## WIRE ROPE AND SLING BASICS

Wire rope slings are both flexible and resistant to abrasion. These characteristics are determined by the rope construction. Fewer wires result in 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.

| EIPS | $=$ | Extra Improved Plow Steel |
| :--- | :--- | :--- |
| FC | $=$ | Fiber Core |
| IWRC | $=$ | Independent Wire Rope Core |

Wire Rope Construction



## WIRE ROPE SLINGS

## Features and Benefits

- Tuff-Tag for capacity and serial numbered identification for traceability and compliance with OSHA.
- Least expensive (per capacity), of all steel slings.
- Use of IWRC EIPS rope gives $15 \%$ greater capacity than IWRC IP (Improved Plow) ropes.
- Countless combinations of sling terminations: hooks, chokers, and thimbles are available to fit specific lift requirements.


## D/d - Basket Hitch Effect

Tests have shown that when 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

- IWRC must not be used at temperatures above $400^{\circ} \mathrm{F}$.
- FC must not be used at temperatures above $180^{\circ} \mathrm{F}$.
- Fiber core ropes should not be subjected to degreasing solvents.


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

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

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

## HOW TO ORDER WIRE ROPE SLINGS

Prior to sling selection and use, review and understand the General Information section in this catalog. We have developed the following wire rope sling code system to help you in ordering these products.



Thimble \& Crescent Thimble (T/CT)

Thimble \& Slip-Thru Thimble (T/ST)
 Crescent Thimble


Eye \& Crescent Thimble (E/CT)


Slip-Thru Thimble \& Hook (ST/TH)


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

## Sliding Choker

 (E/T/SCH)


Eye \& Eye (E/E/SCH)

## Tolerances and Minimum Lengths

Refer to tables for tolerances and minimum lengths.

## Stretch

Approximately $1 \%$ at rated capacity.

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.

## Wire Rope \& Slings

## PERMALOC ${ }^{\text {TM }}$ WIRE ROPE SLINGS

Lift-All Permaloc slings are made using the Flemish Eye 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 and Benefits

Maintains all the basic Litt-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.

${ }^{1}$ Minimum sling length when using standard eyes.
** See sliding choker hook capacities in Hardware section when using these hooks.
Note: Larger diameter slings available. Basket ratings are based on a minimum D/d of 25.
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.
 Wire Rope \& Slings


## PERMALOC ${ }^{\text {™ }}$ BRIDLE SLINGS

## Features and Benefits

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

- Bridles provide better load control and balance.
- Independent wire rope core resists crushing.
- Alloy steel hardware assures long life.
- Thimble eyes protect wire rope from wear for increased life.
- Reduces load damage by using fixed points on load.
- Easier rigging provided when hooking into fixed lifting points.

| 을 응 | Bridle Slings <br> (With Single Part Body) <br> 6X19 <br> 6X37 |  |  |  | 2-Leg Bridle |  |  |  | 3-Leg Bridle |  |  |  | 4-Leg Bridle |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | 7 <br> Rope Dia. <br> (in.) |  |  |  | Rated Capacity* (tons) |  |  | Oblong Link Stock Dia. (in.) | Rated Capacity* (tons) |  |  | Oblong Link Stock Dia. (in.) | Rated Capacity* (tons) |  |  | Oblong Link Stock Dia. (in.) |
|  |  |  | ${ }^{1}$ Min. Sling Length | Eye Hook Cap. (tons) | $\widehat{60^{\circ}}$ | $45^{\circ}$ | $\frac{2}{30^{\circ}}$ |  | 60 | $\frac{2}{45^{\circ}}$ | $30^{\circ}$ |  | 60 | $\frac{2}{45^{\circ}}$ | $30^{\circ}$ |  |
|  |  | 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'-0" | 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 |
|  |  | 1-1/8 | 4'-0" | 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'-0" | 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'-0" | 37 | 63 | 52 | 37 | 2-3/4 | - | - | - | - | - | - | - | - |

${ }^{1}$ Minimum length based on thimbled eye and eye.
Other fittings and latches are available upon request.
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.

Import hooks with latches standard on import rope bridles. Domestic hooks with optional latches are standard on domestic rope bridles.

## ENDLESS SLINGS

Made from one 6X19 or 6X37 EIPS IWRC wire rope, mechanically joined with steel sleeves. Achieves higher capacities at a lower cost.


## Features and Benefits

Maintains all the basic Litt-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.

| Endless - Mechanical Splice |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Rope Dia. (in.) | Rated Capacity* (tons) |  |  |  |  |
|  |  |  <br> Choker | Vertical Basket | Minimum <br> Sling <br> Length | Splice Length A (in.) |
| 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 | $3^{\prime}-0 \mid$ | 8 |
| 7/16 | 3.1 | 2.1 | 6.1 | 6'-0" | 10 |
| 1/2 | 3.9 | 2.8 | 7.9 | $6{ }^{\prime}-0$ | 10 |
| 9/16 | 5.0 | 3.5 | 10 | $6^{\prime}-0{ }^{\prime \prime}$ | 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 |

Do not lift with hook in splice area as sling damage may occur.
Notes:

1. Three sleeves used on $3 / 4^{\prime \prime}$ diameter and larger.
2. Vertical and Basket ratings are based on a minimum D/d of 5 . Wire Rope \& Slings

