Eyes of *Dura-Web* 2000 slings for Types 3-4-5 are not tapered in any width.





Dura-Web slings meet or exceed OSHA and ASME B30.9 requirements.








Dura-Web 1000 Capacity

One Black Stripe = 1,000 lbs. per inch of width (one ply only). The only light duty web sling with an abrasive resistant surface. Wider bearing surface, per capacity, helps protect load surface.

Dura-Web slings meet or exceed OSHA and ASME B30.9 requirements.

| | | | Rated Capacity (lbs.)* | | |
|---|----------|-----------------|------------------------|--------|-----------|
| | Part No. | Web Width (in.) | Vertical | Choker | V. Basket |
| <div> Type U</div> | | | | | |
| One Ply | UU1202N | 2 | 4,000 | 3,200 | 8,000 |
| | UU1203N | 3 | 6,000 | 4,800 | 12,000 |
| | UU1204N | 4 | 8,000 | 6,400 | 16,000 |
| Two Ply | UU2202N | 2 | 8,000 | 6,400 | 16,000 |
| | UU2203N | 3 | 10,800 | 8,600 | 21,600 |
| | UU2204N | 4 | 14,400 | 11,500 | 28,800 |
| <div><div> Type 3-F</div><div> Type 4-T</div></div> | | | | | |
| One Ply | EE1201NF | 1 | 2,000 | 1,600 | 4,000 |
| | EE1202NF | 2 | 4,000 | 3,200 | 8,000 |
| | EE1203NF | 3 | 6,000 | 4,800 | 12,000 |
| | EE1204NF | 4 | 8,000 | 6,400 | 16,000 |
| Two Ply | EE2201NF | 1 | 4,000 | 3,200 | 8,000 |
| | EE2202NF | 2 | 8,000 | 6,400 | 16,000 |
| | EE2203NF | 3 | 10,800 | 8,600 | 21,600 |
| | EE2204NF | 4 | 14,400 | 11,500 | 28,800 |
| <div><div> Type 5</div></div> | | | | | |
| One Ply | EN1201N | 1 | 4,000 | 3,200 | 8,000 |
| | EN1202N | 2 | 8,000 | 6,400 | 16,000 |
| | EN1203N | 3 | 12,000 | 9,600 | 24,000 |
| | EN1204N | 4 | 16,000 | 12,800 | 32,000 |
| Two Ply | EN2201N | 1 | 7,800 | 6,200 | 15,600 |
| | EN2202N | 2 | 15,200 | 12,200 | 30,400 |
| | EN2203N | 3 | 20,400 | 16,300 | 40,800 |
| | EN2204N | 4 | 25,800 | 20,600 | 51,600 |

| | Part No. | Web Width (in.) | Rated Capacity (lbs.)* | | |
|--|----------|-----------------|------------------------|--------|-----------|
| | | | Vertical | Choker | V. Basket |
| <div>Type U</div> | | | | | |
| One Ply | UU1102N | 2 | 2,000 | 1,600 | 4,000 |
| Two Ply | UU2102N | 2 | 4,000 | 3,200 | 8,000 |
| <div><div>Type 3-F</div><div>Type 4-T</div></div> | | | | | |
| One Ply | EE1101NF | 1 | 1,000 | 800 | 2,000 |
| | EE1102NF | 2 | 2,000 | 1,600 | 4,000 |
| Two Ply | EE2101NF | 1 | 2,000 | 1,600 | 4,000 |
| | EE2102NF | 2 | 4,000 | 3,200 | 8,000 |
| <div>Type 5</div> | | | | | |
| One Ply | EN1101N | 1 | 2,000 | 1,600 | 4,000 |
| | EN1102N | 2 | 4,000 | 3,200 | 8,000 |
| Two Ply | EN2101N | 1 | 3,900 | 3,100 | 7,800 |
| | EN2102N | 2 | 7,600 | 6,100 | 15,200 |

*  **WARNING** Do not exceed rated capacities. Sling tension increases as the angle from horizontal decreases. Slings should not be used at angles of less than 30°. Refer to Effect of Angle chart page 10.

WEBMASTER 1200 SLINGS

Webmaster 1200 Polyester Slings

Standard duty *Webmaster* 1200 is designed as an economical sling for less frequent use.

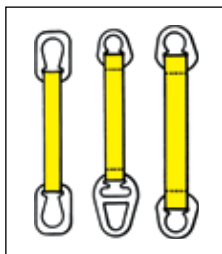
Webmaster Features, Advantages and Benefits

Promotes Safety

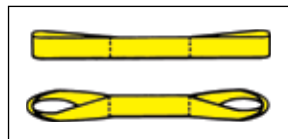
- Red core yarn warning system aids in the inspection process
- Proven sling web construction
- *Tuff-Tag* provides serial numbered identification for traceability

Saves Money

- Wider bearing surface per capacity helps protect load surface
- Yellow treatment for abrasion resistance and extended sling life
- *Tuff-Tag* provides required OSHA information for the life of the sling, not just the life of the tag



Types U, 1 and 2



Types 3(F) and 4(T)



Type 5

Note:

Tapering - Types 3 and 4 slings are tapered at 3" and wider unless otherwise specified.

Type 5 (Endless) slings are NOT tapered unless specified.

* **WARNING**

Do not exceed rated capacities. Sling tension increases as the angle from horizontal decreases. Slings should not be used at angles of less than 30°. Refer to Effect of Angle chart page 12.

Hardware Slings (TYPES U, 1 AND 2)

| | Part No. | Rated Capacity (lbs.)* | | |
|---------|----------|------------------------|--------|-----------|
| | | Vertical | Choker | V. Basket |
| One Ply | UU1602D | 2,400 | 1,900 | 4,800 |
| | UU1603D | 3,600 | 2,900 | 7,200 |
| | UU1604D | 4,800 | 3,800 | 9,600 |
| | TC1606D | 7,200 | 5,800 | 14,400 |
| | TT1606D | 7,200 | NA | 14,400 |
| Two Ply | UU2602D | 4,800 | 3,800 | 9,600 |
| | UU2603D | 6,600 | 5,280 | 13,200 |
| | UU2604D | 8,600 | 6,900 | 17,200 |
| | TC2606D | 12,600 | 10,100 | 25,200 |
| | TT2606D | 12,600 | NA | 25,200 |

Eye and Eye Slings (TYPES 3 AND 4)**

| | | | | |
|-----------|----------|--------|--------|--------|
| One Ply | EE1601DF | 1,200 | 950 | 2,400 |
| | EE1602DF | 2,400 | 1,900 | 4,800 |
| | EE1603DF | 3,600 | 2,900 | 7,200 |
| | EE1604DF | 4,800 | 3,800 | 9,600 |
| | EE1606DF | 7,200 | 5,800 | 14,400 |
| Two Ply | EE2601DF | 2,400 | 1,900 | 4,800 |
| | EE2602DF | 4,800 | 3,800 | 9,600 |
| | EE2603DF | 6,600 | 5,280 | 13,200 |
| | EE2604DF | 8,600 | 6,900 | 17,200 |
| | EE2606DF | 12,300 | 9,840 | 24,600 |
| Three Ply | EE3601DF | 3,500 | 2,800 | 7,000 |
| | EE3602DF | 7,000 | 5,600 | 14,000 |
| | EE3603DF | 9,400 | 7,500 | 18,800 |
| | EE3604DF | 12,000 | 9,600 | 24,000 |
| | EE3606DF | 18,000 | 14,400 | 36,000 |
| Four Ply | EE4601DF | 4,200 | 3,400 | 8,400 |
| | EE4602DF | 8,000 | 6,400 | 16,000 |
| | EE4603DF | 12,000 | 9,600 | 24,000 |
| | EE4604DF | 16,000 | 12,800 | 32,000 |
| | EE4606DF | 23,500 | 18,800 | 47,000 |

**Replace the "F" with a "T" for Twisted Eyes

Endless Slings (TYPE 5)

| | | | | |
|-----------|---------|--------|--------|--------|
| One Ply | EN1601D | 2,400 | 1,900 | 4,800 |
| | EN1602D | 4,800 | 3,800 | 9,600 |
| | EN1603D | 6,500 | 5,200 | 13,000 |
| | EN1604D | 8,600 | 6,900 | 17,200 |
| | EN1606D | 12,200 | 9,800 | 24,400 |
| Two Ply | EN2601D | 4,800 | 3,800 | 9,600 |
| | EN2602D | 9,600 | 7,700 | 19,200 |
| | EN2603D | 11,700 | 9,400 | 23,400 |
| | EN2604D | 15,500 | 12,400 | 31,000 |
| | EN2606D | 22,500 | 18,000 | 45,000 |
| Three Ply | EN3601D | 6,200 | 4,900 | 12,400 |
| | EN3602D | 12,500 | 10,000 | 25,000 |
| | EN3603D | 16,300 | 13,000 | 32,600 |
| | EN3604D | 20,600 | 16,400 | 41,200 |
| | EN3606D | 29,300 | 23,400 | 58,600 |
| Four Ply | EN4601D | 7,700 | 6,200 | 15,400 |
| | EN4602D | 15,500 | 12,400 | 31,000 |
| | EN4603D | 20,800 | 16,600 | 41,600 |
| | EN4604D | 26,600 | 21,200 | 53,200 |
| | EN4606D | 37,800 | 30,200 | 75,600 |

REVERSE EYE SLINGS

Reverse Eye (RE) Slings

The Best General Purpose Web Sling Available

The Reverse Eye Sling is a modified endless sling, reinforced and protected on all sides. The most rugged and versatile of all web slings. The *Lift-All* enhanced version incorporates premium wear resistant webbing for protection on ALL surfaces.

Reverse Eye Features, Advantages and Benefits

Promotes Safety

- Superior choke hitch performance grips load securely
- Reinforced eyes augment strength
- Red core yarn warning system aids in the inspection process
- *Tuff-Tag* provides serial numbered identification for traceability

Saves Money

- Wear resistant web cover offers superior abrasion resistance and sling life
- Reversible eyes reduce wear and increase sling life
- Top grade slings using *Tuff-Edge* webbing are armored on all four sides resulting in the toughest web sling available

Saves Time

- Eyes nest well on crane hook for easy rigging
- Flat eye construction is available to facilitate removal from under loads

There are two grades of *Lift-All* Reverse Eye Slings: *Tuff-Edge* and *Webmaster* 1200.

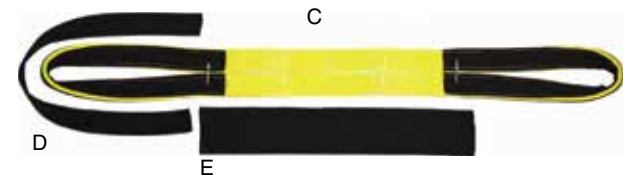
The Reverse Eye Sling is Not Just an Endless Sling with Wear Pads.



Single Ply Endless with Reinforced Eyes

A. Extended web length makes 2 Ply eyes.

B. Reinforcing web piece sewn on to make 2 Ply eye.



Added Wear Pads to Both Sides of Body and Eyes.

C. Single Ply Endless Sling with butted sides.

D. Texturized Wear Pads on both sides of eyes.

E. Texturized Wear Pads sewn on both sides of body.




Completed RE sling may be 1-2 or 3 ply endless sling with reinforcing webbing for each loop, and texturized wear pad on each side of eyes and sling body.

Heavy Duty RE Slings - *Tuff-Edge*

Standard Duty RE Slings - *Webmaster* 1200

| | Part No. | Rated Capacity (lbs.)* | | | Sling Thickness (in.) | Sling Width (in.) | Eye Length (in.) | Part No. | Rated Capacity (lbs.)* | | | Sling Thickness (in.) |
|-----------|----------|------------------------|--------|-----------|-----------------------|-------------------|------------------|----------|------------------------|--------|-----------|-----------------------|
| | | Vertical | Choker | V. Basket | | | | | Vertical | Choker | V. Basket | |
| One Ply | RE1802T | 4,500 | 3,600 | 9,000 | 5/16 | 2 | 9 | RE1602N | 3,600 | 2,900 | 7,200 | 1/4 |
| | RE1804T | 7,700 | 6,200 | 15,400 | 5/16 | 4 | 12 | RE1604N | 6,800 | 5,400 | 13,600 | 1/4 |
| | RE1806T | 11,000 | 8,800 | 22,000 | 5/16 | 6 | 15 | RE1606N | 8,000 | 6,400 | 16,000 | 1/4 |
| Two Ply | RE2802T | 6,500 | 5,200 | 13,000 | 1/2 | 2 | 9 | RE2602N | 5,200 | 4,200 | 10,400 | 3/8 |
| | RE2804T | 13,000 | 10,400 | 26,000 | 1/2 | 4 | 12 | RE2604N | 10,500 | 8,400 | 21,000 | 3/8 |
| | RE2806T | 20,000 | 16,000 | 40,000 | 1/2 | 6 | 15 | RE2606N | 14,400 | 11,500 | 28,800 | 3/8 |
| Three Ply | RE3804T | 16,400 | 13,100 | 32,800 | 11/16 | 4 | 14 | RE3604N | 14,000 | 11,200 | 28,000 | 1/2 |
| | RE3806T | 25,500 | 20,400 | 51,000 | 11/16 | 6 | 18 | RE3606N | 20,000 | 16,000 | 40,000 | 1/2 |

Reverse eye slings using *Webmaster* 1600 webbing are available on special order.

*  **WARNING** Do not exceed rated capacities. Sling tension increases as the angle from horizontal decreases. Slings should not be used at angles of less than 30°. Refer to Effect of Angle chart page 12.

TUFF-EDGE II HARDWARE / BRIDLE SLINGS

Hardware/Bridle Slings

Useful when fixed lifting points are available.

Features, Advantages and Benefits

Promotes Safety

- *Tuff-Edge II* web material is standard - helps prevent sling damage
- Better load control and balance by using fixed fitting points and multiple legs
- Standard oblong links and hooks are forged from alloy steel for strength and reliability
- Red core yarn warning system aids in the inspection process
- Hardware avoids cutting and abrasion of sling at bearing points
- *Tuff-Tag* provides serial numbered identification for traceability
- Proven sling web construction

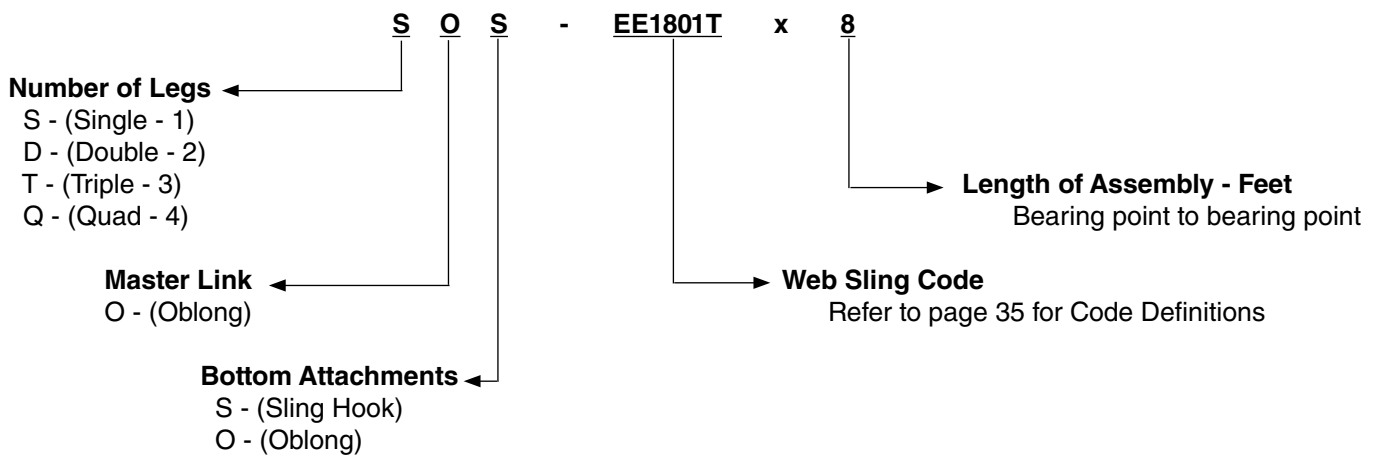
Saves Money

- Soft web sling legs protect load
- Endless type allows shifting of wear points
- *Tuff-Edge II* material extends sling life
- Sling hooks and links can be rewebbed
- *Tuff-Tag* provides required OSHA information for the life of the sling, not just the life of the tag

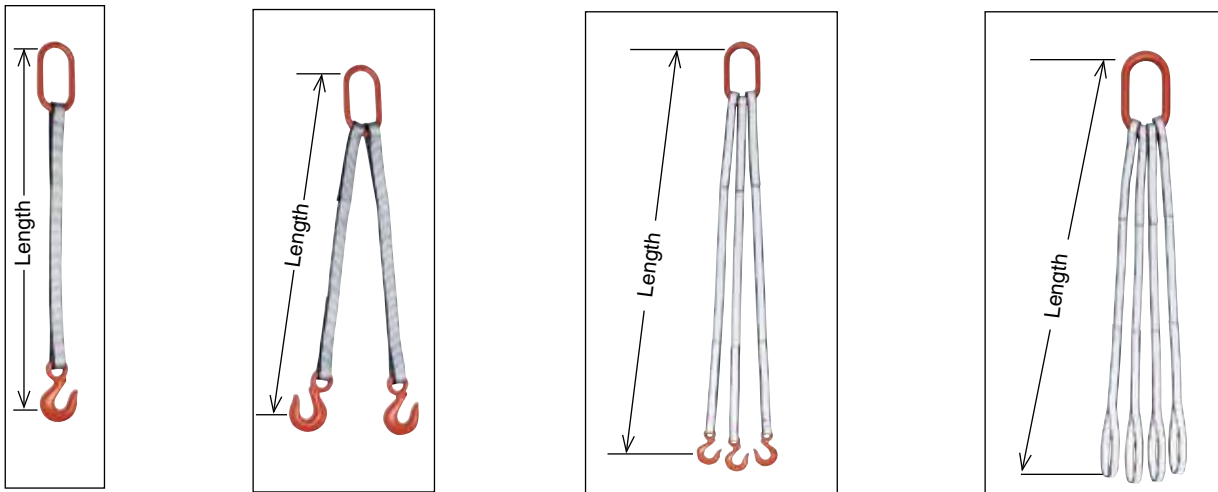
Saves Time

- Lighter weight and easier to use than chain or wire rope
- Sling hooks quickly connect to loads having hoist rings or eye bolts

How to Order



TUFF-EDGE II HARDWARE / BRIDLE SLINGS



Web
Slings



Hardware/Bridle Slings

| Part No. For Web Sling Legs | Web Width (in.) | Web Plies | Number of Legs | Rated Capacity (lbs.)* | | | | Alloy Sling Hook | Oblong Link |
|-----------------------------|-----------------|-----------|----------------|------------------------|--------|--------|--------|------------------|-------------|
| | | | | Vertical | @ 60° | @ 45° | @ 30° | Size | Dia. (in.) |
| EE1801T | 1 | 1 | Single | 1,600 | | | | 1TA | 1/2 |
| | 1 | 1 | Double | | 2,700 | 2,200 | 1,600 | 1TA | 1/2 |
| | 1 | 1 | Triple | | 4,100 | 3,300 | 2,400 | 1TA | 3/4 |
| | 1 | 1 | Quad | | 5,500 | 4,500 | 3,200 | 1TA | 1 |
| EE2801T | 1 | 2 | Single | 3,000 | | | | 1 1/2TA | 1/2 |
| | 1 | 2 | Double | | 5,100 | 4,200 | 3,000 | 1 1/2TA | 3/4 |
| | 1 | 2 | Triple | | 7,700 | 6,300 | 4,500 | 1 1/2TA | 3/4 |
| | 1 | 2 | Quad | | 10,300 | 8,400 | 6,000 | 1 1/2TA | 1 |
| EE1802T | 2 | 1 | Single | 3,000 | | | | 1 1/2TA | 1/2 |
| | 2 | 1 | Double | | 5,100 | 4,200 | 3,000 | 1 1/2TA | 3/4 |
| | 2 | 1 | Triple | | 7,700 | 6,300 | 4,500 | 1 1/2TA | 3/4 |
| | 2 | 1 | Quad | | 10,300 | 8,400 | 6,000 | 1 1/2TA | 1 |
| EE2802T | 2 | 2 | Single | 6,000 | | | | 3TA | 3/4 |
| | 2 | 2 | Double | | 10,300 | 8,400 | 6,000 | 3TA | 1 |
| | 2 | 2 | Triple | | 15,500 | 12,700 | 9,000 | 3TA | 1 |
| | 2 | 2 | Quad | | 20,700 | 16,900 | 12,000 | 3TA | 1 1/4 |

NOTE: Hardware capacities correspond to the appropriate sling capacities. See hardware dimension charts starting on page 94.

⚠ WARNING Do not exceed rated capacities. Sling tension increases as the angle from horizontal decreases. Slings should not be used at angles of less than 30°. Refer to Effect of Angle chart page 12.

WIDE-LIFT SLINGS

Wide-Lift (WL) Slings

Wide Load Support and Balance

Lift-All Wide-Lift slings support the load over a wide area to offer better balance for large loads - whether heavy or light. Wide bearing area reduces marring of soft load surfaces. Stiffeners are used at the base of the eyes to deter the body webbing from folding down the middle. Wide-Lift slings are for use in basket hitch only. Standard web material is *Webmaster* 1600 nylon. Polyester is available upon request.

All Wide-Lift Slings offer these 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

- Wide bearing area reduces marring of soft load surfaces
- Yellow treatment for abrasion resistance and extended sling life
- *Tuff-Tag* provides required OSHA information for the life of the sling, not just the life of the tag



Attached Eye Wide-Lift



Continuous Eye Wide-Lift

For Light, Bulky Loads - Lifting eyes are attached to a single ply sling body. Available with One Ply eyes (WLA1) or Two Ply eyes (WLA2).

For Heavy Loads - Constructed from one endless sling with the two body lengths butted and joined side by side.

| | Body Width (in.) | Part No. | Rated Capacity* (lbs.) Vertical Basket | Eye Length (in.) | Minimum Sling Length (in.) |
|-------------|------------------|----------|--|------------------|----------------------------|
| One Ply Eye | 6 | WLA1806N | 5,000 | 6 | 50 |
| | 8 | WLA1808N | 5,000 | 8 | 50 |
| | 10 | WLA1810N | 5,000 | 10 | 54 |
| | 12 | WLA1812N | 5,000 | 12 | 56 |
| | 16 | WLA1816N | 10,000 | 14 | 56 |
| | 20 | WLA1820N | 10,000 | 16 | 68 |
| | 24 | WLA1824N | 10,000 | 20 | 72 |
| Two Ply Eye | 6 | WLA2806N | 10,000 | 10 | 50 |
| | 8 | WLA2808N | 10,000 | 10 | 50 |
| | 10 | WLA2810N | 10,000 | 12 | 54 |
| | 12 | WLA2812N | 10,000 | 12 | 56 |
| | 16 | WLA2816N | 18,000 | 12 | 56 |
| | 20 | WLA2820N | 18,000 | 18 | 68 |
| | 24 | WLA2824N | 18,000 | 18 | 72 |
| | 30 | WLA2830N | 18,000 | 22 | 74 |
| | 36 | WLA2836N | 18,000 | 27 | 84 |
| | 48 | WLA2848N | 18,000 | 36 | 102 |

| | Body Width (in.) | Part No. | Rated Capacity* (lbs.) Vertical Basket | Eye Length (in.) | Minimum Sling Length (in.) |
|---------|------------------|----------|--|------------------|----------------------------|
| One Ply | 6 | WL1806N | 15,400 | 9 | 40 |
| | 8 | WL1808N | 20,400 | 12 | 45 |
| | 12 | WL1812N | 30,800 | 18 | 60 |
| | 16 | WL1816N | 38,000 | 24 | 72 |
| | 20 | WL1820N | 45,000 | 30 | 88 |
| | 24 | WL1824N | 52,000 | 36 | 100 |
| | 30 | WL1830N | 45,000 | 45 | 120 |
| | 36 | WL1836N | 45,000 | 54 | 144 |
| Two Ply | 6 | WL2806N | 28,600 | 9 | 40 |
| | 8 | WL2808N | 38,000 | 12 | 45 |
| | 12 | WL2812N | 57,200 | 18 | 60 |
| | 16 | WL2816N | 75,000 | 24 | 72 |
| | 20 | WL2820N | 90,000 | 30 | 88 |
| | 24 | WL2824N | 110,000 | 36 | 100 |
| | 30 | WL2830N | 90,000 | 45 | 120 |
| | 36 | WL2836N | 90,000 | 54 | 144 |

Note: Not recommended for use in a choker hitch.

Tuff-Edge II may be used for the attached eyes.

Custom slings with higher capacities are available.

Tufflex slings are also available as Wide-Lift Slings. See page 73.

WARNING

Do not exceed rated capacities. Sling tension increases as the angle from horizontal decreases. Slings should not be used at angles of less than 30°. Refer to Effect of Angle chart page 12.

STONE HANDLING SLINGS

Stone Handling (SH) Slings

Special abrasion resistant 4-inch nylon webbing for handling stone, concrete and building panels.

Lift-All Stone Handling Slings feature a soft abrasion resistant wear pad woven onto the load side of the webbing, providing outstanding protection for both the sling and the polished stone surfaces.

Note: EE Sling - flat eye only - untapered 12" eye length.

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

- Heavy, soft yarns on load side to help protect the sling from abrasion
- White pile yarns prevent color transfer to load
- Two ply version results in an abrasion resistant face on both sides
- *Tuff-Tag* provides required OSHA information for the life of the sling, not just the life of the tag

Saves Time

- Two ply version with abrasion resistance on both sides, does not need orientation by rigger



Web
Slings

| | Part No. | Rated Capacity * (lbs.) | | |
|---------|----------|-------------------------|--------|-----------|
| | | Vertical | Choker | V. Basket |
| One Ply | UU1SH4N | 5,400 | 4,000 | 10,800 |
| | EE1SH4N | 5,400 | 4,000 | 10,800 |
| | EN1SH4N | 10,800 | 8,600 | 21,600 |
| Two Ply | UU2SH4N | 9,400 | 7,000 | 18,800 |
| | EE2SH4N | 9,400 | 7,000 | 18,800 |
| | EN2SH4N | 10,800 | 8,600 | 21,600 |

* **⚠ WARNING**

Do not exceed rated capacities. Sling tension increases as the angle from horizontal decreases. Slings should not be used at angles of less than 30°. Refer to Effect of Angle chart page 12.

INSPECTION CRITERIA FOR WEB SLINGS

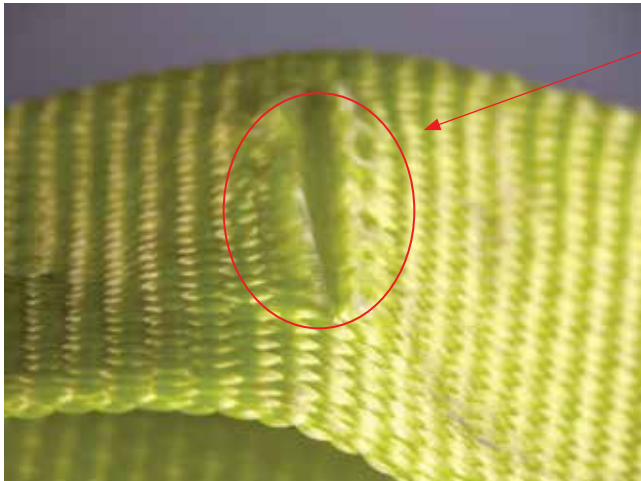
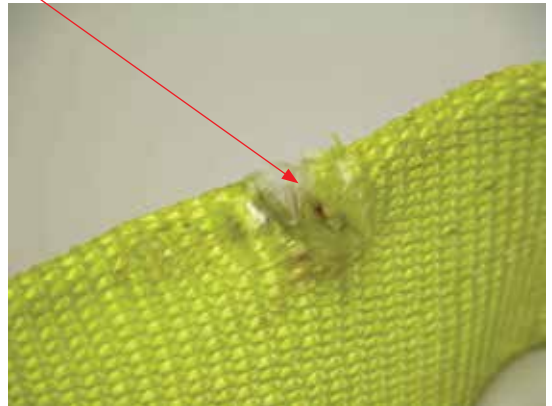
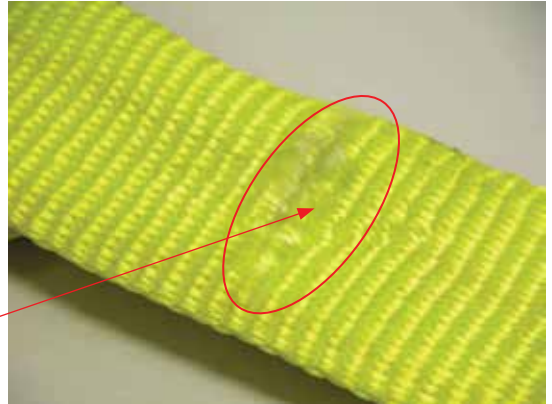
The following photos illustrate some of the common damage that occurs to web slings, indicating that the sling should be taken out of service.

Web Slings

THE DAMAGE: Surface and Edge Cuts - It is important to realize that all of the fibers in web slings contribute to the strength of that sling. When there have been a significant number of fibers broken in a web sling, as shown here, that sling should be taken out of service.

WHAT TO LOOK FOR: **Broken fibers** of equal length indicate that the sling has been cut by an edge. **Red core warning yarns may or may not be visible with cuts and are not required to show before removing slings from service.**

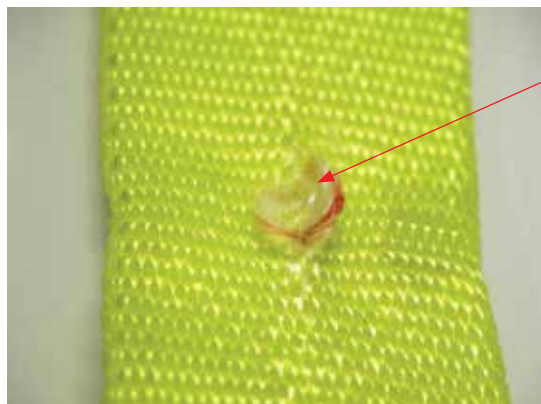
TO PREVENT: Always protect synthetic slings from being cut by corners and edges by using wear pads or other devices.



THE DAMAGE: Holes/Snags/Pulls

WHAT TO LOOK FOR: **Punctures or areas** where fibers stand out from the rest of the sling surface.

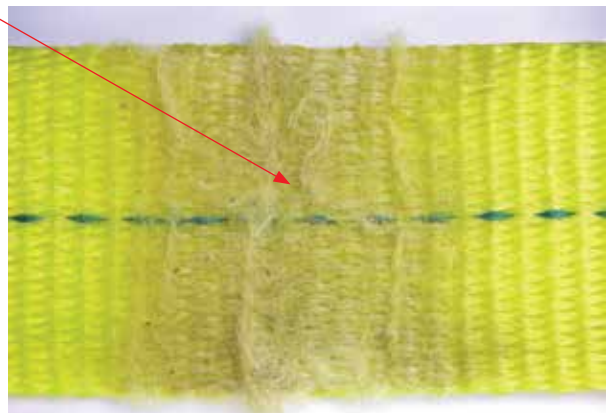
TO PREVENT: Avoid sling contact with protrusions, both during lifts and while transporting or storing.



THE DAMAGE: Abrasion

WHAT TO LOOK FOR: Areas of the sling that look and feel **fuzzy** indicate that the fibers have been broken by being subject to contact and movement against a rough surface. Affected areas are usually stained.

TO PREVENT: Never drag slings along the ground. Never pull slings from under loads that are resting on the sling. Use wear pads between slings and rough surface loads.

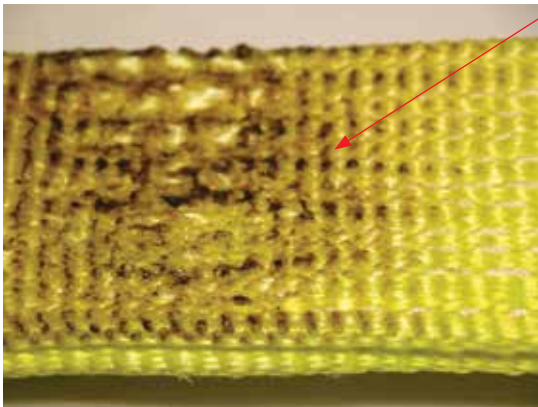


INSPECTION CRITERIA FOR WEB SLINGS

THE DAMAGE: **Heat/Chemical**

WHAT TO LOOK FOR: Melted or charred fibers anywhere along the sling. Heat and chemical damage can look similar and they both have the effect of damaging sling fibers and compromising the sling's strength. Look for discoloration and/or fibers that have been fused together and often feel hard or crunchy.

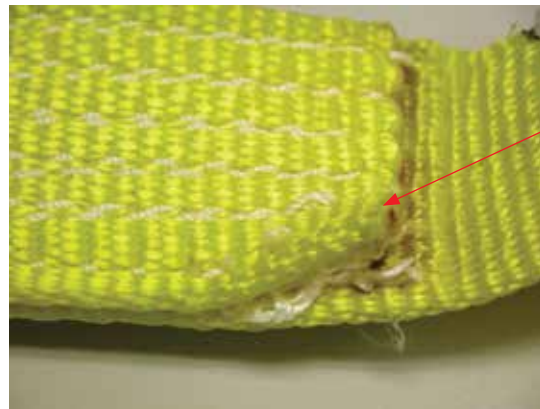
TO PREVENT: Never use nylon or polyester slings where they can be exposed to temperatures in excess of 200° F. Never use nylon or polyester slings in or around chemicals without confirming that the sling material is compatible with the chemicals being used.



THE DAMAGE: Broken/Worn Stitching in the main stitch patterns of web slings has a direct adverse effect on the strength of a sling. The stitch patterns in web slings have been engineered to produce the most strength out of the webbing. If the stitching is not fully intact, the strength of the sling may be affected.

WHAT TO LOOK FOR: Loose or broken threads in the main stitch patterns.

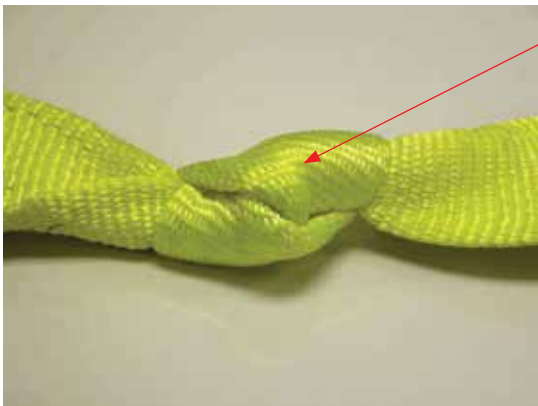
TO PREVENT: Never pull slings from beneath loads where stitch patterns can get hung up or snagged. Never overload the slings or allow the load edge to directly contact the stitch pattern while lifting. Never place a sling eye over a hook or other attachment whose width/diameter exceeds 1/3 the eye length.



THE DAMAGE: Knots compromise the strength of all slings by not allowing all fibers to contribute to the lift as designed. Knots may reduce sling strength by up to 50%.

WHAT TO LOOK FOR: Knots are rather obvious problems as shown below.

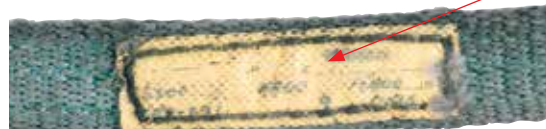
TO PREVENT: Never tie knots in slings and never use slings that are knotted.



THE DAMAGE: Illegible or Missing Tags- The information provided by the sling tag is important for knowing what sling to use and how it will function.

WHAT TO LOOK FOR: If you cannot find or read all of the information on a sling tag, OSHA requires that the sling shall be taken out of service.

TO PREVENT: Never set loads down on top of slings or pull sling from beneath loads if there is any resistance. Load edges should never contact sling tags during the lift. Avoid paint or chemical contact with tags.



Red Core Yarns - are an **additional** aid to warn of dangerous sling damage. All standard *Lift-All* Web Slings have this warning feature. The red core yarns become exposed when the sling surface is cut or worn through the woven face yarns. When red yarns are visible, the sling should be removed from service immediately. For other inspection criteria see OSHA/Manufacturer regulations on pages 7 through 10.

WEB SLING WEIGHTS (Approx.)*



Type U (UU)

| Part No. | Minimum Standard Length | | Add'l. Ft. |
|----------|-------------------------|--------------|------------|
| | Ft. | Wt.** (lbs.) | Wt. (lbs.) |

Unilink Style

| | | | |
|--------|---|-----|------|
| UU1802 | 3 | 2.7 | 0.12 |
| UU1803 | 3 | 5.6 | 0.18 |
| UU1804 | 4 | 9.2 | 0.24 |
| UU2802 | 3 | 2.9 | 0.25 |
| UU2803 | 3 | 5.8 | 0.38 |
| UU2804 | 3 | 9.2 | 0.50 |

Triangle & Choker Style



| | | | |
|--------|---|-----|------|
| TC1802 | 3 | 3.5 | 0.12 |
| TC1803 | 3 | 6.3 | 0.18 |
| TC1804 | 4 | 9.0 | 0.24 |
| TC1806 | 4 | 21 | 0.36 |
| TC1808 | 5 | 27 | 0.48 |
| TC1810 | 5 | 48 | 0.60 |
| TC1812 | 6 | 65 | 0.72 |
| TC2802 | 3 | 3.6 | 0.25 |
| TC2803 | 3 | 6.5 | 0.38 |
| TC2804 | 3 | 9.1 | 0.50 |
| TC2806 | 4 | 21 | 0.76 |
| TC2808 | 4 | 39 | 1.0 |
| TC2810 | 5 | 63 | 1.3 |
| TC2812 | 5 | 86 | 1.5 |

Triangle & Triangle Style



| | | | |
|--------|---|-----|------|
| TT1802 | 3 | 2.6 | 0.12 |
| TT1803 | 3 | 4.6 | 0.18 |
| TT1804 | 3 | 6.7 | 0.24 |
| TT1806 | 4 | 15 | 0.36 |
| TT1808 | 5 | 19 | 0.48 |
| TT1810 | 5 | 36 | 0.60 |
| TT1812 | 5 | 44 | 0.72 |
| TT2802 | 3 | 2.7 | 0.25 |
| TT2803 | 3 | 4.8 | 0.38 |
| TT2804 | 3 | 7.0 | 0.50 |
| TT2806 | 3 | 15 | 0.76 |
| TT2808 | 4 | 28 | 1.0 |
| TT2810 | 4 | 46 | 1.3 |
| TT2812 | 5 | 60 | 1.5 |

* Weights will vary.
Published weights are
average weights for
Webmaster 1600 slings.

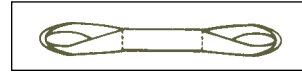
** Approximate weight for the
minimum standard length as shown.



WEB SLING WEIGHTS (Approx.)*



Type 3 (Flat Eye)



Type 4 (Twisted Eye)



Type 5

Eye & Eye Style

| | Minimum Standard Length | | Add'l. Ft. Wt. (lbs.) |
|--------|-------------------------|---------------|-----------------------|
| | Ft. | Wt. ** (lbs.) | |
| EE1801 | 3 | 0.4 | 0.06 |
| EE1802 | 4 | 0.9 | 0.12 |
| EE1803 | 4 | 1.4 | 0.18 |
| EE1804 | 4 | 1.9 | 0.24 |
| EE1806 | 5 | 3.4 | 0.36 |
| EE1808 | 6 | 5.3 | 0.48 |
| EE1810 | 8 | 8.0 | 0.60 |
| EE1812 | 8 | 9.8 | 0.72 |
| EE2801 | 3 | 0.4 | 0.13 |
| EE2802 | 3 | 0.9 | 0.25 |
| EE2803 | 4 | 1.7 | 0.38 |
| EE2804 | 4 | 2.3 | 0.50 |
| EE2806 | 6 | 4.9 | 0.76 |
| EE2808 | 6 | 6.5 | 1.0 |
| EE2810 | 7 | 9.4 | 1.3 |
| EE2812 | 8 | 13 | 1.5 |
| EE3801 | 4 | 1.0 | 0.20 |
| EE3802 | 4 | 2.1 | 0.40 |
| EE3803 | 5 | 3.7 | 0.59 |
| EE3804 | 5 | 5.0 | 0.79 |
| EE3806 | 5 | 7.6 | 1.2 |
| EE3808 | 7 | 13 | 1.6 |
| EE3810 | 7 | 16 | 2.0 |
| EE3812 | 7 | 20 | 2.4 |
| EE4801 | 4 | 1.1 | 0.26 |
| EE4802 | 4 | 2.2 | 0.53 |
| EE4803 | 5 | 4.1 | 0.79 |
| EE4804 | 5 | 5.5 | 1.1 |
| EE4806 | 5 | 8.3 | 1.6 |
| EE4808 | 7 | 15 | 2.1 |
| EE4810 | 7 | 19 | 2.6 |
| EE4812 | 7 | 23 | 3.2 |

Endless Style

| | Minimum Standard Length | | Add'l. Ft. Wt. (lbs.) |
|--------|-------------------------|---------------|-----------------------|
| | Ft. | Wt. ** (lbs.) | |
| EN1801 | 3 | 0.4 | 0.12 |
| EN1802 | 3 | 0.8 | 0.24 |
| EN1803 | 3 | 1.3 | 0.36 |
| EN1804 | 3 | 1.7 | 0.48 |
| EN1806 | 3 | 2.5 | 0.72 |
| EN1808 | 3 | 3.4 | 0.96 |
| EN1810 | 3 | 4.2 | 1.2 |
| EN1812 | 3 | 5.0 | 1.4 |
| EN2801 | 3 | 0.8 | 0.25 |
| EN2802 | 3 | 1.6 | 0.50 |
| EN2803 | 3 | 2.5 | 0.76 |
| EN2804 | 3 | 3.3 | 1.0 |
| EN2806 | 3 | 4.9 | 1.5 |
| EN2808 | 3 | 6.6 | 2.0 |
| EN2810 | 3 | 8.2 | 2.5 |
| EN2812 | 3 | 9.9 | 3.0 |
| EN3801 | 3 | 1.2 | 0.38 |
| EN3802 | 3 | 2.4 | 0.76 |
| EN3803 | 3 | 3.6 | 1.1 |
| EN3804 | 3 | 4.8 | 1.5 |
| EN3806 | 3 | 7.2 | 2.3 |
| EN3808 | 3 | 9.6 | 3.0 |
| EN3810 | 3 | 12 | 3.8 |
| EN3812 | 3 | 14 | 4.5 |
| EN4801 | 3 | 1.6 | 0.52 |
| EN4802 | 3 | 3.2 | 1.0 |
| EN4803 | 3 | 4.9 | 1.6 |
| EN4804 | 3 | 6.5 | 2.1 |
| EN4806 | 3 | 9.7 | 3.1 |
| EN4808 | 3 | 13 | 4.2 |
| EN4810 | 3 | 16 | 5.2 |
| EN4812 | 3 | 19 | 6.2 |

* Weights will vary.
Published weights are
average weights for
Webmaster 1600 slings.

** Approximate weight for the
minimum standard length as shown.



WEB SLING WEIGHTS (Approx.)*

Attached Eye Wide-Lift

| Part No. | 10 Ft. Sling Wt. (lbs.) | Add'l. Ft. Wt. (lbs.) |
|----------|-------------------------|-----------------------|
| WLA1806 | 3.8 | 0.36 |
| WLA1808 | 4.9 | 0.48 |
| WLA1810 | 5.6 | 0.60 |
| WLA1812 | 6.2 | 0.72 |
| WLA1816 | 9.5 | 1.1 |
| WLA1820 | 12 | 1.3 |
| WLA1824 | 14 | 1.6 |
| WLA2806 | 4.2 | 0.36 |
| WLA2808 | 5.4 | 0.48 |
| WLA2812 | 7.4 | 0.72 |
| WLA2816 | 12 | 1.1 |
| WLA2820 | 15 | 1.3 |
| WLA2824 | 16 | 1.6 |
| WLA2830 | 17 | 2.0 |
| WLA2836 | 17 | 2.4 |
| WLA2848 | 20 | 3.2 |

Continuous Eye Wide-Lift

| Part No. | 10 Ft. Sling Wt. (lbs.) | Add'l. Ft. Wt. (lbs.) |
|----------|-------------------------|-----------------------|
| WL1806 | 5.8 | 0.54 |
| WL1808 | 7.1 | 0.66 |
| WL1810 | 8.4 | 0.78 |
| WL1812 | 9.7 | 0.90 |
| WL1816 | 12 | 1.1 |
| WL1820 | 15 | 1.4 |
| WL1824 | 17 | 1.6 |
| WL1830 | 23 | 2.2 |
| WL1836 | 27 | 2.5 |
| WL2806 | 9.4 | 0.9 |
| WL2808 | 12 | 1.1 |
| WL2812 | 17 | 1.6 |
| WL2816 | 22 | 2.1 |
| WL2820 | 27 | 2.6 |
| WL2824 | 31 | 3.0 |
| WL2830 | 41 | 4.0 |
| WL2836 | 48 | 4.6 |

* Weights will vary.
 Published weights are
 average weights using
 Webmaster 1600 webbing.

Hull Saver Boat Slings



LIFT-ALL HULL SAVER BOAT SLINGS

Polyester** web slings designed especially for use with travel lifts to lower and retrieve large boats.