## E-Z FLEX ${ }^{\text {TM }}$ CABLE LAID SLINGS

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

## Features and Benefits

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

Standard Combinations

Saves Money

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


| Rope Diameter (in.) |  | Rated Capacity* (tons) |  |  | **Min. Sling Length | Standard Eye Size (in.) W XL | Thimbled Eye Size (in.) W XL | Eye Hook Cap. (tons) | Crescent Thimble Eye Size (in.) W X L | Slip Thru <br> Thimble <br> Eye Size <br> (in.) <br> W X L | Sliding Choker Hook (in.) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | $8$ <br> Vertical | $8$ <br> Choker | Vertical <br> Basket |  |  |  |  |  |  |  |
| $\begin{aligned} & \underset{X}{x} \\ & \underset{X}{X} \end{aligned}$ | 1/4 | . 50 | . 34 | 1.0 | 1'-6" | $2 \times 4$ | . $88 \times 1.63$ | 1 | $2 \times 4$ | $2.13 \times 4.13$ | 3/8 |
|  | 3/8 | 1.1 | . 74 | 2.2 | $2^{\prime \prime}-0{ }^{\prime \prime}$ | $3 \times 6$ | $1.13 \times 2.125$ | 1.5 | $2 \times 4$ | $2.13 \times 4.13$ | 3/8 |
|  | 1/2 | 1.9 | 1.3 | 3.7 | 2'-6" | $4 \times 8$ | $1.5 \times 2.75$ | 2 | $2.25 \times 6$ | $2.38 \times 4.38$ | 1/2 |
|  | 5/8 | 2.8 | 1.9 | 5.5 | 3'-0" | $5 \times 10$ | $1.75 \times 3.25$ | 3 | $2.75 \times 7$ | $3.38 \times 6.63$ | 5/8 |
| 을$\underset{x}{x}$$\times$ | 3/4 | 4.1 | 2.8 | 8.1 | $3^{\prime \prime}-6{ }^{\prime \prime}$ | $6 \times 12$ | $2 \times 3.75$ | 4.5 | $3.25 \times 8.5$ | $3.38 \times 6.63$ | 3/4 |
|  | 7/8 | 5.4 | 3.7 | 11 | 4'-0" | $7 \times 14$ | $2.25 \times 4.25$ | 7 | $4.5 \times 10$ | $3.75 \times 7.13$ | 7/8 |
|  | 1 | 6.9 | 4.7 | 14 | 4'-6" | $8 \times 16$ | $2.5 \times 4.5$ | 7 | $4.5 \times 11.5$ | $3.75 \times 7.13$ | 1 |
|  | 1-1/8 | 8.3 | 5.8 | 17 | 5'-0" | $9 \times 18$ | $2.88 \times 5.13$ | 11 | $4.88 \times 13$ | $4.38 \times 8.38$ | 1-1/8 |
|  | 1-1/4 | 9.9 | 7.0 | 20 | 5'-6" | $10 \times 20$ | $3.5 \times 6.5$ | 11 | $5.5 \times 14.5$ | $4.38 \times 8.38$ | 1-1/4 |
|  | 1-1/2 | 13 | 9.1 | 26 | 7'-0" | $12 \times 24$ | $3.5 \times 6.25$ | 15 | $6 \times 17.5$ | $5 \times 9.5$ | 1-1/2 |

${ }^{* *}$ Minimum sling length when using standard eyes.
Other fittings are available upon request. Basket ratings are based on a minimum D/d of 10. Hooks with latches are standard on import assemblies; optional on domestic.

[^0]
## E-Z FLEX ${ }^{\text {TM }}$ TWO LEG BRIDLE SLINGS

## Features and Benefits

Maintains all the basic Litt-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 resistance and longer life.
- Alloy steel hardware assures long life.


## Saves Time

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


## A WARNING

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

E-Z FLEX 2-Leg Bridles

|  |  | E-Z FLEX 2-Leg Bridles |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  | Chok |  |  |  |  |  |
| Rope Dia. (in.) |  | Rated Capacity* (tons) |  |  |  |  |  |  | Oblong Link Stock Dia. (in.) | Eye Hook Cap. (tons) | Sliding Choker Hook (in.) |
|  |  | $\begin{aligned} & \text { (40 } \\ & 60^{\circ} \end{aligned}$ |  | $\begin{aligned} & Y_{T}^{\prime} \\ & 30^{\circ} \end{aligned}$ | $\begin{aligned} & 4 \\ & 60^{\circ} \end{aligned}$ |  | 30 |  |  |  |  |
| N | 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 |
| $\begin{aligned} & \frac{9}{x} \\ & \sqrt[x]{x} \\ & \mathbf{x} \end{aligned}$ | 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 | $3^{\prime}-3{ }^{\prime \prime}$ | 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 |

[^1] Wire Rope \& Slings

## E-Z FLEX ${ }^{\text {TM }}$ ENDLESS SLINGS

## Features 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.


Note: Three sleeves used on 3/4" diameter and larger

| E-Z FLEX Endless Slings |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Rope <br> Dia. <br> (in.) |  | Rated Capacity* (tons) |  |  | $\begin{gathered} \text { Min. } \\ \text { Sling } \\ \text { Length } \end{gathered}$ | Splice Length (in.) |
|  |  | Vertical |  | $\because \Omega$ <br> Vertical <br> Basket |  |  |
| $\begin{aligned} & \text { 찿 } \\ & \times \end{aligned}$ | 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 |
| $\begin{aligned} & \stackrel{\otimes}{x} \\ & \underset{\times}{\times} \end{aligned}$ | 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 .