Features, Advantages and Benefits

Promotes Safety

- *Tuff-Tag* provides required OSHA information for the life of the sling in a marine environment.
- *Lift-All* trained professionals are available for recommended seasonal inspection.
- Two ply *Hull Savers* are our standard for improved durability and UV resistance.

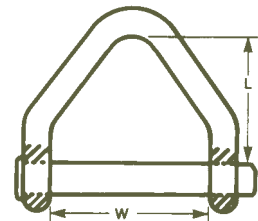
Saves Money

- Low-stretch polyester webbing helps to avoid scuff damage to hulls.**
- Optional chine & keel pads protect boat and increase sling life.
- Edgeguard wear resistant webbing available - helps protect sling from abrasion.

Saves Time

- Optional keel pad lead weights accelerate sinking to required lift depth.
- Quick disconnects are available to improve boat yard productivity.
- Extra eye offers versatility, reducing sling changing time and sling inventory.

| Web Plies | Hull Saver Code | Width (in.) | 1 Rated Capacity* (lbs.) | Optional Pull Pin Shackles | | | |
|-----------|-----------------|-------------|--------------------------|----------------------------|---------|---------|--------------------|
| | | | | Shackle Code | W (in.) | L (in.) | Weight Each (lbs.) |
| Two Ply | HS2804 | 4 | 23,000 | PPS-4 | 4 | 3.75 | 3.2 |
| | HS2806 | 6 | 32,600 | PPS-6 | 6 | 4.75 | 6.8 |
| | HS2808 | 8 | 38,400 | PPS-6HD | 6 | 4.75 | 9.8 |
| | HS2810 | 10 | 44,800 | PPS-6HD | 6 | 4.75 | 9.8 |
| | HS2812 | 12 | 48,000/53,800 2 | PPS-6HD 2 | 6 | 4.75 | 9.8 |



Pull Pin Shackles (Optional)

- Notes: 1. Capacity in lbs. is the rating of one sling in a vertical basket hitch.
 2. Derate sling to 48,000 when used with 6" HD Shackle (PPS-6HD)

** Note: Nylon webbing is available, but will stretch about 50% more than polyester and should not be used near acids. Polyester should not be used near caustics.

Custom Hull Savers

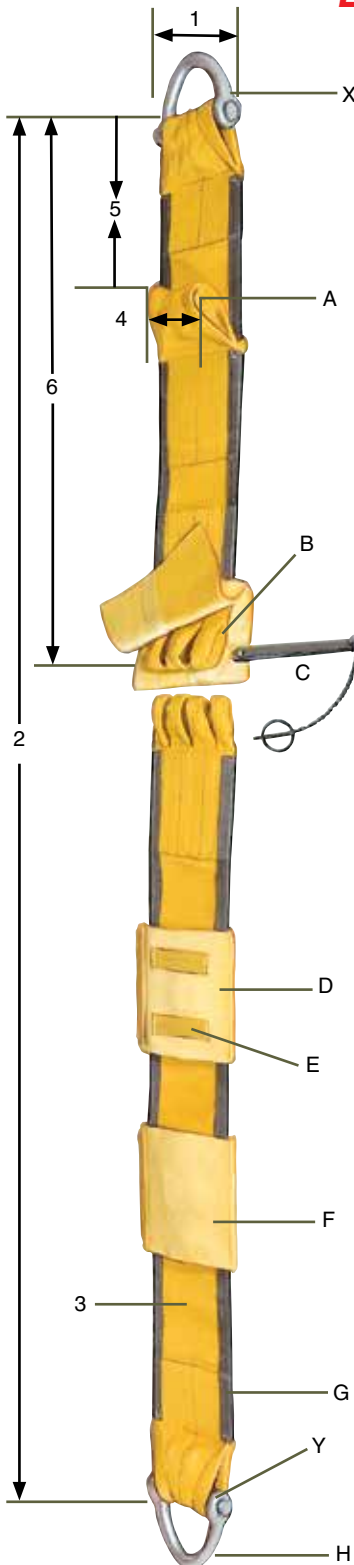
Lift-All will manufacture boat slings to fill your particular needs for width, length and capacity. Please call for quotations.

*

WARNING

Do not exceed rated capacities. Sling capacity decreases as the angle from horizontal decreases. Slings should not be used at angles of less than 30°. Refer to Effect of Angle chart page 12.

LIFT-ALL HULL SAVER BOAT SLINGS



STANDARD BOAT SLING MEASUREMENTS

1. Sling Width _____ in.
2. Sling Length _____ ft.
3. Two Ply
4. Width of eyes _____ in.

SLING MATERIAL

Low stretch polyester webbing is standard because it helps to reduce chine marring. Nylon webbing is available, but will stretch about 50% more than polyester and should not be used near acids. HS Polymer Treatment extends sling life.

- ☐ POLYESTER - Natural or Treated (circle choice)
☐ NYLON - Natural or Treated (circle choice)

BOAT SLING ACCESSORIES

A. Extra Eyes - for shortening sling to lift smaller craft. See Measurement #5

- ☐ Extra Eye #1 - Position _____ ft. from point X / Y (circle choice)
☐ Extra Eye #2 - Position _____ ft. from point X / Y (circle choice)
☐ Extra Eye #3 - Position _____ ft. from point X / Y (circle choice)

B. ☐ Quick Disconnect With Flaps - Saves time needed to lower the lift for removing slings from the hooks. Available for 6" or wider only. Protective flap to cover pin is standard. See Measurement #6. Position _____ ft. from point X / Y.

C. ☐ Quick Disconnect Pin - This reusable pin is necessary for Quick Disconnect operation. Pin is galvanized for corrosion resistance. GAC wire with retaining clip holds pin in place.

D. Keel Pad - Helps protect the sling from abrasion and cutting. Sliding sleeve style allows sling to adjust to center point without scraping along keel. Pad uses the same webbing as the sling. Standard length is 48".

- ☐ Sliding Style - Length _____ ft.
☐ Sewn-on Style - Length _____ ft. Starting _____ ft. from X / Y

E. Keel Pad Weights - Lead weights allow for speedy submersion of sling.

F. Chine Pads - Helps to protect boat chines and rub rails and the sling from abrasion damage. Sliding pad can be positioned to accommodate any size and style of boat. May be sewn to sling per your specification. Pad uses the same webbing as the sling. Standard length is 48".

- ☐ Sliding - Quantity _____ Length _____ ft.
☐ Sewn-on - Quantity _____ Length _____ ft. Starting _____ ft. from X / Y

G. ☐ Edgeguard - Special wear resistant webbing applied to sling edges to help protect the sling from abrasion.

H. Pull Pin Shackles - Promotes sling life by protecting eyes of sling. Easier attachment of sling to lifting hook. Galvanized steel for corrosion resistance. Reusable.

- ☐ Quantity _____

LIFT-ALL HULL SAVER BOAT SLINGS

Safe Operating Practices

⚠ WARNING

Read Definition on page 3

- Inspect slings prior to each use and do not use if damaged
- Never allow people to be aboard the boat while it is suspended by slings
- Never work under or near a boat suspended by slings
- Boats must be properly blocked and stabilized before removing slings
- *Hull Saver* Boat Slings are capacity rated for vertical basket lifts. Do not exceed rated capacities
- When lifting with extra eyes, direction of pull must always be away from center point of the original sling length

Environmental Considerations

- 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 acids, alkalis and chemicals have an adverse effect on nylon and polyester. See Chemical Environment Data chart on page 34.

Inspection Criteria for *Hull Saver* Boat Slings

⚠ WARNING

Read Definition on page 3

Remove from service if any of the following is visible:

- Sling is bleached or stiff due to sunlight exposure
- 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

Refer to photographs illustrating damaged webbing on pages 50-51.

Tuflex Roundslings



THE TUFLEX DIFFERENCE

All Lift-All slings meet or exceed OSHA and ASME B30.9 standards and regulations.

What is a Tuflex Roundsliding?

It is an endless synthetic sling made from a skein (continuous loop or hank) of polyester yarn covered by a double wall tubular jacket. The roundsliding body can also be compared to sling webbing with the tubular jacket face yarns woven without binder yarns; this allows the core yarns to move independently within the jacket.

Tufhide Jacket

Made from bulked nylon fibers, the double wall Tufhide jacket offers better abrasion resistance for our larger capacity Tuflex (EN360 and larger). In addition, Tufhide reduces the heat buildup that can damage other high capacity roundslings when used in a choker hitch.

Tuflex Roundslings Features, Advantages and Benefits

Promotes Safety

- Light weight reduces fatigue and strain on riggers
- Synthetic materials won't cut hands
- Consistent matched lengths for better multiple sling load control
- No loss of strength from abrasion to cover
- Tuff-Tag provides serial numbered identification for traceability
- Low stretch (about 3% at rated capacity) - reduces sling and load abrasion - good for low headroom lifts

- Conforms to shape of load to grip securely
- Load bearing yarns protected from UV degradation
- Red striped white core yarns provide added visual warning of sling damage
- Color coding provides positive sling capacity information
- Saves Money
- Double wall cover for greater sling life
- Soft cover won't scratch load surface
- Conforms to shape of load for reduced load damage
- Seamless - no sewn edges to rupture prematurely, requiring removal from service
- EN360 and larger Tuflex feature Tufhide wear resistant nylon jacket for extra sling life
- Tuff-Tag provides required OSHA information for the life of the sling, not just the life of the tag

Saves Time

- Color coded capacities for quick identification
- Light weight and pliable for easy rigging and storage
- Independent core yarns choke tightly, but release easily after use
- Easy to carry - high strength to weight ratio for easy transportation

⚠ WARNING

Follow temperature and chemical information found on page 34.

Always protect synthetic slings from being cut by corners and edges.

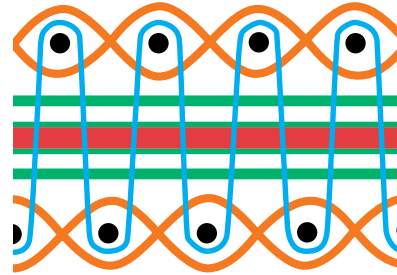


See page 14

Construction Comparisons - Sling Webbing vs Tuflex

Sling Webbing

- Transverse pick yarns inter-relate with binder 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



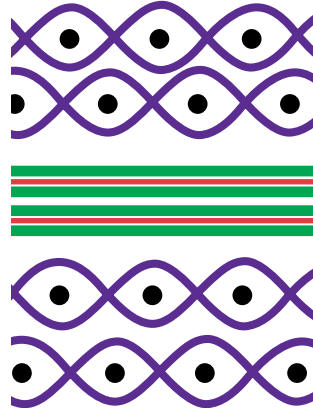
Sling Webbing
(Side View)

Sling webbing, as graphically demonstrated, has its surface yarns connected from side to side, to not only protect the core yarns, but to position 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.

Tuflex

Tuflex

- Transverse pick yarns position surface yarns and protect core yarns
- Woven surface yarns also protect core yarns, carry no load
- Longitudinal core yarns carry 100% of load
- Red core warning yarns



Tuflex
(Side View)

Roundsling construction, as shown above, protects all load carrying core yarns from abrasion with an independent, woven jacket. Replacement is not necessary until the red striped white core yarns can be seen through holes in the jacket. When core yarns are visible, sling must be removed from service. Tuflex roundslings provide double wall protection for extended sling life.



HOW TO ORDER

Ordering Tuflex Polyester Roundslings

1. Specify sling Part No. found in the charts throughout the Tuflex section
2. Specify sling length in feet (bearing point to bearing point). Refer to footnotes under Tuflex tables for specific sling lengths and tolerances.

Prior to sling selection and use, review and understand the "Help" section pages 3 through 12.

Endless and Eye & Eye styles of Tuflex are made to a tolerance of $\pm (1" + 1\%$ of the specified length) and can stretch 3% at rated capacity.

Braided Tuflex length tolerance is $\pm (2" + 5\%$ of the ordered length) (sling at rest). At its rated capacity, braided Tuflex will stretch approximately 9%.

Note: Matched lengths of slings must be specified at time of order.

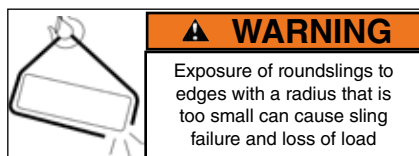
USING TUFLEX ROUNDSLINGS

Protect Sling from Damage

ALWAYS protect roundslings from being cut or damaged by corners, edges and protrusions using protection sufficient for each application.

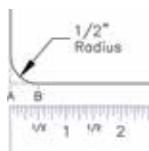
Do not ignore warning signs of misuse. Cut marks detected during any sling inspection serve as a clear signal that sling protection must be added or improved.

Exposure of slings to edges



Edges do not need to be “sharp” to cause failure of the sling. The following table shows the minimum allowable edge radii suitable for contact with unprotected roundslings. Chamfering or cutting off edges is not an acceptable substitute for fully rounding the edges to the minimum radius. Slings can also be damaged from contact with edges or burrs at the sling connection.

Measure the edge radius. The radius is equal to the distance between points A and B.



Minimum Edge Radii suitable for contact with unprotected polyester roundslings.

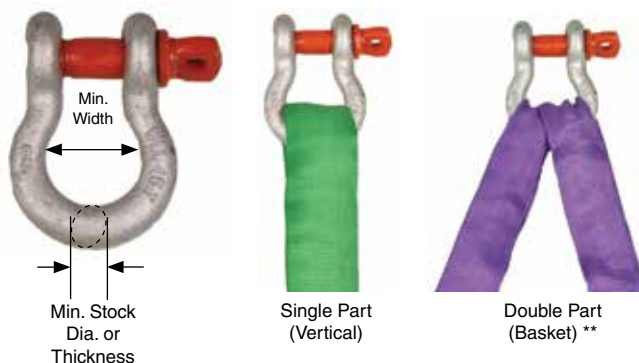
| Vertical Rated Capacity (lbs.) | Minimum * Edge Radii (in.) | Sling Width At Load (in.) |
|--------------------------------|----------------------------|---------------------------|
| EN30 | 3/16 | 1 |
| EN60 | 1/4 | 1 3/8 |
| EN90 | 5/16 | 1 3/4 |
| EN120 | 5/16 | 1 7/8 |
| EN150 | 3/8 | 2 |
| EN180 | 7/16 | 2 1/8 |
| EN240 | 7/16 | 2 5/8 |
| EN360 | 1/2 | 3 1/4 |
| EN600 | 11/16 | 4 |
| EN800 | 3/4 | 4 5/8 |
| EN1000 | 7/8 | 5 1/4 |

* For further information on minimum edge radii, contact Lift-All or see WSTDA RS-1.

Sling Hardware and Connections

Connection surfaces must be smooth to avoid abrading or cutting roundslings. Roundslings can also be damaged or weakened by excessive compression between the sling and the connection points if the size of the attachment hardware or connection area is not large enough to avoid this damage. Select and use proper connection hardware that conforms to the size requirements listed for choker and vertical hitches, or for basket hitches in the charts below.

(Contact Lift-All, or see WSTDA RS-1 for information about how to calculate whether a smaller connection size is allowable when tension on a roundslings is less than its capacity)



Minimum hardware dimensions suitable for use with roundslings.

| Tuflex Size | Single Part | | Double Part | |
|-------------|-----------------------|------------------|-----------------------|------------------|
| | Min. Stock Dia. (In.) | Min. Width (In.) | Min. Stock Dia. (In.) | Min. Width (In.) |
| EN30 | 7/16 | 1 | 9/16 | 1 3/8 |
| EN60 | 5/8 | 1 3/8 | 7/8 | 1 7/8 |
| EN90 | 3/4 | 1 3/4 | 1 1/16 | 2 3/8 |
| EN120 | 7/8 | 1 7/8 | 1 1/4 | 2 1/2 |
| EN150 | 1 | 2 | 1 3/8 | 2 7/8 |
| EN180 | 1 1/8 | 2 1/8 | 1 5/8 | 3 |
| EN240 | 1 3/16 | 2 5/8 | 1 5/8 | 3 3/4 |
| EN360 | 1 1/2 | 3 1/4 | 2 | 4 1/2 |
| EN600 | 2 | 4 | 2 3/4 | 5 5/8 |
| EN800 | 2 1/8 | 4 5/8 | 3 | 6 1/2 |
| EN1000 | 2 1/2 | 5 1/4 | 3 1/2 | 7 3/8 |

** For hardware connected to the body of Eye & Eye Tuflex, use the Double Part columns.

DIRECT CONNECT HOOKS™

DC Hooks are the quickest and easiest way to add hooks to *Tuflex* roundslings and web slings at your job site. No tools or extra parts needed.

For *Tuflex*, just match the color coded hook to the same color *Tuflex* and you're ready to go. Rated capacities are the same for both the hook and the *Tuflex*.



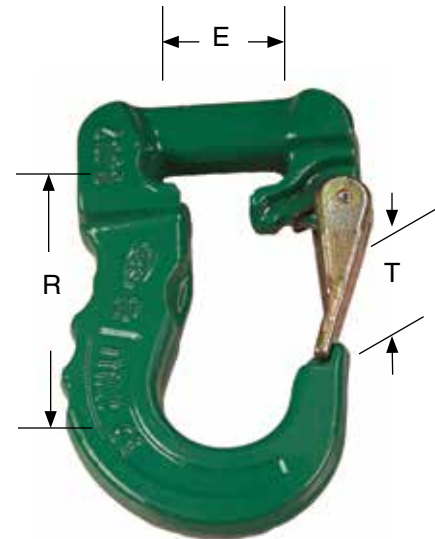
Tuflex

Features:

- Rugged – Both alloy steel hook and latch are forged for superior toughness.
- Color coded – Hook color matches *Tuflex* color for easy identification
- Web-Trap design keeps sling in place, ready to use
- Four hook sizes to match *Tuflex* sizes EN30 (Purple), EN60 (Green), EN90 (Yellow) and EN150 (Red)
- Can be used with 1" and 2" web slings (see chart below)

Benefits:

- Improves Safety – Color coding to match *Tuflex* colors reduces chance of using wrong size hook
- Saves Time – Quick connections; no tools needed
- Saves Money – Adds versatility to your existing slings.
- No need to buy expensive hardware slings



| Lift-All Part # | Color | Rated Cap. (lbs.) | Tuflex | Web Slings | | Weight (lbs.) | E (in.) | R (in.) | T (in.) |
|--------------------|--------|-------------------------|--------|------------|-------|------------------|------------|------------|------------|
| | | | | Width | Plies | | | | |
| DCH1 | Purple | 2,600 | EN30 | 1 | 1 | 1.5 | 1 9/16 | 3 3/8 | 1 |
| DCH2 | Green | 5,300 | EN60 | 1 | 2 | 2.7 | 1 3/4 | 4 | 1 5/16 |
| DCH3 | Yellow | 8,400 | EN90 | 2 | 1 & 2 | 4.9 | 2 3/16 | 4 5/8 | 1 1/2 |
| DCH4 | Red | 13,200 | EN150 | - | - | 9.9 | 2 3/4 | 5 3/4 | 1 3/4 |

TUFLEX ENDLESS ROUNDSLINGS

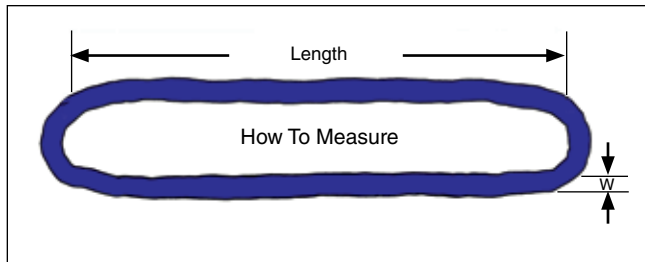
Tuflex Endless (EN) The Most Versatile Tuflex Roundslings

Features, Advantages and Benefits

Maintains all the basic Tuflex features plus...

Promotes Safety

- Load stability and balance can be achieved by spreading sling legs.
- **Saves Money**
- Wear points can be shifted to extend sling life
- The most flexible style of sling



| Part No. | Color | Rated Capacity (lbs.)* | | | | Minimum Length (ft.) | Approximate Measurements | | | |
|----------|--------|------------------------|--------|--------------|--------------|----------------------|--------------------------|-------------------------|-------------------------|--------------------------------|
| | | Vertical | Choker | Basket @ 90° | Basket @ 45° | | Weight (lbs. / ft.) | Body Dia. Relaxed (in.) | (W) Width at Load (in.) | Minimum Hardware Dia. ** (in.) |
| EN30 | Purple | 2,600 | 2,100 | 5,200 | 3,600 | 1 1/2 | .2 | 5/8 | 1 | 7/16 |
| EN60 | Green | 5,300 | 4,200 | 10,600 | 7,400 | 1 1/2 | .3 | 7/8 | 1 3/8 | 5/8 |
| EN90 | Yellow | 8,400 | 6,700 | 16,800 | 11,800 | 3 | .5 | 1 1/8 | 1 3/4 | 3/4 |
| EN120 | Tan | 10,600 | 8,500 | 21,200 | 14,000 | 3 | .6 | 1 1/8 | 1 7/8 | 7/8 |
| EN150 | Red | 13,200 | 10,600 | 26,400 | 18,000 | 3 | .8 | 1 3/8 | 2 | 1 |
| EN180 | White | 16,800 | 13,400 | 33,600 | 23,000 | 3 | .9 | 1 3/8 | 2 1/8 | 1 1/8 |
| EN240 | Blue | 21,200 | 17,000 | 42,400 | 29,000 | 3 | 1.3 | 1 3/4 | 2 5/8 | 1 3/16 |
| EN360 | Grey | 31,000 | 24,800 | 62,000 | 43,000 | 3 | 1.7 | 2 1/4 | 3 1/4 | 1 1/2 |
| EN600 | Brown | 53,000 | 42,400 | 106,000 | 74,000 | 8 | 2.8 | 2 3/4 | 4 | 2 |
| EN800 | Olive | 66,000 | 52,800 | 132,000 | 93,000 | 8 | 3.4 | 3 1/8 | 4 5/8 | 2 1/8 |
| EN1000 | Black | 90,000 | 72,000 | 180,000 | 127,000 | 8 | 4.3 | 3 5/8 | 5 1/4 | 2 1/2 |

* **WARNING** Do not exceed rated capacities. Sling capacity decreases as the angle from horizontal decreases. Slings should not be used at angles of less than 30°. Refer to Effect of Angle chart page 12.

** This is the smallest recommended connection hardware diameter to be used for a vertical hitch.

TUFLEX EYE AND EYE

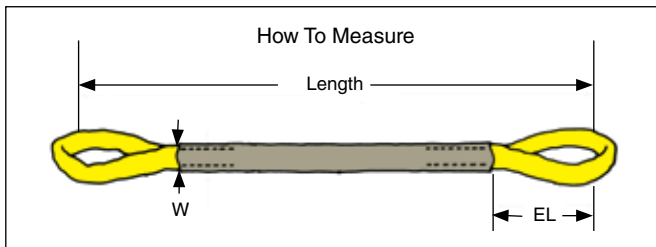
A More Rugged and Durable **Tuflex**

The Eye and Eye Advantage

An additional jacket of texturized, abrasion resistant nylon covers the body of the standard **Tuflex**, forming two color coded lifting eyes.

Maintains all the basic **Tuflex** features plus ...

- Saves money by extending sling life where abrasion to sling body is a problem.



Tuflex

| Part No. | Color of Eyes | Rated Capacity (lbs.)* | | | | Minimum Length (ft.) + | Approximate Measurements | | | |
|----------|---------------|------------------------|--------|--------------|--------------|------------------------|--------------------------|------------------------------|--------------------------------|--------------------------------|
| | | Vertical | Choker | Basket @ 90° | Basket @ 45° | | Weight (lbs./ft.) | Body Width at Load (W) (in.) | Standard Eye Length (EL) (in.) | Minimum Hardware Dia. ** (in.) |
| EE30 | Purple | 2,600 | 2,100 | 5,200 | 3,600 | 4 | .25 | 2 1/4 | 10 | 7/16 |
| EE60 | Green | 5,300 | 4,200 | 10,600 | 7,400 | 4 | .36 | 2 1/2 | 10 | 5/8 |
| EE90 | Yellow | 8,400 | 6,700 | 16,800 | 11,800 | 4 | .50 | 2 1/2 | 12 | 3/4 |
| EE120 | Tan | 10,600 | 8,500 | 21,200 | 14,000 | 5 | .60 | 3 1/2 | 12 | 7/8 |
| EE150 | Red | 13,200 | 10,600 | 26,400 | 18,000 | 5 | .84 | 3 1/2 | 14 | 1 |
| EE180 | White | 16,800 | 13,400 | 33,600 | 23,000 | 7 | .96 | 3 1/2 | 16 | 1 1/8 |
| EE240 | Blue | 21,200 | 17,000 | 42,400 | 29,000 | 7 | 1.5 | 4 1/4 | 16 | 1 3/16 |
| EE360 | Grey | 31,000 | 24,800 | 62,000 | 43,000 | 7 | 1.8 | 6 | 20 | 1 1/2 |
| EE600 | Brown | 53,000 | 42,400 | 106,000 | 74,000 | 8 | 2.7 | 7 | 24 | 2 |
| EE800 | Olive | 66,000 | 52,800 | 132,000 | 93,000 | 10 | 3.3 | 8 | 30 | 2 1/8 |
| EE1000 | Black | 90,000 | 72,000 | 180,000 | 127,000 | 12 | 4.2 | 9 | 36 | 2 1/2 |

* **WARNING**

Do not exceed rated capacities. Sling capacity decreases as the angle from horizontal decreases. Slings should not be used at angles of less than 30°. Refer to Effect of Angle chart page 12.
 ** This is the smallest recommended connection hardware diameter to be used for a vertical hitch.
 + Shorter lengths available using reduced eye lengths.

BRAIDED TUFLEX ROUNDSLINGS

For the ultimate in big loads - (up to 612,000 lbs. in a vertical basket)
or for the security of multiple part sling lifting.

Redundant Safety

Tuflex braids are made from three [6 part] or four [8 part] individual Tuflex. Should one of these component slings be damaged while in use, the remaining undamaged slings should be able to safely return the load to the ground.

Braided Tuflex Features, Advantages and Benefits

Maintains all the basic Tuflex features plus ...

Promotes Safety

- Braided construction offers redundant safety
- User friendly compared to steel slings

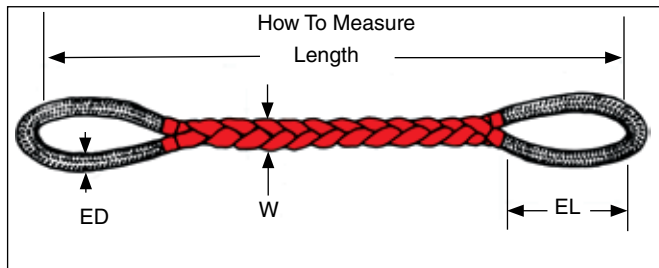
Saves Money

- Large capacity slings are generally purchased for one major lift, then rarely used again. Braided Tuflex can be disassembled into component slings for general purpose lifting, if individual slings are correctly tagged.
- Can be returned for disassembly, inspection and retagging as individual slings.

Saves Time

- Easy to transport and hook-up

Tuflex



6 Part Flat Braid (B6E)

| Part No. | Color | Rated Capacity (lbs.)* | | | Minimum Length (ft.) + | Approximate Measurements | | | | | |
|----------|--------|------------------------|---------|---------|------------------------|--------------------------|--------------------------------|-------------------------|-------------------------|---------------------|--------------------------------|
| | | Vertical | Choker | Basket | | Weight (lbs./ft.) | Standard Eye Length (EL) (in.) | Width at Load (W) (in.) | Thickness at Load (in.) | Eye Dia. (ED) (in.) | Minimum Hardware Dia. ** (in.) |
| B6E30 | Purple | 6,700 | 5,300 | 13,400 | 4 1/2 | .8 | 15 | 3 1/4 | 3/4 | 1 3/4 | 5/8 |
| B6E60 | Green | 13,500 | 10,800 | 27,000 | 5 | 1.2 | 15 | 3 3/4 | 1 1/8 | 2 | 1 |
| B6E90 | Yellow | 21,400 | 17,100 | 42,800 | 5 1/2 | 1.6 | 15 | 4 1/4 | 1 1/4 | 2 | 1 1/4 |
| B6E120 | Tan | 27,000 | 21,600 | 54,000 | 5 1/2 | 2.0 | 15 | 4 1/2 | 1 5/16 | 2 1/4 | 1 3/8 |
| B6E150 | Red | 33,600 | 26,800 | 67,200 | 6 1/2 | 2.7 | 20 | 5 1/4 | 1 3/4 | 2 1/2 | 1 1/2 |
| B6E180 | White | 42,800 | 34,200 | 85,600 | 7 | 3.2 | 20 | 5 1/2 | 2 | 2 3/4 | 1 3/4 |
| B6E240 | Blue | 54,000 | 43,200 | 108,000 | 9 | 4.4 | 20 | 6 5/8 | 2 1/4 | 3 1/2 | 1 3/4 |
| B6E360 | Grey | 79,000 | 63,200 | 158,000 | 9 1/2 | 6.5 | 30 | 8 1/4 | 2 1/2 | 4 1/4 | 2 1/2 |
| B6E600 | Brown | 135,100 | 108,000 | 270,200 | 10 1/2 | 9.7 | 30 | 11 | 2 3/4 | 5 | 3 |
| B6E800 | Olive | 168,300 | 134,600 | 336,600 | 13 | 12.0 | 30 | 12 | 4 | 5 1/4 | 3 1/2 |
| B6E1000 | Black | 229,500 | 183,600 | 459,000 | 14 1/2 | 15.6 | 31 | 13 1/2 | 4 1/2 | 5 3/4 | 4 |

* **WARNING**

Do not exceed rated capacities. Sling capacity decreases as the angle from horizontal decreases. Slings should not be used at angles of less than 30°.

Refer to Effect of Angle chart page 12.

** This is the smallest recommended connection hardware diameter to be used for a vertical hitch.

+ Shorter lengths available using reduced eye lengths.

BRAIDED TUFLEX ROUNDSLINGS



Order Information

Ordering length should be based on sling at rest.

Braided *Tuflex* length tolerance is $\pm (2" + 5\%$ of the ordered length) (sling at rest).

At its rated capacity, braided *Tuflex* will stretch approximately 9% and have a length variance of $\pm 2\%$.




Always protect synthetic slings from being cut by corners and edges.



See page 14

Tuflex

8 Part Round Braid (B8E)

| Part No. | Color | Rated Capacity (lbs.)* | | | Minimum Length (ft.) + | Approximate Measurements | | | | | |
|----------|--------|---|---|---|------------------------|--------------------------|--------------------------------|-------------------------|-------------------------|---------------------|--------------------------------|
| | | Vertical | Choker | Basket | | Weight (lbs./ft.) | Standard Eye Length (EL) (in.) | Width at Load (W) (in.) | Thickness at Load (in.) | Eye Dia. (ED) (in.) | Minimum Hardware Dia. ** (in.) |
| B8E30 | Purple |  |  |  | 4 1/2 | 1.1 | 15 | 3 1/2 | 1 | 1 3/4 | 3/4 |
| B8E60 | Green | | | | 5 | 1.5 | 15 | 4 | 1 3/8 | 2 | 1 1/8 |
| B8E90 | Yellow | | | | 5 1/2 | 2.2 | 15 | 4 3/4 | 1 5/8 | 2 1/2 | 1 1/2 |
| B8E120 | Tan | | | | 5 1/2 | 2.6 | 15 | 5 | 1 3/4 | 2 1/2 | 1 1/2 |
| B8E150 | Red | | | | 6 1/2 | 3.6 | 20 | 6 | 2 1/8 | 2 3/4 | 1 3/4 |
| B8E180 | White | | | | 7 | 4.1 | 20 | 6 1/4 | 2 1/2 | 3 1/4 | 2 |
| B8E240 | Blue | | | | 9 | 5.6 | 20 | 7 1/2 | 2 3/4 | 3 3/4 | 2 |
| B8E360 | Grey | | | | 9 1/2 | 8.3 | 30 | 9 1/2 | 3 1/4 | 4 1/2 | 2 1/2 |
| B8E600 | Brown | | | | 10 1/2 | 12.0 | 30 | 13 | 3 3/4 | 5 1/2 | 3 1/2 |
| B8E800 | Olive | | | | 13 | 16.0 | 30 | 13 1/2 | 4 1/2 | 6 | 4 |
| B8E1000 | Black | | | | 14 1/2 | 20.0 | 31 | 15 3/4 | 5 1/4 | 6 1/2 | 4 3/4 |

* **WARNING**

Do not exceed rated capacities. Sling capacity decreases as the angle from horizontal decreases. Slings should not be used at angles of less than 30°.

Refer to Effect of Angle chart page 12.

** This is the smallest recommended connection hardware diameter to be used for a vertical hitch.

+ Shorter lengths available using reduced eye lengths.

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:

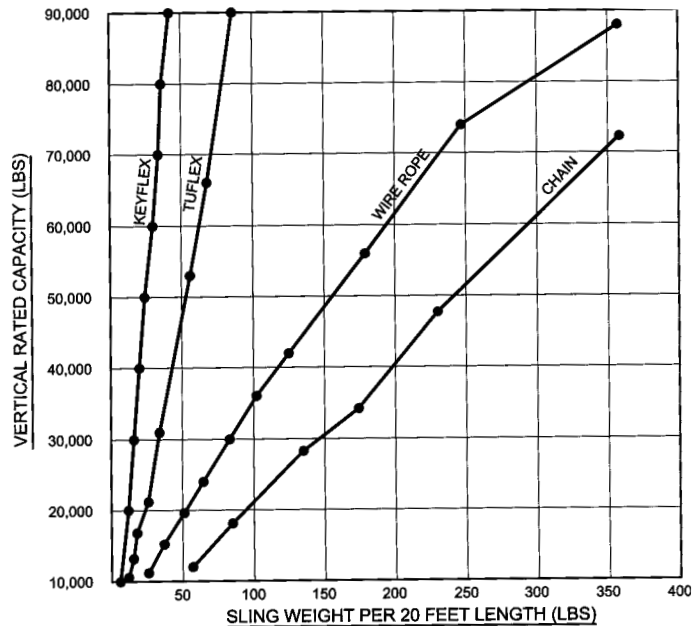
- 53% lighter than **Tuflex** Roundslings,
- 82% lighter than Wire Rope Slings,
- 89% lighter than G80 Chain Slings

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

| Sling Type | Vert. Rating | Weight |
|----------------|--------------|----------|
| KeyFlex | 90,000 lbs. | 42 lbs. |
| Tuflex | 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.
- Lightweight 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.)* | | | | Minimum Length (ft.) | Approximate Measurements | | | |
|----------|------------------------|---------|--------------|--------------|----------------------|--------------------------|-------------------------|---------------------|-----------------------------|
| | Vertical | Choker | Basket @ 90° | Basket @ 45° | | Weight (lbs. / ft.) | Body Dia. Relaxed (in.) | Width at Load (in.) | Minimum Hardware Dia. (in.) |
| KEN10K | 10,000 | 8,000 | 20,000 | 14,100 | 3 | .3 | 1 | 1 9/16 | 11/16 |
| KEN15K | 15,000 | 12,000 | 30,000 | 21,000 | 3 | .5 | 1 1/8 | 1 3/4 | 7/8 |
| KEN20K | 20,000 | 16,000 | 40,000 | 28,000 | 3 | .6 | 1 1/4 | 2 | 1 1/16 |
| KEN25K | 25,000 | 20,000 | 50,000 | 35,000 | 3 | .7 | 1 1/4 | 2 1/8 | 1 1/4 |
| KEN30K | 30,000 | 24,000 | 60,000 | 42,000 | 3 | .8 | 1 3/8 | 2 1/8 | 1 7/16 |
| KEN40K | 40,000 | 32,000 | 80,000 | 56,000 | 3 | 1.0 | 1 3/4 | 2 3/4 | 1 1/2 |
| KEN50K | 50,000 | 40,000 | 100,000 | 70,000 | 5 | 1.3 | 1 7/8 | 2 7/8 | 1 3/4 |
| KEN60K | 60,000 | 48,000 | 120,000 | 84,000 | 8 | 1.7 | 2 | 3 1/8 | 2 |
| KEN70K | 70,000 | 56,000 | 140,000 | 98,000 | 8 | 1.9 | 2 1/8 | 3 1/4 | 2 3/16 |
| KEN80K | 80,000 | 64,000 | 160,000 | 113,000 | 8 | 2.1 | 2 1/4 | 3 1/2 | 2 3/8 |
| KEN90K | 90,000 | 72,000 | 180,000 | 127,000 | 8 | 2.4 | 2 1/2 | 3 7/8 | 2 3/8 |
| KEN100K | 100,000 | 80,000 | 200,000 | 141,000 | 8 | 2.6 | 2 3/4 | 4 1/4 | 2 1/2 |
| KEN125K | 125,000 | 100,000 | 250,000 | 176,000 | 8 | 3.0 | 3 | 4 7/8 | 2 5/8 |
| KEN150K | 150,000 | 120,000 | 300,000 | 210,000 | 8 | 3.5 | 3 1/4 | 5 1/4 | 2 7/8 |
| KEN175K | 175,000 | 140,000 | 350,000 | 240,000 | 8 | 4.8 | 3 1/2 | 5 3/4 | 3 1/8 |
| KEN200K | 200,000 | 160,000 | 400,000 | 280,000 | 8 | 5.3 | 3 3/4 | 6 1/8 | 3 3/8 |

YOUR KEY TO LIFTING HEAVY LOADS USING THE LIGHTEST, MOST FLEXIBLE SLING AVAILABLE !

KeyFlex Roundslings Share Most of the Benefits of Standard *Tuflex* 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* 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**: 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 that 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** are approved for use up to 350° F.

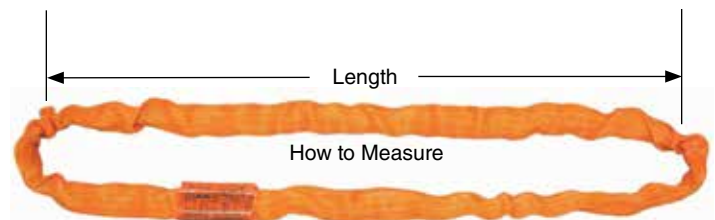
Saves Time

- 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
- *Tuffhide* wear resistant nylon jacket for extra sling life standard on 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** Roundslings with damaged covers may be returned to our factory for inspection and possible repair and proof test.

Tuflex



Ordering Information

Specify the sling code and length in feet (bearing point to bearing point).

KeyFlex are made to a tolerance of $\pm(1" + 1\%$ of the specified length) and can stretch 1% at rated capacity.

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



WARNING

Always protect Roundslings from corners, edges or protrusions. Refer to wear pads section, page 14 for available protective devices.

KEYFLEX ULTRA™ ROUNDSLINGS

THE HIGHER CAPACITY KEYFLEX™ ROUNDSLINGS

Your best solution for high capacity, low weight slings.

- **High Capacities** - up to 1/2 million pounds in a vertical hitch
- **Rugged Construction** - our best 4 ply Tufhide nylon jacket covers 3 individual Keyflex Technora® roundslings.
- **High Value** - You get Lift-All quality that exceeds industry standards at a competitive price.
- **Extra Utility** - The component core slings may be removed for individual use.
- **Reparable** - The cover can be removed and replaced with a new cover.



Tuflex



Light weight - Only 1/8 the weight of comparable capacity wire rope slings. Easier for workers to handle, safer for them to use.

Available in lengths up to 79 feet.

| Lift-All Part # | Rated Capacity (lbs.) | | | |
|-----------------|-----------------------|---------|--------------|--------------|
| | Vertical | Choker | Basket @ 90° | Basket @ 45° |
| KEN3P200 | 200,000 | 160,000 | 400,000 | 280,000 |
| KEN3P250 | 250,000 | 200,000 | 500,000 | 350,000 |
| KEN3P300 | 300,000 | 240,000 | 600,000 | 420,000 |
| KEN3P400 | 400,000 | 320,000 | 800,000 | 560,000 |
| KEN3P500 | 500,000 | 400,000 | 1,000,000 | 700,000 |

| Lift-All Part # | Component Sling Size | Minimum Sling Length (ft.) | Weight Per Ft. (lbs.) | Body Dia. Relaxed (in.) | Width at Load (in.) | Minimum Edge Contact Radius | Minimum Hardware Diameter |
|-----------------|----------------------|----------------------------|-----------------------|-------------------------|---------------------|-----------------------------|---------------------------|
| KEN3P200 | KEN80K | 10 | 6.9 | 3 7/8 | 6 1/4 | 1 1/8 | 3 1/4 |
| KEN3P250 | KEN100K | 12 | 8.6 | 4 3/4 | 7 3/4 | 1 1/4 | 3 1/4 |
| KEN3P300 | KEN125K | 14 | 9.9 | 5 1/2 | 9 | 1 1/4 | 3 1/2 |
| KEN3P400 | KEN150K | 15 | 15.8 | 6 | 10 1/2 | 1 1/2 | 4 1/4 |
| KEN3P500 | KEN200K | 17 | 17.5 | 6 3/4 | 11 | 1 5/8 | 4 5/8 |

TUFLEX HARDWARE / BRIDLE SLINGS

Features, Benefits and Advantages

Promotes Safety

- Bridles provide better load control and balance
- Hardware avoids cutting and abrasion of sling at bearing points

Saves Money

- Reduced load damage - protected between pick-up point and crane hook

Saves Time

- Lighter weight and easier to use and store than wire rope or chain slings
- Sling hooks quickly connect to loads having hoist rings or eye bolts

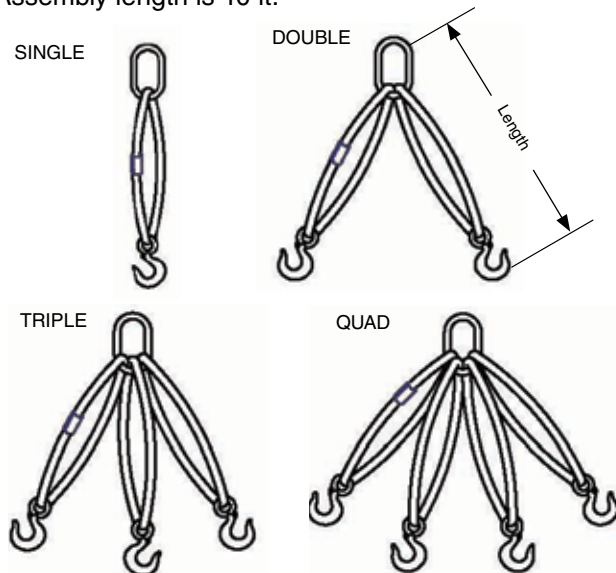
How to Order

Specify:

1. Number of legs - S (Single-1), D(Double-2), T(Triple-3), Q(Quad-4)
2. Master Link - O (Oblong)
3. Bottom Attachments - S (Sling Hook), O (Oblong)
4. Tuflex Code
5. Length of Assembly -Feet
(Bearing point to bearing point)

Example:

DOSEN90 X 10' is a double leg bridle, oblong master link, with sling hooks attached to each Tuflex EN90. Assembly length is 10 ft.