| $*$ W. WRNING | Do not exceed rated capacilies. Sling capacity decreases as the angle from horizontal decreases. Slings should not <br> be used at angles of less than $30^{\circ}$. Refer to the Effect of Angle chart in the General Information section of this catalog. |
| :--- | :--- | :--- |

## HIDDEN TUCK HAND SPLICED SLINGS

## Features 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

| Hidden Tuck Hand Spliced - Fiber Core |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Rope Dia. (in.) |  | EIPS FC |  |  |  | Standard Eye Size W x L (in.) |
|  |  | Rated Capacity* (tons) |  |  |  |  |
|  |  | Vertical | Choker | Vertical Basket | Min. <br> Sling <br> Length |  |
|  | 1/4 | . 54 | . 42 | 1.1 | 2'-0" | $3 \times 6$ |
|  | 5/16 | . 83 | . 66 | 1.7 | 2'-3" | $3 \times 6$ |
|  | 3/8 | 1.2 | . 94 | 2.4 | 2'-6" | $3 \times 6$ |
|  | 7/16 | 1.6 | 1.3 | 3.2 | 2'-9" | $3.5 \times 7$ |
|  | 1/2 | 2.0 | 1.6 | 4.0 | 3'-0" | $4 \times 8$ |
|  | 9/16 | 2.5 | 2.1 | 5.0 | 3'-6" | $4.5 \times 9$ |
|  | 5/8 | 3.1 | 2.6 | 6.2 | 4'-0" | $5 \times 10$ |
|  | 3/4 | 4.3 | 3.7 | 8.6 | 4'-6" | $6 \times 12$ |
|  | 7/8 | 5.7 | 5.0 | 11 | 5'-6" | $7 \times 14$ |
|  | 1 | 7.4 | 6.4 | 15 | 6'-0" | $8 \times 16$ |

[^2] Wire Rope \& Slings MULTI-PART CABLED SLINGS

## 3-Part Cabled

Constructed by hand cabling one rope to form a 3-part body with 2-part eyes.

## Features 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 and easy to handle.
- Small sleeve over component rope won't get in the way.


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

## 7-Part Cabled

Constructed by hand cabling one rope to form a 7-part body with 4-part eyes.

## Features 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.


Basket ratings based on a minimum D/d of 10 (using sling body dia.). See first page of WIRE ROPE section.

## 6-Part Flat Braid

Constructed by braiding one rope to form a 6-part flat body with web seized eyes.

## Features and Benefits

Maintains all the basic Litt-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.


## Saves Time

- Flexible - easy to rig.


## MULTI-PART BRAIDED SLINGS



6-Part Flat Braid

| * <br> Component Rope Dia. <br> (in.) | Sling Body Dia. (in.) | Rated Capacity* (tons) |  |  | Min. <br> Sling Length | Standard Eye W X L (in.) | Crescent Thimble Eye Size W XL (in.) | Slip-Thru Thimble Eye Size W XL (in.) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Vertical | $8$ | $\underbrace{}_{\substack{\text { Vertical } \\ \text { Basket }}}$ |  |  |  |  |


| 7X19 GAC | 1/8 | 9/16 X 3/8 | . 84 | . 74 | 1.7 | 2'-0' | $3 \times 6$ | $2 \times 4$ | $2.13 \times 4.13$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 3/16 | 13/16 X 1/2 | 1.8 | 1.5 | 3.5 | 3'-0' | $4 \times 8$ | $2.25 \times 7.0$ | $2.38 \times 4.38$ |
|  | 1/4 | 1-1/8 X 11/16 | 2.9 | 2.6 | 5.9 | 3'-6" | $5 \times 10$ | $3.25 \times 8.5$ | $3.38 \times 6.63$ |
|  | 5/16 | 1-3/8 $\times 7 / 8$ | 4.1 | 3.6 | 8.2 | 4'-6" | $6 \times 12$ | $4.5 \times 11.5$ | $3.38 \times 6.63$ |
|  | $3 / 8$ | 1-11/16 X 1 | 6.0 | 5.3 | 12 | 5'-0' | $7 \times 14$ | $4.88 \times 13$ | $3.75 \times 7.13$ |
| U | 7/16 | $2 \times 1-3 / 16$ | 8.6 | 7.5 | 17 | $6^{\prime} 0 \prime$ | $8 \times 16$ | $6.0 \times 16$ | $3.75 \times 7.13$ |
|  | 1/2 | 2-1/4 X 1-5/16 | 11 | 9.8 | 22 | 6' 6" | $9 \times 18$ | $6.0 \times 17.5$ | $4.38 \times 8.38$ |
|  | 9/16 | 2-1/2 X 1-1/2 | 14 | 12 | 28 | $7^{\prime} 0 \prime$ | $10 \times 20$ | $7.0 \times 20$ | $4.38 \times 8.38$ |
|  | 5/8 | $\begin{gathered} 2-13 / 16 \mathrm{X} \\ 1-11 / 16 \end{gathered}$ | 17 | 15 | 35 | 8' 0 " | $11 \times 22$ | $7.0 \times 23.5$ | $5.0 \times 9.50$ |
|  | 3/4 | 3-3/8 X 2 | 25 | 22 | 49 | $9^{\prime} 0{ }^{\prime \prime}$ | $12 \times 24$ | $8.5 \times 26$ | $6.75 \times 11.75$ |

Basket ratings based on a minimum D/d of 10 (using sling body dia.). See 1st pg. of WIRE ROPE sec.

## 8-Part Round Braid

Constructed by braiding one rope to form an 8-part round body with 4-part web seized eyes.

## Features and Benefits

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

## Promotes Safety

- Resists rotation, for improved load control.


## Saves Money

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


## Saves Time

- Flexible - easy to rig.

|  | \%is \% 3is 8X7X19 |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 8-Part Round Braid |  |  |  |  |  |  |  |  |  |
|  | mponent <br> Rope <br> Dia. <br> (in.) | Sling Body Dia. (in.) | Vertical | Capacity* <br> Choker |  | Min. Sling Length | Standard Eye W x L (in.) | Crescent <br> Thimble <br> Eye Size W x L <br> (in.) | Slip Thru Thimble Eye Size W x L (in.) |
|  | 1/8 | 9/16 | 1.1 | 1.0 | 2.2 | 2'-0" | $3 \times 6$ | $2 \times 4$ | $2.13 \times 4.13$ |
|  | 3/16 | 13/16 | 2.4 | 2.1 | 4.7 | 3'0" | $4 \times 8$ | $2.25 \times 6$ | $2.38 \times 4.38$ |
| 9 | 1/4 | 1-1/8 | 3.9 | 3.4 | 7.8 | 3'6" | $5 \times 10$ | $3.25 \times 8$ | $3.38 \times 6.63$ |
| $\stackrel{\text { x }}{ }$ | 5/16 | 1-3/8 | 5.5 | 4.8 | 11 | 4'-6" | $6 \times 12$ | $4.50 \times 10$ | $3.75 \times 7.13$ |
|  | 3/8 | 1-1/16 | 8.1 | 7.1 | 16 | 5'-0" | $7 \times 14$ | $4.63 \times 12$ | $3.75 \times 7.13$ |
| - | 7/16 | 2 | 11 | 10 | 23 | 6'0' | $8 \times 16$ | $5.50 \times 14$ | $4.38 \times 8.38$ |
| 3 | 1/2 | 2-1/4 | 15 | 13 | 30 | 6'6" | $9 \times 18$ | $6.0 \times 16$ | $5.00 \times 9.50$ |
| ¢ | 9/16 | 2-1/2 | 19 | 16 | 38 | $7{ }^{1} 01$ | $10 \times 20$ | $6.50 \times 18$ | $5.00 \times 9.50$ |
| 9 | 5/8 | 2-13/16 | 23 | 20 | 46 | 8'0" | $11 \times 22$ | $7.0 \times 20$ | $6.75 \times 11.75$ |
| $\underset{\bigcirc}{\bullet}$ | 3/4 | 3-3/8 | 33 | 29 | 66 | $9^{1} 0{ }^{\prime \prime}$ | $12 \times 24$ | $8.0 \times 24$ | $8.00 \times 14.50$ |

Basket ratings based on a minimum D/d of 10 (using sling body dia.). See 1 st pg. of WIRE ROPE sec.
Do not exceed rated capacities. Sling capacity decreases as the angle from horizontal decreases. Slings should not be used at angles of less than $30^{\circ}$. Refer to the Effect of Angle chart in the General Information section of this catalog. Wire Rope \& Slings

## ADJUST-A-LEG ${ }^{\circledR}$ <br> Adjustable 2-Leg Wire Rope Sling

## Features and Benefits

- Easy to adjust legs for a level lift of unbalanced and non-symmetrical loads.
- Can be locked in place for repetitive lifts.
- Use in pairs for 4-Point lifts.
- Can be used as top rigging for spreader beams.
- Great as rigging to move machinery.

| $\begin{aligned} & \text { 을 응 } \\ & \hline \end{aligned}$ | Rated Capacity Legs @ $45^{\circ}$ (tons) | Part Number | Standard Reach* (ft.) | Rope Diameter (in.) | Top Assembly A•B•C•T <br> (in.) | Hook Size (tons) | Weight (lbs.) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1 | AAL1 | 3 | 5/16 | $1.13 \cdot 3.13 \cdot 5.00 \cdot 0.63$ | 1 | 7.5 |
|  | 2 | AAL2 | 4 | 5/16 | $1.13 \cdot 3.13 \cdot 5.00 \cdot 0.63$ | 1-1/2 | 20 |
|  | 4 | AAL4 | 6 | 7/16 | $1.13 \cdot 3.13 \cdot 5.00 \cdot 0.63$ | 3 | 32 |
|  | 6 | AAL6 | 9 | 9/16 | $1.75 \cdot 5.25 \cdot 8.38 \cdot 0.81$ | 5 | 76 |
|  | 8 | AAL8 | 9 | 5/8 | $1.75 \cdot 5.25 \cdot 8.38 \cdot 0.88$ | 7 | 90 |
|  | 12 | AAL12 | 9 | 3/4 | $2.38 \cdot 5.63 \cdot 8.75 \cdot 1.06$ | 11 | 152 |
|  | 15 | AAL15 | 9 | 7/8 | $2.38 \cdot 5.63 \cdot 8.75 \cdot 1.06$ | 11 | 175 |

* Reach should be a length of $70 \%$ or greater of the distance between pick up points.