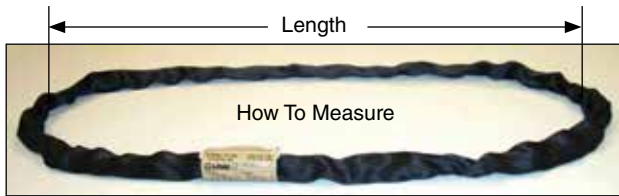
*See hardware dimension charts on page 94.
Use sling leg calculator to determine length @ www.lift-all.com

| Legs | Tuflex Size | | Rated Capacity (lbs.) for the following hitches | | | Hardware* | |
|--------|-------------|-----------------|--|--------|---------|-----------|--------------------------------|
| | | | Vertical | Choker | Basket | Hook | Masterlink Stock Dia. (in.) |
| SINGLE | EN30 | | 2,600 | 2,100 | 5,200 | 2TA | 1/2 |
| | EN60 | | 5,300 | 4,200 | 10,600 | 4.5TA | 3/4 |
| | EN90 | | 8,400 | 6,700 | 16,800 | 7TA | 3/4 |
| | EN120 | | 10,600 | 8,500 | 21,200 | 11TA | 3/4 |
| | EN150 | | 13,200 | 10,600 | 26,400 | 11TA | 1 |
| | EN180 | | 16,800 | 13,400 | 33,600 | 15TA | 1 1/4 |
| | EN240 | | 21,200 | 17,000 | 42,400 | 22TA | 1 1/4 |
| | EN360 | | 31,000 | 24,800 | 62,000 | 20TC | 1 1/2 |
| | EN600 | | 53,000 | 42,400 | 106,000 | 30TC | 2 |
| | EN800 | | 66,000 | 52,800 | 132,000 | 40TC | 2 1/4 |
| | EN1000 | | 90,000 | 72,000 | 180,000 | NA | 2 1/2 |
| | | On Leg @ 90° | All Legs @ | | | Hook | Masterlink Stock |
| | | 60° | 45° | 30° | | | |

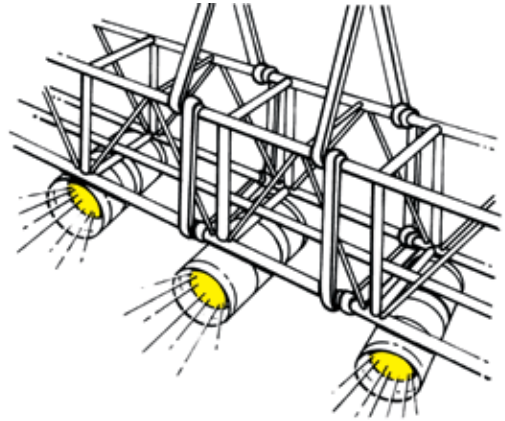
| | | | | | | | |
|--------|--------|--------|---------|---------|---------|-------|-------|
| DOUBLE | EN30 | 2,600 | 4,500 | 3,600 | 2,600 | 2TA | 1/2 |
| | EN60 | 5,300 | 9,100 | 7,400 | 5,300 | 4.5TA | 3/4 |
| | EN90 | 8,400 | 14,500 | 11,800 | 8,400 | 7TA | 1 |
| | EN120 | 10,600 | 18,300 | 14,900 | 10,600 | 11TA | 1 1/4 |
| | EN150 | 13,200 | 22,800 | 18,600 | 13,200 | 11TA | 1 1/4 |
| | EN180 | 16,800 | 29,100 | 23,700 | 16,800 | 15TA | 1 1/2 |
| | EN240 | 21,200 | 36,700 | 29,900 | 21,200 | 22TA | 1 1/2 |
| | EN360 | 31,000 | 53,700 | 43,800 | 31,000 | 20TC | 2 |
| | EN600 | 53,000 | 91,800 | 74,900 | 53,000 | 30TC | 2 1/2 |
| | EN800 | 66,000 | 114,300 | 93,300 | 66,000 | 40TC | 3 |
| | EN1000 | 90,000 | 155,800 | 127,200 | 90,000 | NA | 3 1/4 |
| TRIPLE | EN30 | 2,600 | 6,700 | 5,500 | 3,900 | 2TA | 3/4 |
| | EN60 | 5,300 | 13,700 | 11,200 | 7,900 | 4.5TA | 1 |
| | EN90 | 8,400 | 21,800 | 17,800 | 12,600 | 7TA | 1 1/4 |
| | EN120 | 10,600 | 27,500 | 22,400 | 15,900 | 11TA | 1 1/2 |
| | EN150 | 13,200 | 34,200 | 27,900 | 19,800 | 11TA | 1 1/2 |
| | EN180 | 16,800 | 43,600 | 35,600 | 25,200 | 15TA | 1 3/4 |
| | EN240 | 21,200 | 55,000 | 44,900 | 31,800 | 22TA | 2 |
| | EN360 | 31,000 | 80,500 | 65,700 | 46,500 | 20TC | 2 1/4 |
| | EN600 | 53,000 | 137,600 | 112,400 | 75,900 | 30TC | 2 3/4 |
| | EN800 | 66,000 | 171,400 | 139,900 | 99,000 | 40TC | 3 1/2 |
| | EN1000 | 90,000 | 233,800 | 190,800 | 135,000 | NA | 4 1/4 |
| QUAD | EN30 | 2,600 | 9,000 | 7,300 | 5,200 | 2TA | 3/4 |
| | EN60 | 5,300 | 18,300 | 14,900 | 10,600 | 4.5TA | 1 1/4 |
| | EN90 | 8,400 | 29,100 | 23,700 | 16,800 | 7TA | 1 1/2 |
| | EN120 | 10,600 | 36,700 | 29,900 | 21,200 | 11TA | 1 1/2 |
| | EN150 | 13,200 | 45,700 | 37,300 | 26,400 | 11TA | 1 3/4 |
| | EN180 | 16,800 | 58,200 | 47,500 | 33,600 | 15TA | 2 |
| | EN240 | 21,200 | 73,400 | 59,900 | 42,400 | 22TA | 2 1/4 |
| | EN360 | 31,000 | 107,300 | 87,600 | 62,000 | 20TC | 2 3/4 |
| | EN600 | 53,000 | 183,600 | 149,900 | 106,000 | 30TC | 3 1/2 |
| | EN800 | 66,000 | 228,600 | 186,600 | 132,000 | 40TC | 4 1/4 |
| | EN1000 | 90,000 | 311,700 | 254,500 | 180,000 | NA | 4 3/4 |



**THE STEEL SLING
WITH THE FABRIC FEEL**



GACEN60



**400° F Temperature Rating
NO Wire Rope Backup Needed
Core Inspection Window Standard**

Tuflex

Designed for Suspension Applications where metal slings are required.

With the trend in stage rigging to require metal slings for all overhead suspension, the problem has been how to accomplish this in the most efficient and cost effective way. **STEELFLEX ROUND SLINGS** are the answer to that problem!

The load-bearing member of **STEELFLEX ROUND SLINGS** is made from steel Galvanized Aircraft Cable wound in an endless configuration. This wire core is encased in a black double-wall, polyester jacket. A unique inspection window allows for easy inspection of the core for broken wires and corrosion. The result is a highly flexible, easy to use sling that complies with all of the current rigging codes. Stretch at rated capacity is approximately 1%.

The benefits are many:

Increased Safety

- Improved cut resistance
- Higher heat resistance
- Conforms to load to grip securely
- Window allows complete core inspection

Saves Time

- No backup rigging required
- Fewer components to inventory and carry
- Superior flexibility makes rigging easy
- Tan colored Tuff-Tag confirms steel core

Saves Money

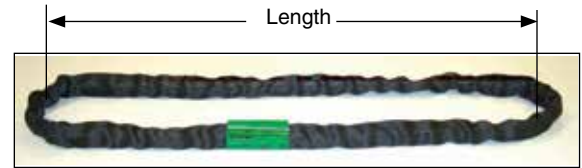
- Gives you the slings you want to use (roundslings), without having to buy the slings you would be required to use (wire rope or chain)
- Lowers show to show freight costs



Inspection Window

POLYESTER STAGE SLINGS - BLACK

These lightweight roundslings are ideal for easy and inconspicuous suspension of stage sound and lighting equipment. Black sleeve material helps sling blend into its surroundings. *Lift-All* Stage Slings maintain the basic *Tuflex* features, advantages and benefits except that the color coding of the slings is achieved by using a color coded identification tag. Double Wall sleeve material is standard.



STEELFLEX & POLYESTER STAGE SLING INFORMATION

| | Part No. | Rated Capacity (lbs.)* | | | Minimum Length (ft.) | Approximate Measurements | | | |
|-----------------------|----------|------------------------|--------|--------|----------------------|--------------------------|-------------------------|---------------------|--------------------------|
| | | Vertical | Choker | Basket | | Weight (lbs. / ft.) | Body Dia. Relaxed (in.) | Width at Load (in.) | Min. Hardware Dia. (in.) |
| Polyester Stage Sling | BSEN30 | 2,600 | 2,100 | 5,200 | 1 1/2 | .2 | 5/8 | 1 1/8 | 7/16 |
| | BSEN60 | 5,300 | 4,200 | 10,600 | 1 1/2 | .3 | 7/8 | 1 1/2 | 5/8 |
| | BSEN90 | 8,400 | 6,700 | 16,800 | 3 | .4 | 1 1/8 | 1 7/8 | 3/4 |
| Steelflex | GACEN60 | 5,300 | 4,200 | 10,600 | 3** | .75 | 7/8 | 7/8 | 5/8 |

Tuflex

WIDE-LIFT TUFLEX

WIDE-LIFT TUFLEX

Wide Load Support and Balance

Wide-Lift *Tuflex* slings distribute the load over a wide area and offer better balance of larger loads - whether heavy or light.

Tuflex Wide-Lift Features, Advantages and Benefits

Maintains all the basic *Tuflex* features plus ...

Promotes Safety

- Wide body distributes load over wide area and offers better balance

Saves Money

- Bearing point of eyes can be shifted to prolong sling life
- Custom sizes available to fit your needs

Saves Time

- Standard eye length is 12" - making hook-up easy and fast
- Standard body width is 12" - making load balancing easier

Note:
Wide-Lift slings should only be used in basket hitch

Consult factory for special requirements.



| Code | Color of Eyes | Vertical Basket Hitch Rated Capacity* (lbs.) |
|-------|---------------|--|
| WL30 | Purple | 5,200 |
| WL60 | Green | 10,600 |
| WL90 | Yellow | 16,800 |
| WL120 | Tan | 21,200 |



Do not exceed rated capacities. Sling capacity decreases as the angle from horizontal decreases. Slings should not be used at angles of less than 30°. Refer to Effect of Angle chart page 12.

** Maximum length for Steelflex is 9 ft.

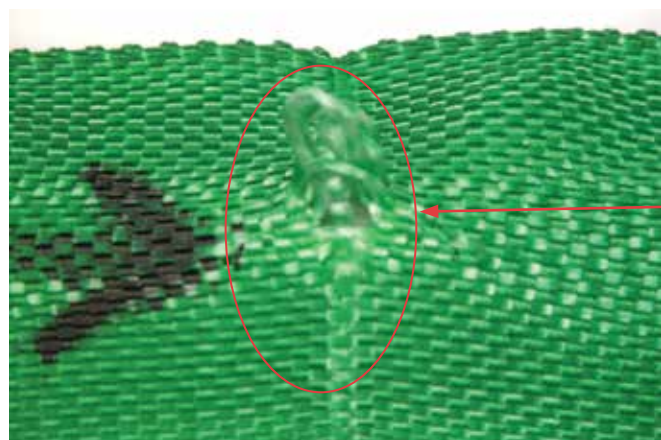
INSPECTION CRITERIA FOR TUFLEX / KEYFLEX

The following photos illustrate some of the common damage that occurs and indicates that the sling must be taken out of service. For inspection frequency requirements, see page 7.

THE DAMAGE: Cuts to the cover exposing internal core yarns – When internal core yarns are visible, the amount of damage done to the core yarns and the sling strength can not be determined without breaking the sling. Therefore, the sling must be taken out of service.

WHAT TO LOOK FOR: Broken fibers of equal length indicate that the sling has been cut by an edge.

TO PREVENT: Always protect synthetic slings from being cut by corners and edges by using wear pads or other devices



THE DAMAGE: Holes/Snags/Pulls exposing internal core yarns.

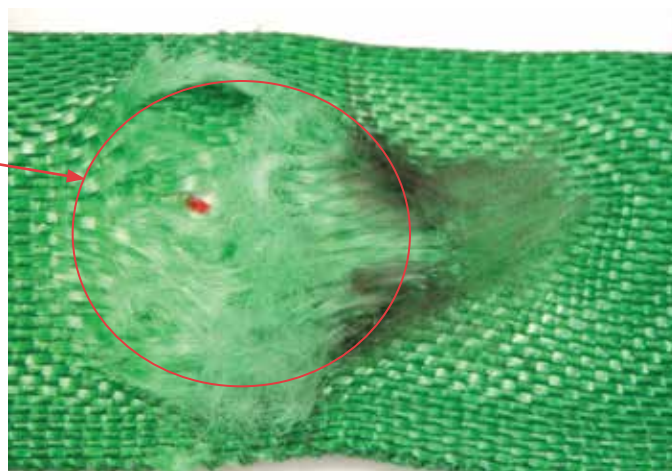
WHAT TO LOOK FOR: Punctures or areas where fibers stand out from the rest of the sling surface.

TO PREVENT: Avoid sling contact with protrusions, both during lifts and while transporting or storing.

THE DAMAGE: Abrasion exposing internal core yarns.

WHAT TO LOOK FOR: Areas of the sling that look and feel fuzzy indicate that the fibers have been broken by being subject to contact and movement against a rough surface. Affected areas are usually discolored.

TO PREVENT: Never drag slings along the ground. Never pull slings from under loads that are resting on the sling. Use wear pads between slings and rough surface loads.



INSPECTION CRITERIA FOR TUFLEX / KEYFLEX

THE DAMAGE: Heat/Chemical

WHAT TO LOOK FOR: Melted or charred fibers anywhere along the sling. Heat and chemical damage can look similar and they both have the effect of damaging sling fibers and compromising the sling's strength. Look for discoloration and/or fibers that have been fused together and often feel hard or crunchy.

TO PREVENT: Never use *Tuflex* where they can be exposed to temperatures in excess of 200°F. Never use *Tuflex* in or around chemicals without confirming that the sling material is compatible with the chemicals being used. For elevated temperatures up to 350°F, ask about our *KeyFlex* roundslings.



THE DAMAGE: Illegible or Missing Tags –The information provided by the sling tag is important for knowing what sling to use and how it will function.

WHAT TO LOOK FOR: If you cannot find or read all of the information on a sling tag, the sling shall be taken out of service.

TO PREVENT: Never set loads down on top of slings or pull slings from beneath loads if there is any resistance. Load edges should never contact sling tags during the lift. Avoid paint or chemical contact with tags.



THE DAMAGE: Knots compromise the strength of all slings by not allowing all fibers to contribute to the lift as designed.

WHAT TO LOOK FOR: Knots are rather obvious problems as shown here.

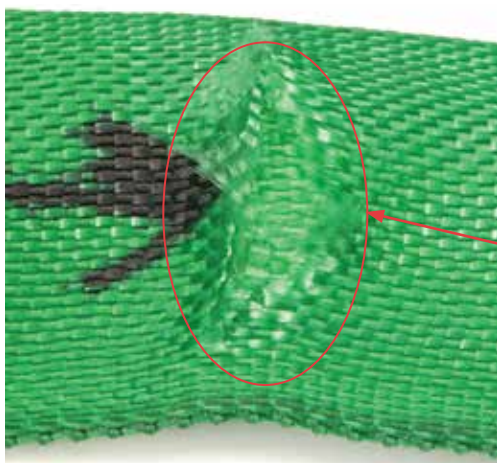
TO PREVENT: Never tie knots in slings and never use slings that are knotted.



THE DAMAGE: Cuts to the cover NOT exposing internal core yarns –Tuflex roundslings all have a double walled jacket protecting the inner core yarns from damage. If damage (except for chemical or heat) appears only to the outer jacket and does not expose the inner core yarns, the sling may remain in service. To extend sling life, the sling may be returned to Lift-All for inspection and application of a patch to cover the damaged area.

WHAT TO LOOK FOR: Broken fibers of equal length indicate that the sling has been cut by an edge. In this case, the inner jacket remains intact.

TO PREVENT: Use wear pads between the sling and all edges that come in contact with the sling.



Wire Rope & Slings



WIRE ROPE AND SLING BASICS

Two major and opposing characteristics of wire rope slings are flexibility and resistance to abrasion. To a great extent, these traits are a direct function of the number of wires. Fewer wires means larger diameter wires, better abrasion resistance, and reduced flexibility. More wires result in decreased wire diameter, reduced abrasion resistance, increased flexibility and kink resistance.

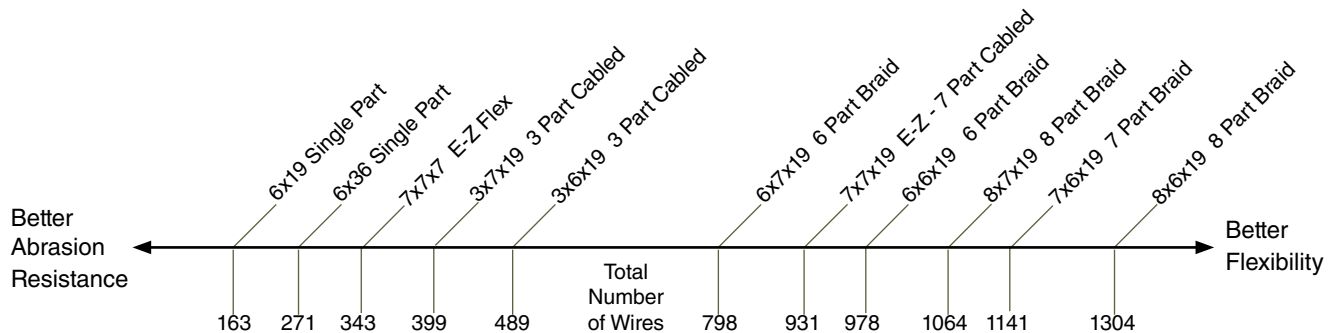
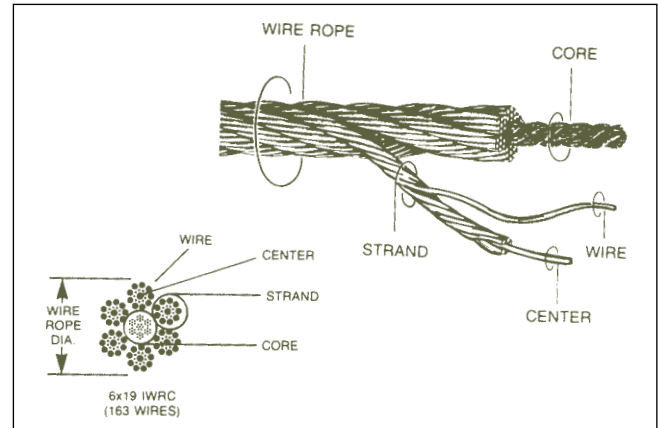
The scale below shows the relative position of the sling constructions shown in this catalog as they pertain to abrasion resistance and flexibility.

EIP = Extra Improved Plow (Steel)

FC = Fiber Core

IWRC = Independent Wire Rope Core

Wire Rope Construction



WIRE ROPE SLINGS

Features, Advantages and Benefits

Promotes Safety

- Tuff-Tag for capacity and serial numbered identification for traceability and compliance with **OSHA**.

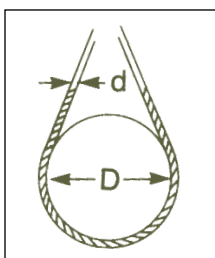
Saves Money

- Least expensive, per capacity, of all steel slings.
- Use of EIP, IWRC rope gives 15% greater capacity than IP, IWRC ropes.

Saves Time

- Countless combinations of sling terminations - hooks, chokers and thimbles are available to fit specific lift requirements.

D/d - Basket Hitch Effect



⚠ WARNING

Read Definition on page 3

Tests have shown that whenever a sling body is bent around a diameter, the strength of the sling is decreased. D/d ratio is the ratio of the diameter around which the sling is bent divided by the body diameter of the sling.

The capacities in this catalog are based on the minimum D/d ratios that appear below each of the capacity tables. For more severe bending conditions, contact **Lift-All** for revised capacities.

Environmental Considerations

- Wire core wire rope (IWRC) must not be used at temperatures above 400°F.
- Fiber core wire rope (FC) must not be used at temperatures above 180°F.
- Fiber core ropes should not be subjected to degreasing solvents.

Effect of Anchor Shackle Pin or Crane Hook on Sling Eye



⚠ WARNING

Read Definition on page 3

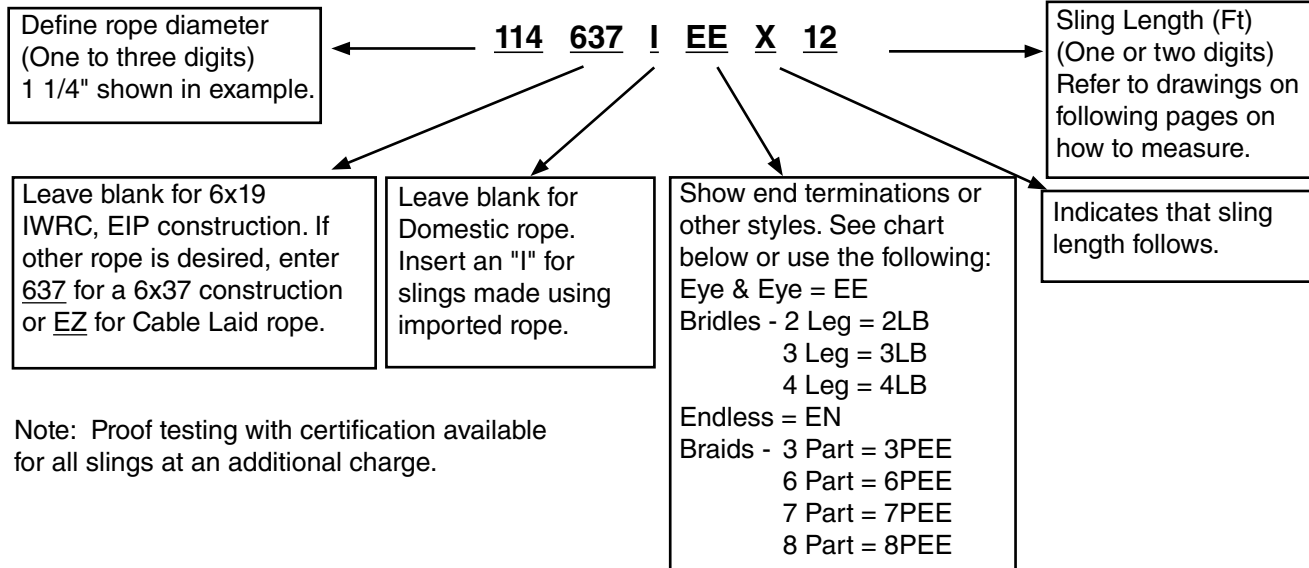
Damage to slings can occur if the wrong size pin or hook is used. The width of the pin or hook should never exceed the natural inside width of the eye.

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.

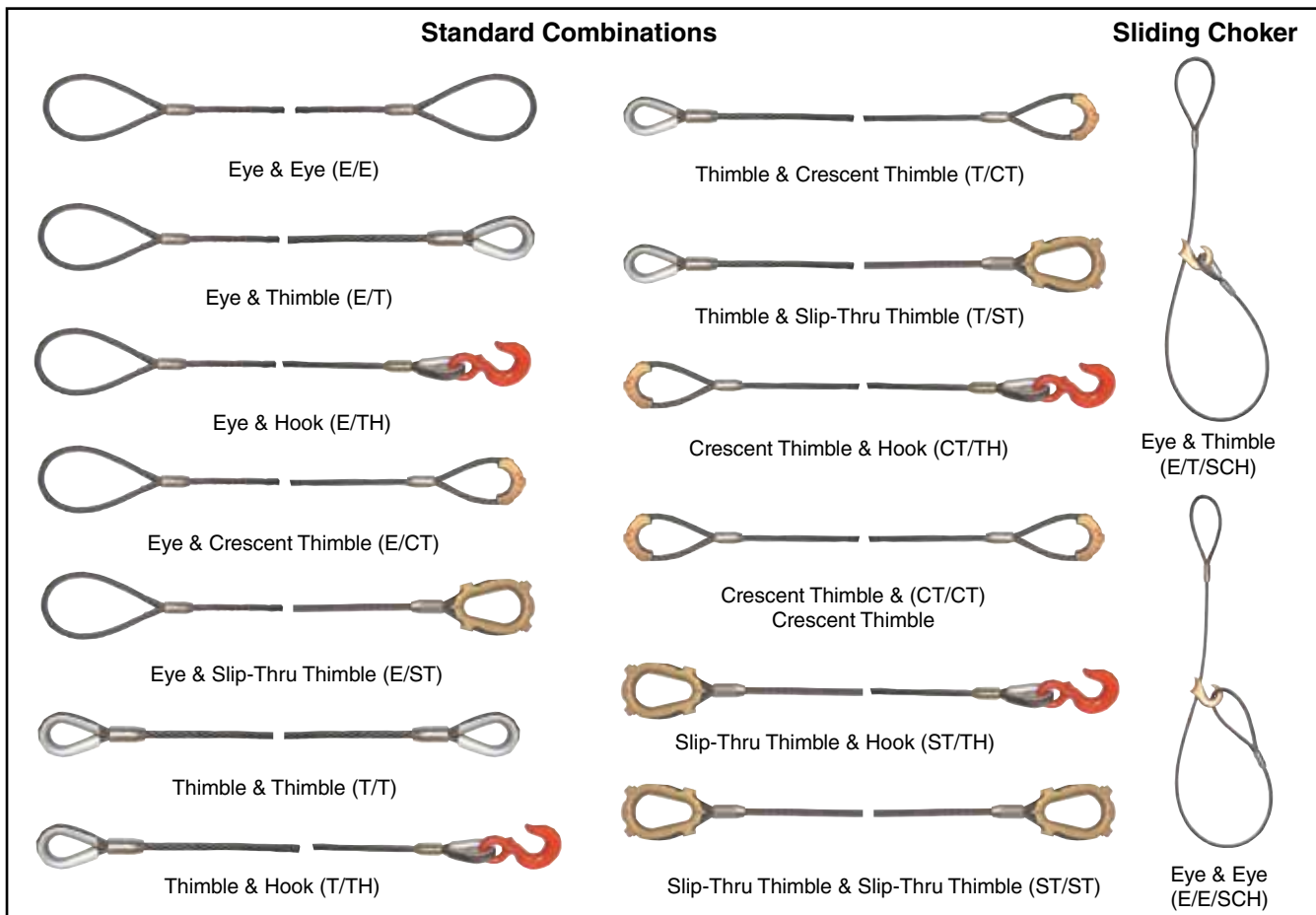
HOW TO ORDER WIRE ROPE SLINGS

Prior to sling selection and use, review and understand the "Help" section pages 3 through 12.

We have developed the following wire rope sling code system to help you in ordering these products.



Note: Proof testing with certification available
for all slings at an additional charge.



Tolerances and Minimum Lengths

Refer to tables for tolerances and minimum lengths.

Wire Rope Class

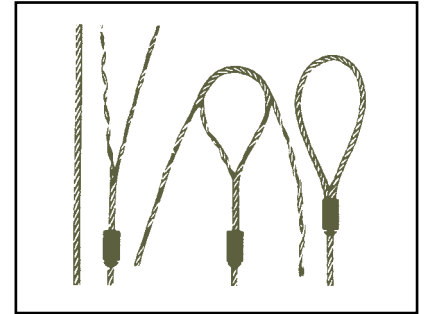
Standard rope classes are shown for each type and size of sling in the charts.
Specific rope constructions are available upon request.

Stretch

Approximately 1% at rated capacity.

PERMALOC WIRE ROPE SLINGS

Lift-All Permaloc Slings are made using the flemish splice technique to form the eyes. Unlike the simple return loop method that places 100% of its strength on the swaged sleeve, *Permaloc* slings have reserve strength should the sleeve become damaged in use.



Features, Advantages and Benefits

Maintains all the basic *Lift-All* wire rope sling features plus ...

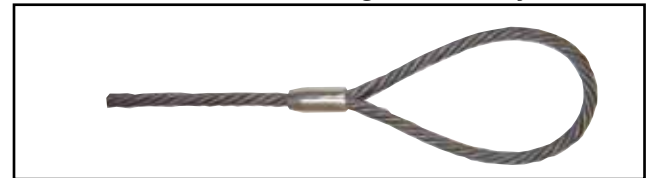
Promotes Safety

- Reserve strength - integrity of eyes not solely dependent upon steel sleeves
- IWRC resists crushing better than FC ropes

Saves Money











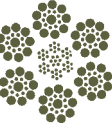
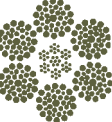
- When specified, thimble eyes protect wire rope from wear for increased life
- Good abrasion resistance for longer life

Permaloc With Single Part Body



Mechanically swaged, flemish eye splice wire rope slings

IWRC (Independent Wire Rope Core) Fiber core available at reduced capacities

| Wire Rope Class |  | EIP, IWRC | | |  |  |  |  |  |  |  |  |  |
|---|---|--------------------------|--------|-----------|---|---|---|--|--|--|--|--|--|
| | | 1 Rated Capacity (tons)* | | | | | | | | | | | |
| | | Vertical | Choker | V. Basket | | | | | | | | | |
| | Rope Dia. (in.) | | | | 2 Min. Sling Length | Standard Eye Size (in.) W x L | Thimble Eye Size (in.) W x L | Eye Hook Cap. (tons) | Crescent Thimble Eye Size (in.) W x L | Slip Thru Thimble Eye Size (in.) W x L | Sliding Choker Hook (in.) | | |
|  | 6 x 19 EIP, IWRC | 1/4 | .65 | .48 | 1.3 | 1' 6" | 2 x 4 | 7/8 x 1 5/8 | 1 | 2 x 4 | 2 1/8 x 4 1/8 | 3/8 | |
| | | 5/16 | 1.0 | .74 | 2.0 | 1' 9" | 2 1/2 x 5 | 1 1/16 x 1 7/8 | 1 | 2 x 4 | 2 1/2 x 4 1/8 | 3/8 | |
| | | 3/8 | 1.4 | 1.1 | 2.9 | 2' 0" | 3 x 6 | 1 1/8 x 2 1/8 | 1 1/2 | 2 x 4 | 2 1/2 x 4 1/8 | 3/8 | |
| | | 7/16 | 1.9 | 1.4 | 3.9 | 2' 3" | 3 1/2 x 7 | 1 1/4 x 2 1/4 | 2 | 2 x 5 | 2 3/8 x 4 3/8 | 1/2 | |
| | | 1/2 | 2.5 | 1.9 | 5.1 | 2' 6" | 4 x 8 | 1 1/2 x 2 3/4 | 3 | 2 1/4 x 6 | 2 3/8 x 4 3/8 | 1/2 ** | |
| | | 9/16 | 3.2 | 2.4 | 6.4 | 2' 9" | 4 1/2 x 9 | 1 1/2 x 2 3/4 | 4 1/2 | 2 1/4 x 7 | 2 3/8 x 4 3/8 | 5/8 | |
| | | 5/8 | 3.9 | 2.9 | 7.8 | 3' 0" | 5 x 10 | 1 3/4 x 3 1/4 | 4 1/2 | 2 3/4 x 7 | 3 3/8 x 6 5/8 | 5/8 ** | |
| | | 3/4 | 5.6 | 4.1 | 11 | 3' 6" | 6 x 12 | 2 x 3 3/4 | 7 | 3 1/4 x 8 1/2 | 3 3/8 x 6 5/8 | 3/4 ** | |
| | | 7/8 | 7.6 | 5.6 | 15 | 4' 0" | 7 x 14 | 2 1/4 x 4 1/4 | 11 | 4 1/2 x 10 | 3 3/4 x 7 1/8 | 7/8 | |
| | | 1 | 9.8 | 7.2 | 20 | 4' 6" | 8 x 16 | 2 1/2 x 4 1/2 | 11 | 4 1/2 x 11 1/2 | 3 3/4 x 7 1/8 | 1 | |
|  | 6 x 37 EIP, IWRC | 1 1/8 | 12 | 9.1 | 24 | 5' 0" | 9 x 18 | 2 7/8 x 5 1/8 | 15 | 4 7/8 x 13 | 4 3/8 x 8 3/8 | 1 1/8 | |
| | | 1 1/4 | 15 | 11 | 30 | 5' 6" | 10 x 20 | 3 1/2 x 6 1/2 | 15 | 5 1/2 x 14 1/2 | 4 3/8 x 8 3/8 | 1 1/4 | |
| | | 1 3/8 | 18 | 13 | 36 | 6' 0" | 11 x 22 | 3 1/2 x 6 1/4 | 22 | 6 x 16 | 5 x 9 1/2 | 1 3/8 | |
| | | 1 1/2 | 21 | 16 | 42 | 7' 0" | 12 x 24 | 3 1/2 x 6 1/4 | 22 | 6 x 17 1/2 | 5 x 9 1/2 | 1 1/2 ** | |
| | | 1 3/4 | 28 | 21 | 57 | 8' 0" | 14 x 28 | 4 1/2 x 9 | 30 | 7 x 20 | 6 3/4 x 11 3/4 | - | |
| | | 2 | 37 | 28 | 73 | 9' 0" | 16 x 32 | 6 x 12 | 37 | 7 x 23 1/2 | 8 x 14 1/2 | - | |
| | | 2 1/4 | 44 | 35 | 89 | 10' 0" | 18 x 36 | 7 x 14 | 45 | 8 1/2 x 26 | 8 x 15 1/2 | - | |
| | | 2 1/2 | 54 | 42 | 109 | 11' 0" | 20 x 40 | - | - | 8 1/2 x 29 1/2 | - | - | |

Note: Larger diameter slings available. Basket ratings are based on a minimum D/d of 25. See page 80.

1. 1 Ton = 2,000 lbs.

2. Minimum sling length when using standard eyes.

Note: **Length Tolerances** - Single Part Wire Rope Slings - Standard length tolerance is plus or minus two rope diameters, or plus or minus 0.5% of the sling length, whichever is greater.

** See page 94 for reduced choker capacity when using these hook sizes.

WARNING

Do not exceed rated capacities. Sling capacity decreases as the angle from horizontal decreases. Slings should not be used at angles of less than 30°. Refer to Effect of Angle chart page 12.

PERMALOC BRIDLE SLINGS

Features, Advantages and Benefits

Maintains all the basic *Lift-All* wire rope sling features plus ...

Promotes Safety

- Bridles provide better load control and balance
- Independent wire rope core resists crushing

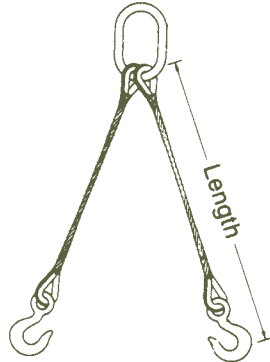
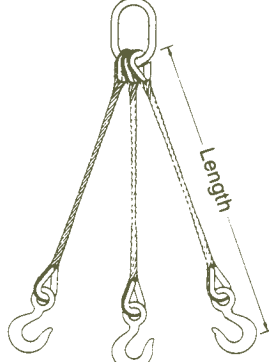
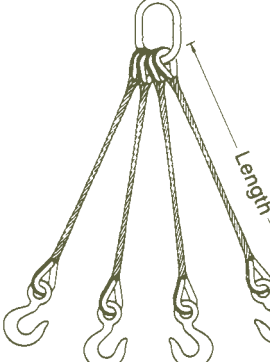








Saves Money

- Alloy steel hooks and links assure long life
- Thimble eyes protect wire rope from wear for increased life
- Reduces load damage by using fixed points on load

Saves Time

- Easier rigging provided when hooking into fixed lifting points

Wire Rope

| Permaloc Bridle Slings (With Single Part Body) | | | | 2-Leg Bridle | | | | 3-Leg Bridle | | | | 4-Leg Bridle | | | |
|--|-------|--------------------------------------|--|---|---|---|--|---|-----|-----|--|--|-----|-----|--|
| | | | |  | | | |  | | | |  | | | |
|  Rope Dia. (in.) | | ² Min. Sling Length |  Eye Hook Cap. (tons) | ¹ Rated Capacity (tons)* | | |  Oblong Link Stock Dia. | ¹ Rated Capacity (tons)* | | |  Oblong Link Stock Dia. | ¹ Rated Capacity (tons)* | | |  Oblong Link Stock Dia. |
| | | | |  60° |  45° |  30° | | | | | | | | | |
| 6 x 19 EIP, IWRC | 1/4 | 1' 3" | 1 | 1.1 | .91 | .65 | 1/2 | 1.7 | 1.4 | .97 | 1/2 | 2.2 | 1.8 | 1.3 | 1/2 |
| | 5/16 | 1' 6" | 1 | 1.7 | 1.4 | 1.0 | 1/2 | 2.6 | 2.1 | 1.5 | 1/2 | 3.5 | 2.8 | 2.0 | 3/4 |
| | 3/8 | 1' 8" | 1 1/2 | 2.5 | 2.0 | 1.4 | 1/2 | 3.7 | 3.0 | 2.2 | 3/4 | 5.0 | 4.1 | 2.9 | 3/4 |
| | 7/16 | 1' 10" | 2 | 3.4 | 2.7 | 1.9 | 3/4 | 5.0 | 4.1 | 2.9 | 3/4 | 6.7 | 5.5 | 3.9 | 1 |
| | 1/2 | 2' | 3 | 4.4 | 3.6 | 2.5 | 3/4 | 6.6 | 5.4 | 3.8 | 1 | 8.8 | 7.1 | 5.1 | 1 |
| | 9/16 | 2' 2" | 4 1/2 | 5.5 | 4.5 | 3.2 | 3/4 | 8.3 | 6.8 | 4.8 | 1 | 11 | 9.0 | 6.4 | 1 1/4 |
| | 5/8 | 2' 4" | 4 1/2 | 6.8 | 5.5 | 3.9 | 1 | 10 | 8.3 | 5.9 | 1 1/4 | 14 | 11 | 7.8 | 1 1/2 |
| | 3/4 | 2' 9" | 7 | 9.7 | 7.9 | 5.6 | 1 1/4 | 15 | 12 | 8.4 | 1 1/2 | 19 | 16 | 11 | 1 3/4 |
| | 7/8 | 3' 3" | 11 | 13 | 11 | 7.6 | 1 1/4 | 20 | 16 | 11 | 1 1/2 | 26 | 21 | 15 | 2 |
| | 1 | 3' 6" | 11 | 17 | 14 | 9.8 | 1 1/2 | 26 | 21 | 15 | 1 3/4 | 34 | 28 | 20 | 2 1/4 |
| 6x37 EIP, IWRC | 1 1/8 | 4' | 15 | 21 | 17 | 12 | 1 1/2 | 31 | 26 | 18 | 1 3/4 | 42 | 34 | 24 | 2 3/4 |
| | 1 1/4 | 4' 6" | 15 | 26 | 21 | 15 | 1 3/4 | 38 | 31 | 22 | 2 | 51 | 42 | 30 | 2 3/4 |
| | 1 3/8 | 5' | 22 | 31 | 25 | 18 | 1 3/4 | 46 | 38 | 27 | 2 1/4 | - | - | - | - |
| | 1 1/2 | 5' 6" | 22 | 37 | 30 | 21 | 2 | 55 | 45 | 32 | 2 1/4 | - | - | - | - |
| | 1 3/4 | 6' 6" | 30 | 49 | 40 | 28 | 2 1/4 | - | - | - | - | - | - | - | - |
| | 2 | 8' | 37 | 63 | 52 | 37 | 2 3/4 | - | - | - | - | - | - | - | - |

Note: **Length Tolerances** - Single Part Wire Rope Slings - Standard length tolerance is plus or minus two rope diameters, or plus or minus 0.5% of the sling length, whichever is greater. The legs of bridle slings, or matched slings are normally held to within one rope diameter.

Other fittings and latches are available upon request.

1. 1 Ton = 2,000 lbs.

2. Minimum length based on thimble eye and eye hook.

⚠ WARNING

Do not exceed rated capacities. Sling capacity decreases as the angle from horizontal decreases.

Slings should not be used at angles of less than 30°.

Refer to Effect of Angle chart page 12.

GROMMETS AND ENDLESS SLINGS

Features, Advantages and Benefits

Maintains all the basic *Lift-All* wire rope sling features plus ...

Promotes Safety

- Load stability and balance can be achieved by spreading sling legs in a basket or choker hitch

Saves Money

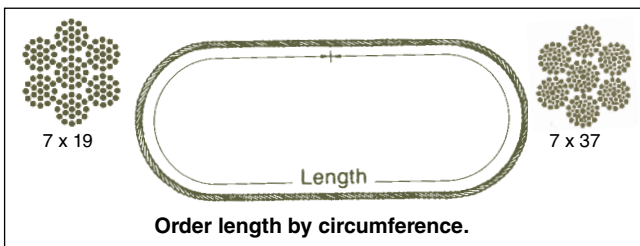
- Wear points can be shifted to extend sling life
- The most versatile style of sling - fewer slings to inventory

Saves Time

- Ideal for turning loads
- More flexible than eye slings of comparable strength

Grommets - Strand Laid, Hand Tucked

Made from one strand of EIP, 19 or 37 wire, hand laid and spliced to form a seven strand rope with no noticeable splice area. No sleeves to snag or get in the way.

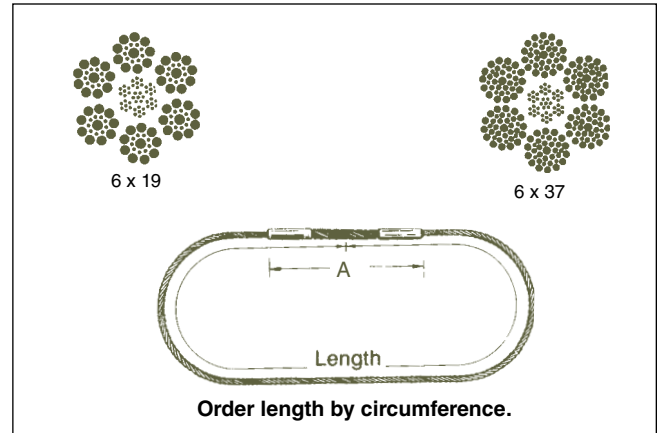


| Rope Dia. (in.) | Rated Capacity (tons)* | | | Minimum Sling Length | Splice Length (in.) |
|-----------------|------------------------|--------|-----------------|----------------------|---------------------|
| | Vertical | Choker | Vertical Basket | | |
| 3/8 | 2.1 | 1.5 | 4.2 | 3' 0" | 2 7/16 |
| 7/16 | 2.8 | 2.0 | 5.7 | 3' 6" | 2 7/8 |
| 1/2 | 3.7 | 2.6 | 7.3 | 4' 0" | 3 1/4 |
| 9/16 | 4.6 | 3.2 | 9.3 | 4' 6" | 3 11/16 |
| 5/8 | 5.7 | 4.0 | 11 | 5' 0" | 4 1/16 |
| 3/4 | 8.2 | 5.7 | 16 | 6' 0" | 4 7/8 |
| 7/8 | 11 | 7.7 | 22 | 7' 0" | 5 11/16 |
| 1 | 14 | 10 | 29 | 8' 0" | 6 1/2 |

Vertical and Basket ratings are based on a minimum D/d of 5. See page 80.

Endless - Mechanical Splice

Made from one 6 x 19 or 6 x 37 EIP, IWRC wire rope, mechanically joined with steel sleeves. Achieves higher capacities at a lower cost.



| Rope Dia. (in.) | Rated Capacity (tons)* | | | Minimum Sling Length | Splice Length A (in.) |
|-----------------|------------------------|--------|-----------------|----------------------|-----------------------|
| | Vertical | Choker | Vertical Basket | | |
| 1/4 | 1.0 | .71 | 2.0 | 3' 0" | 8 |
| 5/16 | 1.6 | 1.1 | 3.1 | 3' 0" | 8 |
| 3/8 | 2.3 | 1.6 | 4.5 | 3' 0" | 8 |
| 7/16 | 3.1 | 2.1 | 6.1 | 6' 0" | 10 |
| 1/2 | 3.9 | 2.8 | 7.9 | 6' 0" | 10 |
| 9/16 | 5.0 | 3.5 | 10 | 6' 0" | 10 |
| 5/8 | 6.1 | 4.3 | 12 | 6' 0" | 10 |
| 3/4 | 8.8 | 6.2 | 18 | 8' 0" | 16 |
| 7/8 | 12 | 8.3 | 24 | 8' 0" | 18 |
| 1 | 15 | 11 | 31 | 8' 0" | 20 |

Note: 3 sleeves used on 3/4" and larger.

Vertical and Basket ratings are based on a minimum D/d of 5. See page 74.

⚠ WARNING Read Definition on page 3.

Do not lift with hook in splice area - sling damage may occur.

⚠ WARNING
Do not exceed rated capacities. Sling capacity decreases as the angle from horizontal decreases.
Slings should not be used at angles of less than 30°. Refer to Effect of Angle chart page 12.

E-Z FLEX CABLE LAID SLINGS

E-Z Flex slings are made from a machine laid rope that consists of seven individual, galvanized ropes.

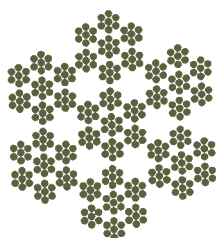
Features, Advantages and Benefits

Maintains all the basic *Lift-All* wire rope sling features plus ...

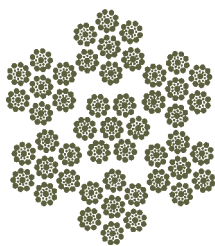
Saves Money

- Superior flexibility - resists damage from kinking
- Galvanized coating for corrosion resistance and longer life

Wire Rope



7 x 7 x 7

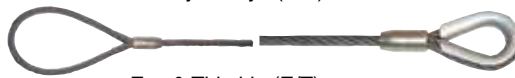


7 x 7 x 19

Standard Combinations



Eye & Eye (E/E)



Eye & Thimble (E/T)



Eye & Hook (E/TH)



Eye & Crescent Thimble (E/CT)



Eye & Slip-Thru Thimble (E/ST)












Slip-Thru Thimble & Hook (ST/TH)



Slip-Thru Thimble & Slip-Thru Thimble (ST/ST)



Thimble & Thimble (T/T)

| | | Rated Capacity (tons)* | | | ** Min. Sling Length |  Standard Eye Size (in.) W x L |  Thimbled Eye Size (in.) W x L |  Eye Hook Cap. (tons) |  Crescent Thimble Eye Size (in.) W x L |  Slip Thru Thimble Eye Size (in.) W x L |  Sliding Choker Hook (in.) |
|------------|-------|---|---|---|-------------------------------|---|---|--|--|---|---|
| | |  Vertical |  Choker |  Vertical Basket | | | | | | | |
| 7 x 7 x 7 | 1/4 | .50 | .34 | 1.0 | 1' 6" | 2 x 4 | 7/8 x 1 5/8 | 1 | 2 x 4 | 2 1/8 x 4 1/8 | 3/8 |
| | 3/8 | 1.1 | .74 | 2.2 | 2' 0" | 3 x 6 | 1 1/8 x 2 1/8 | 1 1/2 | 2 x 4 | 2 1/8 x 4 1/8 | 3/8 |
| | 1/2 | 1.9 | 1.3 | 3.7 | 2' 6" | 4 x 8 | 1 1/2 x 2 3/4 | 2 | 2 1/4 x 6 | 2 3/8 x 4 3/8 | 1/2 |
| | 5/8 | 2.8 | 1.9 | 5.5 | 3' 0" | 5 x 10 | 1 3/4 x 3 1/4 | 3 | 2 3/4 x 7 | 3 3/8 x 6 5/8 | 5/8 |
| 7 x 7 x 19 | 3/4 | 4.1 | 2.8 | 8.1 | 3' 6" | 6 x 12 | 2 x 3 3/4 | 4 1/2 | 3 1/4 x 8 1/2 | 3 3/8 x 6 5/8 | 3/4 |
| | 7/8 | 5.4 | 3.7 | 11 | 4' 0" | 7 x 14 | 2 1/4 x 4 1/4 | 7 | 4 1/2 x 10 | 3 3/4 x 7 1/8 | 7/8 |
| | 1 | 6.9 | 4.7 | 14 | 4' 6" | 8 x 16 | 2 1/2 x 4 1/2 | 7 | 4 1/2 x 11 1/2 | 3 3/4 x 7 1/8 | 1 |
| | 1 1/8 | 8.3 | 5.8 | 17 | 5' 0" | 9 x 18 | 2 7/8 x 5 1/8 | 11 | 4 7/8 x 13 | 4 3/8 x 8 3/8 | 1 1/8 |
| | 1 1/4 | 9.9 | 7.0 | 20 | 5' 6" | 10 x 20 | 3 1/2 x 6 1/2 | 11 | 5 1/2 x 14 1/2 | 4 3/8 x 8 3/8 | 1 1/4 |
| | 1 1/2 | 13 | 9.1 | 26 | 7' 0" | 12 x 24 | 3 1/2 x 6 1/4 | 15 | 6 x 17 1/2 | 5 x 9 1/2 | 1 1/2 |

** Minimum sling length when using standard eyes.
Basket ratings are based on a minimum D/d of 10. See page 80.
Other fittings are available upon request.