## Operation:

For a level lift, adjust the leg lengths so that the master plate is above the approximate center of gravity. Test position by lifting only until one end of the load is raised. Lower and reposition master plate and legs for another test. Repeat until load raises without tilting. Adjust-A-Leg must be loaded to at least $10 \%$ of rated capacity before legs will fully lock into place.

## Typical Applications




Level lifting of symmetrical loads where lift points are not equidistant from center of load.


Adjust-A-Leg ${ }^{\circledR}$ is a registered trademark of Caldwell Group Lifting Solutions.

## SWAGED THREADED STUDS

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


| Straight Threaded Studs |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Nominal | Dimensions (in.) |  |  |  | N.C.** <br> Thread | N.F. Thread |
| Part Number | Rope Dia (in.) | Breaking Strength* (tons) | After Swage A | Approx. B | C | D |  |  |
| STS-8 | 1/4 | 3.4 | 0.44 | 4.06 | 1.50 | 0.50 | 13 | 20 |
| STS-10 | 5/16 | 5.3 | 0.56 | 5.25 | 1.88 | 0.63 | 11 | 18 |
| STS-12 | 3/8 | 7.6 | 0.63 | 6.25 | 2.25 | 0.75 | 10 | 16 |
| STS-14 | 7/16 | 10.2 | 0.75 | 7.31 | 2.63 | 0.88 | 9 | 14 |
| STS-16 | 1/2 | 13.3 | 0.88 | 8.25 | 3.00 | 1.00 | 8 | 14 |
| STS-18 | 9/16 | 16.8 | 1.00 | 9.25 | 3.38 | 1.13 | 7 | 12 |
| STS-20 | 5/8 | 20.6 | 1.13 | 10.13 | 3.75 | 1.25 | 7 | 12 |
| STS-24 | 3/4 | 29.4 | 1.25 | 12.81 | 4.50 | 1.50 | 6 | 12 |
| STS-28 | 7/8 | 39.5 | 1.50 | 14.56 | 5.25 | 1.75 | 5 | 12 |
| STS-32 | 1 | 51.7 | 1.75 | 16.25 | 6.00 | 2.00 | 4.5 | 12 |
| STS-36 | 1-1/8 | 65.0 | 2.00 | 18.25 | 6.75 | 2.25 | 4.5 | 12 |
| STS-40 | 1-1/4 | 79.9 | 2.25 | 20.25 | 7.50 | 2.50 | 4 | 12 |

* Nominal Breaking Strength based on 6X19 or 6X37 IWRC EIPS wire rope, with assembly used as a straight tension member.
** N.C. - Coarse threads are standard


Turned Threaded Studs

| Part Number | Rope Dia <br> (in.) | Nominal Breaking Strength* (tons) | Dimensions (in.) |  |  |  | N.C.** Thread | N.F. <br> Thread |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | After Swage A | $\begin{gathered} \text { Approx. } \\ \text { B } \end{gathered}$ | C | D |  |  |
| TTS-10 | 5/16 | 5.3 | 0.63 | 5.72 | 1.75 | 0.63 | 11 | 18 |
| TTS-12 | 3/8 | 7.6 | 0.75 | 6.75 | 2.00 | 0.75 | 10 | 16 |
| TTS-14 | 7/16 | 10.2 | 0.88 | 7.66 | 2.25 | 0.88 | 9 | 14 |
| TTS-16 | 1/2 | 13.3 | 1.00 | 8.56 | 2.50 | 1.00 | 8 | 14 |
| TTS-18 | 9/16 | 16.8 | 1.13 | 9.63 | 2.75 | 1.13 | 7 | 12 |
| TTS-20 | 5/8 | 20.6 | 1.25 | 10.66 | 3.13 | 1.25 | 7 | 12 |
| TTS-24 | 3/4 | 29.4 | 1.50 | 12.69 | 3.75 | 1.50 | 6 | 12 |
| TTS-28 | 7/8 | 39.5 | 1.75 | 14.63 | 4.38 | 1.75 | 5 | 12 |
| TTS-32 | 1 | 51.7 | 2.00 | 16.66 | 5.00 | 2.00 | 4.5 | 12 |
| TTS-36 | 1-1/8 | 65.0 | 2.25 | 18.63 | 5.63 | 2.25 | 4.5 | 12 |
| TTS-40 | 1-1/4 | 79.9 | 2.50 | 20.66 | 6.25 | 2.50 | 4 | 12 |
| TTS-44 | 1-3/8 | 96.0 | 2.75 | 22.53 | 6.88 | 2.75 | 4 | 12 |
| TTS-48 | 1-1/2 | 114 | 3.00 | 24.50 | 7.50 | 3.00 | 4 | 12 |

* Nominal Breaking Strength based on 6X19 or 6X37 IWRC EIPS wire rope, with assembly used as a straight tension member.
** N.C.- Coarse threads are standard


## Wire Rope \& Slings

## SWAGED SOCKET ASSEMBLIES

## Features and Benefits

## Promotes Safety

- Achieves $100 \%$ of nominal rope breaking strength.
- All assemblies are proof-tested before shipment.


## Saves Money

- Custom engineered assemblies are available for specific rigging needs.
Open Swaged Sockets

| Diameter (in.) | Minimum <br> Pendant <br> Length | Vertical Capacity* (tons) |
| :---: | :---: | :---: |
| 1/4 | 11-0" | 0.68 |
| 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 6X19 or 6X37 IWRC EIPS rope when pendants are used for slings. If used as boom suspension system or other applications, contact Lift-All for ratings.


Closed Swaged Sockets


| Swage Socket Dimensions - Forged Steel |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\rightarrow$ |  |  |  |  |  |  |  |
| Rope Dia. <br> (.in.) | $\begin{gathered} \text { (in.) } \end{gathered}$ | $\begin{aligned} & \mathrm{O} \\ & \text { (in.) } \end{aligned}$ | $\begin{aligned} & \text { (in.) } \end{aligned}$ | Weight (lbs.) | $\underset{\text { (in.) }}{\mathbf{w}}$ | $\begin{gathered} \mathrm{K} \\ \text { (in.) } \end{gathered}$ | Weight (lbs.) |
| 1/4 | 1.16 | 0.69 | 0.69 | 0.52 | 0.75 | 0.50 | 0.38 |
| 5/16 | 1.34 | 0.82 | 0.82 | 1.12 | 0.88 | 0.69 | 0.77 |
| 3/8 | 1.34 | 0.82 | 0.82 | 1.25 | 0.88 | 0.69 | 0.72 |
| 7/16 | 1.50 | 1.00 | 1.00 | 2.08 | 1.06 | 0.88 | 1.42 |
| 1/2 | 1.50 | 1.00 | 1.00 | 2.08 | 1.06 | 0.88 | 1.35 |
| 9/16 | 1.63 | 1.25 | 1.19 | 4.48 | 1.25 | 1.13 | 2.92 |
| 5/8 | 1.63 | 1.25 | 1.19 | 4.75 | 1.25 | 1.13 | 2.85 |
| 3/4 | 2.00 | 1.50 | 1.38 | 7.97 | 1.44 | 1.31 | 4.90 |
| $7 / 8$ | 2.38 | 1.75 | 1.63 | 11.30 | 1.69 | 1.50 | 6.63 |
| 1 | 2.75 | 2.00 | 2.00 | 17.80 | 2.06 | 1.75 | 10.30 |
| 1-1/8 | 3.13 | 2.25 | 2.25 | 27.50 | 2.31 | 2.00 | 14.50 |
| 1-1/4 | 3.50 | 2.50 | 2.50 | 35.75 | 2.56 | 2.25 | 20.75 |

## HOIST LINES AND STEEL BUTTONS

## Hoist Line Cables

Lift-All hoist lines are made using 6X19 IWRC 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 and Benefits

## Promotes Safety

- Permaloc ${ }^{\text {TM }}$ Flemish Eye splice for high strength efficiency.
- Meets OSHA 1910.184 and ASME B30.9.


## Saves Money

- Heavy-duty thimble in eye extends useful life.
- Economical custom assemblies.


## Saves Time

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


| 6X19 Class - Bright <br> (Uncoated) |  |
| :---: | :---: |
| Diameter <br> (in.) | Break Strength |
|  | IWRC |
| $\mathbf{7 / 8}$ | $14,000-$ Ibs. |
| $\mathbf{7 / 1 6}$ | $19,000-$ Ibs. |
| $\mathbf{1 / 2}$ | $25,000-$ lbs. |
| $\mathbf{9 / 1 6}$ | $32,000-\mathrm{lbs}$. |
| $\mathbf{5 / 8}$ | $39,000-$ Ibs. |

## 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 <br> Diameter <br> (in.) | A <br> (approx.) | $\mathbf{B}$ <br> (approx.) |
| $\mathbf{1 / 4}$ | 0.63 | 1.13 |
| $\mathbf{5 / 1 6}$ | 0.75 | 1.50 |
| $\mathbf{3 / 8}$ | 0.88 | 1.75 |
| $\mathbf{7 / 1 6}$ | 1.00 | 2.00 |
| $\mathbf{1 / 2}$ | 1.13 | 2.38 |
| $\mathbf{9 / 1 6}$ | 1.25 | 2.63 |
| $\mathbf{5 / 8}$ | 1.38 | 2.88 |
| $\mathbf{3 / 4}$ | 1.50 | 3.50 |
| $\mathbf{7 / 8}$ | 1.75 | 4.13 |
| $\mathbf{1}$ | 2.00 | 4.75 |
| $\mathbf{1 - 1 / 8}$ | 2.25 | 5.25 |
| $\mathbf{1 - 1 / 4}$ | 2.50 | 5.88 |
| $\mathbf{1 - 3 / 8}$ | 2.75 | 6.50 |
| $\mathbf{1 - 1 / 2}$ | 3.00 | 7.13 |

[^3] Wire Rope \& Slings

## WIRE ROPE



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

| Wire Core |  |  |
| :---: | :---: | :---: |
| Extra Improved Plow Steel (EIPS) Higher Capacities |  |  |
| 6X19 Class |  |  |
| Six Strand Ropes Having 9 to 26 Wires Per Strand Better Abrasion Resistance |  | 6×19 |
| 6X37 Class |  |  |
| Six Strand Ropes Having 27 to 49 Wires Per Strand More Flexible |  | 6X37 |