WARNING

Do not exceed rated capacities. Sling capacity decreases as the angle from horizontal decreases.
Slings should not be used at angles of less than 30°. Refer to Effect of Angle chart page 12.

E-Z FLEX TWO LEG BRIDLE SLINGS

Features, Advantages and Benefits

Maintains all the basic *Lift-All* wire rope sling features plus ...

Promotes Safety

- Bridles provide better load control and balance

Saves Money

- Excellent flexibility - resists damage from kinking
- Galvanized coating for corrosion resistant longer life
- Alloy steel fittings assure long life

Saves Time

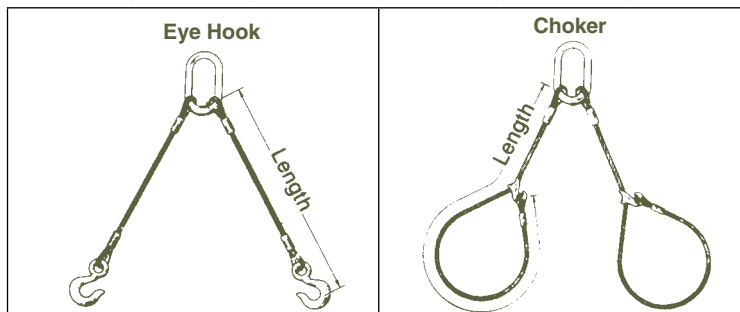
- Easier rigging provided when hooking into fixed lifting points
- Sliding choker hook speeds rigging of bundled materials












⚠ WARNING

Read Definition on page 3.

Do not lift with hook in splice area - sling damage may occur.

E-Z FLEX Two Leg Bridles



| |  Rope Dia. (in.) | Rated Capacity (tons)* | | | Rated Capacity (tons)* | | |  ** Min. Sling Length |  Oblong Link Stock Dia. (in.) |  Eye Hook Cap. (tons) |  Sliding Choker Hook (in.) |
|------------|---|--|--|--|--|--|--|---|--|--|---|
| | |  60° |  45° |  30° |  60° |  45° |  30° | | | | |
| 7 x 7 x 7 | 1/4 | .87 | .71 | .50 | .60 | .49 | .34 | 1' 3" | 1/2 | 1 | 3/8 |
| | 3/8 | 1.9 | 1.5 | 1.1 | 1.3 | 1.0 | .74 | 1' 8" | 1/2 | 1 1/2 | 3/8 |
| | 1/2 | 3.2 | 2.6 | 1.9 | 2.2 | 1.8 | 1.3 | 2' 0" | 3/4 | 2 | 1/2 |
| | 5/8 | 4.8 | 3.9 | 2.8 | 3.3 | 2.7 | 1.9 | 2' 4" | 1 | 3 | 5/8 |
| 7 x 7 x 19 | 3/4 | 7.0 | 5.8 | 4.1 | 4.8 | 3.9 | 2.8 | 2' 9" | 1 | 4 1/2 | 3/4 |
| | 7/8 | 9.4 | 7.6 | 5.4 | 6.4 | 5.2 | 3.7 | 3' 3" | 1 | 7 | 7/8 |
| | 1 | 12 | 9.7 | 6.9 | 8.2 | 6.7 | 4.7 | 3' 6" | 1 1/4 | 7 | 1 |
| | 1 1/8 | 14 | 12 | 8.3 | 10 | 8.2 | 5.8 | 4' 0" | 1 1/2 | 11 | 1 1/8 |
| | 1 1/4 | 17 | 14 | 9.9 | 12 | 9.8 | 7.0 | 4' 6" | 1 1/2 | 11 | 1 1/4 |
| | 1 1/2 | 22 | 18 | 13 | 15 | 13 | 9.1 | 5' 6" | 2 | 15 | 1 1/2 |

** Minimum length based on thimble eye and eye hook.

⚠ WARNING

Do not exceed rated capacities. Sling capacity decreases as the angle from horizontal decreases. Slings should not be used at angles of less than 30° Refer to Effect of Angle chart page 10.

E-Z FLEX ENDLESS SLINGS

Features, Advantages and Benefits

Maintains all the basic *Lift-All* wire rope sling features plus ...

Promotes Safety

- Load stability and balance achieved by spreading sling legs in basket and choker hitches

Saves Money

- Wear points can be shifted to extend sling life
- Smaller rope diameter per capacity increases flexibility

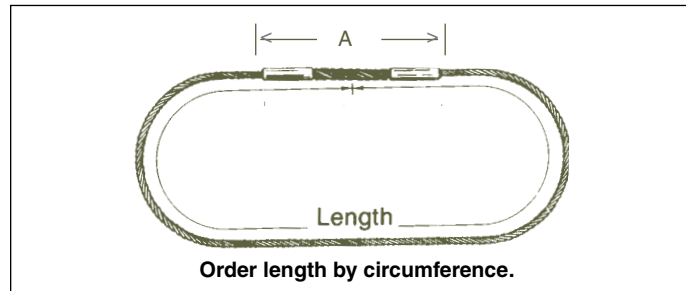
Saves Time

- Ideal for turning loads
- More flexible than eye slings of comparable strength

⚠ WARNING

Read Definition on page 3

Do not lift with hook in splice area - sling damage may occur.



Note: 3 sleeves used on 3/4" and larger.

E-Z FLEX Endless Slings

| | | Rated Capacity (tons)* | | | Min. Sling Length | Splice Length A (in.) |
|------------|-----|------------------------|--------|-----------------|-------------------|-----------------------|
| | | Vertical | Choker | Vertical Basket | | |
| 7 x 7 x 7 | 1/4 | .83 | .54 | 1.7 | 2' 3" | 10 |
| | 3/8 | 1.8 | 1.2 | 3.6 | 3' 0" | 10 |
| | 1/2 | 3.0 | 2.0 | 6.1 | 4' 0" | 12 |
| | 5/8 | 4.6 | 3.0 | 9.1 | 5' 0" | 12 |
| 7 x 7 x 19 | 3/4 | 6.7 | 4.3 | 13 | 6' 0" | 18 |
| | 7/8 | 8.9 | 5.8 | 18 | 7' 0" | 18 |
| | 1 | 11 | 7.3 | 23 | 8' 0" | 20 |

Vertical and Basket ratings are based on a minimum D/d of 5. See page 80.

⚠ WARNING

Do not exceed rated capacities. Sling capacity decreases as the angle from horizontal decreases. Slings should not be used at angles of less than 30°. Refer to Effect of Angle chart page 12.

HIDDEN TUCK HAND SPLICED SLINGS

Features, Advantages and Benefits

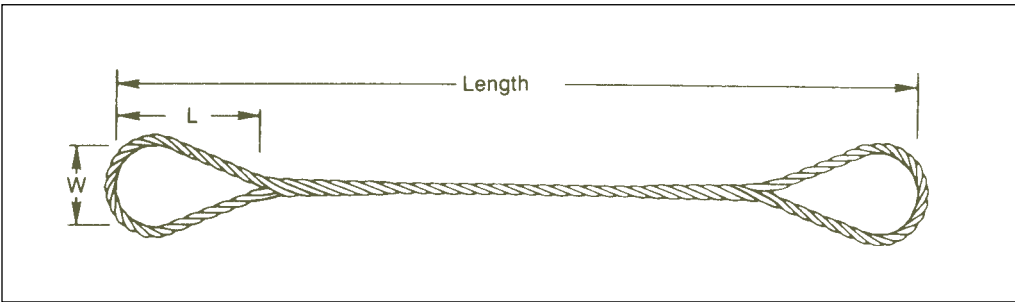
Maintains all the basic *Lift-All* wire rope sling features plus ...

Promotes Safety

- Hidden Tuck buries wire ends to avoid snags and injuries





Saves Time

- No steel sleeves to catch under load



Wire Rope

Fiber Core

| | | EIP, FC | | | |  |
|----------------|-----------------|---|---|---|-------------------|---|
| | | Rated Capacity (tons)* | | | | |
| | |  |  |  | | |
| 6 x 19 EIP, FC | Rope Dia. (in.) | Vertical | Choker | Vertical Basket | Min. Sling Length | Standard Eye Size (in.) W x L |
| | 1/4 | .54 | .42 | 1.1 | 2' 0" | 3 x 6 |
| | 5/16 | .83 | .66 | 1.7 | 2' 3" | 3 x 6 |
| | 3/8 | 1.2 | .94 | 2.4 | 2' 6" | 3 x 6 |
| | 7/16 | 1.6 | 1.3 | 3.2 | 2' 9" | 3 1/2 x 7 |
| | 1/2 | 2.0 | 1.6 | 4.0 | 3' 0" | 4 x 8 |
| | 9/16 | 2.5 | 2.1 | 5.0 | 3' 6" | 4 1/2 x 9 |
| | 5/8 | 3.1 | 2.6 | 6.2 | 4' 0" | 5 x 10 |
| | 3/4 | 4.3 | 3.7 | 8.6 | 4' 6" | 6 x 12 |
| | 7/8 | 5.7 | 5.0 | 11 | 5' 6" | 7 x 14 |
| 1 | 7.4 | 6.4 | 15 | 6' 0" | 8 x 16 | |

Basket ratings are based on a minimum D/d of 15. See page 80.

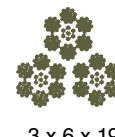
WARNING

Do not exceed rated capacities. Sling capacity decreases as the angle from horizontal decreases. Slings should not be used at angles of less than 30°. Refer to Effect of Angle chart page 12.

MULTI - PART CABLED SLINGS

Three Part Cabled

Constructed by hand cabling one rope to form a three part body with two part eyes.



3 Part Cabled

Features, Advantages and Benefits







Maintains all the basic *Lift-All* wire rope sling features plus ...

Saves Money

- Good abrasion resistance increases useful life of sling
- Resists damage from kinking

Saves Time

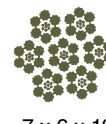
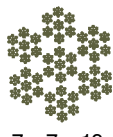
- Flexible, easy to handle by rigger
- Small sleeve over component rope won't get in the way

| |  | Component Rope Dia. (in.) | Sling Body Dia. (in.) | Rated Capacity (tons)* | | | Min. Sling Length |  |  |  |
|-----------------|---|---------------------------|-----------------------|------------------------|--------|-----------------|-------------------|---|---|---|
| | | | | Vertical | Choker | Vertical Basket | | | | |
| 7 x 19 GAC |  | 3/16 | 3/8 | 1.2 | .82 | 2.4 | 2' 0" | 3 x 6 | 2 x 4 | 2 1/8 x 4 1/8 |
| | | 1/4 | 1/2 | 1.9 | 1.3 | 3.9 | 2' 6" | 4 x 8 | 2 1/4 x 4 | 2 3/8 x 4 3/8 |
| | | 5/16 | 5/8 | 3.0 | 2.1 | 6.0 | 3' 0" | 5 x 10 | 2 3/4 x 5 | 3 3/8 x 6 5/8 |
| | | 3/8 | 3/4 | 4.3 | 2.9 | 8.6 | 3' 6" | 6 x 12 | 3 1/4 x 6 | 3 3/8 x 6 5/8 |
| 6 x 19 EIP, WRC |  | 7/16 | 7/8 | 5.8 | 4.0 | 12 | 4' 0" | 7 x 14 | 4 1/2 x 9 | 3 3/4 x 7 1/8 |
| | | 1/2 | 1 | 7.6 | 5.2 | 15 | 4' 6" | 8 x 16 | 4 1/2 x 9 | 3 3/4 x 7 1/8 |
| | | 9/16 | 1 1/8 | 9.6 | 6.6 | 19 | 5' 0" | 9 x 18 | 4 7/8 x 10 | 4 3/8 x 8 3/8 |
| | | 5/8 | 1 1/4 | 12 | 8.0 | 23 | 5' 6" | 10 x 20 | 5 1/2 x 11 | 4 3/8 x 8 3/8 |
| | | 3/4 | 1 1/2 | 17 | 11 | 34 | 7' 0" | 11 x 22 | 6 x 12 | 5 x 9 1/2 |

Basket ratings are based on a minimum D/d of 10 (using sling body dia.). See page 74.

Seven Part Cabled

Constructed by hand cabling one rope to form a seven part body with four part eyes.



7 Part Cabled

Features, Advantages and Benefits







Maintains all the basic *Lift-All* wire rope sling features plus

Saves Money


- Resists damage from kinking

Saves Time

- Superior flexibility makes sling easy to rig and use
- Small sleeve over component rope won't get in the way

| |  | Component Rope Dia. (in.) | Sling Body Dia. (in.) | Rated Capacity (tons)* | | | Min. Sling Length |  |  |  |
|------------|---|---------------------------|-----------------------|------------------------|--------|-----------------|-------------------|---|---|---|
| | | | | Vertical | Choker | Vertical Basket | | | | |
| 7 x 19 GAC |  | 1/8 | 3/8 | 1.3 | .91 | 2.6 | 2' 0" | 3 x 6 | 2 x 4 | 2 1/8 x 4 1/8 |
| | | 3/16 | 9/16 | 2.8 | 1.9 | 5.6 | 2' 6" | 4 x 8 | 2 1/4 x 6 | 2 3/8 x 4 3/8 |
| | | 1/4 | 3/4 | 4.7 | 3.2 | 9.3 | 3' 0" | 5 x 10 | 2 3/4 x 7 | 3 3/8 x 6 5/8 |
| | | 5/16 | 15/16 | 6.5 | 4.5 | 13 | 3' 6" | 6 x 12 | 3 1/4 x 8 1/2 | 3 3/4 x 7 1/8 |
| | | 3/8 | 1 1/8 | 9.6 | 6.6 | 19 | 4' 0" | 7 1/2 x 15 | 4 1/2 x 10 | 3 3/4 x 7 1/8 |
| 6 x 19 |  | 7/16 | 1 5/16 | 14 | 9.3 | 27 | 4' 6" | 9 x 18 | 4 7/8 x 13 | 4 3/8 x 8 3/8 |
| | | 1/2 | 1 1/2 | 18 | 12 | 35 | 5' 0" | 10 x 20 | 5 1/2 x 14 1/2 | 4 3/8 x 8 3/8 |

Basket ratings are based on a minimum D/d of 10 (using sling body dia.). See page 80.

*  **WARNING** Do not exceed rated capacities. Sling capacity decreases as the angle from horizontal decreases. Slings should not be used at angles of less than 30°. Refer to Effect of Angle chart page 12.

Six Part Flat Braid

Constructed by braiding one rope to form a six part flat body with web seized eyes.



6 Part Flat Braid

Features, Advantages And Benefits

Maintains all the basic *Lift-All* wire rope sling features plus ...

Promotes Safety

- Wide bearing surface provides better load control and balance
- Resists rotation, improving load control

Saves Money

- Resists damage from kinking
- Reduces load damage by gripping load better

Saves Time

- Flexible - easy to rig

| | Component Rope Dia. (in.) | Sling Body Dia. (in.) | Rated Capacity (tons)* | | | Min. Sling Length | Standard Eye (in.) W x L | Crescent Thimble Eye Size (in.) W x L | Slip Thru Thimble Eye Size (in.) W x L |
|---------------|---------------------------|-----------------------|------------------------|--------|-----------------|-------------------|--------------------------|---------------------------------------|--|
| | | | Vertical | Choker | Vertical Basket | | | | |
| 7 x 19 GAC | 1/8 | 9/16 x 3/8 | .84 | .74 | 1.7 | 2' 0" | 3 x 6 | 2 x 4 | 2 1/8 x 4 1/8 |
| | 3/16 | 13/16 x 1/2 | 1.8 | 1.5 | 3.5 | 3' 0" | 4 x 8 | 2 1/4 x 7 | 2 3/8 x 4 3/8 |
| | 1/4 | 1 1/8 x 11/16 | 2.9 | 2.6 | 5.9 | 3' 6" | 5 x 10 | 3 1/4 x 8 1/2 | 3 3/8 x 6 5/8 |
| | 5/16 | 1 3/8 x 7/8 | 4.1 | 3.6 | 8.2 | 4' 6" | 6 x 12 | 4 1/2 x 11 1/2 | 3 3/8 x 6 5/8 |
| | 3/8 | 1 11/16 x 1 | 6.0 | 5.3 | 12 | 5' 0" | 7 x 14 | 4 7/8 x 13 | 3 3/4 x 7 1/8 |
| 6 x 19 EIP-I- | 7/16 | 2 x 1 3/16 | 8.6 | 7.5 | 17 | 6' 0" | 8 x 16 | 6 x 16 | 3 3/4 x 7 1/8 |
| | 1/2 | 2 1/4 x 1 5/16 | 11 | 9.8 | 22 | 6' 6" | 9 x 18 | 6 x 17 1/2 | 4 3/8 x 8 3/8 |
| | 9/16 | 2 1/2 x 1 1/2 | 14 | 12 | 28 | 7' 0" | 10 x 20 | 7 x 20 | 4 3/8 x 8 3/8 |
| | 5/8 | 2 13/16 x 1 11/16 | 17 | 15 | 35 | 8' 0" | 11 x 22 | 7 x 23 1/2 | 5 x 9 1/2 |
| | 3/4 | 3 3/8 x 2 | 25 | 22 | 49 | 9' 0" | 12 x 24 | 8 1/2 x 26 | 6 3/4 x 11 3/4 |

Basket ratings are based on a minimum D/d of 25 (using component rope). See page 77.

Eight Part Round Braid

Constructed by braiding one rope to form an eight part round body with four part web seized eyes.



8 Part Round Braid

Features, Advantages And Benefits

Maintains all the basic *Lift-All* wire rope sling features plus ...

Promotes Safety

- Resists rotation, for improved load control

Saves Money

- The most kink resistant sling available
- Greater flexibility for reduced load damage

Saves Time

- The most flexible sling available - easy to rig

| | Component Rope Dia. (in.) | Sling Body Dia. (in.) | Rated Capacity (tons)* | | | Min. Sling Length | Standard Eye (in.) W x L | Crescent Thimble Eye Size (in.) W x L | Slip Thru Thimble Eye Size (in.) W x L |
|-----------------|---------------------------|-----------------------|------------------------|--------|-----------------|-------------------|--------------------------|---------------------------------------|--|
| | | | Vertical | Choker | Vertical Basket | | | | |
| 7 x 19 GAC | 1/8 | 9/16 | 1.1 | 1.0 | 2.2 | 2' 0" | 3 x 6 | 2 x 4 | 2 1/8 x 4 1/8 |
| | 3/16 | 13/16 | 2.4 | 2.1 | 4.7 | 3' 0" | 4 x 8 | 2 1/4 x 6 | 2 3/8 x 4 3/8 |
| | 1/4 | 1 1/8 | 3.9 | 3.4 | 7.8 | 3' 6" | 5 x 10 | 3 1/4 x 8 | 3 3/8 x 6 5/8 |
| | 5/16 | 1 3/8 | 5.5 | 4.8 | 11 | 4' 6" | 6 x 12 | 4 1/2 x 10 | 3 3/4 x 7 1/8 |
| | 3/8 | 1 11/16 | 8.1 | 7.1 | 16 | 5' 0" | 7 x 14 | 4 5/8 x 12 | 3 3/4 x 7 1/8 |
| 6 x 19 EIP-IWRC | 7/16 | 2 | 11 | 10 | 23 | 6' 0" | 8 x 16 | 5 1/2 x 14 | 4 3/8 x 8 3/8 |
| | 1/2 | 2 1/4 | 15 | 13 | 30 | 6' 6" | 9 x 18 | 6 x 16 | 5 x 9 1/2 |
| | 9/16 | 2 1/2 | 19 | 16 | 38 | 7' 0" | 10 x 20 | 6 1/2 x 18 | 5 x 9 1/2 |
| | 5/8 | 2 13/16 | 23 | 20 | 46 | 8' 0" | 11 x 22 | 7 x 20 | 6 3/4 x 11 3/4 |
| | 3/4 | 3 3/8 | 33 | 29 | 66 | 9' 0" | 12 x 24 | 8 x 24 | 8 x 14 1/2 |

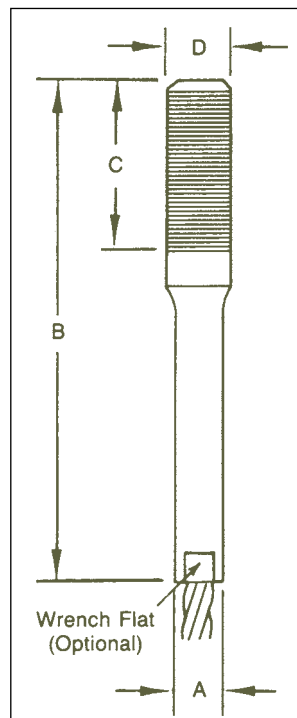
Basket ratings are based on a minimum D/d of 25 (using component rope). See page 80.



Do not exceed rated capacities. Sling capacity decreases as the angle from horizontal decreases. Slings should not be used at angles of less than 30°. Refer to Effect of Angle chart page 12.

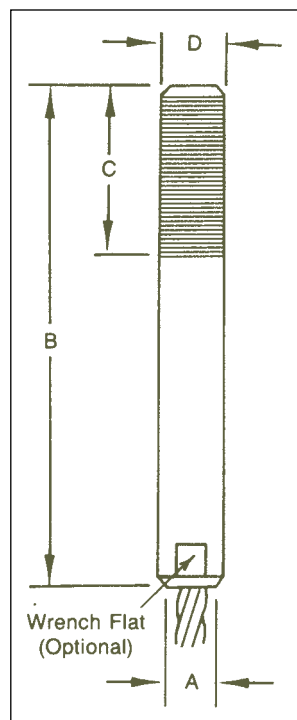
SWAGED THREADED STUDS

- Choice of studs made of specially selected carbon steel or stainless steel
- Custom OEM engineering available



Straight Threaded Studs

| Part No. | Rope Dia (in.) | Nominal Breaking Strength (tons)* | Dimensions (in.) | | | | **N.C. Thread # | N.F. Thread # |
|----------|----------------|-----------------------------------|------------------|-----------|-------|-------|-----------------|---------------|
| | | | A After Swage | B Approx. | C | D | | |
| STS-8 | 1/4 | 3.4 | 7/16 | 4 1/16 | 1 1/2 | 1/2 | 13 | 20 |
| STS-10 | 5/16 | 5.3 | 9/16 | 5 1/4 | 1 7/8 | 5/8 | 11 | 18 |
| STS-12 | 3/8 | 7.6 | 5/8 | 6 1/4 | 2 1/4 | 3/4 | 10 | 16 |
| STS-14 | 7/16 | 10.2 | 3/4 | 7 5/16 | 2 5/8 | 7/8 | 9 | 14 |
| STS-16 | 1/2 | 13.3 | 7/8 | 8 1/4 | 3 | 1 | 8 | 14 |
| STS-18 | 9/16 | 16.8 | 1 | 9 1/4 | 3 3/8 | 1 1/8 | 7 | 12 |
| STS-20 | 5/8 | 20.6 | 1 1/8 | 10 1/8 | 3 3/4 | 1 1/4 | 7 | 12 |
| STS-24 | 3/4 | 29.4 | 1 1/4 | 12 13/16 | 4 1/2 | 1 1/2 | 6 | 12 |
| STS-28 | 7/8 | 39.5 | 1 1/2 | 14 9/16 | 5 1/4 | 1 3/4 | 5 | 12 |
| STS-32 | 1 | 51.7 | 1 3/4 | 16 1/4 | 6 | 2 | 4 1/2 | 12 |
| STS-36 | 1 1/8 | 65.0 | 2 | 18 1/4 | 6 3/4 | 2 1/4 | 4 1/2 | 12 |
| STS-40 | 1 1/4 | 79.9 | 2 1/4 | 20 1/4 | 7 1/2 | 2 1/2 | 4 | 12 |



Turned Threaded Studs

| Part No. | Rope Dia (in.) | Nominal Breaking Strength (tons)* | Dimensions (in.) | | | | **N.C. Thread # | N.F. Thread # |
|----------|----------------|-----------------------------------|------------------|-----------|-------|-------|-----------------|---------------|
| | | | A After Swage | B Approx. | C | D | | |
| TTS-10 | 5/16 | 5.3 | 5/8 | 5 23/32 | 1 3/4 | 5/8 | 11 | 18 |
| TTS-12 | 3/8 | 7.6 | 3/4 | 6 3/4 | 2 | 3/4 | 10 | 16 |
| TTS-14 | 7/16 | 10.2 | 7/8 | 7 21/32 | 2 1/4 | 7/8 | 9 | 14 |
| TTS-16 | 1/2 | 13.3 | 1 | 8 9/16 | 2 1/2 | 1 | 8 | 14 |
| TTS-18 | 9/16 | 16.8 | 1 1/8 | 9 5/8 | 2 3/4 | 1 1/8 | 7 | 12 |
| TTS-20 | 5/8 | 20.6 | 1 1/4 | 10 21/32 | 3 1/8 | 1 1/4 | 7 | 12 |
| TTS-24 | 3/4 | 29.4 | 1 1/2 | 12 11/16 | 3 3/4 | 1 1/2 | 6 | 12 |
| TTS-28 | 7/8 | 39.5 | 1 3/4 | 14 5/8 | 4 3/8 | 1 3/4 | 5 | 12 |
| TTS-32 | 1 | 51.7 | 2 | 16 21/32 | 5 | 2 | 4 1/2 | 12 |
| TTS-36 | 1 1/8 | 65.0 | 2 1/4 | 18 5/8 | 5 5/8 | 2 1/4 | 4 1/2 | 12 |
| TTS-40 | 1 1/4 | 79.9 | 2 1/2 | 20 21/32 | 6 1/4 | 2 1/2 | 4 | 12 |
| TTS-44 | 1 3/8 | 96.0 | 2 3/4 | 22 17/32 | 6 7/8 | 2 3/4 | 4 | 12 |
| TTS-48 | 1 1/2 | 114 | 3 | 24 1/2 | 7 1/2 | 3 | 4 | 12 |

* Nominal Breaking Strength based on 6 x 19 or 6 x 37 IWRC, EIP wire rope, with assembly used as a straight tension member.

**N.C. (Course threads) are standard

SWAGED SOCKET ASSEMBLIES

Features, Advantages and Benefits

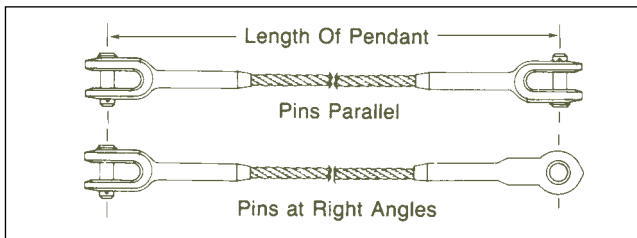
Promotes Safety

- Achieves 100% of nominal rope breaking strength
- All assemblies are proof tested before shipment to customer

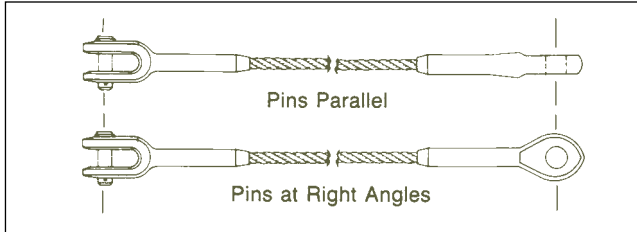
Saves Money



- Custom engineered assemblies are available for specific rigging needs

Open Swaged Sockets



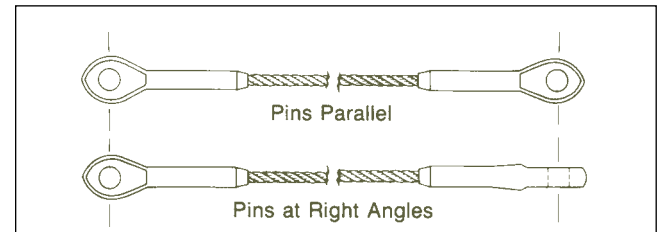
Open and Closed Swaged Sockets




|  Rope Diameter (in.) | Minimum Pendant Length |  Vertical Capacity (tons) * |
|--|------------------------|---|
| 1/4 | 11" | .68 |
| 5/16 | 1' 3" | 1.1 |
| 3/8 | 1' 3" | 1.5 |
| 7/16 | 1' 8" | 2.0 |
| 1/2 | 1' 8" | 2.7 |
| 9/16 | 2' 0" | 3.4 |
| 5/8 | 2' 0" | 4.1 |
| 3/4 | 2' 5" | 5.9 |
| 7/8 | 2' 10" | 8.0 |
| 1 | 3' 2" | 10 |
| 1 1/8 | 3' 7" | 13 |
| 1 1/4 | 4' 0" | 16 |

* Values given apply to 6 x 19 or 6 x 37 IWRC, EIP rope when pendants are used for slings. When used as Boom Suspension System or other applications, contact Lift-All for ratings.

Closed Swaged Sockets



Swage Socket Dimensions (Forged Steel)

|  Rope Dia (in.) | Open Socket | | | | Closed Socket | | |
|---|-------------|---------|---------|---------------|---------------|---------|---------------|
| | R (in.) | O (in.) | D (in.) | Weight (lbs.) | W (in.) | K (in.) | Weight (lbs.) |
| 1/4 | 1 5/32 | 11/16 | 11/16 | .52 | 3/4 | 1/2 | .38 |
| 5/16 | 1 11/32 | 13/16 | 13/16 | 1.12 | 7/8 | 11/16 | .77 |
| 3/8 | 1 11/32 | 13/16 | 13/16 | 1.25 | 7/8 | 11/16 | .72 |
| 7/16 | 1 1/2 | 1 | 1 | 2.08 | 1 1/16 | 7/8 | 1.42 |
| 1/2 | 1 1/2 | 1 | 1 | 2.08 | 1 1/16 | 7/8 | 1.35 |
| 9/16 | 1 5/8 | 1 1/4 | 1 3/16 | 4.48 | 1 1/4 | 1 1/8 | 2.92 |
| 5/8 | 1 5/8 | 1 1/4 | 1 3/16 | 4.75 | 1 1/4 | 1 1/8 | 2.85 |
| 3/4 | 2 | 1 1/2 | 1 3/8 | 7.97 | 1 7/16 | 1 5/16 | 4.90 |
| 7/8 | 2 3/8 | 1 3/4 | 1 5/8 | 11.30 | 1 11/16 | 1 1/2 | 6.63 |
| 1 | 2 3/4 | 2 | 2 | 17.80 | 2 1/16 | 1 3/4 | 10.30 |
| 1 1/8 | 3 1/8 | 2 1/4 | 2 1/4 | 27.50 | 2 5/16 | 2 | 14.50 |
| 1 1/4 | 3 1/2 | 2 1/2 | 2 1/2 | 35.75 | 2 9/16 | 2 1/4 | 20.75 |

WINCH LINES, HOIST LINES AND BUTTONS

Winch and Hoist Line Cables

Lift-All winch and hoist lines are made using 6 x 19 Wire Core ropes for better resistance to abrasion and crushing. Available with carbon hooks for large throat openings or alloy hooks for longer life.

Features, Advantages and Benefits

Promotes Safety

- Permaloc flemish eye splice for high strength efficiency
- Quality factory assembly avoids faulty termination

Saves Money

- Economical standard assemblies
- Heavy duty thimble in eye extends useful life

Saves Time

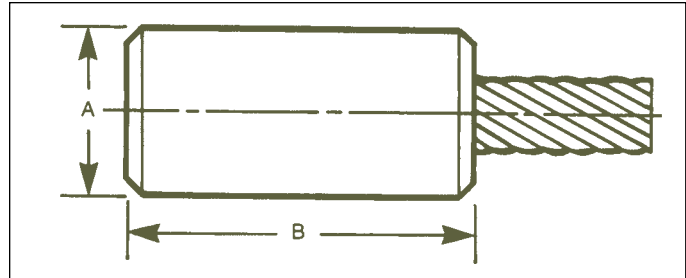
- No assembly time - ready to install
- Stainless steel latch keeps hook in proper place



Winch and Hoist Line Cables

Swaged Steel Buttons

Swaged steel buttons are designed for use as end stops on drum winding equipment such as hoists and winches.



After Swage Dimensions

| Rope Diameter (approx. in.) | A | B |
|-----------------------------|-------|-------|
| 1/4 | 5/8 | 1 1/8 |
| 5/16 | 3/4 | 1 1/2 |
| 3/8 | 7/8 | 1 3/4 |
| 7/16 | 1 | 2 |
| 1/2 | 1 1/8 | 2 3/8 |
| 9/16 | 1 1/4 | 2 5/8 |
| 5/8 | 1 3/8 | 2 7/8 |
| 3/4 | 1 1/2 | 3 1/2 |
| 7/8 | 1 3/4 | 4 1/8 |
| 1 | 2 | 4 3/4 |
| 1 1/8 | 2 1/4 | 5 1/4 |
| 1 1/4 | 2 1/2 | 5 7/8 |
| 1 3/8 | 2 3/4 | 6 1/2 |
| 1 1/2 | 3 | 7 1/8 |

Non-Standard Buttons available.



Running lengths of cable with thimble eye ends available

6 x 19 Class-Bright (Uncoated)

| Diameter (in.) | Breaking Strength |
|----------------|-------------------|
| | IWRC |
| 3/8 | 14,000 lbs. |
| 7/16 | 19,000 lbs. |
| 1/2 | 25,000 lbs. |
| 9/16 | 32,000 lbs. |
| 5/8 | 39,000 lbs. |

WIRE ROPE

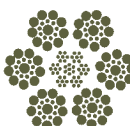
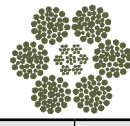
Wire Rope

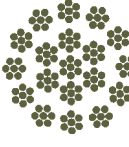
These high quality wire ropes are available in cut lengths or by the reel.

6 x 19 and 6 x 37 Class Wire Rope



Rotation Resistant Wire Rope

| | | Wire Core | |
|---|---------------------------|--|---|
| | | Extra Improved Plow Steel (EIP) Higher Capacities | |
| 6 x 19 Class | |  6 x 19 | |
| Six Strand Ropes Having 9 to 26 Wires Per Strand Better Abrasion Resistance | | | |
| 6 x 37 Class | |  6 x 37 | |
| Six Strand Ropes Having 27 to 49 Wires Per Strand More Flexible | | | |
| | Rope Diameter (in.) | Approx. Weight per Foot (lbs.) | Nominal Breaking Strength (tons) |
| | 1/4 | .12 | 3.40 |
| | 5/16 | .18 | 5.27 |
| | 3/8 | .26 | 7.55 |
| | 7/16 | .35 | 10.2 |
| | 1/2 | .46 | 13.3 |
| | 9/16 | .59 | 16.8 |
| | 5/8 | .72 | 20.6 |
| | 3/4 | 1.04 | 29.4 |
| | 7/8 | 1.42 | 39.8 |
| | 1 | 1.85 | 51.7 |
| | 1 1/8 | 2.34 | 65.0 |
| | 1 1/4 | 2.89 | 79.9 |
| | 1 3/8 | 3.50 | 96.0 |
| | 1 1/2 | 4.16 | 114 |
| | 1 5/8 | 4.88 | 132 |
| | 1 3/4 | 5.67 | 153 |
| | 1 7/8 | 6.50 | 174 |
| | 2 | 7.39 | 198 |

| | Rope Dia. (in.) | Approx. Weight per Foot (lbs.) | Nominal Breaking Strength (tons) |
|---|-----------------------|---|---|
|  19 x 7 | 3/8 | .25 | 6.15 |
| | 7/16 | .35 | 8.33 |
| | 1/2 | .45 | 10.8 |
| | 9/16 | .58 | 13.6 |
| | 5/8 | .71 | 16.8 |
| | 3/4 | 1.02 | 24.0 |
| | 7/8 | 1.39 | 32.5 |
| | 1 | 1.82 | 42.2 |
| | 1 1/8 | 2.3 | 53.1 |

The Nominal Breaking Strength of a wire rope should be considered the straight line pull with both rope ends fixed to prevent rotation, which will ACTUALLY BREAK a new, UNUSED, rope. The Nominal Breaking Strength of a rope should NEVER BE USED AS ITS WORKING LOAD.

To determine the working load of a wire rope, the MINIMUM or NOMINAL Breaking Strength MUST BE REDUCED by a DESIGN FACTOR. The design Factor will vary depending upon the type of machine and installation, and the work permitted. YOU must determine the applicable Design Factor for your use.

For example, a Design Factor of "5" means that the Minimum or Nominal Breaking Strength of the wire rope must be DIVIDED BY FIVE to determine the maximum load that can be applied to the rope system.

Design Factors have been established by OSHA, by ANSI, by ASME and similar government and industrial organizations.

No wire rope should ever be installed or used without full knowledge and consideration of the Design Factor for the application.


The above is based on the 'Wire Rope Safety Bulletin' published by the "WIRE ROPE TECHNICAL BOARD".

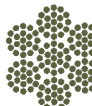
Note: Specialty ropes are available upon request.

CABLE & COMPONENTS



Galvanized and Stainless Steel Cable

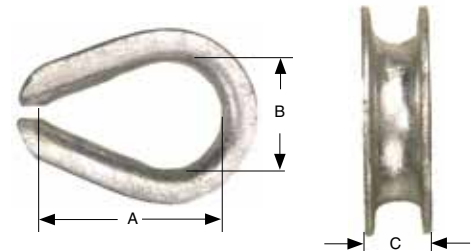
| 7 x 7 | Cable Diameter (in.) | Wt./Reel (lbs.) | Standard Length (ft./Reel) | Nominal Break Strength (lbs.) | |
|---|----------------------|-----------------|----------------------------|-------------------------------|---------------------------------------|
| | | | | Galvanized Cable (GAC) | Stainless Steel Cable (SSAC) Type 304 |
|  | 1/16 | 5 | 500 | 480 | 480 |
| | 3/32 | 9 | 500 | 920 | 920 |
| | 1/8 | 15 | 500 | 1,700 | 1,760 |

| 7 x 19 |  | Cable Diameter (in.) | Wt./Reel (lbs.) | Standard Length (ft./Reel) | Nominal Break Strength (lbs.) | |
|--------|---|----------------------|-----------------|----------------------------|-------------------------------|---------------------------------------|
| | | | | | Galvanized Cable (GAC) | Stainless Steel Cable (SSAC) Type 304 |
| | | 3/32 | 9 | 500 | 1,000 | 920 |
| | | 1/8 | 15 | 500 | 2,000 | 1,760 |
| | | 5/32 | 12 | 250 | 2,800 | 2,400 |
| | | 3/16 | 17 | 250 | 4,200 | 3,700 |
| | | 1/4 | 25 | 250 | 7,000 | 6,400 |
| | | 5/16 | 38 | 200 | 9,800 | 9,000 |
| | | 3/8 | 52 | 200 | 14,400 | 12,000 |

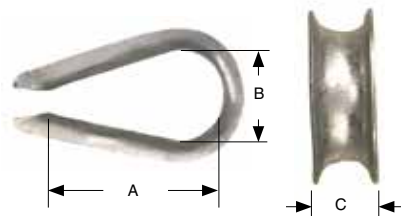
Galvanized Cable Coated with Clear Vinyl

| Galvanized Cable Construction | Cable Diameter (in.) | Coated To: (in.) | Wt./Reel (lbs.) | Standard Length (ft./Reel) | Nominal Break Strength (lbs.) |
|-------------------------------|----------------------|------------------|-----------------|----------------------------|-------------------------------|
| 7 x 7 | 1/16 | 3/32 | 7 | 500 | 480 |
| | 3/32 | 3/16 | 7 | 250 | 920 |
| | 1/8 | 3/16 | 10 | 250 | 1,700 |
| 7 x 19 | 1/8 | 3/16 | 10 | 250 | 2,000 |
| | 3/16 | 1/4 | 19 | 200 | 4,200 |
| | 1/4 | 5/16 | 28 | 200 | 7,000 |

Heavy Duty Wire Rope Thimbles



Standard Wire Rope Thimbles



| Rope Dia. (in.) | Dimensions (in.) | | | Quantity Per Bag | Weight Per Bag (lbs.) |
|-----------------|------------------|-------|------|------------------|-----------------------|
| | A | B | C | | |
| 1/8 | 1 5/16 | 11/16 | 1/4 | 100 | 4 |
| 3/16 | 1 5/16 | 11/16 | 5/16 | 100 | 4 |
| 1/4 | 1 5/16 | 11/16 | 3/8 | 100 | 4 |
| 5/16 | 1 1/2 | 13/16 | 7/16 | 80 | 3 |
| 3/8 | 1 5/8 | 15/16 | 1/2 | 80 | 4 |

| Rope Dia. (in.) | Dimensions (in.) | | | Weight Per 100 Pieces (lbs.) |
|-----------------|------------------|--------|---------|------------------------------|
| | A | B | C | |
| 1/4 | 1 5/8 | 7/8 | 7/16 | 8 |
| 5/16 | 1 7/8 | 1 1/16 | 17/32 | 14 |
| 3/8 | 2 1/8 | 1 1/8 | 21/32 | 22 |
| 7/16 | 2 5/16 | 1 1/4 | 3/4 | 36 |
| 1/2 | 2 3/4 | 1 1/2 | 15/16 | 51 |
| 5/8 | 3 1/4 | 1 3/4 | 1 1/32 | 75 |
| 3/4 | 3 3/4 | 2 | 1 1/4 | 147 |
| 7/8 | 4 1/4 | 2 1/4 | 1 7/16 | 185 |
| 1 | 4 1/2 | 2 1/2 | 1 11/16 | 300 |
| 1 1/8 | 5 1/8 | 2 7/8 | 1 13/16 | 400 |
| 1 1/4 | 6 1/2 | 3 1/2 | 2 3/16 | 817 |
| 1 3/8 - 1 1/2 | 6 1/4 | 3 1/2 | 2 9/16 | 1,175 |
| 1 5/8 | 8 | 4 | 2 23/32 | 1,700 |
| 1 3/4 | 9 | 4 1/2 | 2 27/32 | 1,775 |
| 1 7/8 - 2 | 12 | 6 | 3 3/32 | 2,500 |
| 2 1/4 | 14 | 7 | 3 5/8 | 3,950 |

CABLE & COMPONENTS

Wire Rope Clips

The following instructions, supplied by the Wire Rope Technical Board, will result in an approximate 80% efficiency rating when the clips are applied as instructed, on GAC, SSAC, RRL or RLL, 6 x 19 class or 6 x 37 class, fiber core or IWRC, non-Seale type construction wire rope. If applied to vinyl coated ropes, vinyl must first be stripped from clip connection area.

How to Apply Clips

1. Turn back the specified amount of rope from the thimble. Apply the first clip one clip width from the dead end of the wire rope (U-bolt over dead end - live end rests in clip saddle). Tighten nuts evenly to recommended torque.
2. Apply the next clip as near to the loop as possible. Turn on nuts firmly but do not tighten.
3. Space additional clips, if required, equally between the first two. Tighten on nuts - take up rope slack - tighten all nuts evenly on all clips to recommended torque.
4. NOTICE! Apply the initial load and retighten nuts to the recommended torque. Rope will stretch and be reduced in diameter when loads are applied. Inspect periodically and retighten to recommended torque.



Right Way - For Maximum Rope Strength



Wrong Way -
Clips Staggered



Wrong Way -
Clips Reversed



Wire Rope

⚠ WARNING

Failure to make a termination in accordance with aforementioned instructions, or failure to periodically check and retighten to the recommended torque, may result in death or serious injury.

Drop Forged Wire Rope Clips

| Rope Dia. (in.) | Minimum Number of Clips | Rope Turn-back (in.) | Torque (ft./lbs.) | Weight Per 100 Pieces (lbs.) |
|-----------------|-------------------------|----------------------|-------------------|------------------------------|
| 1/8 | 2 | 3 1/4 | 4 1/2 | 6 |
| 3/16 | 2 | 3 3/4 | 7 1/2 | 10 |
| 1/4 | 2 | 4 3/4 | 15 | 18 |
| 5/16 | 2 | 5 1/4 | 30 | 30 |
| 3/8 | 2 | 6 1/2 | 45 | 47 |
| 7/16 | 2 | 7 | 65 | 76 |
| 1/2 | 3 | 11 1/2 | 65 | 80 |
| 9/16 | 3 | 12 | 95 | 104 |
| 5/8 | 3 | 12 | 95 | 106 |
| 3/4 | 4 | 18 | 130 | 150 |
| 7/8 | 4 | 19 | 225 | 212 |
| 1 | 5 | 26 | 225 | 250 |
| 1 1/8 | 6 | 34 | 225 | 280 |
| 1 1/4 | 7 | 44 | 360 | 415 |
| 1 3/8 | 7 | 44 | 360 | 460 |
| 1 1/2 | 8 | 54 | 360 | 530 |

Malleable Wire Rope Clips

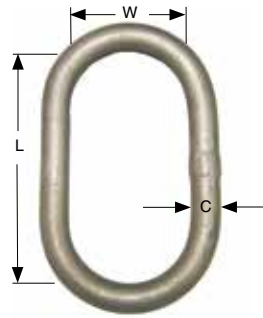
| Rope Dia. (in.) | Minimum Number of Clips | Rope Turn-back (in.) | Torque (ft./ lbs.) | Quantity Per Bag | Weight Per Bag (lbs.) |
|-----------------|-------------------------|----------------------|--------------------|------------------|-----------------------|
| 1/8 | 3 | 5 | 3 | 200 | 10 |
| 3/16 | 3 | 6 | 5 | 150 | 12 |
| 1/4 | 3 | 7 | 15 | 100 | 12 |
| 5/16 | 3 | 8 | 15 | 100 | 15 |
| 3/8 | 3 | 10 | 30 | 50 | 11 |

Note: Malleable clips are not to be used for overhead lifting. Use in light duty, non-critical applications only.

SLING ATTACHMENTS, HOOKS, ETC.

Alloy Oblong Master Links

- Drop forged through 1", formed and welded in larger sizes.



Sliding Choker Hooks

- Speeds rigging time of bundled loads.
- Reduces sling wear when used with thimbles. When using on multi-part slings, contact *Lift-All* for additional information.

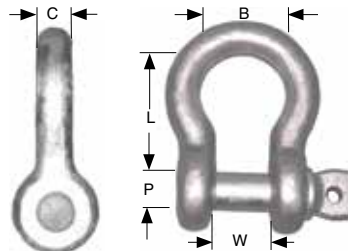


| Rated Capacity* | | Dimensions (in.) | | | Weight Each (lbs.) |
|-----------------|---------|------------------|--------|-------|--------------------|
| Tons | Lbs. | C | L | W | |
| 3.05 | 6,100 | 1/2 | 5 | 2 1/2 | .9 |
| 6.6 | 13,200 | 3/4 | 6 | 3 | 2.5 |
| 11.2 | 22,400 | 1 | 8 | 4 | 5.8 |
| 16.2 | 32,400 | 1 1/4 | 8 3/4 | 4 3/8 | 9.2 |
| 24.5 | 49,000 | 1 1/2 | 10 1/2 | 5 1/4 | 16 |
| 36.7 | 73,400 | 1 3/4 | 12 | 6 | 25 |
| 44.4 | 88,800 | 2 | 14 | 7 | 37 |
| 62.6 | 125,200 | 2 1/4 | 16 | 8 | 54 |
| 93.9 | 187,800 | 2 3/4 | 16 | 9 | 85 |

| Hook No. (Rope Dia.) | Rated Capacity* (tons) | Dimension (in.) | Weight (lbs.) |
|----------------------|------------------------|-----------------|---------------|
| | | H | |
| 3/8 | 1.3 | 4 1/4 | 1.3 |
| 1/2 | 1.7 | 4 13/16 | 1.8 |
| 5/8 | 2.5 | 5 15/16 | 4 |
| 3/4 | 4.0 | 6 7/16 | 4.5 |
| 7/8 - 1 | 7.5 | 8 1/8 | 10 |
| 1 1/8 - 1 1/4 | 11.5 | 11 5/8 | 26 |
| 1 3/8 - 1 1/2 | 15 | 14 1/2 | 50 |

Screw Pin Anchor Shackles

- Carbon Shackle, Alloy Pin
- Heat treated and tempered
- Hot dip galvanized



Note: This chart shows standard capacities and dimensions, but may vary depending on source of supply. Specify required capacity if critical.

Spec: RR-C-271F
Type 4A, Grade A, Class 2

| Shackle Size Dim. C (in.) | Rated Capacity* (tons) | | Dimensions (in.) | | | | Weight per 100 Pieces (lbs.) |
|---------------------------|------------------------|--------|------------------|---------|-------|---------|------------------------------|
| | CM | Others | B | L | P | W | |
| 3/16 | 1/2 | 1/3 | 5/8 | 7/8 | 1/4 | 3/8 | 6 |
| 1/4 | 3/4 | 1/2 | 13/16 | 1 1/8 | 5/16 | 15/32 | 12 |
| 5/16 | 1 | 3/4 | 7/8 | 1 1/4 | 3/8 | 17/32 | 20 |
| 3/8 | 1 1/2 | 1 | 1 1/16 | 1 7/16 | 7/16 | 21/32 | 30 |
| 7/16 | 2 | 1 1/2 | 1 1/4 | 1 11/16 | 1/2 | 23/32 | 50 |
| 1/2 | 3 | 2 | 1 7/16 | 1 15/16 | 5/8 | 13/16 | 75 |
| 5/8 | 4 1/2 | 3 1/4 | 1 3/4 | 2 13/32 | 3/4 | 1 1/16 | 130 |
| 3/4 | 6 1/2 | 4 3/4 | 2 | 2 27/32 | 7/8 | 1 1/4 | 225 |
| 7/8 | 8 1/2 | 6 1/2 | 2 5/16 | 3 5/16 | 1 | 1 7/16 | 350 |
| 1 | 10 | 8 1/2 | 2 9/16 | 3 3/4 | 1 1/8 | 1 11/16 | 500 |
| 1 1/8 | 12 | 9 1/2 | 2 15/16 | 4 1/4 | 1 1/4 | 1 13/16 | 700 |
| 1 1/4 | 14 | 12 | 3 1/4 | 4 11/16 | 1 3/8 | 2 1/32 | 950 |
| 1 3/8 | 17 | 13 1/2 | 3 1/2 | 5 1/4 | 1 1/2 | 2 1/4 | 1250 |
| 1 1/2 | 20 | 17 | 3 3/4 | 5 3/4 | 1 5/8 | 2 3/8 | 1720 |
| 1 5/8 | 24 | 24 | 4 3/8 | 6 1/4 | 1 3/4 | 2 5/8 | 2350 |
| 1 3/4 | 30 | 25 | 5 | 7 | 2 | 2 7/8 | 2770 |
| 2 | 35 | 35 | 5 3/4 | 7 3/4 | 2 1/4 | 3 1/4 | 3900 |

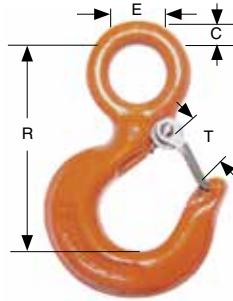
WARNING

Do not exceed rated capacities. Sling capacity decreases as the angle from horizontal decreases. Slings should not be used at angles of less than 30°. Refer to Effect of Angle chart page 12. Rated Capacity Design Factor 5:1.

SLING ATTACHMENTS, HOOKS, ETC.

Rigging Eye Hooks

- Drop forged alloy steel
- Lightweight hooks for heavy duty lifting



| | Rated Capacity | | Dimension (in.) | | | | Weight Each (lbs.) |
|--------|----------------|--------|-----------------|---------|----------|---------|--------------------|
| | Tons | Lbs. | C | E | R | T | |
| Alloy | 1 | 2,000 | 3/8 | 3/4 | 3 1/8 | 15/16 | .63 |
| | 1 1/2 | 3,000 | 7/16 | 7/8 | 3 21/32 | 31/32 | .85 |
| | 2 | 4,000 | 1/2 | 1 1/8 | 4 3/32 | 1 1/16 | 1.4 |
| | 3 | 6,000 | 5/8 | 1 1/4 | 4 21/32 | 1 3/16 | 1.9 |
| | 4 1/2 | 9,000 | 3/4 | 1 9/16 | 5 25/32 | 1 1/2 | 3.7 |
| | 7 | 14,000 | 15/16 | 2 | 7 5/16 | 1 25/32 | 7.3 |
| | 11 | 22,000 | 1 1/8 | 2 7/16 | 9 1/32 | 2 3/8 | 15 |
| | 15 | 30,000 | 1 1/4 | 2 27/32 | 10 7/32 | 2 1/2 | 22 |
| Carbon | 20 | 40,000 | 1 3/4 | 3 1/2 | 14 1/16 | 4 | 60 |
| | 30 | 60,000 | 2 3/16 | 4 15/16 | 20 1/8 | 4 3/4 | 148 |
| | 40 | 80,000 | 2 17/32 | 5 | 23 23/32 | 5 3/4 | 227 |

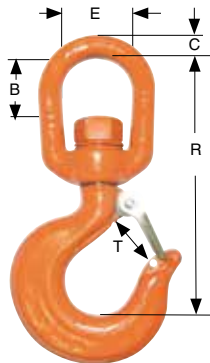
Carbon hooks available.



Stainless steel latch available.

Swivel Rigging Eye Hooks

- Hook swivels beneath eye
- Drop forged alloy steel



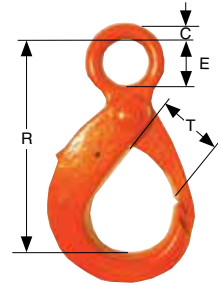
| | Rated Capacity | | Dimensions (in.) | | | | | Weight Each (lbs.) |
|-------|----------------|--------|------------------|-------|-------|---------|---------|--------------------|
| | Tons | Lbs. | B | C | E | R | T | |
| 1 | 2,000 | 2,000 | 1 1/8 | 3/8 | 1 1/4 | 4 5/8 | 15/16 | 1.1 |
| 1 1/2 | 3,000 | 3,000 | 1 3/8 | 1/2 | 1 1/2 | 5 7/16 | 31/32 | 1.6 |
| 2 | 4,000 | 4,000 | 1 21/32 | 5/8 | 1 3/4 | 6 1/4 | 1 1/16 | 2.5 |
| 3 | 6,000 | 6,000 | 1 21/32 | 11/16 | 1 3/4 | 6 1/2 | 1 5/32 | 3.2 |
| 5 | 10,000 | 10,000 | 1 25/32 | 3/4 | 2 | 7 17/32 | 1 13/32 | 5.4 |
| 7 | 14,000 | 14,000 | 2 3/8 | 1 | 2 3/4 | 9 21/32 | 1 11/16 | 10.6 |

WARNING

Do not exceed rated capacities. Sling capacity decreases as the angle from horizontal decreases. Slings should not be used at angles of less than 30°. Refer to Effect of Angle chart page 12. Rated Capacity Design Factor 5:1.

Latchlok Eye Hooks

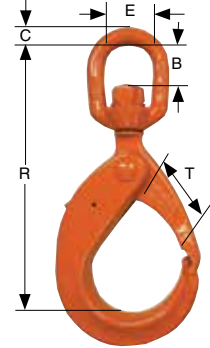
- Heavy duty latch with lock prevents accidental opening
- Drop forged alloy steel



| Rated Capacity | | Dimensions (in.) | | | | Weight Each (lbs.) |
|----------------|--------|------------------|--------|----------|---------|--------------------|
| Tons | Lbs. | C | E | R | T | |
| 1.7 | 3,400 | 7/16 | 1 3/32 | 5 3/8 | 1 5/8 | 2.1 |
| 3.5 | 7,000 | 19/32 | 1 3/8 | 6 21/32 | 1 9/32 | 3.9 |
| 6.0 | 12,000 | 25/32 | 1 9/16 | 8 25/32 | 2 29/32 | 8.8 |
| 9.0 | 18,000 | 1 1/32 | 2 | 10 11/32 | 3 3/16 | 14 |

Swivel Latchlok Hooks With Bushings

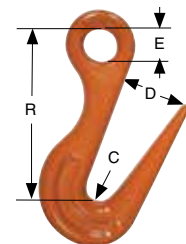
- Hook swivels beneath the eye
- Heavy duty latch with lock prevents accidental opening
- Drop forged alloy steel



| Rated Capacity | | Dimensions (in.) | | | | | Weight Each (lbs.) |
|----------------|--------|------------------|-------|-------|----------|---------|--------------------|
| Tons | Lbs. | B | C | E | R | T | |
| 1.7 | 3,400 | 1 11/32 | 5/8 | 1 1/2 | 7 5/32 | 1 5/8 | 3.5 |
| 3.5 | 7,000 | 1 5/8 | 3/4 | 1 3/4 | 8 23/32 | 2 1/4 | 4.8 |
| 6.0 | 12,000 | 1 3/4 | 15/16 | 2 | 11 3/16 | 2 29/32 | 10.6 |
| 9.0 | 18,000 | 2 3/8 | 1 | 2 3/4 | 13 13/32 | 3 3/16 | 17.0 |

Sorting Hooks

- Drop forged alloy steel, for maximum strength and toughness.



| Dimensions (in.) | | | | Weight (lbs.) |
|------------------|---------|--------|---------|---------------|
| C (Rad.) | D | E | R | |
| 5/8 | 2 13/16 | 1 7/16 | 7 11/32 | 6.8 |

Working load limit at tip - 2 ton.

Working load limit at bottom - 7 1/2 ton.

INSPECTION CRITERIA FOR WIRE ROPE SLINGS

⚠ CAUTION

Do not inspect a sling by passing bare hands over the wire rope.

Remove slings from service when:

- Capacity information is missing or illegible;
- End attachments, including hooks, are cracked, deformed or obviously worn;
- Hook throat opening is increased more than 15%;
- Hook is twisted out of plane by more than 10%.

THE DAMAGE: **Broken Wires**

WHAT TO LOOK FOR: The individual wires that make up the strands in a wire rope can break for various reasons including fatigue and overload. Wire rope slings must be taken out of service when you find 10 or more broken wires in one rope lay or 5 or more broken wires in one strand of one rope lay.

TO PREVENT: Avoid pulling rope across edges or protrusions.



THE DAMAGE: **Wear**

WHAT TO LOOK FOR: Flat areas on the individual wires. When wires have lost one third or more of their original diameter, the sling must be taken out of service.

TO PREVENT: Do not drag sling on the ground and do not drag loads over slings. Pad high wear areas.



THE DAMAGE: **Corrosion / Heat Damage**

WHAT TO LOOK FOR: Absence of lubrication and discoloration of rope.

TO PREVENT: Hang slings for storage away from moisture. Do not use wire core slings above 400° F or fiber core slings above 180° F.



THE DAMAGE: **Kinking, Bird Caging**

WHAT TO LOOK FOR: Bent strands of wire or strands standing out from their regular position in the body of the sling.

TO PREVENT: Protect rope from sharp edges of load by pads or other means. Do not shock load slings.



THE DAMAGE: **Crushing**

WHAT TO LOOK FOR: A section of rope that is flattened, where the cross section is no longer round.

TO PREVENT: Never allow loads to be set on top of slings.

Note: OSHA now requires wire rope slings to have "permanently affixed and legible identification markings"











For inspection frequency, refer to page 7.

SLING WEIGHTS (Approx.)

To estimate sling weights, multiply length x Per Foot Weight and add Zero Base Weight plus any additional fittings' weights.



|  Rope Dia. (in.) |  *Zero Base Weight (lbs.) |  Per Foot Weight (lbs.) |  Thimble Eye Wt. Ea. (lbs.) |  Alloy Eye Hook Wt. Ea. (lbs.) |  Crescent Thimble Wt. Ea. (lbs.) |  Slip Thru Thimble Wt. Ea. (lbs.) |  Sliding Choker Hook Wt. Ea. (lbs.) |
|---|---|--|--|---|--|--|--|
| 1/4 | .31 | .12 | .08 | .63 | .50 | 1.3 | 1.3 |
| 5/16 | .47 | .18 | .14 | .63 | .50 | 1.3 | 1.3 |
| 3/8 | .73 | .26 | .22 | .85 | .50 | 1.3 | 1.3 |
| 7/16 | 1.3 | .35 | .36 | 1.4 | .50 | 1.5 | 1.9 |
| 1/2 | 1.7 | .46 | .51 | 1.9 | .75 | 1.5 | 1.9 |
| 9/16 | 3.1 | .59 | .51 | 3.7 | .75 | 1.5 | 1.9 |
| 5/8 | 3.5 | .72 | .75 | 3.7 | 1.2 | 3.4 | 4.0 |
| 3/4 | 5.7 | 1.0 | 1.5 | 7.3 | 2.0 | 3.4 | 4.5 |
| 7/8 | 8.9 | 1.4 | 1.9 | 15 | 3.3 | 5.6 | 10 |
| 1 | 13 | 1.9 | 3.0 | 15 | 3.8 | 5.6 | 10 |
| 1 1/8 | 18 | 2.3 | 4.0 | 22 | 5.0 | 8.6 | 26 |
| 1 1/4 | 25 | 2.9 | 8.2 | 22 | 6.8 | 8.6 | 26 |
| 1 3/8 | 32 | 3.5 | 12 | 38 | 8.0 | 10 | 50 |
| 1 1/2 | 41 | 4.2 | 12 | 38 | 8.0 | 10 | 50 |
| 1 3/4 | 65 | 5.7 | 18 | 60 | 17 | 18 | |
| 2 | 99 | 7.4 | 25 | 105 | 22 | 53 | |
| 2 1/4 | 169 | 9.4 | 40 | 148 | 39 | 70 | |
| 2 1/2 | 278 | 12 | - | - | 39 | 126 | |

* Zero Base Weight accounts for the additional rope and sleeves required to form two standard eyes.



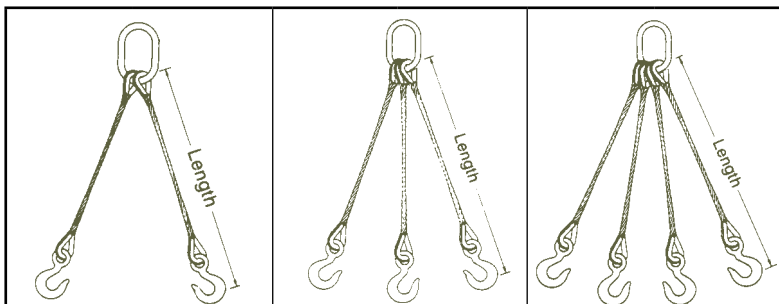
SLING WEIGHTS (Approx.)


To estimate sling weights, multiply length x Per Foot Weight and add Zero Base Weight.

2-Leg Bridle

3-Leg Bridle

4-Leg Bridle



|  | | | | | | |
|---|-----------------------------|-----------------------------|-----------------------------|---------------------------------------|-----------------------------|---------------------------------------|
| Rope Dia. (in.) | *Zero Base Weight (lbs.) | Per Foot Weight (2 Legs) | *Zero Base Weight (lbs.) | Per Foot Weight (lbs.) (3 Legs) | *Zero Base Weight (lbs.) | Per Foot Weight (lbs.) (4 Legs) |
| 1/4 | 2.8 | .23 | 2.8 | .35 | 4.7 | .46 |
| 5/16 | 3.2 | .36 | 5.7 | .54 | 6.9 | .72 |
| 3/8 | 5.8 | .52 | 7.5 | .78 | 12 | 1.0 |
| 7/16 | 8.1 | .70 | 14 | 1.0 | 17 | 1.4 |
| 1/2 | 10 | .92 | 17 | 1.4 | 26 | 1.8 |
| 9/16 | 20 | 1.2 | 27 | 1.8 | 39 | 2.4 |
| 5/8 | 21 | 1.4 | 34 | 2.2 | 42 | 2.9 |
| 3/4 | 38 | 2.1 | 60 | 3.1 | 85 | 4.2 |
| 7/8 | 58 | 2.8 | 89 | 4.3 | 121 | 5.7 |
| 1 | 76 | 3.7 | 114 | 5.6 | 171 | 7.4 |
| 1 1/8 | 108 | 4.7 | 163 | 7.0 | 250 | 9.4 |
| 1 1/4 | 131 | 5.8 | 210 | 8.7 | 296 | 12 |
| 1 3/8 | 197 | 7.0 | 320 | 11 | | |
| 1 1/2 | 230 | 8.3 | 350 | 13 | | |
| 1 3/4 | 380 | 11 | | | | |
| 2 | 550 | 15 | | | | |

* Zero Base Weight includes Oblong Link, Thimbled Eyes and Sling Hooks

Acknowledgement

Lift-All wire rope slings and rated capacities comply with all OSHA, ASME B30.9, and Wire Rope Technical Board publications. Portions of this section of the catalog were taken from the Wire Rope Sling User's Manual with the permission of the Wire Rope Technical Board and the American Iron and Steel Institute.



See our Lifting Beams, Coil
Lifters, Clamps and other
Lifting Devices on our web
site: www.lift-all.com

LiftAlloy Chain Slings



LiftAlloy CHAIN SLING BASICS

Lift-All chain slings meet or exceed all OSHA, ASME B30.9 and NACM standards and regulations.

LiftAlloy chain slings, available in Grade 80 for 7/8"-1 1/4" and Grade 100 for 7/32"-3/4", are recommended for rugged industrial applications in harsh environments where flexibility, abrasion resistance and long life are required. OSHA required annual inspections can be performed by Lift-All trained personnel.

Features, Advantages and Benefits

Promotes Safety

- Permanent steel capacity tag is serialized for identification
- Welded slings offer the security of tamper proof assemblies

Saves Money

- Alloy Steel construction assures long life
- Can be repaired, proof tested and recertified by Lift-All

Saves Time

- Easy to inspect for damage
- Stores easily

Use of Chain Under Heat Conditions

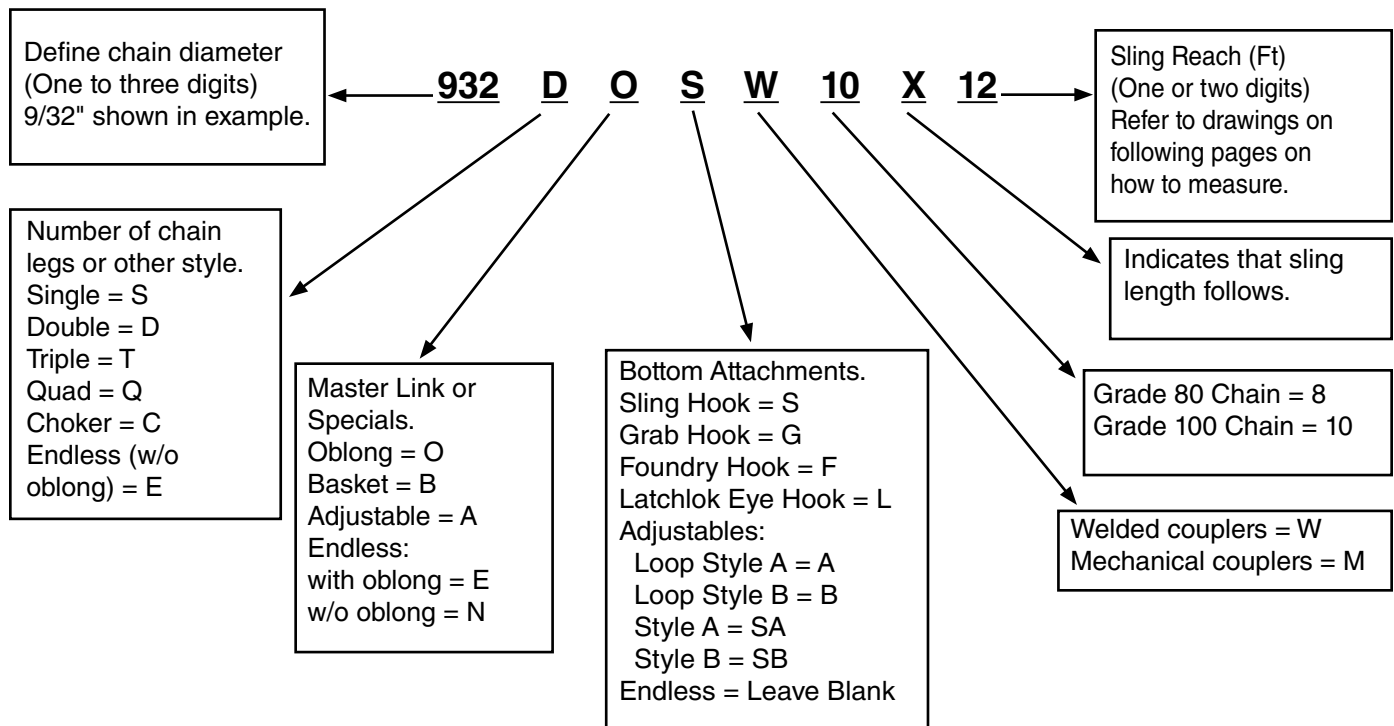
When the chain itself is heated to temperatures shown below, the Working Load Limit (Rated Capacity) should be reduced as indicated.

| Temperature of Chain (°F) | Reduction of Working Load Limit While at Temperature | | Permanent Reduction of Working Load Limit After Exposure to Temperature | |
|---------------------------|--|------------|---|-----------|
| | Grade 80 | Grade 100 | Grade 80 | Grade 100 |
| Below -40 | Do Not Use | Do Not Use | None | None |
| Below -20 | None | Do Not Use | None | None |
| 400 | 10% | 15% | None | None |
| 500 | 15% | 25% | None | 5% |
| 600 | 20% | 30% | 5% | 15% |
| 700 | 30% | 40% | 10% | 20% |
| 800 | 40% | 50% | 15% | 25% |
| 900 | 50% | 60% | 20% | 30% |
| 1000 | 60% | 70% | 25% | 35% |
| Over 1000 | REMOVE FROM SERVICE | | | |

Consult Lift-All about galvanized chain

Consult Lift-All about chain to be used in pickling operations

HOW TO ORDER CHAIN SLINGS



LiftAlloy CHAIN SLING BASICS

LiftAlloy Grade 100

- Available in sizes 7/32" - 3/4"
- Higher capacity per chain size can be used as an increased safety factor
- Higher capacity may allow use of smaller diameter chain for your lifts, reducing sling weight and cost
- Extreme abrasion resistance - more durable
- Powder coated orange attachments for corrosion resistance

LiftAlloy Grade 80

- Available in sizes 7/8" - 1 1/4"
- Greater temperature tolerance

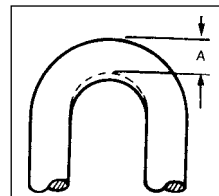
All LiftAlloy Slings

- Meet or exceed all OSHA, ASTM and NACM standards
- Welded or mechanically assembled

Chain Wear Allowance

Determine wear by measuring cross section at link ends. If worn to less than the minimum thickness allowable, chain should be removed from service.

| Chain Size (in.) | Minimum Allowable Thickness - A (in.) |
|------------------|---------------------------------------|
| 7/32 (.218) | .189 |
| 9/32 (.281) | .239 |
| 3/8 (.375) | .342 |
| 1/2 (.500) | .443 |
| 5/8 (.625) | .546 |
| 3/4 (.750) | .687 |
| 7/8 (.875) | .750 |
| 1 (1.00) | .887 |
| 1 1/4 (1.250) | 1.091 |



Minimum thickness based on OSHA recommendations.

Rated Capacity For LiftAlloy Chain Slings

| Size of Chain | | | 90° | 60° | 45° | 30° | 60° | 45° | 30° | Nominal Dimensions (in.) | | Approx. No. of Links per ft. | Approx. Weight per 100 ft. (lbs.) |
|---------------|-------|------|---------------------------|-----------------------|---------|--------|------------------------------|---------|---------|--------------------------|--------------|------------------------------|-----------------------------------|
| Grade | (in.) | (mm) | Single Chain @ 90° (lbs.) | Double Chain Slings * | | | Triple & Quad Chain Slings * | | | Inside Length | Inside Width | | |
| 100 | 7/32 | 5.5 | 2,700 | 4,700 | 3,800 | 2,700 | 7,000 | 5,700 | 4,000 | .676 | .312 | 17.8 | 44 |
| 100 | 9/32 | 7.0 | 4,300 | 7,400 | 6,100 | 4,300 | 11,200 | 9,100 | 6,400 | 0.883 | .395 | 13.6 | 73 |
| 100 | 3/8 | 10.0 | 8,800 | 15,200 | 12,400 | 8,800 | 22,900 | 18,700 | 13,200 | 1.247 | .574 | 9.6 | 144 |
| 100 | 1/2 | 13.0 | 15,000 | 26,000 | 21,200 | 15,000 | 39,000 | 31,800 | 22,500 | 1.559 | .734 | 7.7 | 246 |
| 100 | 5/8 | 16.0 | 22,600 | 39,100 | 32,000 | 22,600 | 58,700 | 47,900 | 33,900 | 1.916 | .855 | 6.3 | 370 |
| 100 | 3/4 | 20.0 | 35,300 | 61,100 | 49,900 | 35,300 | 91,700 | 74,900 | 53,000 | 2.397 | 1.070 | 5.0 | 580 |
| 80 | 7/8 | 22.0 | 34,200 | 59,200 | 48,400 | 34,200 | 88,900 | 72,500 | 51,300 | 2.250 | 1.137 | 5.3 | 776 |
| 80 | 1 | 26.0 | 47,700 | 82,600 | 67,400 | 47,700 | 123,900 | 101,200 | 71,500 | 2.664 | 1.348 | 4.5 | 995 |
| 80 | 1 1/4 | 32.0 | 72,300 | 125,200 | 102,200 | 72,300 | 187,800 | 153,400 | 108,400 | 3.250 | 1.656 | 3.7 | 1,571 |

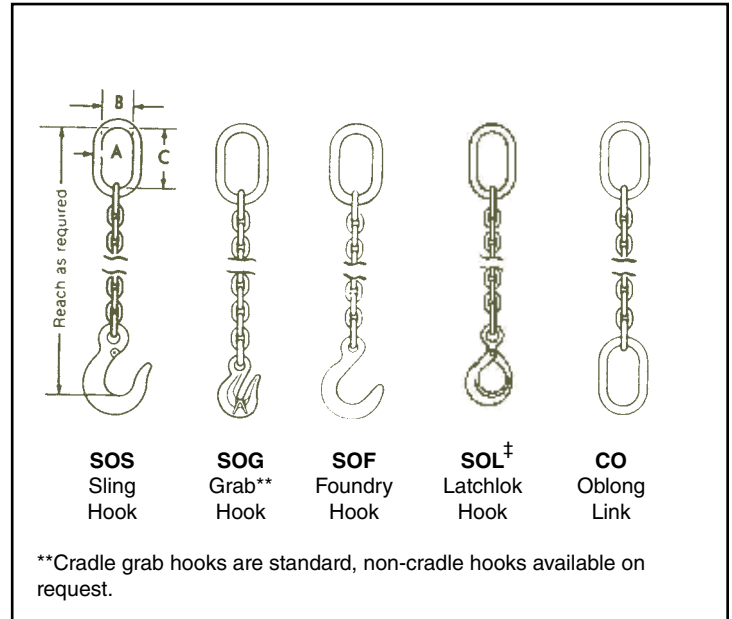
* **WARNING** Do not exceed rated capacities. Sling capacity decreases as the angle from horizontal decreases. Slings should not be used at angles of less than 30°. Refer to chain chart this page and Effect of Angle chart page 12.

** A quad branch chain sling, especially when used on a load of rigid structure, is usually not sustaining the load evenly distributed on each of its four branches. The maximum working load limits are therefore set at the same values as for triple branch chain slings of equal quality and size and used with branches at same angle of inclination.

LiftAlloy SINGLE CHAIN SLINGS

| Grade | Chain Size (in.) | ¹ Rated Capacity* Vertical (lbs.) | Approx. Weight 5 foot Reach Type SOS (lbs.) |
|-------|------------------|--|---|
| 100 | 7/32 | 2,700 | 4 |
| 100 | 9/32 | 4,300 | 5 |
| 100 | 3/8 | 8,800 | 10 |
| 100 | 1/2 | 15,000 | 18 |
| 100 | 5/8 | 22,600 | 27 |
| 100 | 3/4 | 35,300 | 44 |
| 80 | 7/8 | 34,200 | 58 |
| 80 | 1 | 47,700 | 79 |
| 80 | 1 1/4 | 72,300 | 121 |

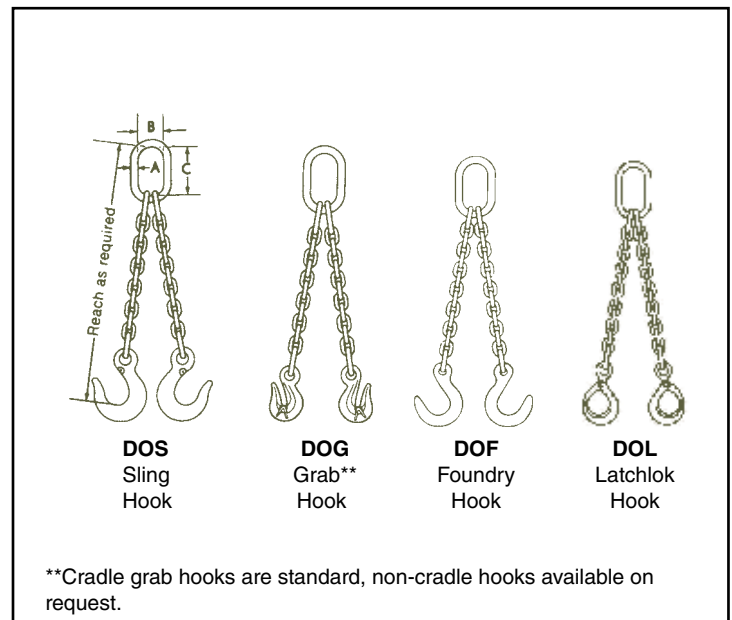
Note: 1. Also referred to as "Working Load Limit"



LiftAlloy DOUBLE CHAIN SLINGS

| Grade | Chain Size (in.) | ¹ Rated Capacity* @ 60° (lbs.) | Approx. Weight 5 foot Reach Type DOS (lbs.) |
|-------|------------------|---|---|
| 100 | 7/32 | 4,700 | 8 |
| 100 | 9/32 | 7,400 | 10 |
| 100 | 3/8 | 15,200 | 17 |
| 100 | 1/2 | 26,000 | 32 |
| 100 | 5/8 | 39,100 | 51 |
| 100 | 3/4 | 61,100 | 74 |
| 80 | 7/8 | 59,200 | 99 |
| 80 | 1 | 82,600 | 134 |
| 80 | 1 1/4 | 125,200 | 211 |

Note: 1. Also referred to as "Working Load Limit"

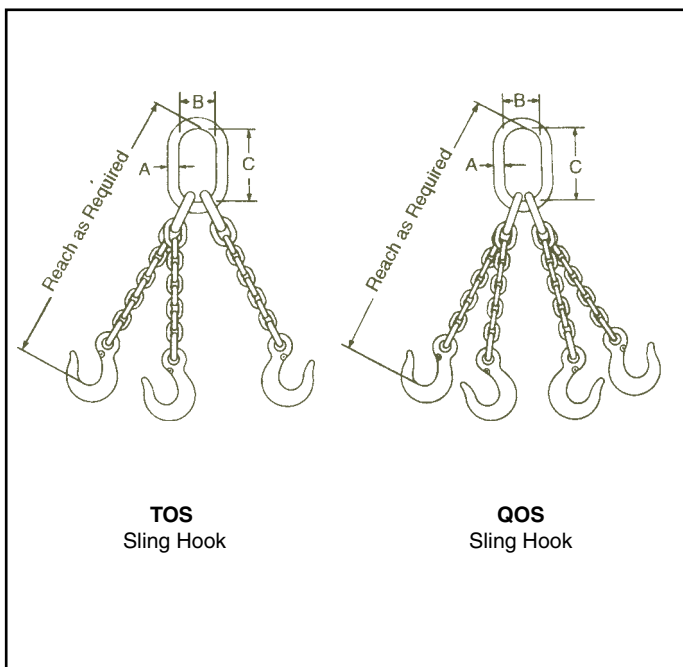


* **⚠ WARNING** Do not exceed rated capacities. Sling capacity decreases as the angle from horizontal decreases. Slings should not be used at angles of less than 30°. Refer to chain chart page 99 and Effect of Angle chart page 12.

LiftAlloy TRIPLE AND QUAD CHAIN SLINGS

| Grade | Chain Size (in.) | ¹ Rated Capacity* @ 60° (lbs.) | Approx. Weight 5 foot Reach Type TOS (lbs.) | Approx. Weight 5 foot Reach Type QOS (lbs.) |
|-------|------------------|---|---|---|
| 100 | 7/32 | 7,000 | 12 | 16 |
| 100 | 9/32 | 11,200 | 16 | 19 |
| 100 | 3/8 | 22,900 | 28 | 36 |
| 100 | 1/2 | 39,000 | 53 | 63 |
| 100 | 5/8 | 58,700 | 81 | 100 |
| 100 | 3/4 | 91,700 | 116 | 140 |
| 80 | 7/8 | 88,900 | 154 | 187 |
| 80 | 1 | 123,900 | 209 | 250 |
| 80 | 1 1/4 | 187,800 | 358 | 406 |

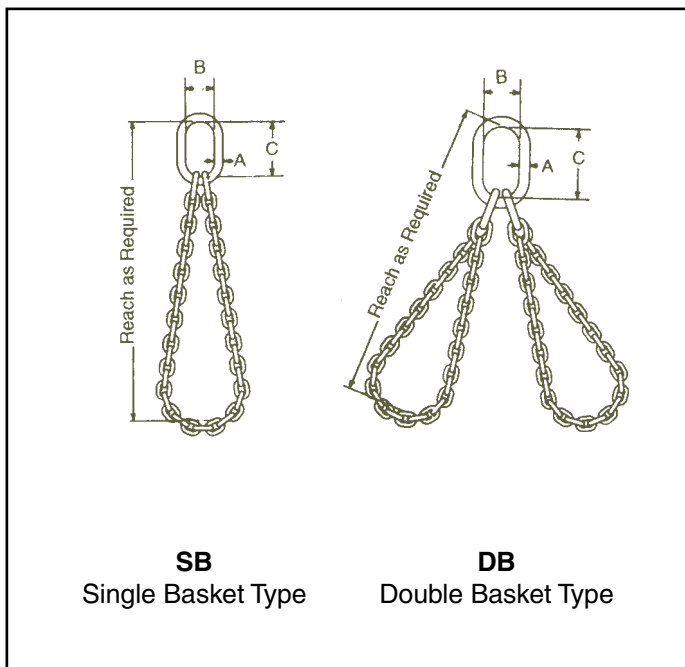
Note: 1. Also referred to as "Working Load Limit"



LiftAlloy BASKET TYPE CHAIN SLINGS

| Grade | Chain Size (in.) | ¹ Rated Capacity* @ 60° (lbs.) | |
|-------|------------------|---|---------|
| | | Single | Double |
| 100 | 7/32 | 4,700 | 7,000 |
| 100 | 9/32 | 7,400 | 11,200 |
| 100 | 3/8 | 15,200 | 22,900 |
| 100 | 1/2 | 26,000 | 39,000 |
| 100 | 5/8 | 39,100 | 58,700 |
| 100 | 3/4 | 61,100 | 91,700 |
| 80 | 7/8 | 59,200 | 88,900 |
| 80 | 1 | 82,600 | 123,900 |
| 80 | 1 1/4 | 125,200 | 187,800 |

Note: 1. Also referred to as "Working Load Limit"

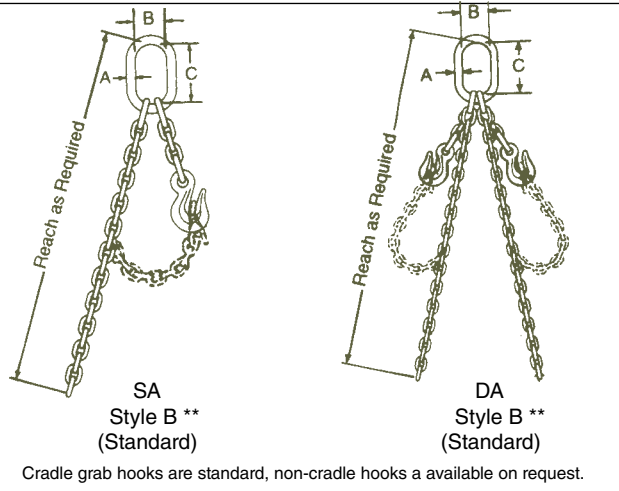


* **WARNING** Do not exceed rated capacities. Sling capacity decreases as the angle from horizontal decreases. Slings should not be used at angles of less than 30°. Refer to chain chart page 106 and Effect of Angle chart page 12.

LiftAlloy ADJUSTABLE CHAIN SLINGS (Traditional Styles)

LiftAlloy Adjustable Loop Chain Slings

| Grade | Chain Size (in.) | 'Rated Capacity* @ 60° (lbs.) | |
|-------|------------------|-------------------------------|---------|
| | | Single | Double |
| 100 | 7/32 | 4,700 | 7,000 |
| 100 | 9/32 | 7,400 | 11,200 |
| 100 | 3/8 | 15,200 | 22,900 |
| 100 | 1/2 | 26,000 | 39,400 |
| 100 | 5/8 | 39,100 | 58,700 |
| 100 | 3/4 | 61,100 | 91,700 |
| 80 | 7/8 | 59,200 | 88,900 |
| 80 | 1 | 82,600 | 123,900 |
| 80 | 1 1/4 | 125,200 | 187,800 |

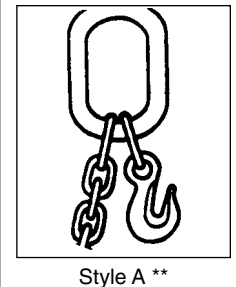
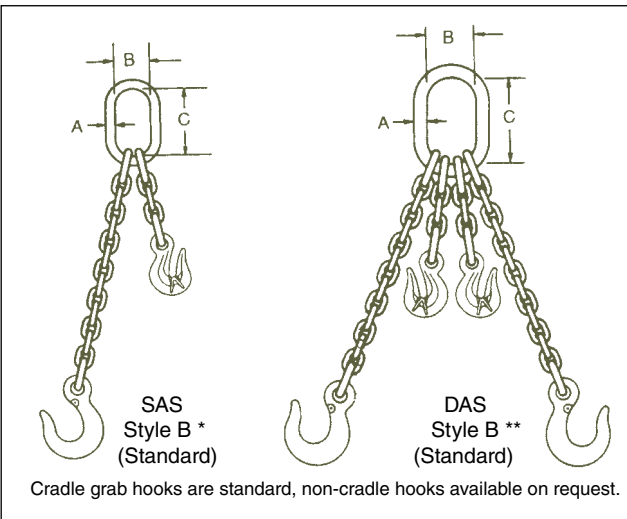


Slings shown here are the most popular of the traditional adjustable type slings. However, Lift-All's engineering staff can design whatever configuration is required to fit individual needs.

** Style B, single and double adjustable slings are furnished with approximately one (1) foot of chain in short branches unless otherwise specified in the order. Style A, hook is attached to master link with a coupling link.

LiftAlloy Adjustable Chain Slings

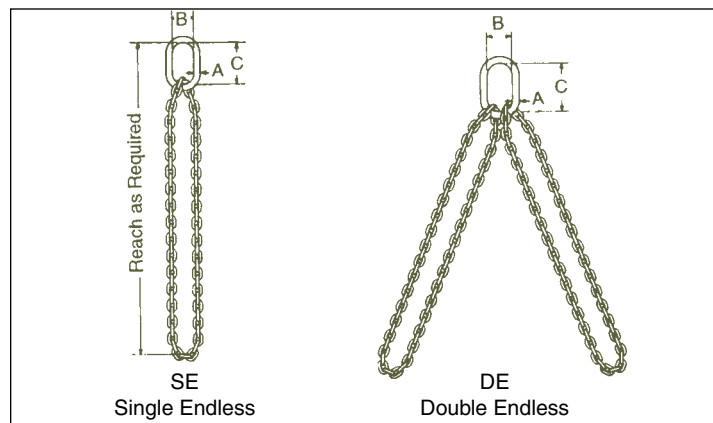
| Grade | Chain Size (in.) | 'Rated Capacity* (lbs.) | |
|-------|------------------|-------------------------|--------------|
| | | Single @ 90° | Double @ 60° |
| 100 | 7/32 | 2,700 | 4,700 |
| 100 | 9/32 | 4,300 | 7,400 |
| 100 | 3/8 | 8,800 | 15,200 |
| 100 | 1/2 | 15,000 | 26,000 |
| 100 | 5/8 | 22,600 | 39,100 |
| 100 | 3/4 | 35,300 | 61,100 |
| 80 | 7/8 | 34,200 | 59,200 |
| 80 | 1 | 47,700 | 82,600 |
| 80 | 1 1/4 | 72,300 | 125,200 |



LiftAlloy
Chain

LiftAlloy ENDLESS BASKET CHAIN SLINGS

| Grade | Chain Size (in.) | 'Rated Capacity* (lbs.) | |
|-------|------------------|-------------------------|--------------|
| | | Single @ 90° | Double @ 60° |
| 100 | 7/32 | 2,700 | 4,700 |
| 100 | 9/32 | 4,300 | 7,400 |
| 100 | 3/8 | 8,800 | 15,200 |
| 100 | 1/2 | 15,000 | 26,000 |
| 100 | 5/8 | 22,600 | 39,100 |
| 100 | 3/4 | 35,300 | 61,100 |
| 80 | 7/8 | 34,200 | 59,200 |
| 80 | 1 | 47,700 | 82,600 |
| 80 | 1 1/4 | 72,300 | 125,200 |



Note: 1. Also referred to as "Working Load Limit".