| Rope <br> Diameter <br> (in.) | Approx. <br> Weight <br> per Foot <br> (lbs.) | Nominal <br> Breaking <br> Strength <br> (tons) |
| :---: | :---: | :---: |
| $\mathbf{1 / 4}$ | 0.12 | 3.40 |
| $\mathbf{5 / 1 6}$ | 0.18 | 5.27 |
| $\mathbf{3 / 8}$ | 0.26 | 7.55 |
| $\mathbf{7 / 1 6}$ | 0.35 | 10.2 |
| $\mathbf{1 / 2}$ | 0.46 | 13.3 |
| $\mathbf{9 / 1 6}$ | 0.59 | 16.8 |
| $\mathbf{5 / 8}$ | 0.72 | 20.6 |
| $\mathbf{3 / 4}$ | 1.04 | 29.4 |
| $\mathbf{7 / 8}$ | 1.42 | 39.8 |
| $\mathbf{1}$ | 1.85 | 51.7 |
| $\mathbf{1 - 1 / 8}$ | 2.34 | 65.0 |
| $\mathbf{1 - 1 / 4}$ | 2.89 | 79.9 |
| $\mathbf{1 - 3 / 8}$ | 3.50 | 96.0 |
| $\mathbf{1 - 1 / 2}$ | 4.16 | 114 |
| $\mathbf{1 - 5 / 8}$ | 4.88 | 132 |
| $\mathbf{1 - 3 / 4}$ | 5.67 | 153 |
| $\mathbf{1 - 7 / 8}$ | 6.50 | 174 |
| $\mathbf{2}$ | 7.39 | 198 |
|  |  |  |


| Rotation Resistant Wire Rope |  |  |  |
| :---: | :---: | :---: | :---: |
| 19X7 | Rope Dia. (in.) | Approx. Weight per Foot (lbs.) | Nominal Breaking (tons) |
|  | 3/8 | 0.25 | 6.15 |
|  | 7/16 | 0.35 | 8.33 |
|  | 1/2 | 0.45 | 10.8 |
|  | 9/16 | 0.58 | 13.6 |
|  | 5/8 | 0.71 | 16.8 |
|  | 3/4 | 1.02 | 24.0 |
|  | 7/8 | 1.39 | 32.5 |
|  | 1 | 1.82 | 42.2 |
|  | 1-1/8 | 2.30 | 53.1 |

The Nominal Breaking Strength of wire rope should be considered the straight line pull, which will ACTUALLY BREAK a new, UNUSED, rope (with both rope ends fixed to prevent rotation). The Nominal Breaking Strength of the 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 \& Stainless Steel Cable |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | Cable Diameter (in.) | Weight per Reel (Ibs.) | Standard Length (ft./Reel) | Nominal Break Strength (Ibs.) |  |
|  |  |  |  | $\begin{aligned} & \text { Galvanized } \\ & \text { Cable } \\ & \text { (GAC) } \end{aligned}$ | Stainless <br> Steel Cable <br> (SSAC) <br> Type 304 |
|  | 1/16 | 5 | 500 | 480 | 430 |
|  | 3/32 | 9 | 500 | 920 | 820 |
|  | 1/8 | 15 | 500 | 1,700 | 1,500 |
|  | 5/32 | 16 | 250 | 2,600 | n/a |
|  | 3/16 | 26 | 250 | 3,700 | n/a |
|  | 1/4 | 28 | 250 | 6,100 | n/a |
|  |  |  |  |  |  |
| 7X19 | 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 W/Clear Vinyl (VGAC) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Galvanized <br> Cable <br> Construction | Cable <br> Diameter <br> (in.) | Coated <br> to <br> (in.) | Weight <br> per Reel <br> (lbs.) | Standard <br> Length <br> (ft./Reel) | Nominal <br> Break Strength <br> (Ibs.) |
|  | $\mathbf{1 / 1 6}$ | $3 / 32$ | 7 | 500 | 480 |
|  | $\mathbf{3 / 3 2}$ | $3 / 16$ | 7 | 250 | 920 |
|  | $\mathbf{1 / 8}$ | $3 / 16$ | 10 | 250 | 1,700 |
| $\mathbf{7 X 1 9}$ | $\mathbf{1 / 8}$ | $\mathbf{3 / 1 6}$ | 10 | 250 | 2,000 |
|  | $\mathbf{3 / 1 6}$ | $\mathbf{1 / 4}$ | 19 | 200 | 4,200 |
|  | $\mathbf{1 / 4}$ | $\mathbf{5 / 1 6}$ | 28 | 200 | 7,000 |


| STANDARD THIMBLES |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |



| Heavy Duty Thimbles |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |

Wire Rope \& Slings

## 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; 6X19 class or 6X37 class; fiber core or IWRC non-Seale type construction wire rope. If applying to vinyl-coated ropes, strip the vinyl from the connection area first.

## How to Apply Clips

1. Turn back the specified amount of rope from the thimble. Apply the first clip, fastening it 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 close to the loop as possible. Turn nuts firmly but do not tighten.
3. If required, place additional clips equally between the first two. Tighten nuts; take up rope slack; tighten all nuts evenly on all clips to recommended torque.
4. NOTICE! Apply the initial load and re-tighten nuts to the recommended torque. Wire rope will stretch, and diameter is reduced when a load is applied. Inspect periodically and re-tighten to recommended torque.