Do not exceed rated capacities. Sling capacity decreases as the angle from horizontal decreases. Slings should not be used at angles of less than 30°. Refer to chain chart page 99 and Effect of Angle chart page 12.

ADJUST-A-LINK GRADE 100 CHAIN SLINGS

The most easily adjustable and versatile chain sling is now stronger, too!
 Ideal for machine shop and maintenance departments varied requirements.

Features, Advantages and Benefits

Promotes Safety

- Chain cannot be removed from the master control plate, assuring the capacity rating will not be compromised
- Alloy steel master control link for strength and reliability
- Each assembly serialized for traceability
- Complies with OSHA - proof tested and certified

Saves Money

- Grade 100 chain provides approximately 25% higher capacities than our previous Adjust-A-Links - replaces larger, more expensive slings
- New angled plate design reduces bending torque on chain and plate - reduces wear and extends sling life
- Wider top bearing surface reduces wear to both plate and crane hook
- Versatile - one sling does many jobs
- Using two Adjust-A-Links on the same crane hook eliminates the need for expensive triples and quads
- Heat treated alloy steel construction for long sling life
- Yellow powder coating on master plate and hooks prevents rust - extends sling life

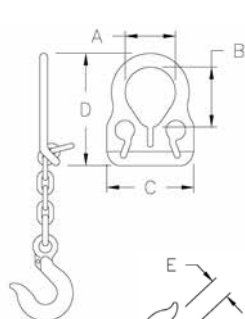
Saves Time

- More compact plate design fits larger hooks for easier rigging
- Less bulky than typical double adjustable chain slings
- High visibility yellow fittings make assembly easy to spot
- Easily adjustable to accommodate a wide range of applications
- No time wasted searching for just the right sling

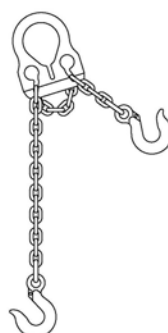
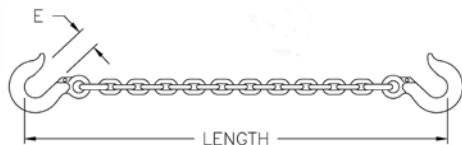
**New, Improved
Master Control
Plate ***



Never exceed rated capacities.
 Chain must be seated at the base of adjusting slot of the Master Control Link.



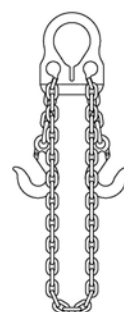
Note: To order latches on hooks, add an "L" after the first 5 numbers in the part number



Single



Double



Basket

* 1/2" size Master Link flame cut - not of new forged plate design - uses Grade 80 capacity ratings

| Chain Size (in.) | 1 st Rated Capacity * (lbs.) | | Dimensions (in.) | | | | | 6 ft. Length | | 10 ft. Length | | 14 ft. Length | |
|------------------|---|--------------|------------------|--------------|-----------------|------------------|----------------|--------------|--------|---------------|--------|---------------|--------|
| | Single @ 90° | Double @ 60° | Eye Width A | Eye Height B | Overall Width C | Overall Length D | Hook Opening E | Part No. | (lbs.) | Part No. | (lbs.) | Part No. | (lbs.) |
| 7/32 | 2,700 | 4,700 | 2 3/16 | 2 11/16 | 3 15/16 | 5 1/8 | 15/16 | 30001G10 | 4.2 | 30002G10 | 6.2 | | |
| 9/32 | 4,300 | 7,400 | 2 7/8 | 3 3/16 | 5 1/16 | 6 1/2 | 1 1/16 | 30003G10 | 7.5 | 30004G10 | 10.5 | | |
| 3/8 | 8,800 | 15,200 | 3 3/4 | 4 1/8 | 6 3/4 | 8 11/16 | 1 9/16 | | | 30005G10 | 18.5 | 30006G10 | 24.5 |
| 1/2 | 12,000 | 20,800 | 4 3/8 | 4 3/8 | 9 3/4 | 12 3/4 | 2 | | | 30007 | 42 | 30008 | 52 |

* **WARNING** Do not exceed rated capacities. Sling capacity decreases as the angle from horizontal decreases.
 Adjust-A-Link Slings should not be used at angles of less than 45°.
 Refer to chain chart page 102 and Effect of Angle chart page 12.

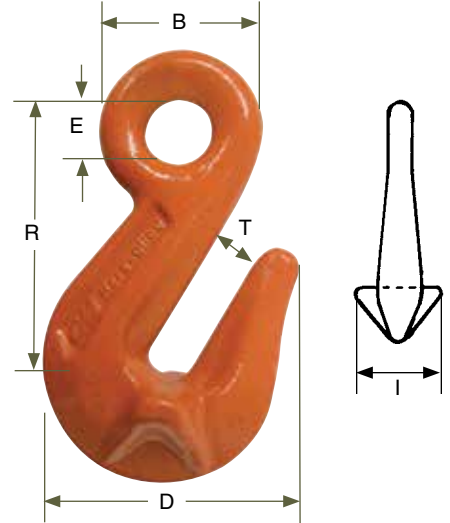
HOOKS, MASTER LINKS, ETC.

Cradle Grab Eye Hook / Code G

| Grade | Chain Size (in.) | Rated Capacity* (lbs.) | Dimensions (in.) | | | | | | Weight Each (lbs.) |
|-------|------------------|------------------------|------------------|------|------|------|------|------|--------------------|
| | | | B | D | E | I | R | T | |
| 100 | 7/32 | 2,700 | 1.19 | 1.75 | .55 | .92 | 2.20 | .31 | 0.4 |
| 100 | 9/32 | 4,300 | 1.38 | 1.91 | .63 | 1.06 | 2.57 | .36 | 0.6 |
| 100 | 3/8 | 8,800 | 1.78 | 2.86 | .78 | 1.38 | 3.28 | .47 | 1.4 |
| 100 | 1/2 | 15,000 | 2.28 | 3.63 | 1.03 | 1.81 | 4.22 | .59 | 3.1 |
| 100 | 5/8 | 22,600 | 2.75 | 4.08 | 1.25 | 2.25 | 4.78 | .75 | 4.4 |
| 100 | 3/4 | 35,300 | 3.50 | 5.23 | 1.50 | 2.88 | 6.67 | .88 | 8.8 |
| 80 | 7/8 | 34,200 | 3.75 | 5.69 | 1.75 | 3.00 | 6.50 | 1.00 | 10 |
| 80 | 1 | 47,700 | 4.31 | 7.00 | 1.88 | 3.88 | 8.09 | 1.19 | 21 |

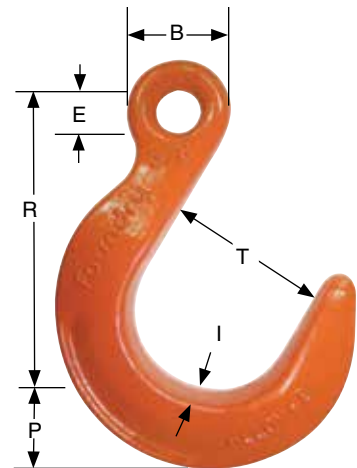
** NOT cradle type

Note: Non-Cradle Grab Hooks are available upon request.



Foundry Hook / Code F

| Grade | Chain Size (in.) | Rated Capacity* (lbs.) | Dimensions (in.) | | | | | | Weight Each (lbs.) |
|-------|------------------|------------------------|------------------|------|------|------|-------|------|--------------------|
| | | | B | E | I | P | R | T | |
| 100 | 9/32 | 4,300 | 1.56 | .63 | 1.00 | 1.24 | 4.75 | 2.50 | 2.4 |
| 100 | 3/8 | 8,800 | 2.00 | .75 | 1.27 | 1.50 | 5.75 | 3.00 | 4.5 |
| 100 | 1/2 | 15,000 | 2.50 | 1.00 | 1.50 | 1.75 | 6.88 | 3.50 | 7.1 |
| 100 | 5/8 | 22,600 | 3.00 | 1.25 | 1.81 | 2.03 | 8.06 | 4.00 | 12 |
| 100 | 3/4 | 35,300 | 3.50 | 1.50 | 2.20 | 2.56 | 9.25 | 4.50 | 20 |
| 80 | 7/8 | 34,200 | 4.00 | 1.75 | 2.25 | 2.78 | 10.38 | 5.00 | 26 |
| 80 | 1 | 47,700 | 4.50 | 2.13 | 2.59 | 3.03 | 11.56 | 5.50 | 37 |
| 80 | 1 1/4 | 72,300 | 5.13 | 2.38 | 3.17 | 3.81 | 12.88 | 6.00 | 58 |



*



Do not exceed rated capacities. Sling capacity decreases as the angle from horizontal decreases. Slings should not be used at angles of less than 30°. Refer to chain chart page 102 and Effect of Angle chart page 12.

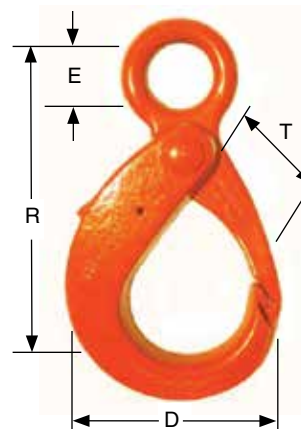
HOOKS, MASTER LINKS, ETC.

Latchlok Eye Hooks / Code L

Grade 100

| Chain Size (in.) | Rated Capacity* (lbs.) | Dimensions (in.) | | | | Weight Each (lbs.) |
|------------------|------------------------|------------------|------|-------|------|--------------------|
| | | D | E | R | T | |
| 9/32 | 4,300 | 3.77 | 1.09 | 5.37 | 1.64 | 2.1 |
| 3/8 | 8,800 | 4.74 | 1.36 | 6.65 | 2.27 | 3.9 |
| 1/2 | 15,000 | 6.26 | 1.55 | 8.77 | 2.91 | 8.8 |
| 5/8 | 22,600 | 7.37 | 2.00 | 10.35 | 3.20 | 14 |

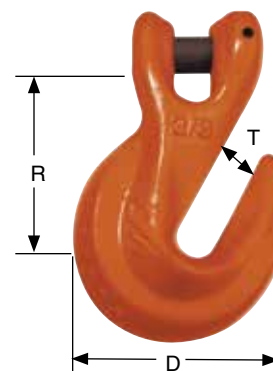
Design factor @ 4:1



Clevis Cradle Grab Hook / Code G

Grade 100

| Chain Size (in.) | Rated Capacity* (lbs.) | Dimensions (in.) | | | Weight Each (lbs.) |
|------------------|------------------------|------------------|------|------|--------------------|
| | | D | R | T | |
| 9/32 | 4,300 | 2.18 | 1.86 | 0.38 | 0.6 |
| 3/8 | 8,800 | 2.71 | 2.47 | 0.47 | 1.3 |
| 1/2 | 15,000 | 3.65 | 3.04 | 0.60 | 2.1 |
| 5/8 | 22,000 | 4.50 | 3.75 | 0.77 | 4.2 |
| 3/4 | 35,300 | 5.40 | 5.30 | 0.91 | 10.5 |



Clevis Sling Hook with Optional Latch / Code S

Grade 100

| Chain Size (in.) | Rated Capacity* (lbs.) | Dimensions (in.) | | | | Weight Each (lbs.) |
|------------------|------------------------|------------------|------|------|------|--------------------|
| | | D | L | P | R | |
| 9/32 | 4,300 | 3.53 | 0.83 | 1.11 | 3.75 | 1.2 |
| 3/8 | 8,800 | 4.54 | 1.06 | 1.51 | 4.58 | 2.2 |
| 1/2 | 15,000 | 5.48 | 1.38 | 1.61 | 5.59 | 4.2 |
| 5/8 | 22,600 | 6.20 | 1.69 | 1.92 | 6.44 | 6.6 |
| 3/4 | 35,300 | 7.06 | 2.09 | 2.08 | 7.50 | 11 |

Note: Latches are not included on Domestic hooks unless specified at time of order.

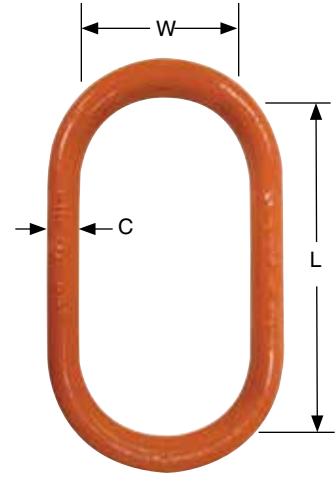


HOOKS, MASTER LINKS, ETC.

Oblong Master Link / Code O

| Link Size * (in.) | | | Type & Size of Chain Sling on which used | | | | Weight Each (lbs.) |
|---------------------------|----------------------|-----------------------|---|--------|--------|-------|--------------------------|
| Diameter Material C | Inside Width W | Inside Length L | Single | Double | Triple | Quad | |
| 13/32 | 1 1/2 | 3 | 7/32 | 7/32 | - | - | 0.3 |
| 1/2 | 2 1/2 | 5 | 9/32 | 9/32 | 7/32 | 7/32 | 0.9 |
| 3/4 | 3 | 6 | 3/8 | 3/8 | 9/32 | 9/32 | 2.5 |
| 1 | 4 | 8 | 1/2 or 5/8 | 1/2 | 3/8 | 3/8 | 5.8 |
| 1 1/4 | 4 3/8 | 8 3/4 | 3/4 | 5/8 | 1/2 | 1/2 | 9.2 |
| 1 1/2 | 5 1/4 | 10 1/2 | 7/8 | 3/4 | 5/8 | 5/8 | 16 |
| 1 3/4 | 6 | 12 | 1 | 7/8 | 3/4 | 3/4 | 25 |
| 2 | 7 | 14 | 1 1/4 | 1 | 7/8 | 7/8 | 37 |
| 2 1/4 | 8 | 16 | - | 1 1/4 | 1 | 1 | 54 |
| 2 3/4 | 9 | 16 | - | - | 1 1/4 | 1 1/4 | 85 |

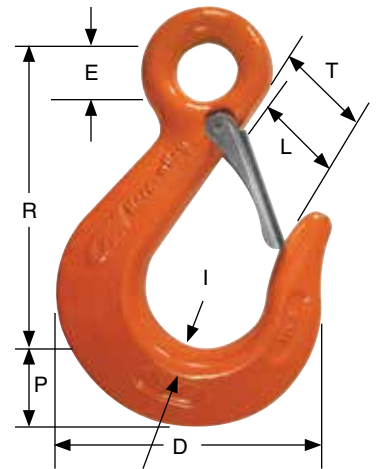
* If sub-assemblies are used, inside dimensions may be reduced.
Contact Lift-All if critical.



Chain Sling Eye Hook with Optional Latch / Code S

| Grade | Chain Size (in.) | Rated Capacity* (lbs.) | Dimensions (in.) | | | | | | | Weight Each (lbs.) |
|-------|------------------------|------------------------------|------------------|------|------|------|------|-------|------|--------------------------|
| | | | D | E | I | L | P | R | T | |
| 100 | 7/32 | 2,700 | 3.04 | .75 | .94 | .83 | .94 | 3.75 | .97 | 0.7 |
| 100 | 9/32 | 4,300 | 3.50 | .75 | .73 | 1.06 | 1.05 | 3.75 | 1.19 | 1.1 |
| 100 | 3/8 | 8,800 | 4.33 | .94 | .95 | 1.31 | 1.28 | 4.78 | 1.44 | 1.9 |
| 100 | 1/2 | 15,000 | 5.50 | 1.13 | 1.17 | 1.63 | 1.66 | 5.69 | 1.78 | 4.5 |
| 100 | 5/8 | 22,600 | 6.34 | 1.31 | 1.44 | 1.75 | 2.19 | 6.50 | 2.03 | 7.3 |
| 100 | 3/4 | 35,300 | 7.83 | 1.50 | 1.69 | 2.19 | 2.51 | 7.81 | 2.50 | 11 |
| 80 | 7/8 | 34,200 | 8.59 | 1.69 | 1.94 | 2.38 | 2.84 | 8.75 | 2.78 | 18 |
| 80 | 1 | 47,700 | 9.59 | 1.88 | 2.14 | 2.88 | 3.09 | 9.88 | 3.13 | 23 |
| 80 | 1 1/4 | 72,300 | 11.56 | 2.31 | 2.62 | 3.41 | 3.89 | 11.50 | 3.88 | 36 |

Note: When ordering, specify latch if desired. Latches are not included on Domestic hooks unless specified at time of order.



HOOKS, MASTER LINKS, ETC.

Mechanical Coupling Links

| Grade | Chain Size (in.) | Rated Capacity* (lbs.) | Dimensions (in.) | | | | Weight Each (lbs.) |
|-------|------------------|------------------------|------------------|------|------|------|--------------------|
| | | | A | B | C | E | |
| 100 | 7/32 | 2,700 | .35 | 1.19 | .69 | .54 | 0.27 |
| 100 | 9/32 | 4,300 | .41 | 1.94 | .70 | .59 | 0.27 |
| 100 | 3/8 | 8,800 | .55 | 2.99 | 1.13 | .93 | 0.87 |
| 100 | 1/2 | 15,000 | .75 | 3.97 | 1.43 | 1.12 | 1.86 |
| 100 | 5/8 | 22,600 | .87 | 4.50 | 1.70 | 1.35 | 3.14 |
| 100 | 3/4 | 35,200 | 1.07 | 5.36 | 2.09 | 1.54 | 5.80 |
| 80 | 7/8 | 34,200 | 1.05 | 5.13 | 1.80 | 1.92 | 6.30 |
| 80 | 1 | 47,700 | 1.25 | 6.00 | 2.31 | 2.37 | 8.95 |
| 80 | 1 1/4 | 72,300 | 1.53 | 6.81 | 2.17 | 2.70 | 16.40 |

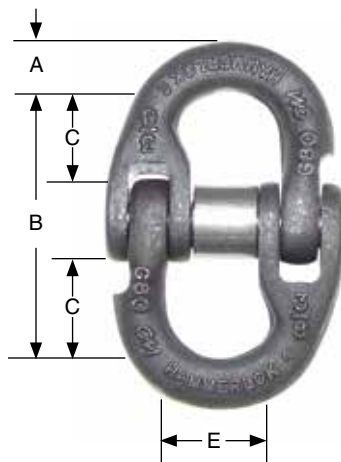
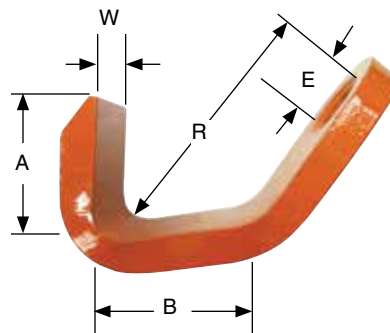


Plate Hook

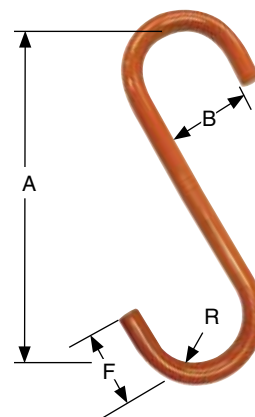
| Chain Size (in.) | Rated Capacity* (lbs.) | Dimensions (in.) | | | | | Weight Each (lbs.) |
|------------------|------------------------|------------------|------|------|-------|------|--------------------|
| | | A | B | E | R | W | |
| 9/32 | 4,200 | 2.00 | 1.75 | 1.00 | 3.68 | 2.50 | 2.8 |
| 3/8 | 7,400 | 2.63 | 3.00 | 1.12 | 6.38 | 2.75 | 5.7 |
| 1/2 | 13,000 | 3.50 | 4.00 | 1.50 | 7.37 | 3.50 | 13 |
| 5/8 | 20,400 | 4.38 | 5.00 | 1.88 | 9.25 | 5.00 | 27 |
| 3/4 | 30,000 | 5.18 | 6.00 | 2.25 | 10.88 | 5.75 | 42 |
| 7/8 | 40,000 | 6.00 | 7.00 | 2.63 | 13.68 | 6.00 | 65 |



* Ratings are per hook
 Do not use plate hooks at angles other than 60° from horizontal.
 Do not attempt to lift using only one plate hook.

S Hook

| Stock Dia. (in.) | Rated Capacity* (lbs.) | Dimensions (in.) | | | | Weight Each (lbs.) |
|------------------|------------------------|------------------|-------|-------|-------|--------------------|
| | | A | B | F | R | |
| 9/32 | 210 | 4 1/2 | 1 1/8 | 1 1/8 | 9/16 | 0.15 |
| 3/8 | 410 | 6 | 1 1/2 | 1 1/2 | 3/4 | 0.35 |
| 1/2 | 870 | 7 1/2 | 2 | 2 | 1 | 0.82 |
| 5/8 | 1,120 | 9 | 2 1/2 | 2 1/2 | 1 1/4 | 1.6 |
| 3/4 | 1,730 | 10 1/2 | 3 | 3 | 1 1/2 | 2.6 |
| 7/8 | 2,370 | 12 | 3 1/2 | 3 1/2 | 1 3/4 | 4.2 |
| 1 | 2,920 | 13 | 4 | 4 | 2 | 6.0 |
| 1 5/32 | 3,150 | 15 | 4 1/2 | 4 1/2 | 2 1/4 | 9.3 |
| 1 1/4 | 4,450 | 16 | 5 | 5 | 2 1/2 | 12 |
| 1 3/8 | 6,100 | 17 | 5 1/2 | 5 1/2 | 2 3/4 | 15 |
| 1 1/2 | 6,250 | 18 | 6 | 6 | 3 | 20 |



See page 144 for J-Hooks and Custom Engineered Lifting Devices.



Do not exceed rated capacities. Sling capacity decreases as the angle from horizontal decreases.
 Slings should not be used at angles of less than 30°.
 Refer to chain chart page 102 and Effect of Angle chart page 12

CHAIN



LiftAlloy Welded Alloy Chain

- Primarily used for overhead lifting slings
- Proof tested
- Black finish on Grade 80
- Gray coating on Grade 100

Welded Carbon Chain

- Grade 30 Proof Coil available as self colored, zinc plated or hot galvanized
- Grade 43 High Test available as bright finish, zinc plated or hot galvanized
- Grade 70 Binding (transport) is furnished with a gold finish as standard

Alloy Chain

| Grade | Chain Size (in.) | Rated Capacity* (lbs.) | Weight Per CFT. (lbs.) |
|-------|------------------|------------------------|------------------------|
| 100 | 7/32 | 2,700 | 44 |
| 100 | 9/32 | 4,300 | 73 |
| 100 | 3/8 | 8,800 | 144 |
| 100 | 1/2 | 15,000 | 246 |
| 100 | 5/8 | 22,600 | 370 |
| 100 | 3/4 | 35,300 | 580 |
| 80 | 7/8 | 34,200 | 776 |
| 80 | 1 | 47,700 | 995 |
| 80 | 1 1/4 | 72,300 | 1571 |

Carbon Chain

| Chain Size (in.) | Grade 30 | | Grade 43 | | Grade 70 | |
|------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
| | Rated Capacity* (lbs.) | Weight Per CFT. (lbs.) | Rated Capacity* (lbs.) | Weight Per CFT. (lbs.) | Rated Capacity* (lbs.) | Weight Per CFT. (lbs.) |
| 3/16 | 800 | 38 | - | - | - | - |
| 1/4 | 1,300 | 66 | 2,600 | 71 | 3,150 | 74 |
| 5/16 | 1,900 | 98 | 3,900 | 98 | 4,700 | 100 |
| 3/8 | 2,650 | 144 | 5,400 | 144 | 6,600 | 156 |
| 1/2 | 4,500 | 278 | 9,200 | 278 | 11,300 | 259 |
| 5/8 | 6,900 | 422 | 13,000 | 422 | - | - |
| 3/4 | 10,600 | 628 | 20,200 | 606 | - | - |

Note: Grade 30 Proof Coil, Grade 43 High Test and Grade 70 Binding (transport) tiedown chain and their fittings are not recommended for lifting or hoisting per ASME B30.9.

* WARNING

Do not exceed rated capacities. Sling capacity decreases as the angle from horizontal decreases. Slings should not be used at angles of less than 30°. Refer to chain chart page 102 and Effect of Angle chart page 12.

INSPECTION CRITERIA FOR CHAIN

The following photos illustrate some of the common damage that occurs, indicating that the sling must be taken out of service.

For inspection frequency requirements, see page 7.

THE DAMAGE: Stretched Chain Links - Indicates the sling has been extremely overloaded or subjected to shock loading.

WHAT TO LOOK FOR: Lengthening of the links and narrowing of the link width. Links that do not hinge freely with adjacent links are stretched and must be taken out of service, however, stretch **can** occur without this indicator.

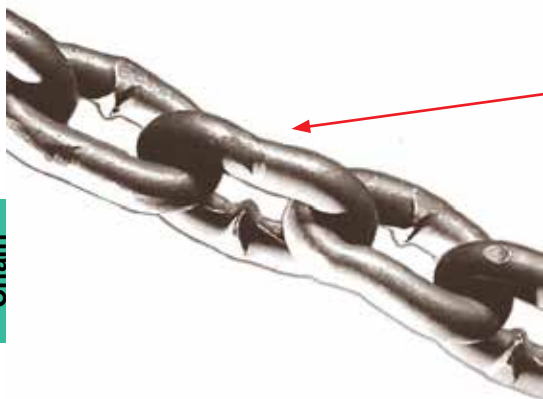
TO PREVENT: Avoid overloading and shock loading.



THE DAMAGE: Bent Links

WHAT TO LOOK FOR: Bending usually occurs in only one or two adjacent links. Links will have an irregular shape when compared to other links.

TO PREVENT: Bent links are usually the result of the chain going around the sharp edge of a load during a lift. Load edges must be padded to protect both chain and load.



THE DAMAGE: Weld Spatter

WHAT TO LOOK FOR: Metallic bumps on any link of chain.

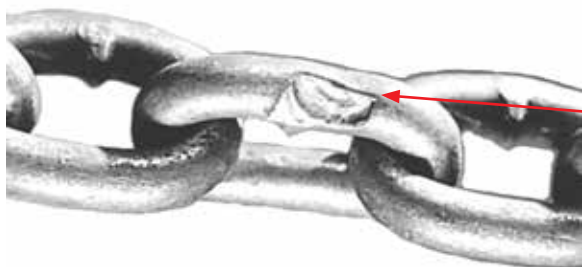
TO PREVENT: The heat from weld spatter can adversely affect the strength of a chain link. Slings must be shielded from welding operations.



THE DAMAGE: Gouged Links

WHAT TO LOOK FOR: Indentations on an otherwise smooth link surface.

TO PREVENT: Gouging of links is usually caused by heavy loads being dragged over or dropped onto the chain. Protect sling from these situations.

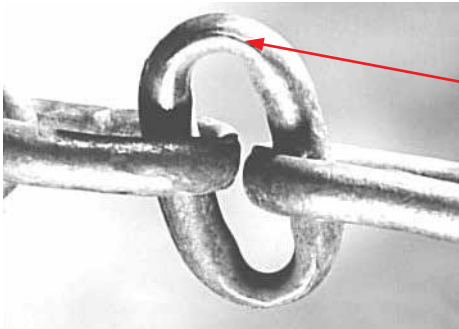


INSPECTION CRITERIA FOR CHAIN

THE DAMAGE: **Heat**

WHAT TO LOOK FOR: Discolored areas of chain

TO PREVENT: High temperatures begin to affect alloy chain strength at 400°F. When using chain slings at elevated temperatures, refer to the Lift-All temperature chart for chain slings for working load reductions.



THE DAMAGE: **Worn Links**

WHAT TO LOOK FOR: Excessive wear and a reduction of the material diameter, especially at the bearing points. Refer to Lift-All Wear Allowance Table for minimum allowable link thickness.

TO PREVENT: Wear is a natural result of sling use. Keeping load weights within the ratings of the slings being used will give the maximum sling wear life.

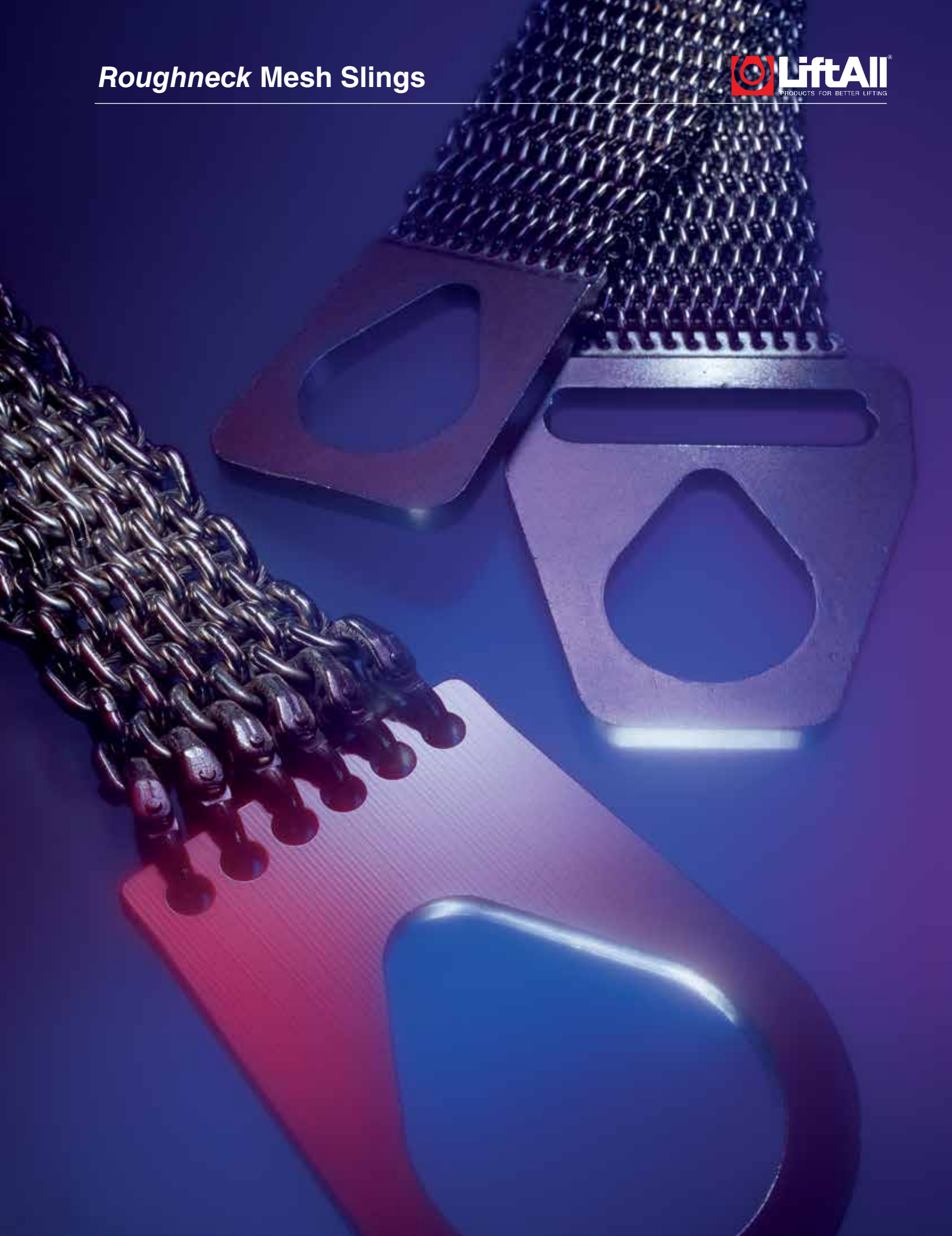
THE DAMAGE: **Bent/Worn/Cracked Hardware**

WHAT TO LOOK FOR: Wear of hooks and other fittings usually occurs at the bearing points. Hooks bent more than 10° from the plane of the unbent hook. Hooks opened more than 15% of the normal throat opening.

TO PREVENT: Never point load hooks or lift with hardware on a load edge.



Roughneck Mesh Slings



Roughneck WIRE MESH SLINGS

Specialty Slings with Particular Properties and Uses

Widely used in metalworking shops and steel warehouses where loads are abrasive, hot or tend to cut web slings.

Features, Advantages and Benefits

Promotes Safety

- Steel construction resists abrasion and cutting
- Each sling permanently stamped with capacity and serial number
- Good flexibility - grips load's contours
- Each sling proof tested and certified

Saves Money

- Grips load firmly without stretching - reduces load damage
- Resists abrasion and cutting for greater sling life
- Flexibility and low stretch reduce load damage
- Wide bearing area distributes load to help avoid load damage
- Repairable - thus very cost effective
- Alloy steel end fittings - plated for long life
- Wire mesh is galvanized - resists corrosion

Saves Time

- Width of mesh helps control and balance load
- End fittings fit most large crane hooks

Roughneck Wire Mesh Sling Construction

Standard Construction: Alloy steel end fittings, zinc plated. Mesh is galvanized high tensile steel. 10 gage is standard, 12 gage is available upon request

Optional Construction: Stainless steel mesh is available for corrosive and hotter environments.

Inspection Criteria for Roughneck Wire Mesh Slings

Remove the sling from service if any of the following is visible: (See Page 117)

- A broken weld or brazed joint along the sling edge
- A broken wire in any part of the mesh
- Reduction in wire diameter of 25% due to abrasion or 15% due to corrosion
- Lack of flexibility due to distortion of the mesh
- Visible distortion or wear of either end fitting
- Cracked end fitting



Environmental Considerations

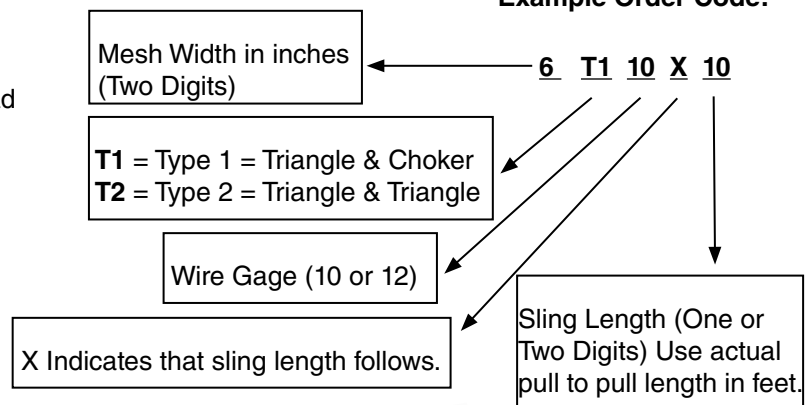
- Wire mesh slings shall not be used at temperatures above 550°F.
- Store in a clean, dry area to avoid corrosive action

Do not edge load. Full width of mesh must contact load.

WARNING

How to Order

Example Order Code:



Type 1



Type 2



| Wire Mesh Width (in.) | Rated Capacity (lbs.) * | | |
|------------------------------|-------------------------|--------|--------|
| | Vertical | Choker | Basket |
| 10 Gage - Heavy Duty | | | |
| 2 | 2,300 | 2,300 | 4,600 |
| 3 | 3,500 | 3,500 | 7,000 |
| 4 | 4,800 | 4,800 | 9,600 |
| 6 | 7,200 | 7,200 | 14,400 |
| 8 | 9,600 | 9,600 | 19,200 |
| 10 | 12,000 | 12,000 | 24,000 |
| 12 | 14,400 | 14,400 | 28,800 |
| 14 | 16,800 | 16,800 | 33,600 |
| 16 | 19,200 | 19,200 | 38,400 |
| 18 | 21,600 | 21,600 | 43,200 |
| 20 | 24,000 | 24,000 | 48,000 |
| 12 Gage - Medium Duty | | | |
| 2 | 1,600 | 1,600 | 3,200 |
| 3 | 2,400 | 2,400 | 4,800 |
| 4 | 3,200 | 3,200 | 6,400 |
| 6 | 4,800 | 4,800 | 9,600 |
| 8 | 6,400 | 6,400 | 12,800 |
| 10 | 8,000 | 8,000 | 16,000 |
| 12 | 9,600 | 9,600 | 19,200 |

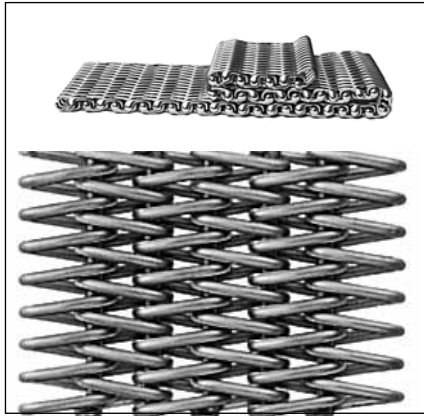
NOTE: The choker fitting must not be positioned against a load edge or directly on the triangle fitting.

Do not exceed rated capacities. Sling capacity decreases as the angle from horizontal decreases. Slings should not be used at angles of less than 30°. Refer to Effect of Angle chart page 12.

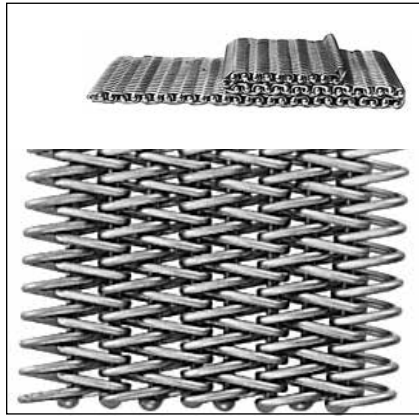
Roughneck WIRE MESH SLINGS

Select The Proper Mesh

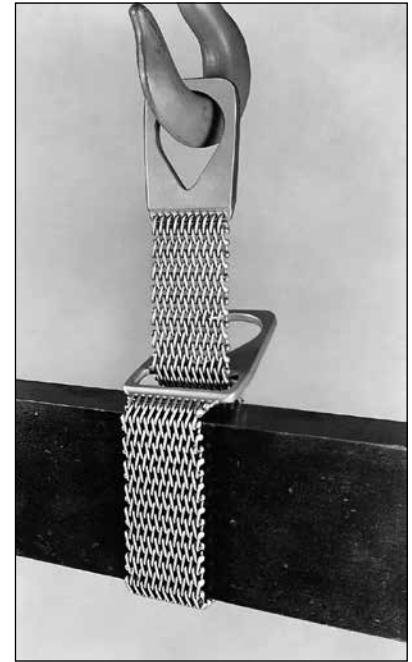
10 Gage - Heavy Duty



12 Gage - Medium Duty



This single 4" wide mesh sling in a choker hitch at load center of gravity provides adequate stability for many structural steel loads.

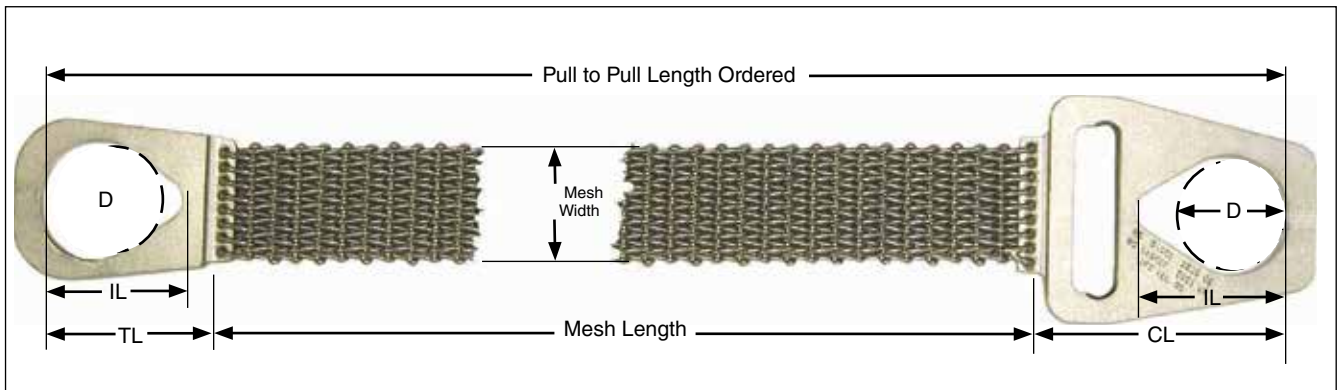


Prompt Shipment or Repair Service by Experts

Wire mesh slings with normal usage will eventually need repair and parts replaced. This can be done for relatively small cost. *Lift-All* wire mesh slings that are repaired are guaranteed to meet or exceed original specifications. Five *Lift-All* factories are strategically located in the U. S. to insure prompt service. We repair all types and brands of mesh slings.



Mesh



| Nom. Mesh Width (in.) | Terminal Dimensions (in.) | | | | Terminal Thickness (in.) | | Approx. Weight (lbs.) of 3 ft. Type 1 Slings | | Mesh Weight (Per ft. in lbs.) | |
|-----------------------|---------------------------|-------|--------|--------|--------------------------|-------|--|-------|-------------------------------|-------|
| MW | D | IL | TL | CL | 10 GA | 12 GA | 10 GA | 12 GA | 10 GA | 12 GA |
| 2 | 2 | 3 | 3 7/8 | 5 5/8 | 1/2 | 1/2 | 6 | 5 | 1.3 | 1.1 |
| 3 | 2 1/4 | 3 3/8 | 4 3/8 | 6 1/4 | 1/2 | 1/2 | 8 | 8 | 1.9 | 1.8 |
| 4 | 3 | 4 | 5 | 6 3/4 | 1/2 | 1/2 | 10 | 10 | 2.5 | 2.3 |
| 6 | 3 1/2 | 4 1/2 | 5 5/8 | 7 3/4 | 1/2 | 1/2 | 16 | 14 | 3.9 | 3.4 |
| 8 | 4 1/2 | 6 | 7 1/2 | 9 | 1/2 | 1/2 | 22 | 21 | 5.1 | 4.5 |
| 10 | 4 3/4 | 6 1/4 | 8 | 10 7/8 | 1/2 | 1/2 | 28 | 26 | 6.4 | 5.6 |
| 12 | 5 | 6 1/2 | 8 5/8 | 11 3/8 | 1/2 | 1/2 | 34 | 32 | 7.6 | 6.8 |
| 14 | 5 | 6 1/2 | 8 3/4 | 12 3/4 | 1/2 | 1/2 | 40 | 37 | 8.9 | 7.9 |
| 16 | 5 1/4 | 7 | 9 1/8 | 14 1/4 | 3/4 | 1/2 | 57 | 38 | 10 | 9.0 |
| 18 | 5 1/2 | 7 1/2 | 9 3/4 | 15 3/4 | 3/4 | 1/2 | 67 | 44 | 11 | 10 |
| 20 | 5 3/4 | 7 3/4 | 10 1/8 | 17 | 3/4 | 1/2 | 77 | 51 | 13 | 11 |

INSPECTION CRITERIA FOR WIRE MESH SLINGS

The following photos illustrate some of the common damage that occurs, indicating that the sling must be taken out of service.

For inspection frequency requirements, see page 7.

THE DAMAGE: **Overloading / Uneven Loading**

WHAT TO LOOK FOR: Mesh does not lie flat, appears distorted and/or will not bend easily.

TO PREVENT: Do not load in excess of rated capacity. Load edges must be straight / flat and in contact with full width of mesh at bearing points.



THE DAMAGE: **Wear**

WHAT TO LOOK FOR: Flat areas on the individual wires. When wires have lost 25% or more of their original diameter, the sling must be taken out of service.

TO PREVENT: Do not drag sling on the ground and do not drag loads over slings. Pad high wear areas.

THE DAMAGE: **Corrosion / Heat Damage**

WHAT TO LOOK FOR: Areas of discoloration. Remove slings with wire diameter reduction of 15% or more. Slings exposed to temperatures of 550° F or more must be removed from service.

TO PREVENT: Hang slings for storage away from moisture. Do not use mesh slings above 550° F. Consider using stainless steel mesh.



THE DAMAGE: **Broken Weld or Brazed Joint**

WHAT TO LOOK FOR: A cracked or separation of the wire at the edge or in the body of the mesh.

TO PREVENT: Do not side load mesh. Tension on sling must be distributed evenly across the entire width of the mesh.

THE DAMAGE: **Distortion or Wear of End Fittings**

WHAT TO LOOK FOR: Fittings that do not lie flat or have obvious areas of wear.

TO PREVENT: Never lift with fitting against a load edge or set load directly onto sling. Reduce wear by keeping loads within the rated capacity of the sling.



Roughneck CHAIN MESH SLINGS

Specialty Slings for rugged applications.

Widely used in metalworking shops, and stevedoring where abrasive conditions or hot environments damage and destroy synthetic slings.

Features, Advantages and Benefits

Promotes Safety

- Each sling permanently stamped with capacity and serial number for traceability
- Steel construction resists abrasion and cutting
- Each sling proof tested and certified

Saves Time

- Width of mesh helps to balance and control loads
- End fittings fit most large crane hooks

Saves Money

- Alloy steel end fittings and Grade 100 Alloy chain resists abrasion and cutting for greater sling life
- Repairable - thus cost effective
- Low stretch and good flexibility reduces load damage
- Wide bearing area distributes load to help avoid load damage

Inspection Criteria

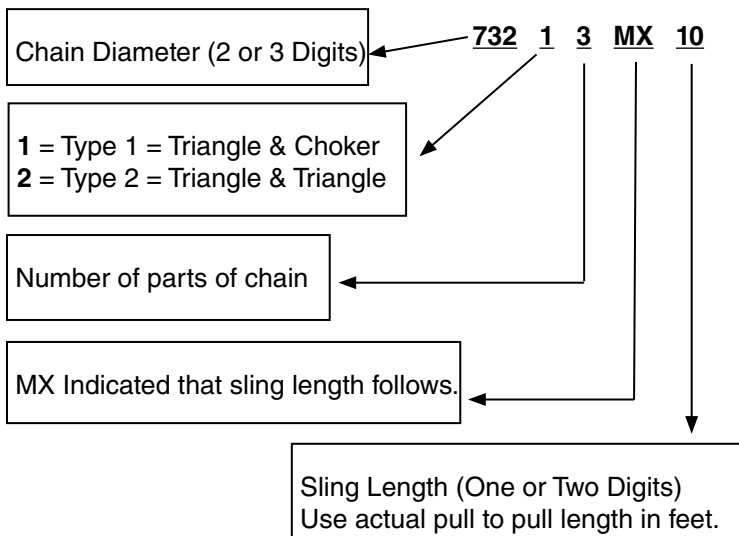
for Roughneck Chain Mesh Slings

Remove sling from service if any of the following are visible:

- Wear, nicks, cracks, breaks, gouges, stretch, bends or weld spatter on chain or attachments
- Discoloration from excessive temperature
- Chain links and attachments won't hinge freely with adjacent links
- Visible distortion of either end fitting out of its plane
- Distortion or any collapse of eye width on either end fitting
- 15% reduction of original cross-sectional area of metal at any point of either end fitting
- Cracked end fitting

How to Order

Example Order Code:



| Chain Size (in.) | Parts of Chain | Sling Width (in.) | Rated Capacity (lbs.)* | | |
|------------------|----------------|-------------------|------------------------|--------|--------|
| | | | Vertical | Choker | Basket |
| 7/32 | 3 | 1 1/2 | 5,000 | 5,000 | 10,000 |
| | 4 | 2 | 6,700 | 6,700 | 13,400 |
| | 5 | 2 1/2 | 8,400 | 8,400 | 16,800 |
| | 6 | 3 | 10,000 | 10,000 | 20,000 |
| 9/32 | 3 | 2 1/8 | 8,400 | 8,400 | 16,800 |
| | 4 | 2 3/4 | 11,000 | 11,000 | 22,000 |
| | 5 | 3 3/8 | 14,000 | 14,000 | 28,000 |
| | 6 | 4 | 16,800 | 16,800 | 33,600 |
| 3/8 | 3 | 3 1/4 | 17,000 | N/A | 34,000 |
| | 4 | 4 3/8 | 22,700 | N/A | 45,400 |
| | 5 | 5 3/8 | 28,400 | N/A | 56,800 |
| | 6 | 6 1/2 | 34,000 | N/A | 68,000 |
| 1/2 | 2 | 3 | 19,200 | N/A | 38,400 |
| | 3 | 4 1/2 | 28,800 | N/A | 57,600 |
| | 4 | 6 | 38,400 | N/A | 76,800 |

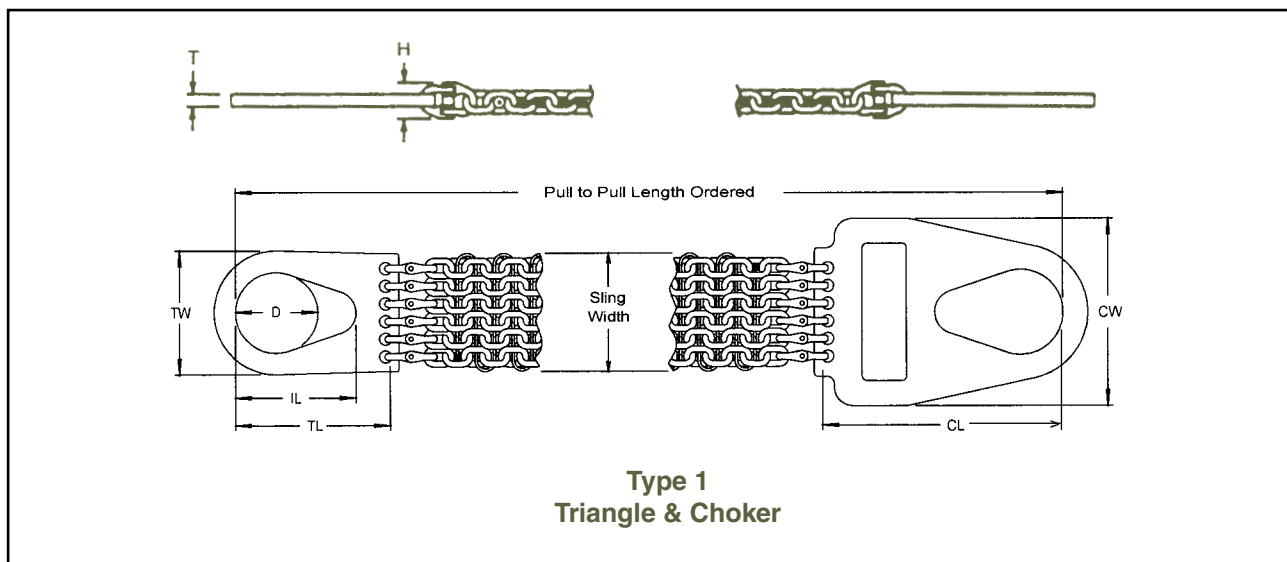
⚠ WARNING

Do not exceed rated capacities. Sling capacity decreases as the angle from horizontal decreases. Slings should not be used at angles of less than 30°. Refer to Effect of Angle chart page 10.

Environmental Considerations

- Rated capacities of chain mesh are reduced at temperatures above 400°F. (See table page 104)
- Store in clean, dry area to avoid corrosive action

Roughneck CHAIN MESH SLINGS



| Chain Size (in.) | Parts of Chain | Sling Width (in.) | Terminal Dimensions (in.) | | | | | | | | 5 ft. Type 2 Weight (lbs.) | Weight per ft. (lbs.) |
|------------------|----------------|-------------------|---------------------------|-------|-------|-------|--------|-------|-----|-------|----------------------------|-----------------------|
| | | | D | IL | TL | TW | CL | CW | T | H | | |
| 7/32 | 3 | 1 1/2 | 2 3/4 | 4 1/8 | 6 3/4 | 4 3/4 | 9 | 7 1/8 | 3/8 | 1 1/4 | 10 | 1.3 |
| | 4 | 2 | 3 | 4 1/2 | 7 1/8 | 5 | 9 3/8 | 7 1/4 | 3/8 | 1 1/4 | 12 | 1.8 |
| | 5 | 2 1/2 | 3 1/2 | 5 1/4 | 8 | 5 1/2 | 10 1/8 | 7 3/4 | 3/8 | 1 1/4 | 14 | 2.2 |
| | 6 | 3 | 3 3/4 | 5 5/8 | 8 1/4 | 5 3/4 | 10 5/8 | 8 1/4 | 3/8 | 1 1/4 | 17 | 2.7 |
| 9/32 | 3 | 2 1/8 | 2 3/4 | 4 1/8 | 6 3/4 | 4 3/4 | 9 | 7 1/8 | 1/2 | 1 3/4 | 14 | 2.2 |
| | 4 | 2 3/4 | 3 | 4 1/2 | 7 1/8 | 5 | 9 3/8 | 7 1/4 | 1/2 | 1 3/4 | 18 | 3.0 |
| | 5 | 3 3/8 | 3 1/2 | 5 1/4 | 8 | 5 1/2 | 10 1/8 | 7 3/4 | 1/2 | 1 3/4 | 22 | 3.7 |
| | 6 | 4 | 3 3/4 | 5 5/8 | 8 1/4 | 5 3/4 | 10 5/8 | 8 1/4 | 1/2 | 1 3/4 | 26 | 4.5 |
| 3/8 | 3 | 3 1/4 | 3 1/2 | 5 1/4 | 6 7/8 | 5 | | | 3/4 | 2 1/4 | 30 | 4.4 |
| | 4 | 4 3/8 | 4 3/8 | 6 1/2 | 8 1/8 | 6 3/8 | | | 3/4 | 2 1/4 | 41 | 5.8 |
| | 5 | 5 3/8 | 4 3/8 | 6 1/2 | 8 3/8 | 7 3/8 | | | 3/4 | 2 1/4 | 55 | 7.3 |
| | 6 | 6 1/2 | 5 1/4 | 7 7/8 | 9 3/4 | 8 1/4 | | | 3/4 | 2 1/4 | 59 | 8.8 |
| 1/2 | 2 | 3 | 3 1/2 | 5 1/4 | 6 7/8 | 5 | | | 1 | 3 1/8 | 33 | 5.2 |
| | 3 | 4 1/2 | 4 3/8 | 6 1/2 | 8 3/8 | 6 3/8 | | | 1 | 3 1/8 | 50 | 7.7 |
| | 4 | 6 | 5 1/4 | 7 7/8 | 9 3/4 | 7 3/4 | | | 1 | 3 1/8 | 62 | 10 |

Note: Length tolerance ± 2 chain links so plane is maintained.

LOAD HUGGER® CARGO CONTROL



Load Hugger BASICS

Lift-All Load Hugger cargo control and load securement products are of the highest quality. They offer the van and flatbed operator a wide variety of options to meet Department of Transportation and CVSA requirements.*

Features, Advantages and Benefits

Promotes Safety

- Flexible, conforms to and controls the load
- Ratchet assembly allows easy adjustment
- All hooks and chain assemblies equal or exceed strength of webbing
- Meet all DOT (Department of Transportation) and CVSA (Commercial Vehicle Safety Alliance) regulations.

Saves Money

- Soft and wide - does not damage costly cargo
- Large selection - choose the capacity that's right for the load carried

Saves Time

- Light weight, easy to handle
- Large selection of end fastenings, winches and ratchets make choosing and using the correct assembly easy

Inspection Criteria

Remove from service if any of the following are visible:

- Cuts, holes, surface abrasion or crushed areas
- Burns or chemical damage
- Separation of load carrying stitch pattern
- Hardware, fittings or tensioning devices which are broken, bent, twisted, cracked, or have nicks and gouges
- Knotted webbing
- Splices or other makeshift repairs
- Damaged loop ends

See illustrations of damaged webbing on page 50 & 51; damaged chain and hooks on page 112 and 113.

Definitions

Working Load Limit: The maximum load that may routinely be applied to an assembly or component in straight tension.

Ultimate Strength: The load at which an assembly or component will fail in testing.

Department of Transportation Regulations 393, 102(b) use Ultimate Breaking Strength to calculate the number of tiedown assemblies required to secure a load.

Lift-All publishes Ultimate Strength for this purpose only. For safety, we recommend that only Working Load Limits be used for your calculations.

Environmental Considerations

- Nylon and polyester are seriously degraded at temperatures above 200° F.
- Prolonged exposure to Ultraviolet light adversely affects nylon and polyester. Tie down straps become bleached and stiff when exposed to sunlight or arc welding.
- Many acids, alkalis and chemicals have an adverse effect on nylon and polyester. See chart on page 34.

Safe Operating Practices

- Inspect tie down straps and all hardware when load is first being secured.
- Re-tighten tie downs periodically during run.
- Never use *Load Huggers* for anything other than securing cargo. Do not use for lifting loads or towing vehicles.
- Load should be securely blocked and stabilized before tensioning the straps.
- Never exceed rated capacities.
- Use caution when tossing straps and chain anchor assemblies over a load.
- Check installation of portable winches - ratchet pawl must be at top of toothed wheel and bolts tight against the rub rail.
- Weld-on winches should not be cracked.
- Corner protectors and wear pads must be used to protect *Load Huggers* from edges and abrasion.
- All hardware must be in line with direction of pull to achieve full strength.

* CVSA - Commercial Vehicle Safety Alliance
Phone: 202-775-1623 Fax: 202-775-1624
www.cvsa.org

WEB SELECTION

Two **styles** of webbing are available for our 2"-4" ratchet assemblies and winch straps:
Standard yellow and **Hi-Vis Tuff-Edge**.

Two **strength classes** are available for 2" assemblies: **Single Stripe** and **Double Stripe**.

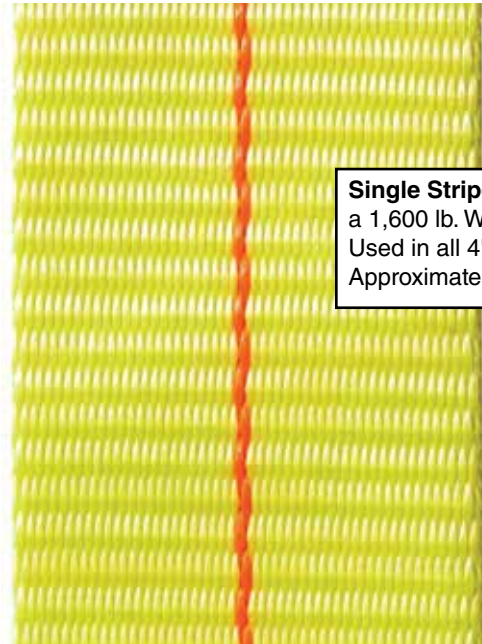
Standard Polyester Tiedown Webbing

This webbing offers exceptional value for everyday use.

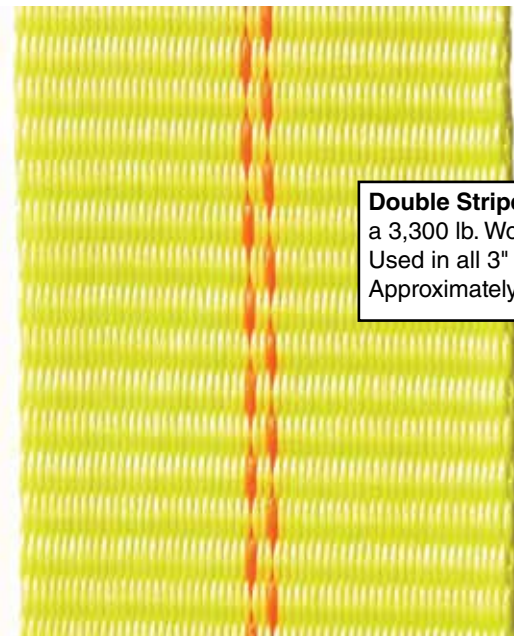
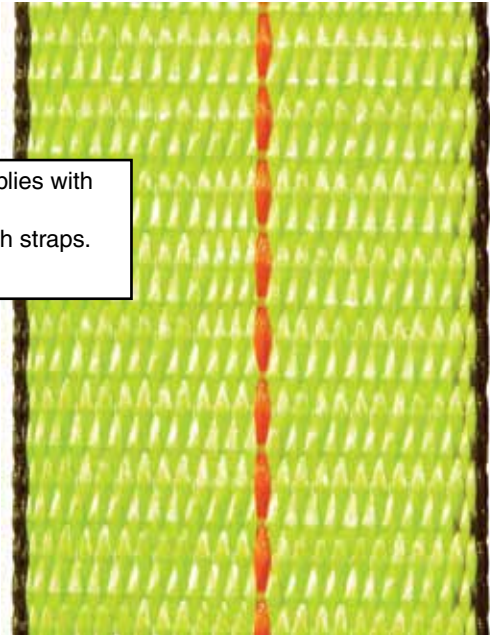
Hi-Vis Tuff-Edge Polyester Tiedown Webbing

The brightness of our new **Hi-Vis Tuff-Edge** tiedowns makes them more visible, easier to locate and harder to lose.

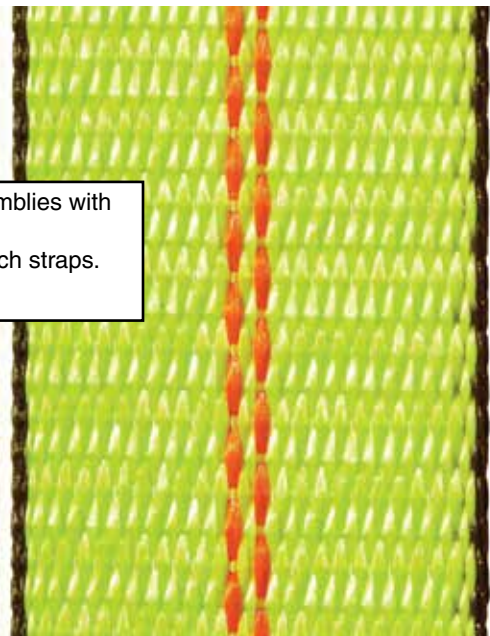
Special black polymer edge yarns provide 32% better edge cut resistance for longer assembly life.



Single Stripe - Used for 2" assemblies with a 1,600 lb. Working Load Limit. Used in all 4" assemblies and winch straps. Approximately 1/32" thick.



Double Stripe - Used for 2" assemblies with a 3,300 lb. Working Load Limit. Used in all 3" assemblies and winch straps. Approximately 3/64" thick.



RATCHET ASSEMBLIES

Type A Assemblies One piece (endless) assembly for use without end fittings. Length measured from ratchet mandrel to end of webbing.



Type B Assemblies Two piece assemblies with one fixed length of webbing and one adjustable length of webbing. Numerous end fittings are available to handle any requirements. (See following pages)

Series 1,000

- 1" wide polyester webbing
- Ultimate strength - 2,100 lbs. *
- Working Load Limit - 700 lbs. *



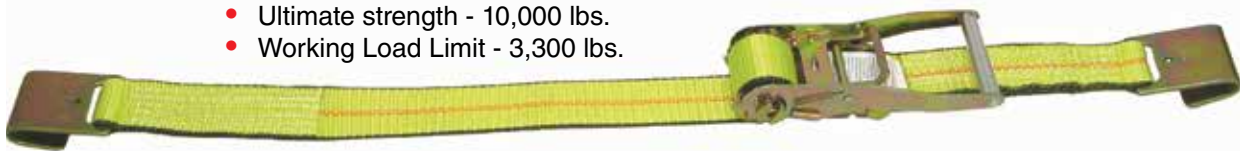
Series 5,000

- 2" wide polyester webbing
- Ultimate strength - 5,000 lbs.
- Working Load Limit - 1,600 lbs.



Series 10,000

- 2" wide polyester webbing
- Ultimate strength - 10,000 lbs.
- Working Load Limit - 3,300 lbs.



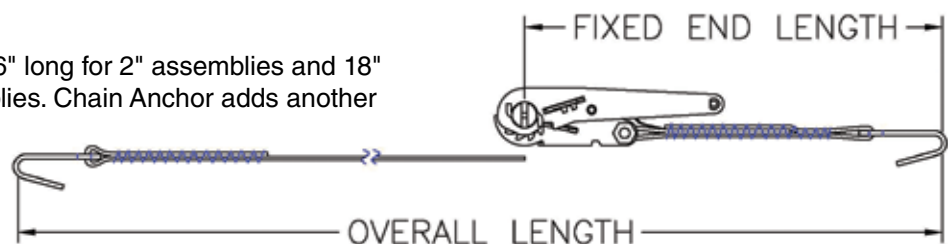
Series 15,000

- 3" or 4" wide polyester webbing
- Ultimate strength - 15,000 lbs.
- Working Load Limit - 5,000 lbs.



Type B Measurement

Fixed end is approximately 16" long for 2" assemblies and 18" long for 1", 3" and 4" assemblies. Chain Anchor adds another 14" to fixed end length.



* When using flat hooks in Series 1,000, ultimate strength is 1,000 lbs., working load limit is 330 lbs.

1" TIEDOWN ASSEMBLIES

| Webbing Ultimate Strength * (lbs.) Working Load Limit (lbs.) | Series 1,000 | | | |
|--|---|--------------------------|--------------------------|---------------|
| | 1" Wide Polyester 2,100 with Ratchet** / 1,000 with Cam 700 with Ratchet** / 330 with Cam | | | |
| | Buckle | Part No. 10 Ft. Lgth. | Part No. 15 Ft. Lgth. | Weight (lbs.) |
| Flat Hook **  | Ratchet | 60102 | 6A102 | 1.1 |
| | Cam | 60110 | 6A110 | .7 |
| Stamped Snap Hook  | Ratchet | 60104 | 6A104 | 1.5 |
| | Cam | 60113 | 6A113 | 1.0 |
| U-Hook  | Ratchet | 60101 | 6A101 | 1.1 |
| | Cam | 60109 | 6A109 | .7 |
| Hook & Keeper  | Ratchet | 60105 | 6A105 | 1.5 |
| | Cam | 60114 | 6A114 | 1.1 |
| Open Hook (PE Coated or Zinc Plated)  (PE Coated Hook shown) | Ratchet PE Hook | 60103 | 6A103 | 1.7 |
| | Ratchet ZP Hook | 60106 | 6A106 | 1.6 |
| | Cam PE Hook | 60111 | 6A111 | 1.3 |
| | Cam ZP Hook | 60112 | 6A112 | 1.2 |
| Type A (Endless)  (Series 1,000 Cam Buckle shown) | Ratchet | 60107 | 6A107 | .9 |
| | Cam | 60108 | 6A108 | .5 |

Note: Because end terminations vary proportionally with size, check with Lift-All if critical dimensions are required. Non-standard lengths available upon request.

* Ultimate strength of assembly when new.

** Exception: When used with Flat Hooks, 1" Ratchet Assembly rating is 1,000 lbs. ULTIMATE STRENGTH and 330 lbs. WORKING LOAD LIMIT.











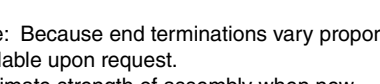
1" Ratchet Buckle



1" Cam Buckle

Our popular 1" Ratchet Tiedown with PE coated Open Hooks is available in 15 foot lengths in a 16 piece display box (Part No. 6A103B)

RATCHET ASSEMBLIES







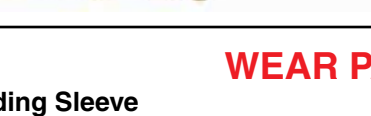
| Webbing Ultimate Strength * Working Load Limit | Length | Series 5,000 | | | Series 10,000 | | |
|---|--------|---|-----------------------|------------------|--|-----------------------|------------------|
| | | 2" Wide Polyester 5,000 lbs. 1,600 lbs. | | | 2" Wide Polyester 10,000 lbs. 3,300 lbs. | | |
| | | Standard Part No. | Tuff-Edge Part No. | Weight (lbs.) | Standard Part No. | Tuff-Edge Part No. | Weight (lbs.) |
| Flat Hook  (Series 10,000 shown) | 27' | 60501 | TE60501 | 4.6 | 61001 | TE61001 | 5.8 |
| | 30' | 60502 | TE60502 | 4.8 | 61002 | TE61002 | 6.0 |
| Stamped Triangle  (Series 5,000 shown) | 27' | 60503 | TE60503 | 4.2 | 61003 | TE61003 | 5.2 |
| | 30' | 60504 | TE60504 | 4.4 | 61004 | TE61004 | 5.4 |
| Stamped Snap Hook  (Series 10,000 shown) | 27' | 60505 | TE60505 | 4.6 | 61005 | TE61005 | 6.2 |
| | 30' | 60506 | TE60506 | 4.8 | 61006 | TE61006 | 6.4 |
| Twisted Snap Hook  (Series 10,000 shown) | 27' | 60507 | TE60507 | 5.2 | 61007 | TE61007 | 5.6 |
| | 30' | 60508 | TE60508 | 5.4 | 61008 | TE61008 | 5.8 |
| Forged Snap Hook  (Series 10,000 shown) | 27' | 60509 | TE60509 | 5.8 | 61009 | TE61009 | 6.4 |
| | 30' | 60510 | TE60510 | 6.0 | 61010 | TE61010 | 6.6 |
| D-Ring  (Series 10,000 shown) | 27' | 60511 | TE60511 | 4.2 | | | |
| | 30' | 60512 | TE60512 | 4.4 | | | |
| U-Hook  (Series 10,000 shown) | 27' | 60513 | TE60513 | 4.6 | 26422 | TE26422 | 5.8 |
| | 30' | 60514 | TE60514 | 4.8 | 26423 | TE26423 | 6.0 |
| Hook & Keeper  (Series 10,000 shown) | 27' | 60515 | TE60515 | 4.8 | | | |
| | 30' | 60516 | TE60516 | 5.0 | | | |
| Chain Anchor  (Series 10,000 shown) | 27' | | | | 61013 | TE61013 | 13.0 |
| | 30' | | | | 61014 | TE61014 | 13.2 |
| Type A (Endless)  (Series 5,000 Ratchet Buckle shown) | 27' | 60517 | TE60517 | 3.8 | 61011 | TE61011 | 4.4 |
| | 30' | 60518 | TE60518 | 4.0 | 61012 | TE61012 | 4.6 |

Note: Because end terminations vary proportionally with size, check with Lift-All if critical dimensions are required. Non-standard lengths available upon request.

* Ultimate strength of assembly when new.

⚠ WARNING Always protect tiedowns from being cut by corners and edges.

RATCHET ASSEMBLIES

| Webbing Ultimate Strength * Working Load Limit | Length | Series 15,000 | | | | | |
|---|--------|--|-----------------------|---------------|--|-----------------------|---------------|
| | | 3" Wide Polyester 15,000 lbs. 5,000 lbs. | | | 4" Wide Polyester 15,000 lbs. 5,000 lbs. | | |
| | | Standard Part No. | Tuff-Edge Part No. | Wt. (lbs.) | Standard Part No. | Tuff-Edge Part No. | Wt. (lbs.) |
| Flat Hook  | 27' | 20482 | TE20482 | 12.8 | 26424 | TE26424 | 13.6 |
| | 30' | 20483 | TE20483 | 13.2 | 26425 | TE26425 | 14.0 |
| Forged Triangle  | 27' | 20484 | TE20484 | 14.0 | 26430 | TE26430 | 14.8 |
| | 30' | 20485 | TE20485 | 14.4 | 26431 | TE26431 | 15.2 |
| Chain Grab Hook  | 27' | 20486 | TE20486 | 13.4 | 26426 | TE26426 | 14.2 |
| | 30' | 20487 | TE20487 | 13.8 | 26427 | TE26427 | 14.6 |
| Chain Anchor Assembly  | 27' | 20488 | TE20488 | 16.8 | 26432 | TE26432 | 17.6 |
| | 30' | 20489 | TE20489 | 17.2 | 26433 | TE26433 | 18.0 |
| U-Hook  | 27' | 20494 | TE20494 | 13.0 | 26436 | TE26436 | 13.8 |
| | 30' | 20495 | TE20495 | 13.2 | 26437 | TE26437 | 14.2 |
| 7 in. Sewn Eye  | 27' | 20490 | TE20490 | 11.0 | 26428 | TE26428 | 11.8 |
| | 30' | 20491 | TE20491 | 11.4 | 26429 | TE26429 | 12.2 |
| Type A (Endless)  | 27' | 20492 | TE20492 | 10.6 | 26434 | TE26434 | 11.4 |
| | 30' | 20493 | TE20493 | 11.0 | 26435 | TE26435 | 11.8 |

WEAR PADS AND CORNER PROTECTORS

Sliding Sleeve

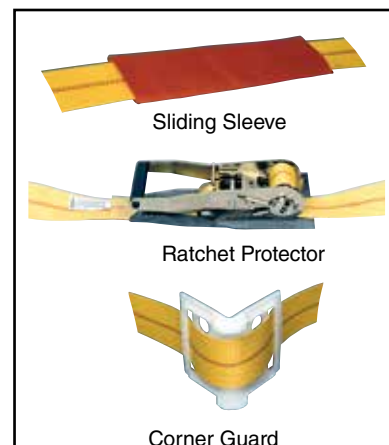
- Double walled tubular product
- Specify length when ordering
- Protects Load Hugger webbing from abrasion and helps resist cutting

Ratchet Protector

A sewn fabric pad used to protect surface finish of cargo and ratchet mechanism. Specify with order.

Corner Guard - Part #CG

A movable, rust-proof copolymer corner guard. Protects Load Hugger from sharp edges. Tough enough to be used with either chain or webbing. For other wear pad options, see pages 16-19 in the Wear Pad section.



WINCH STRAP ASSEMBLIES AND WINCHES

Series 12,000, Load Huggers 3 & 4 inch Wide Polyester Winch Assemblies

- Load Hugger Winch Straps are made for securely mounted winches on flat bed trucks and trailers.
- Ultimate strength 15,000 lbs.
- Working load limit 5,000 lbs.
- Standard assemblies in 3" or 4" widths and 27' or 30' lengths
- Wear pads and corner protectors extend life of Load Huggers (see page 126)
- To order non-standards - specify width, length, and end fitting

Winches must be properly installed with ratchet pawl on top of toothed wheel to help prevent accidental disengagement.



Standard Winch #61222
For 3" & 4" Load Hugger
Winch Straps - 7.8 lbs.



Portable Winch #61221
For 3" & 4" Load Hugger
Winch Straps - 8.8 lbs.



**36" Winch Bar
#61223**
For use with 61221 and
61222 - 4.8 lbs.

| End Fitting | Web Width (in.) | Assembly Length (ft.) | Standard Part No | Tuff-Edge Part No. | Assembly Weight (lbs.) |
|-------------|-----------------|-----------------------|------------------|--------------------|------------------------|
|-------------|-----------------|-----------------------|------------------|--------------------|------------------------|

Flat Hook

| | | | | |
|---|----|-------|---------|-----|
| 4 | 27 | 61201 | TE61201 | 4.0 |
| 4 | 30 | 61202 | TE61202 | 4.6 |
| 3 | 27 | 61203 | TE61203 | 4.4 |
| 3 | 30 | 61204 | TE61204 | 4.8 |

Forged Triangle

| | | | | |
|---|----|-------|---------|-----|
| 4 | 27 | 61205 | TE61205 | 4.4 |
| 4 | 30 | 61206 | TE61206 | 5.0 |
| 3 | 27 | 61207 | TE61207 | 4.8 |
| 3 | 30 | 61208 | TE61208 | 5.2 |

GrabHook

| | | | | |
|---|----|-------|---------|-----|
| 4 | 27 | 61209 | TE61209 | 4.2 |
| 4 | 30 | 61210 | TE61210 | 4.8 |
| 3 | 27 | 61211 | TE61211 | 4.6 |
| 3 | 30 | 61212 | TE61212 | 5.0 |

Chain Anchor

| | | | | |
|---|----|-------|---------|-----|
| 4 | 27 | 61213 | TE61213 | 6.0 |
| 4 | 30 | 61214 | TE61214 | 6.6 |
| 3 | 27 | 61215 | TE61215 | 6.4 |
| 3 | 30 | 61216 | TE61216 | 6.8 |

7" Sewn Eye

| | | | | |
|---|----|-------|---------|-----|
| 4 | 27 | 61217 | TE61217 | 3.0 |
| 4 | 30 | 61218 | TE61218 | 3.6 |
| 3 | 27 | 61219 | TE61219 | 3.4 |
| 3 | 30 | 61220 | TE61220 | 3.8 |

U-Hook

| | | | | |
|---|----|-------|---------|-----|
| 4 | 27 | 61225 | TE61225 | 4.2 |
| 4 | 30 | 61226 | TE61226 | 4.8 |
| 3 | 27 | 61227 | TE61227 | 4.6 |
| 3 | 30 | 61228 | TE61228 | 5.0 |

E - TRACK AND VAN INTERIOR ASSEMBLIES

To order non-standard interior van restraint assemblies specify:

- Overall length
- Fixed Length
- Cam buckle or ratchet buckle
- Spring loaded E-Track, 3 piece E-Track or any of the end fittings listed in Series 5,000 *Load Huggers* (page 125) may be attached

| Standard E-Track Straps | Standard Part No. | Tuff-Edge* Part No. | Wt. (lbs.) |
|--|-------------------|---------------------|------------|
| 2" x 12' Cam Buckle/Spring E Track Fittings - Yellow | 60805 | TE60805 | 1.6 |
| 2" x 16' Cam Buckle/Spring E Track Fittings - Gray | 60806 | TE60806 | 1.7 |
| 2" x 20' Cam Buckle/Spring E Track Fittings - Blue | 60807 | TE60807 | 1.8 |
| 2" x 12' Ratchet/Spring E Track Fittings - Yellow | 60808 | TE60808 | 2.0 |
| 2" x 16' Ratchet/Spring E Track Fittings - Gray | 60809 | TE60809 | 2.1 |
| 2" x 20' Ratchet/Spring E Track Fittings - Blue | 60810 | TE60810 | 2.2 |

*Tuff-Edge web is yellow for all lengths.

- Ultimate Assembly Strength: 2,500 lbs. with Cam Buckle
3,000 lbs. with Ratchet

- Working load limit: 800 lbs. with Cam Buckle
1,000 lbs. with Ratchet Buckle

Van interior restraint assemblies are only as strong as the anchor or track to which they are attached.

- E-Track only works with E-Track fittings



Spring Loaded **E-Track Fitting** (standard)



Horizontal E-Track #60801
12 Ga. Steel - Galvanized
10 ft. Sections - 17 lbs.

Note: E-Track can be cut into lengths suitable for UPS shipments.

TIE DOWN CHAIN AND BINDERS



Tiedown Chain - Boomers (Grab hook each end)



Load Binders

| Tiedown Chain - Boomers (Grab hook each end) | Standard Part No. | Wt. (lbs.) |
|--|-------------------|------------|
| 5/16 x 20' G-70 Yellow Dichromate-Welded Hooks | 16001 | 21.0 |
| 3/8 x 20' G-43 Self-colored-Welded Hooks | 16002 | 32.0 |
| 5/16 x 20' G-70 Yellow Dichromate-Clevis Hooks | 16005 | 21.0 |
| 3/8 x 20' G-43 Self-colored-Clevis Hooks | 16006 | 32.0 |
| Load Binders | | |
| 5/16 - 3/8 Lever Style | 16004I | 8.0 |
| 5/16 - 3/8 Ratchet Style | 16003I | 12.0 |



HOIST RINGS

Hoist Rings Make Lifting Easy

Hoist rings provide the safest method of attaching pick-up points to loads. Eye bolts, when lifted at an angle, tend to deform and fracture. Hoist rings are designed to eliminate this weakness.

Features, Advantages and Benefits

Promotes Safety

- Magnetic particle or X-ray inspection of components - assures highest quality
- Predetermines proper hook-up - discourages unauthorized rigging methods
- Designed for lifting at angles - safer than rigid eye bolts
- Fixed lift points prevent load and sling from slipping
- Every hoist ring stamped with rated capacity

Saves Money

- Hooks and slings are not in contact with load - reduces load and sling damage
- Alloy steel material - increases strength, reduces wear
- Black oxide finish - resists corrosion
- Highest industry quality for durability and longest life

Saves Time

- Easy hook-up and disconnect of load
- Full swivel and pivot action of Side-Pull Hoist Rings allows turning and flipping without unhooking
- Easy to Inspect

How To Order

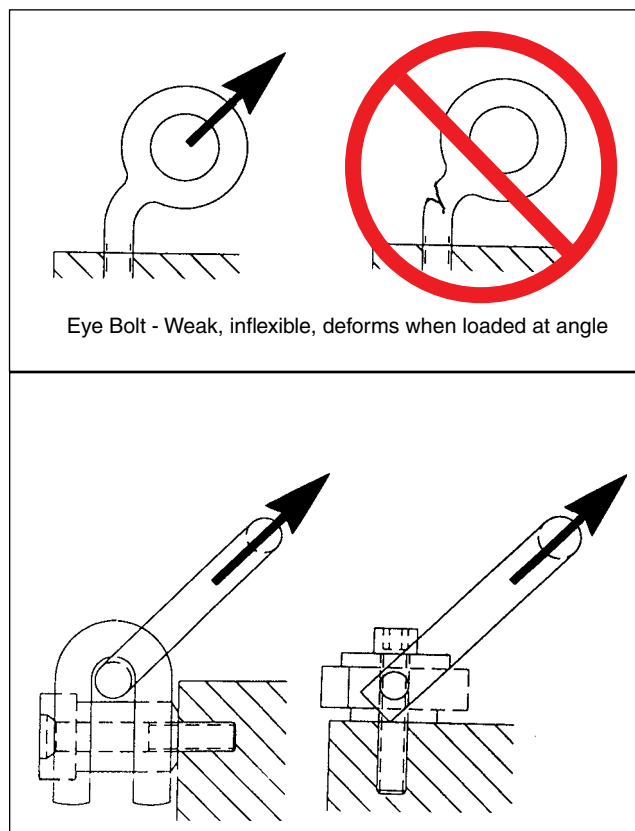
Specify stock number.

Safe Operating Practices

Read and understand instruction sheet supplied with each hoist ring prior to use.

- Do not use a damaged or defective hoist ring - inspect before each use
- Do not overload
- Full thread length must be engaged and torqued according to tables-periodic retorquing may be required.

Hoist ring ratings apply to use at any angle. Be sure that sling tension does not exceed the rating of the hoist ring. Refer to "Effect of Angle of Lift," page 12, to determine sling tension.



Eye Bolt - Weak, inflexible, deforms when loaded at angle

Side - Pull Hoist Ring

Strong, flexible, allows full 360° swiveling and pivoting.

Center - Pull Hoist Ring

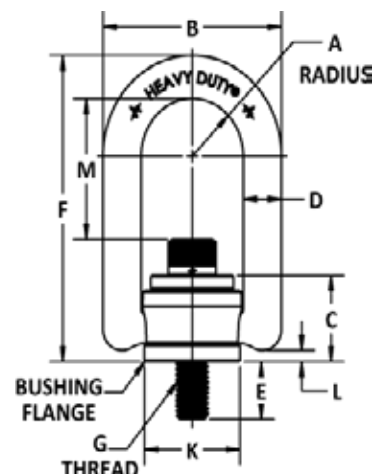
Designed for top of load mounting. The industry standard.

HOIST RINGS

Forged Center - Pull Hoist Rings

Forged hoist rings are ideal for OEM and industrial use

- Material: Forged high strength 4140 alloy steel
- Range of movement: Swivel 360°, Pivot 180° under load
- Design Factor: 5:1
- Meets manufacturing and design requirements of ASME-B30.26 and MIL-STD 209
- Magnetic particle inspected per ASTM 1444
- Each hoist ring is individually serial numbered
- Black oxide finish for corrosion resistance



Center-Pull Hoist Rings (Dimensions in inches)

| Part Number | Load Capacity* (lbs.) | Thread Size G | A | B | C | D | E +/- .12 | F | K | L | M | Torque** (ft. lbs.) | Weight (lbs.) |
|-------------|-----------------------|---------------|-----|------|------|------|-----------|------|------|-----|------|---------------------|---------------|
| 23906 | 800 | 5/16-18 | .65 | 2.29 | .96 | .44 | .56 | 3.23 | 1.25 | .15 | 1.51 | 7 | 0.52 |
| 23907 | 800 | 5/16-18 | .65 | 2.29 | .96 | .44 | 1.06 | 3.23 | 1.25 | .15 | 1.51 | 7 | 0.54 |
| 23908 | 1,000 | 3/8-16 | .65 | 2.29 | .96 | .44 | .56 | 3.23 | 1.25 | .15 | 1.45 | 12 | 0.56 |
| 23909 | 1,000 | 3/8-16 | .65 | 2.29 | .96 | .44 | 1.06 | 3.23 | 1.25 | .15 | 1.45 | 12 | 0.58 |
| 23910 | 2,500 | 1/2-13 | 1.0 | 3.50 | 1.5 | .75 | .75 | 5.31 | 1.89 | .17 | 2.56 | 28 | 1.71 |
| 23911 | 2,500 | 1/2-13 | 1.0 | 3.50 | 1.5 | .75 | 1.0 | 5.31 | 1.89 | .17 | 2.56 | 28 | 1.72 |
| 23914 | 4,000 | 5/8-11 | 1.0 | 3.50 | 1.5 | .75 | 1.0 | 5.31 | 1.89 | .17 | 2.44 | 60 | 1.78 |
| 23915 | 4,000 | 5/8-11 | 1.0 | 3.50 | 1.5 | .75 | 1.25 | 5.31 | 1.89 | .17 | 2.44 | 60 | 1.88 |
| 23917 | 5,000 | 3/4-10 | 1.0 | 3.50 | 1.5 | .75 | 1.0 | 5.31 | 1.89 | .17 | 2.31 | 100 | 1.89 |
| 23918 | 5,000 | 3/4-10 | 1.0 | 3.50 | 1.5 | .75 | 1.5 | 5.31 | 1.89 | .17 | 2.31 | 100 | 2.02 |
| 23926 | 10,000 | 1-8 | 1.5 | 5.10 | 2.05 | 1.0 | 1.45 | 7.37 | 2.81 | .18 | 3.20 | 230 | 7.57 |
| 23927 | 10,000 | 1-8 | 1.5 | 5.10 | 2.05 | 1.0 | 2.20 | 7.37 | 2.81 | .18 | 3.20 | 230 | 7.81 |
| 23929 | 15,000 | 1 1/4-7 | 2.0 | 6.75 | 2.87 | 1.25 | 1.88 | 9.22 | 3.88 | .18 | 3.74 | 470 | 15.7 |
| 23930 | 15,000 | 1 1/4-7 | 2.0 | 6.75 | 2.87 | 1.25 | 2.63 | 9.22 | 3.88 | .18 | 3.74 | 470 | 16.0 |
| 23933 | 24,000 | 1 1/2-6 | 2.0 | 6.75 | 2.87 | 1.25 | 2.63 | 9.22 | 3.88 | .32 | 3.49 | 800 | 18.1 |
| 23935 | 30,000 | 2-4 1/2 | 2.0 | 6.75 | 2.87 | 1.25 | 2.96 | 9.22 | 3.88 | .32 | 3.49 | 1100 | 22.9 |

Metric Center-Pull Hoist Rings (Dimensions in millimeters)

| Part Number | Load Capacity* (kgs.) | Thread Size G | A | B | C | D | E +/- .12 | F | K | L | M | Torque** (kg.m.) | Weight (kgs.) |
|-------------|-----------------------|---------------|------|-------|------|------|-----------|-------|------|-----|------|------------------|---------------|
| 23956 | 400 | M8 x 1.25 | 16.5 | 58.2 | 24.4 | 11.1 | 16 | 82.0 | 31.8 | 4.0 | 38.5 | 9.5 | 0.24 |
| 23958 | 450 | M10 x 1.50 | 16.5 | 58.2 | 24.4 | 11.1 | 16 | 82.0 | 31.8 | 4.0 | 36.5 | 16 | 0.25 |
| 23962 | 1,050 | M12 x 1.75 | 25.4 | 88.9 | 38.1 | 19.1 | 25 | 134.9 | 48.0 | 4.4 | 65.0 | 37 | 0.78 |
| 23965 | 1,900 | M16 x 2.0 | 25.4 | 88.9 | 38.1 | 19.1 | 25 | 134.9 | 48.0 | 4.4 | 62.0 | 80 | 0.81 |
| 23968 | 2,200 | M20 x 2.5 | 25.4 | 88.9 | 38.1 | 19.1 | 25 | 134.6 | 48.0 | 4.4 | 58.7 | 135 | 0.86 |
| 23974 | 4,200 | M24 x 3.0 | 35.6 | 129.5 | 52.1 | 25.4 | 28 | 187.2 | 71.4 | 4.6 | 85.7 | 311 | 3.29 |
| 23975 | 4,200 | M24 x 3.0 | 35.6 | 129.5 | 52.1 | 25.4 | 38 | 234.2 | 71.4 | 4.6 | 85.7 | 311 | 3.30 |
| 23979 | 7,000 | M30 x 3.5 | 50.8 | 171.5 | 72.9 | 31.8 | 67 | 234.2 | 98.5 | 8.2 | 95.0 | 637.2 | 7.26 |
| 23982 | 11,000 | M36 x 4.0 | 50.8 | 171.5 | 72.9 | 31.8 | 67 | 234.2 | 98.5 | 8.2 | 88.6 | 1085.5 | 8.21 |
| 23985 | 12,500 | M42 x 4.5 | 50.8 | 171.5 | 72.9 | 31.8 | 80 | 234.2 | 98.5 | 8.2 | 88.6 | 1085.5 | 10.14 |
| 23986 | 13,500 | M48 x 5.0 | 50.8 | 171.5 | 72.9 | 31.8 | 80 | 234.2 | 98.5 | 8.2 | 88.6 | 1085.5 | 10.59 |

All dimensions approximate. Variations do not effect use or design factor.



Do not exceed rated capacities. Be sure that sling tension does not exceed hoist ring capacity. Follow instructions on page 10.

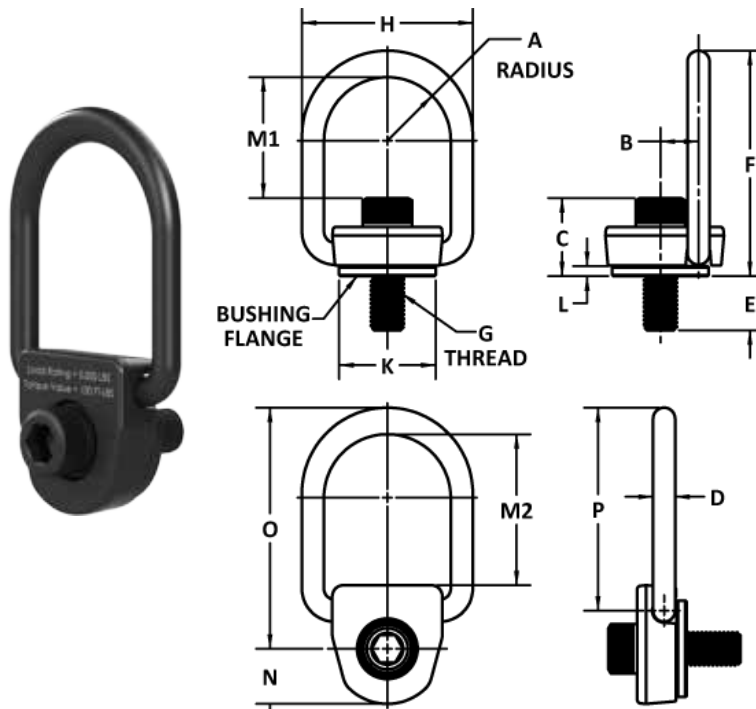
** Stated load capacity based on specific thread torques as shown in chart.

HOIST RINGS

Side - Pull Hoist Rings

This most versatile style of hoist ring is particularly suited for turning and flipping loads, but works equally well for top lifts. Used extensively in automotive stamping plants and injection molding operations for die changing.

- Re-designed load ring more suitable with web slings
- Self-aligning in the direction of the load and rotates 360° under load
- Material: Forged high strength 4140 alloy steel
- Range of movement: Swivel 360°, Pivot 180° under load
- Design Factor: 5:1
- Meets manufacturing and design requirements of ASME-B30.26 and MIL-STD 209
- Magnetic particle inspected per ASTM 1444
- Each hoist ring is individually serial numbered
- Black oxide finish for corrosion resistance



Side-Pull Hoist Rings (Dimensions in inches)

| Part No. | Load Capacity (lbs.) | Thread Size G | A | B | C | D | E (+/- .12) | F | H | K | L | M1 | M2 | N | O | P | TL ** (ft-lbs) | Weight (lbs.) |
|----------|----------------------|---------------|------|------|------|-----|-------------|------|------|------|-----|------|------|------|------|------|----------------|---------------|
| 10253 | 800 | 5/16 - 18 | 1.44 | .87 | 1.33 | 0.5 | .48 | 5.12 | 3.88 | 2.19 | .23 | 3.18 | 3.43 | 1.25 | 5.48 | 4.61 | 7 | 2.05 |
| 10254 | 1,000 | 3/8 - 16 | 1.44 | .87 | 1.4 | 0.5 | .48 | 5.12 | 3.88 | 2.19 | .23 | 3.12 | 3.43 | 1.25 | 5.48 | 4.61 | 12 | 2.12 |
| 10255 | 2,500 | 1/2 - 13 | 1.44 | .87 | 1.52 | 0.5 | .98 | 5.12 | 3.88 | 2.19 | .23 | 2.99 | 3.43 | 1.25 | 5.48 | 4.61 | 28 | 2.12 |
| 10256 | 4,000 | 5/8 - 11 | 1.44 | .87 | 1.65 | 0.5 | .98 | 5.12 | 3.88 | 2.19 | .23 | 2.87 | 3.43 | 1.25 | 5.48 | 4.61 | 60 | 2.22 |
| 10257 | 5,000 | 3/4 - 10 | 1.44 | .87 | 1.77 | 0.5 | 1.23 | 5.12 | 3.88 | 2.19 | .23 | 2.74 | 3.43 | 1.25 | 5.48 | 4.61 | 100 | 2.34 |
| 10258 | 10,000 | 1 - 8 | 1.75 | 1.25 | 2.47 | .75 | 1.53 | 6.88 | 5 | 3.13 | .31 | 3.51 | 4.34 | 1.63 | 7.4 | 6.15 | 230 | 6.64 |

Metric Side-Pull Hoist Rings (Dimensions in millimeters)

| Part No. | Load Capacity (kgs.) | Thread Size G | A | B | C | D | E +/- 3.0 | F | H | K | L | M1 | M2 | N | O | P | TL ** (Nm) | Weight (kgs.) |
|----------|----------------------|---------------|----|----|----|----|-----------|-----|-----|----|---|----|-----|----|-----|-----|------------|---------------|
| 10262 | 400 | M8 x 1.25 | 37 | 22 | 34 | 13 | 14 | 121 | 98 | 56 | 6 | 74 | 81 | 32 | 130 | 117 | 9.5 | .93 |
| 10263 | 450 | M10 x 1.5 | 37 | 22 | 36 | 13 | 24 | 130 | 99 | 56 | 6 | 79 | 87 | 32 | 139 | 117 | 16 | .96 |
| 10264 | 1,050 | M12 x 1.75 | 37 | 22 | 38 | 13 | 39 | 130 | 99 | 56 | 6 | 77 | 87 | 32 | 139 | 117 | 37 | .96 |
| 10265 | 1,900 | M16 x 2.0 | 37 | 22 | 42 | 13 | 39 | 460 | 99 | 56 | 6 | 73 | 87 | 32 | 139 | 117 | 80 | 1.01 |
| 10266 | 2,200 | M20 x 2.5 | 37 | 22 | 46 | 13 | 39 | 130 | 99 | 56 | 6 | 69 | 87 | 32 | 139 | 117 | 135 | 1.07 |
| 10267 | 4,200 | M24 x 3.0 | 22 | 32 | 61 | 19 | 43 | 175 | 127 | 79 | 8 | 90 | 110 | 41 | 188 | 156 | 311 | 2.73 |

* **WARNING** Do not exceed rated capacities. Be sure that sling tension does not exceed hoist ring capacity. Follow Instructions for Effect of Angle on page 12.

** It is recommended that these torques be used when installing hoist rings.



RENFROE MODELS LA AND LPA

LA vertical + 180 degree turn / LPA vertical + 180 degree turn + side pull

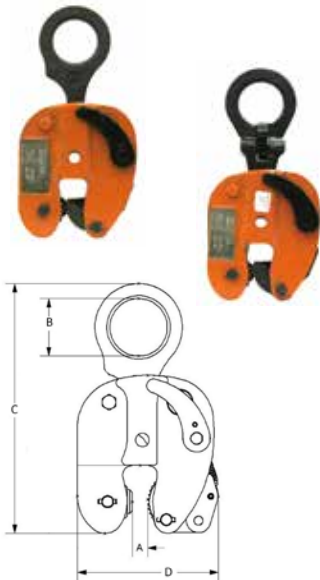


- Light weight ergonomic design
- Push button auxiliary lock allows 180 degree turn
- Lock open / lock closed feature facilitates attaching to and removal from plate
- LPA has pivoting lifting eye - permits side loading

| Vertical Capacity (Tons) | Part Number | Plate Thickness A | Lifting Eye B | Max Height C | Max Width D | Weight | Clamp Orientation |
|--------------------------|-------------|-------------------|---------------|--------------|-------------|--------|-----------------------------|
| 1/2 | LA | 0 - 5/8 | 1 1/8 | 8 11/16 | 4 1/4 | 5 | Vertical + 180° turn |
| 1 | LA | 0 - 3/4 | 1 1/8 | 8 11/16 | 4 3/8 | 6 | Vertical + 180° turn |
| 2 | LA | 0 - 1 | 2 3/8 | 12 1/2 | 7 1/16 | 17 | Vertical + 180° turn |
| 3 | LA | 0 - 1 | 3 3/8 | 17 | 8 1/2 | 32 | Vertical + 180° turn |
| 1/2 | LPA | 0 - 5/8 | 1 1/8 | 8 11/16 | 4 1/4 | 5 | Vertical + 180° + side pull |
| 1 | LPA | 0 - 3/4 | 1 1/8 | 8 11/16 | 4 3/8 | 6 | Vertical + 180° + side pull |
| 2 | LPA | 0 - 1 | 1 7/8 | 12 1/2 | 7 1/16 | 17 | Vertical + 180° + side pull |
| 3 | LPA | 0 - 1 | 3 5/8 | 17 | 8 1/2 | 32 | Vertical + 180° + side pull |

RENFROE MODELS J AND JP

J vertical + 90 degree turn / JP vertical + 90 degree turn + side pull



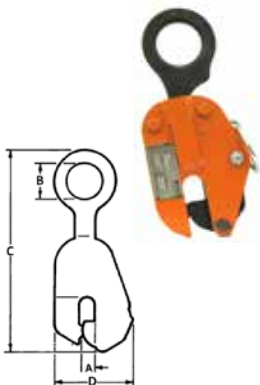
- Lock mechanism
- Lock open / lock closed feature facilitates attaching to and removal from plate
- JP has pivoting lifting eye - permits side loading
- Turn plate through 90 degree arc

| Vertical Capacity (Tons) | Part Number | Plate Thickness A | Lifting Eye B | Max Height C | Max Width D | Weight | Clamp Orientation |
|--------------------------|-------------|-------------------|---------------|--------------|-------------|--------|----------------------------|
| 1/2 | J | 0 - 5/8 | 2 3/8 | 12 | 5 5/8 | 10 | Vertical + 90° turn |
| 1 | J | 0 - 3/4 | 2 5/8 | 13 3/4 | 7 | 15 | Vertical + 90° turn |
| 2 | J | 0 - 1 | 3 1/2 | 17 3/8 | 8 3/4 | 36 | Vertical + 90° turn |
| 4 | J | 3/16 - 1 1/4 | 3 1/2 | 20 1/8 | 9 1/4 | 42 | Vertical + 90° turn |
| 1/2 | JP | 0 - 5/8 | 2 3/8 | 12 | 5 5/8 | 12 | Vertical + 90° + side pull |
| 1 | JP | 0 - 3/4 | 2 5/8 | 13 3/4 | 7 | 20 | Vertical + 90° + side pull |
| 2 | JP | 0 - 1 | 3 1/2 | 17 3/8 | 8 3/4 | 40 | Vertical + 90° + side pull |
| 4 | JP | 3/16 - 1 1/4 | 3 1/2 | 20 1/8 | 9 1/4 | 50 | Vertical + 90° + side pull |

RENFROE MODEL FR

Vertical Only

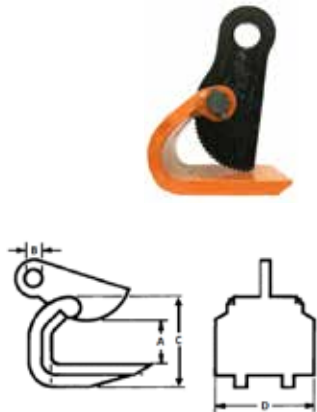
- Most popular clamp
- Small and easy to handle
- Serrated gripping cams
- Lock closed feature
- Vertical only



| Vertical Capacity (Tons) | Part Number | Plate Thickness A | Lifting Eye B | Max Height C | Max Width D | Weight | Clamp Orientation |
|--------------------------|-------------|-------------------|---------------|--------------|-------------|--------|-------------------|
| 1/2 | FR | 0 - 3/4 | 2 3/8 | 11 1/4 | 4 5/8 | 8 | Vertical only |
| 1 | FR | 0 - 3/4 | 2 5/8 | 13 3/4 | 5 7/8 | 14 | Vertical only |
| 2 | FR | 0 - 1 | 3 5/8 | 16 3/8 | 6 3/4 | 23 | Vertical only |
| 3 | FR | 0 - 1 1/4 | 3 5/8 | 18 3/8 | 7 5/8 | 30 | Vertical only |

RENFROE MODEL HR

Horizontal

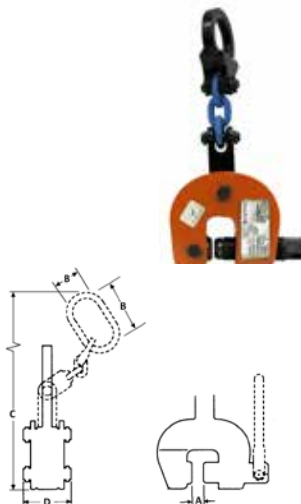


- Use in pairs, or tripod arrangement
- Serrated gripping cams
- Available with smooth non-marring cams

| Vertical Capacity Ea.(Tons) | Part Number | Plate Thickness A | Lifting Eye B | Body Height C | Max Width D | Weight | Clamp Orientation |
|-----------------------------|-------------|-------------------|---------------|---------------|-------------|--------|---------------------------|
| 1/4 | HR | 0 - 2 | 1 | 2 3/4 | 3 | 3.5 | Horizontal (use in pairs) |
| 1/2 | HR | 0 - 2 | 1 3/8 | 4 1/4 | 7 | 14 | Horizontal (use in pairs) |
| 3/4 | HR | 0 - 2 | 1 3/8 | 4 3/8 | 7 | 19 | Horizontal (use in pairs) |
| 1 1/2 | HR | 0 - 2 | 1 3/8 | 4 3/8 | 7 | 23 | Horizontal (use in pairs) |
| 3 | HR | 0 - 2 | 1 3/8 | 6 1/4 | 7 | 24 | Horizontal (use in pairs) |
| 4 | HR | 0 - 4 | 1 3/8 | 7 3/4 | 7 | 44 | Horizontal (use in pairs) |

RENFROE MODEL SCPA

Vertical + 180 Degree turn + side pull



- Can be used in rolling and forming
- Spring loaded cam
- Can be used for horizontal lifts (use in pairs or sets of pairs)

| Vertical Capacity (Tons) | Part Number | Plate Thickness A | Lifting Eye B | Max Height C | Max Width D | Weight | Clamp Orientation |
|--------------------------|-------------|-------------------|---------------|--------------|-------------|--------|-----------------------------|
| 1/2 | SCPA | 0 - 3/4 | 1 3/4 | 12 3/16 | 6 5/8 | 8 | Vertical + 180° + side pull |
| 1 1/2 | SCPA | 0 - 1 1/4 | 2 | 14 3/16 | 8 7/16 | 15 | Vertical + 180° + side pull |
| 3 | SCPA | 0 - 2 | 3 x 6 | 21 3/8 | 10 3/16 | 24 | Vertical + 180° + side pull |
| 6 | SCPA | 0 - 2 1/2 | 3 1/2 x 7 | 27 3/4 | 14 3/8 | 57 | Vertical + 180° + side pull |

RENFROE MODEL 300-S DRUM LIFTER

Vertical only



- Secure locking device
- Easy handling of one drum
- Vertical lift and transport

| Vertical Capacity (Tons) | Part Number | Drum Diameter | Lifting Eye B | Max Height C | Max Width D | Weight | Clamp Orientation |
|--------------------------|-------------|---------------|---------------|--------------|-------------|--------|-------------------|
| 3000 | 300-S | 22 1/2 | 3 x 6 | 25 | 22 1/2 | 25 | Vertical only |



HURRICANE 360° HAND CHAIN HOIST



For the ultimate flexibility in a hand chain hoist, the CM Hurricane 360° is the choice for a wide range of applications. The patented hand chain cover rotates a full 360 degrees to allow loads to be lifted, pulled, or positioned from virtually any angle. In addition to providing maximum versatility, this unit offers a convenient way to maneuver loads without standing under the load. The Hurricane 360° allows workers to view hand chain hoists in a whole new light and provides a tool for addressing unique jobs in a broad range of environments.

Trusted Reliability

- The braking power of our Weston-Style Braking System provides positive load control and reliable performance.
- Minimal maintenance and easy to disassemble with no special tools.

Safety

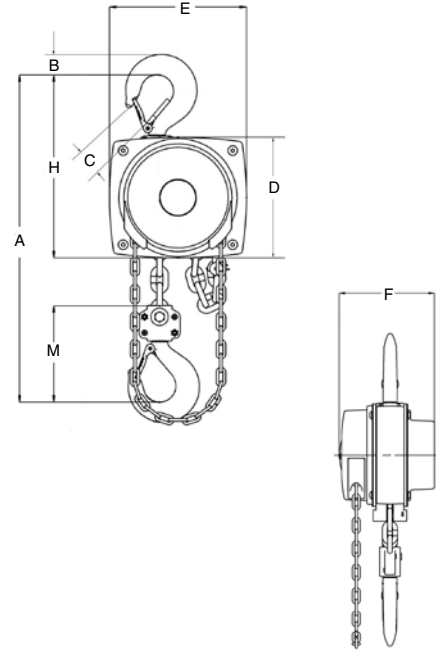
- Standard Load Limiter for simple, automatic overload protection.

Built to Last

- All internal gears and pinions are heat treated steel for high strength and long life.
- Precision 4-Pocket Liftwheel and Chain provides better chain fit and alignment which reduces wear and increases chain life.

Rugged Toughness

- Powder Coated Finish for corrosion protection
- Alloy hardened Steel Load Chain assures high strength and long wear life.
- Meets ASME B30.16 and European CE Standard.
- Lifetime Warranty.



| Product Code | Load Rating (tons) | Lift (ft.) | Net Wt. (lbs.) | Hand Chain Pull to Lift Rated Load (lbs.) | Hand Chain Overhauled to Lift Load One Foot (ft.) | Dimensions (in.) | | | | | | | |
|--------------|--------------------|------------|----------------|---|---|------------------|---------|---------|---------|---------|---------|---------|----------|
| | | | | | | A | B | C | D | E | F | H | M |
| 12HCHX10 | 1/2 | 10 | 19.8 | 44 | 30 | 11 13/16 | 11/16 | 15/16 | 5 1/4 | 5 13/16 | 5 13/16 | 8 1/8 | 4 5/16 |
| 12HCHX15 | | 15 | 21.0 | | | | | | | | | | |
| 12HCHX20 | | 20 | 23.4 | | | | | | | | | | |
| 1HCHX10 | 1 | 10 | 28.7 | 54 | 49 | 13 3/16 | 7/8 | 1 1/8 | 6 1/8 | 6 7/8 | 6 5/8 | 9 1/2 | 4 15/16 |
| 1HCHX15 | | 15 | 30.7 | | | | | | | | | | |
| 1HCHX20 | | 20 | 34.8 | | | | | | | | | | |
| 2HCHX10 | 2 | 10 | 44.1 | 74 | 71 | 15 9/16 | 1 3/16 | 1 3/8 | 7 3/16 | 8 | 7 5/8 | 11 1/8 | 6 1/8 |
| 2HCHX15 | | 15 | 47.6 | | | | | | | | | | |
| 2HCHX20 | | 20 | 54.7 | | | | | | | | | | |
| 3HCHX10 | 3 | 10 | 61.7 | 92 | 87 | 20 1/2 | 1 1/2 | 1 9/16 | 8 11/16 | 9 13/16 | 8 5/8 | 13 3/16 | 7 |
| 3HCHX15 | | 15 | 67.5 | | | | | | | | | | |
| 3HCHX20 | | 20 | 79.2 | | | | | | | | | | |
| 5HCHX10 | 5 | 10 | 83.8 | 76 | 174 | 25 3/4 | 1 3/4 | 1 7/8 | 8 11/16 | 9 13/16 | 8 5/8 | 13 7/8 | 11 1/4 |
| 5HCHX15 | | 15 | 95.4 | | | | | | | | | | |
| 5HCHX20 | | 20 | 118.6 | | | | | | | | | | |
| 10HCHX10 | 10 | 10 | 156.6 | 102 | 261 | 32 1/2 | 2 11/16 | 2 11/16 | 8 11/16 | 15 1/16 | 8 5/8 | 17 3/16 | 15 13/16 |
| 10HCHX15 | | 15 | 174.0 | | | | | | | | | | |
| 10HCHX20 | | 20 | 208.8 | | | | | | | | | | |

CM MANUAL CHAIN HOISTS

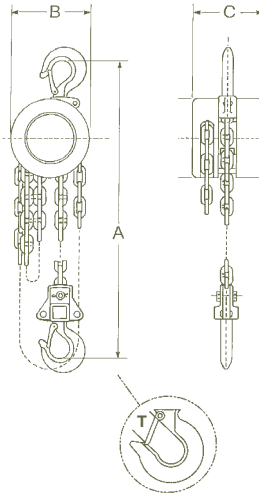
All CM Hoists come with hardened alloy load chain and fully enclosed brake and housing for long life. Swivel hooks make connection and turning of load easy.



CYCLONE

Cyclone hoists are the premium grade manual chain hoists. Built for heavy duty use, these hoists are most often placed for permanent installation using the standard hook or mounting directly to a low headroom, plain or geared trolley.

- Cast aluminum body for strength
- Load Limiter - prevents hoist damage from excessive loads.
- Lifetime warranty against defects in workmanship and materials.
- Made in U.S.A.



SERIES 622

The Series 622 hoists are the economical choice in a quality manual chain hoist. Contractors favor the 622 because of its light weight and compact design.

- Stamped steel body for light-weight strength.
- Compact design for low headroom.
- One year warranty against defects in workmanship and materials.



| Part No. | Std. Lengths (ft.) | Max. Cap. (tons) | Strands of Load Chain | Hand Chain | | A (in.) | B (in.) | C (in.) | T (in.) | 10 Ft. Net Wt. (lbs.) |
|-------------|--------------------|------------------|-----------------------|--------------------------|-----------------------------|---------|----------|---------|---------|-----------------------|
| | | | | Pull (lbs.) ¹ | Overhaul (ft.) ² | | | | | |
| Cyclone | | | | | | | | | | |
| 14CHX10 | 10 | 1/4 | 1 | 23 | 22 1/2 | 12 7/8 | 10 7/8 | 7 3/8 | 1 11/32 | 40 |
| 12CHX10 | 10 | 1/2 | 1 | 46 | 22 1/2 | 12 7/8 | 10 7/8 | 7 3/8 | 1 11/32 | 40 |
| 1CHX10 | 10 | 1 | 1 | 69 | 30 | 14 | 10 7/8 | 7 3/8 | 1 1/8 | 43 |
| 112CHX10 | 10 | 1 1/2 | 1 | 80 | 40 1/2 | 17 5/16 | 10 7/8 | 9 7/8 | 1 5/16 | 70 |
| 2CHX10 | 10 | 2 | 1 | 83 | 52 | 17 5/16 | 10 7/8 | 9 7/8 | 1 5/16 | 70 |
| 3CHX10 | 10 | 3 | 2 | 85 | 81 | 21 1/2 | 12 1/4 | 9 7/8 | 1 5/8 | 103 |
| 4CHX10 | 10 | 4 | 2 | 88 | 104 | 21 1/2 | 12 1/4 | 9 7/8 | 1 5/8 | 103 |
| 5CHX10 | 10 | 5 | 3 | 75 | 156 | 24 1/2 | 14 1/2 | 9 7/8 | 1 5/8 | 138 |
| 6CHX10 | 10 | 6 | 3 | 90 | 156 | 25 1/2 | 14 1/2 | 9 7/8 | 1 3/4 | 142 |
| 8CHX10 | 10 | 8 | 4 | 89 | 208 | 35 1/2 | 17 1/2 | 9 7/8 | 2 5/16 | 248 |
| 10CHX10 | 10 | 10 | 5 | 95 | 260 | 35 1/2 | 17 1/2 | 9 7/8 | 2 5/16 | 251 |
| Series 622* | | | | | | | | | | |
| 12CHIX_ | 10,15,20,30 | 1/2 | 1 | 45 | 32 | 10 | 4 11/16 | 4 3/16 | 3/4 | 18 |
| 1CHIX_ | 10,15,20,30 | 1 | 1 | 74 | 39 | 12 | 5 19/32 | 5 3/16 | 7/8 | 26 |
| 2CHIX_ | 10,15,20,30 | 2 | 1 | 70 | 77 | 17 | 8 5/16 | 6 19/32 | 1 1/16 | 61 |
| 3CHIX_ | 10,20 | 3 | 2 | 54 | 154 | 22 | 8 5/16 | 6 19/32 | 1 1/4 | 89 |
| 5CHIX_ | 10,20 | 5 | 2 | 88 | 154 | 24 | 8 5/16 | 6 19/32 | 1 11/16 | 91 |
| 10CHIX_ | 10 | 10 | 4 | 90 | 308 | 32 | 14 13/16 | 6 19/32 | 2 3/16 | 170 |

* Add length after X to complete part number

¹ Pull required to lift rated load.

² Overhaul distance to lift load one foot.

CM LEVER PULLERS

Lever Pullers are highly versatile tools that can be used to pull, lift, drag or stretch. All CM Lever Pullers use hardened alloy steel chain for long life and forged steel swivel hooks with latches for safety and ease of use.

CM PULLER



Designed for heavy-duty construction and industrial applications. Fully enclosed lift wheel resists dirt and grit that can damage mechanism.

- Tough Aluminum alloy construction.
- Lifetime warranty against defects in workmanship and materials.
- Weatherproof
- Made in U.S.A.
- Low turning ratio results in quick chain movement

SERIES 653



Designed for close quarter, standard duty commercial applications. Short handle with low pull requirement makes these units easy to operate.

- Impact resistant, stamped steel frame, gear case and cover for durability and light weight.
- Hardened steel, redundant load sharing gears.
- Double pawl arrangement for optimum load control.
- Two chain guide rollers for precise chain fit.
- 5 year warranty.
- Rubber handle grip for added operator comfort.
- Minimal maintenance with no special tools required.

OPTIONAL OVERLOAD DEVICES FOR THE CM PULLERS

Two ways to protect your loads and lever pullers from overload damage are available as optional accessories to your CM PULLERS. Either device may be installed on your PULLER at time of order or ordered separately as a kit for simple installation on models already in use.

LOAD LIMITER

(Not available on Series 653)

Stops excessive lever force from being transmitted to the PULLER.



| * Part No. | Std. Lengths (ft.) | Max. Cap. (tons) | Lever Pull (lbs.) | Min. Hook Distance (in.) | Lever Length (in.) | Hook Throat Opening (in.) | 5 Ft. Net Wt (lbs.) |
|------------|--------------------|------------------|-------------------|--------------------------|--------------------|---------------------------|---------------------|
| CM Puller | | | | | | | |
| 34PX_ | 5, 10, 20 | 3/4 | 58 | 10 3/4 | 21 1/4 | 1 1/32 | 16 |
| 112PX_ | 5, 10, 20 | 1 1/2 | 89 | 14 1/4 | 21 1/4 | 1 1/8 | 26 |
| 3PX_ | 5, 10, 20 | 3 | 95 | 17 | 21 1/4 | 1 7/32 | 38 |
| 6PX5 | 5 | 6 | 96 | 21 3/8 | 21 1/4 | 1 3/4 | 73 |
| Series 653 | | | | | | | |
| 34PIX_ | 5, 10, 15, 20 | 3/4 | 33 | 12 6/8 | 11 | 1 1/8 | 15 |
| 112PIX_ | 5, 10, 15, 20 | 1 1/2 | 51 | 14 13/16 | 16 1/4 | 1 1/4 | 27 |
| 3PIX_ | 5, 10 | 3 | 77 | 18 11/16 | 16 1/4 | 1 9/16 | 45 |

* Add length after X to complete part number

LOAD SENTRY

(Not available on Series 653)

Deflection of the handle grip warns the user when excessive force is being applied to the lever handle.



CM MINI-RATCHET LEVER HOISTS

Mini-Ratchet Lever Hoists can lift up to 1,100 lbs. but are small enough to fit in your toolbox! These ratchet lever hoists are the most compact on the market. They perform just like our larger models, plus come with these great features:

602MH



550 LB.
Capacity

603MH



1100 LB.
Capacity

Designed for close quarter, standard duty commercial applications. Short handle with low pull requirement makes these units easy to operate.

- Plated load chain
- Weston style load brake
- Rubber hand grip for better comfort and control
- Lightweight design for easy transport and one-hand operation in confined space
- Forged hooks with latches are standard
- Impact resistant, all-steel frame, gear case and cover
- Hardened link-type alloy steel load chain for strength and long wear
- Free wheeling feature serves to quickly attach the load
- Your choice of either 5 ft. or 10 ft. lifts

| Part No. | Length (ft.) | Capacity | | Number of Chain Falls | Handle Length (in.) | Min. Distance Between Hooks (in.) | Lift w/ One Full Lever Turn (in.) | Handle Pull @ WLL (lbs.) | Net Wt. (lbs.) |
|----------|--------------|----------|-----|-----------------------|---------------------|-----------------------------------|-----------------------------------|--------------------------|----------------|
| | | lbs. | kg. | | | | | | |
| 602MHX5 | 5 | 550 | 250 | 1 | 6.300 | 9.450 | 3.15 | 56 | 6.0 |
| 602MHX10 | 10 | 550 | 250 | 1 | 6.300 | 9.450 | 3.15 | 56 | 7.0 |
| 603MHX5 | 5 | 1100 | 500 | 1 | 6.375 | 11.125 | 1.57 | 78 | 7.0 |
| 603MHX10 | 10 | 1100 | 500 | 1 | 6.375 | 11.125 | 1.57 | 78 | 8.0 |



BASIC INFORMATION

Lift-All can provide a unique engineered device for your production requirements. Our custom devices range from large capacity beams to control and balance unwieldy loads, to fork lift attachments or small “S” or “J” hooks.

Features, Advantages and Benefits

Promotes Safety

- Specifically designed equipment makes each lift safer
- All equipment conforms to highest engineering standards and meets or exceeds government and industry regulations (ASME B30.20)
- Helps eliminate employee fatigue - raises morale and quality of work

Saves Money

- Productivity improves through efficiency when using properly designed lifting devices.
- Equipment can be designed to prevent costly load damage
- Rugged materials and construction provide long useful life

Inspection Criteria for Lifting Devices

Visually inspect lifting device and slings prior to each lift. Have competent person record inspection a minimum of once a year.

Check the following and correct before use:

- Structural deformation, cracks, excessive wear
- Loose or missing guards, fasteners, covers, stops or name plates
- Inoperable mechanisms including automatic hold or release devices
- Loose bolts or fasteners
- Cracked or worn gears, pulleys, sheaves, sprockets, bearings and chains
- Excessive wear of friction pads, linkage or other mechanical parts
- Excessive wear of hoist hooking points and load support clevises or pins

Safe Operating Practices

- Use only per ASME B30.20
- Check name plate to assure proper lifting capacity
- Lift a test load a sufficient distance to assure that the load is supported properly by the lifter and then inspect lifter for defects and deformation
- Instruct the operator in correct lifting practices including proper storage, load distribution, use of associated slings, temperature considerations, avoidance of obstructions, acceleration, side pulls and angle of lift. Read “Help” section, pages 3 through 12.
- Never lift over people and never ride the load
- For proper use of slings with lifting devices refer to ASME B30.9 and appropriate section of this catalog

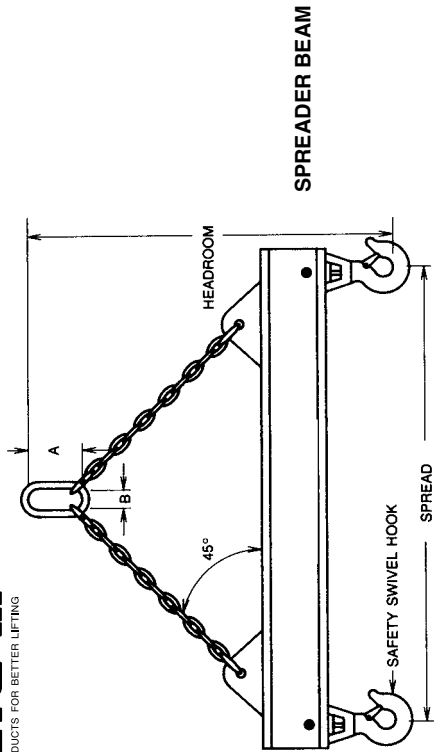
How to Order - The Easy Order System

1. Photocopy appropriate drawing from the following pages
2. Fill-in your specific data
3. Fax to *Lift-All* at 717-898-1215.

Phone 1-800-909-1964

If we have questions, we will call you. Our engineering drawing will be faxed to you for approval and purchase order.

Prior to sling or lifting device selection and use, review and understand the “Help” section pages 3 through 12.



LOW HEADROOM LIFTING BEAM

Required information:

Opening required for Overhead Hook:

A (Height) _____
B (Width) _____
C (Max.) _____
Capacity Required _____
Spread _____
Headroom _____
D (Optional) _____

Is load center of gravity centered between other pick points? Yes ☐ No ☐

If no, specify location in reference to pick points (attach a diagram if necessary): _____

If adjustable beam required, list quantity and spread for any additional pairs of holes, pins and hooks.

Lift-All Dwg. No. _____ Customer Dwg. No. _____

User Company _____ User Contact - Name - Phone _____

Purchase Order No. _____

Signature _____ Date _____

Quotation Needed By: _____ Date _____

Date _____ From _____ Person Requesting Quote _____

Distributor _____

Address _____

City _____ State _____ Zip _____

Phone () _____ Fax () _____

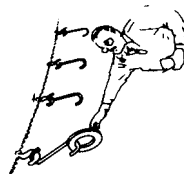
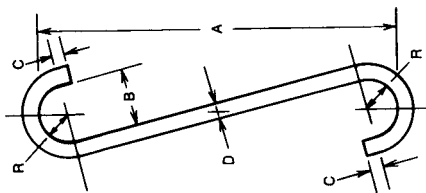
NOTE: Custom Engineered Products Cannot Be Returned

LB-1

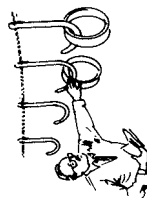
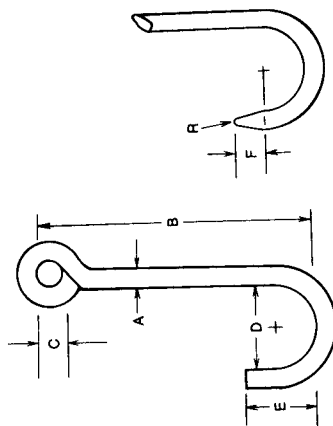
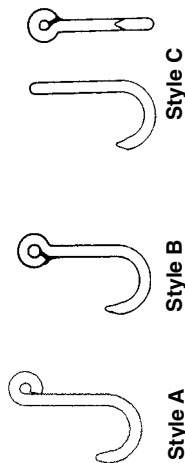
Custom
Devices



ALLOY S-HOOK



ALLOY J-HOOK



Required information:

S-Hook

Material Diameter _____
 Rated Capacity _____
 Chain Size: _____
 A _____ B _____
 C _____ D _____
 R (Radius) _____

J-Hook

Style: Circle One A B C
 Tip: Flat-Tapered _____
 Rated Capacity _____
 Chain Size: _____
 A _____ B _____
 C _____ D _____
 E _____ F _____
 R (Tip Radius) _____
 Special Instructions: _____

Quotation Needed By: _____ Date _____

Date _____ From _____
Person Requesting Quote

Distributor _____

Address _____

City _____ State _____ Zip _____

Phone () _____ Fax () _____

Lift-All Dwg. No. _____ Customer Dwg. No. _____

User Company _____
 User Contact - Name - Phone _____

Purchase Order No. _____
 Signature _____ Date _____

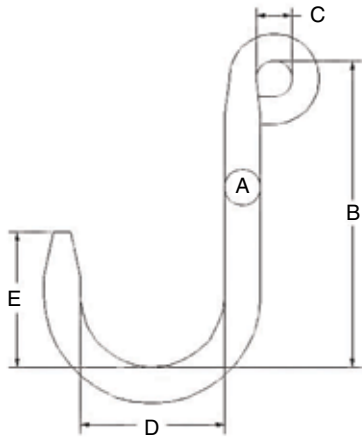
NOTE: Custom Engineered Products Cannot Be Returned

STANDARD J-HOOKS

Alloy steel hooks, welded, heat treated, shot blast finish, proof tested and certified.

Foundry Sorting Hooks

Best for foundry and industrial general sorting operations.



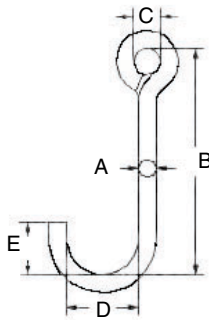
Standard

| Part No. | A | B | C | D | E | Chain Size Eye Fits Mech. Coupler | Rated Capacity * (lbs.) |
|----------|------|------|------|------|------|-----------------------------------|-------------------------|
| FSA050 | 0.50 | 6.00 | 0.75 | 2.50 | 2.00 | 0.28 | 500 |
| FSA063 | 0.63 | 8.50 | 0.75 | 3.50 | 3.25 | 0.28 | 800 |
| FSA075 | 0.75 | 8.50 | 0.75 | 3.50 | 3.25 | 0.28 | 1300 |
| FSA081 | 0.81 | 8.50 | 0.88 | 3.50 | 3.25 | 0.38 | 1600 |
| FSA100 | 1.00 | 8.50 | 1.00 | 4.00 | 3.75 | 0.38 | 2500 |
| FSA113 | 1.13 | 8.50 | 1.00 | 4.00 | 4.00 | 0.38 | 3500 |
| FSA125 | 1.25 | 8.50 | 1.25 | 4.00 | 4.00 | 0.50 | 4500 |
| FSA150 | 1.50 | 8.50 | 1.25 | 5.00 | 4.00 | 0.50 | 6000 |

Short

| Part No. | A | B | C | D | E | Chain Size Eye Fits Mech. Coupler | Rated Capacity * (lbs.) |
|----------|------|------|------|------|------|-----------------------------------|-------------------------|
| FSA050S | 0.50 | 6.00 | 0.75 | 3.00 | 3.00 | 0.28 | 450 |
| FSA063S | 0.63 | 6.00 | 0.75 | 3.00 | 3.00 | 0.28 | 900 |
| FSA075S | 0.75 | 6.00 | 0.75 | 3.00 | 3.00 | 0.28 | 1400 |
| FSA088S | 0.88 | 6.00 | 0.88 | 3.00 | 3.00 | 0.38 | 2000 |
| FSA100S | 1.00 | 6.00 | 1.00 | 3.00 | 3.00 | 0.38 | 3000 |
| FSA113S | 1.13 | 6.00 | 1.00 | 3.00 | 3.00 | 0.38 | 4000 |
| FSA125S | 1.25 | 6.00 | 1.25 | 3.00 | 3.00 | 0.50 | 5500 |

STYLE B

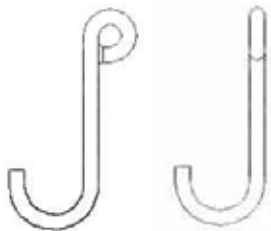


Flat Tip Hooks

| Part No. | Part No. | Part No. | A | B | C | D | E | Rated Capacity * (lbs.) |
|----------|----------|----------|------|-------|------|------|------|-------------------------|
| JAA031 | JBA031 | JCA031 | 0.31 | 5.00 | 0.75 | 1.25 | 0.88 | 250 |
| JAA038 | JBA038 | JCA038 | 0.38 | 6.00 | 0.75 | 1.50 | 1.13 | 350 |
| JAA050 | JBA050 | JCA050 | 0.50 | 8.00 | 0.75 | 2.00 | 1.50 | 650 |
| JAA063 | JBA063 | JCA063 | 0.63 | 9.00 | 1.00 | 2.50 | 1.88 | 850 |
| JAA075 | JBA075 | JCA075 | 0.75 | 10.00 | 1.00 | 3.00 | 2.25 | 1200 |
| JAA088 | JBA088 | JCA088 | 0.88 | 12.00 | 1.00 | 3.50 | 2.63 | 1500 |
| JAA100 | JBA100 | JCA100 | 1.00 | 14.00 | 1.25 | 4.00 | 3.00 | 2000 |
| JAA113 | JBA113 | JCA113 | 1.13 | 15.00 | 1.25 | 4.50 | 3.37 | 2250 |
| JAA125 | JBA125 | JCA125 | 1.25 | 16.00 | 1.50 | 5.00 | 3.75 | 2750 |
| JAA138 | JBA138 | JCA138 | 1.38 | 17.00 | 1.50 | 5.50 | 4.13 | 3000 |
| JAA150 | JBA150 | JCA150 | 1.50 | 18.00 | 2.00 | 6.00 | 4.50 | 3500 |
| JAA175 | JBA175 | JCA175 | 1.75 | 20.00 | 2.50 | 7.00 | 5.25 | 4000 |
| JAA200 | JBA200 | JCA200 | 2.00 | 24.00 | 3.00 | 8.00 | 6.00 | 5000 |

STYLE A

STYLE C



* Rated Capacity based on bearing to bearing pull. Tip load capacity averages 30% of bearing to bearing rating.

Required information:

Style Requested: ☐ Coil Lifter ☐ Pallet Lifter

Capacity _____

Minimum Coil I.D. _____

Maximum Coil O.D. _____

Maximum Coil Width _____

Size of Overhead Hook (Cap.) _____

A _____

B _____

C (Minimum) _____

D (Minimum) _____

E _____

F (Optional) _____

G _____

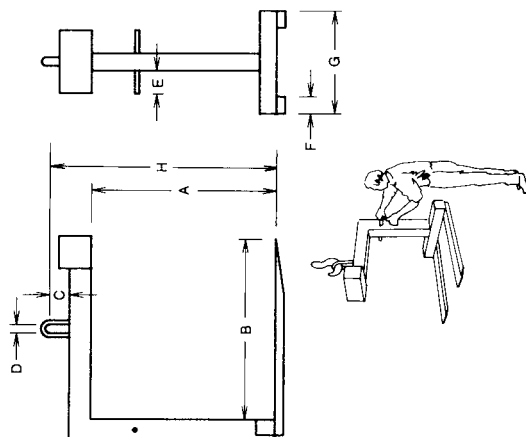
H (Optional) _____

R (Optional) _____

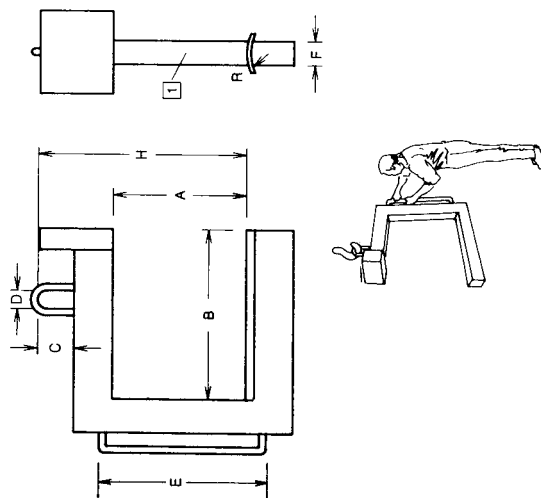
Back Stop Pad Yes ☐ No ☐

Special Instructions:

STANDARD PALLET LIFTER



STANDARD COIL LIFTER



Lift-All Dwg. No. _____ Customer Dwg. No. _____

User Company _____ User Contact - Name - Phone _____

Purchase Order No. _____

Signature _____ Date _____

Quotation Needed By: _____ Date _____

Date _____ From _____ Person Requesting Quote _____

Distributor _____

Address _____

City _____ State _____ Zip _____

Phone () _____ Fax () _____

NOTE: Custom Engineered Products Cannot Be Returned

PL-1

CONVERSION AND WEIGHT TABLES

Metric / English Conversions

Length

1 CM = .3937 In.
2.54 CM = 1 In.
.3048 M = 1 Ft.
1 M = 3.281 Ft.

Weight

.4536 Kg = 1 Lb.
1 Kg = 2.2046 Lbs.

Volume

.028 Cu. M = 1 Cu. Ft.
1 Cu. M = 35.314 Ft.
1 Cu. Ft. = 7.5 Gals.

Weights of Various Materials and Liquids

| Pounds / cu. ft. | | | | | |
|------------------|-----|------------------|-----|------------|-----|
| Aluminum | 165 | Earth - Dry | 75 | Rubber | 94 |
| Asphalt | 81 | Earth - Wet | 100 | Sand - Dry | 105 |
| Brass | 524 | Gasoline | 45 | Sand - Wet | 120 |
| Brick | 120 | Glass | 162 | Steel | 490 |
| Bronze | 534 | Iron Casting | 470 | Water | 63 |
| Cement - Loose | 95 | Lead | 708 | Zinc | 437 |
| Cement - Set | 183 | Lumber - Fir | 32 | | |
| Coal | 56 | Lumber - Oak | 62 | | |
| Concrete | 150 | Lumber - RR Ties | 50 | | |
| Crushed Rock | 95 | Oil, Motor | 58 | | |
| Diesel | 52 | Paper | 60 | | |

| Pounds / sq. ft. | |
|------------------|------|
| Steel Plate | |
| 1/8" | 5 |
| 1/4" | 10 |
| 1/2" | 20 |
| 1" | 40 |
| Aluminum Plate | |
| 1/8" | 1.75 |
| 1/4" | 3.50 |
| Lumber | |
| 3/4" Fir | 2 |
| 3/4" Oak | 4 |

| Pounds / gal. | |
|---------------|-----|
| Gasoline | 6.0 |
| Diesel | 7.0 |
| Water | 8.3 |

Decimal Equivalents

| Fraction | Inches | Millimeters | Fraction | Inches | Millimeters |
|----------|--------|-------------|----------|--------|-------------|
| 1/32 | .0312 | 0.80 | 17/32 | .5312 | 13.49 |
| 1/16 | .0625 | 1.59 | 9/16 | .5625 | 14.29 |
| 3/32 | .0937 | 2.38 | 19/32 | .5937 | 15.08 |
| 1/8 | .125 | 3.18 | 5/8 | .625 | 15.88 |
| 5/32 | .1562 | 3.97 | 21/32 | .6562 | 16.67 |
| 3/16 | .1875 | 4.76 | 11/16 | .6875 | 17.46 |
| 7/32 | .2187 | 5.56 | 23/32 | .7187 | 18.26 |
| 1/4 | .250 | 6.35 | 3/4 | .750 | 19.05 |
| 9/32 | .2812 | 7.14 | 25/32 | .7812 | 19.84 |
| 5/16 | .3125 | 7.94 | 13/16 | .8125 | 20.64 |
| 11/32 | .3437 | 8.73 | 27/32 | .8437 | 21.43 |
| 3/8 | .375 | 9.53 | 7/8 | .875 | 22.23 |
| 13/32 | .4062 | 10.32 | 29/32 | .9062 | 23.02 |
| 7/16 | .4375 | 11.11 | 15/16 | .9375 | 23.81 |
| 15/32 | .4687 | 11.91 | 31/32 | .9687 | 24.61 |
| 1/2 | .500 | 12.70 | 1 | 1.0 | 25.40 |