## Drop Forged Wire Rope Clips

| Rope <br> Dia. <br> (in.) | Minimum <br> Number <br> of Clips | Rope <br> Turn-back <br> (in.) | Torque <br> (ft./lbs.) | Weight <br> Each <br> (lbs.) |
| :---: | :---: | :---: | :---: | :---: |
| $\mathbf{1 / 8}$ | 2 | 3.25 | 4.5 | .06 |
| 3/16 | 2 | 3.75 | 7.5 | .10 |
| $\mathbf{1 / 4}$ | 2 | 4.75 | 15 | .18 |
| 5/16 | 2 | 5.25 | 30 | .30 |
| 3/8 | 2 | 6.50 | 45 | .47 |
| $\mathbf{7 / 1 6}$ | 2 | 7.00 | 65 | .76 |
| $\mathbf{1 / 2}$ | 3 | 11.5 | 65 | .80 |
| 9/16 | 3 | 12.0 | 95 | 1.04 |
| 5/8 | 3 | 12.0 | 95 | 1.06 |
| $\mathbf{3 / 4}$ | 4 | 18.0 | 130 | 1.50 |
| $\mathbf{7 / 8}$ | 4 | 19.0 | 225 | 2.12 |
| $\mathbf{1}$ | 5 | 26.0 | 225 | 2.50 |
| $\mathbf{1 - 1 / 8}$ | 6 | 34.0 | 225 | 2.80 |
| $\mathbf{1 - 1 / 4}$ | 7 | 44.0 | 360 | 4.15 |
| $\mathbf{1 - 3 / 8}$ | 7 | 44.0 | 360 | 4.60 |
| $\mathbf{1 - 1 / 2}$ | 8 | 54.0 | 360 | 5.30 |
| $\mathbf{7}$ |  |  |  |  |



## Right Way: For Maximum Rope Strength



## A WARNING

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


| Malleable Wire Rope Clips* |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Rope <br> Dia. <br> (in.) | Minimum <br> Number <br> of Clips | Rope <br> Turn-back <br> (in.) | Torque <br> (ft./ <br> lbs.) | Quantity <br> Per Bag | Weight <br> Per Bag <br> (lbs.) |
| $\mathbf{1 / 8}$ | 3 | 5 | 3 | 200 | 10 |
| $\mathbf{3 / 1 6}$ | 3 | 6 | 5 | 150 | 12 |
| $\mathbf{1 / 4}$ | 3 | 7 | 15 | 100 | 12 |
| $\mathbf{5 / 1 6}$ | 3 | 8 | 15 | 100 | 15 |
| 3/8 | 3 | 10 | 30 | 50 | 11 |

[^4]
## Inspection Criteria

## INSPECTION CRITERIA FOR WIRE ROPE SLINGS

## 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 $10 \%$.

| A. CAUTION | Do not inspect a sling by passing bare <br> hands over the wire rope. |
| :--- | :--- | :--- |

OSHA 1910.184 requires wire rope slings to have "permanently affixed and legible identification markings".

## 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.



## 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. Protect high wear areas.

## 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 $400^{\circ} \mathrm{F}$ or fiber core slings above $180^{\circ} \mathrm{F}$.


## KINKING / BIRDCAGING

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. Do not shock load slings.

## 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.


## SLING WEIGHTS



Estimate Sling Weights
Sling Weight $=$ (Length $x$ Per Foot Weight) + Zero Base Weight + Fitting Weights

| Rope Dia. (in.) | Zero <br> Base Weight* (lbs.) |  | Thimbled Eye Wt. Ea. (lbs.) | Alloy Eye Hook Wt. Ea. (lbs.) | Crescent Thimble Wt. Ea. (Ibs.) | Slip Thru Thimble Wt. Ea. (Ibs.) | Sliding Choker Hook Wt. Ea. (lbs.) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1/4 | 0.31 | 0.12 | 0.08 | 0.63 | 0.50 | 1.30 | 1.30 |
| 5/16 | 0.47 | 0.18 | 0.14 | 0.63 | 0.50 | 1.30 | 1.30 |
| $3 / 8$ | 0.73 | 0.26 | 0.22 | 0.85 | 0.50 | 1.30 | 1.30 |
| 7/16 | 1.30 | 0.35 | 0.36 | 1.40 | 0.50 | 1.50 | 1.90 |
| 1/2 | 1.70 | 0.46 | 0.51 | 1.90 | 0.75 | 1.50 | 1.90 |
| 9/16 | 3.10 | 0.59 | 0.51 | 3.70 | 0.75 | 1.50 | 1.90 |
| $5 / 8$ | 3.50 | 0.72 | 0.75 | 3.70 | 1.20 | 3.40 | 4.00 |
| 314 | 5.70 | 1.00 | 1.50 | 7.30 | 2.00 | 3.40 | 4.50 |
| 718 | 8.90 | 1.40 | 1.90 | 15.00 | 3.30 | 5.60 | 10.00 |
| 1 | 13.00 | 1.90 | 3.00 | 15.00 | 3.80 | 5.60 | 10.00 |
| 1-1/8 | 18.00 | 2.30 | 4.00 | 22.00 | 5.00 | 8.60 | 26.00 |
| 1-1/4 | 25.00 | 2.90 | 8.20 | 22.00 | 6.80 | 8.60 | 26.00 |
| 1-3/8 | 32.00 | 3.50 | 12.00 | 38.00 | 8.00 | 10.00 | 50.00 |
| 1-1/2 | 41.00 | 4.20 | 12.00 | 38.00 | 8.00 | 10.00 | 50.00 |
| 1-3/4 | 65.00 | 5.70 | 18.00 | 60.00 | 17.00 | 18.00 | - |
| 2 | 99.00 | 7.40 | 25.00 | 105.00 | 22.00 | 53.00 | - |
| 2-14 | 169.00 | 9.40 | 40.00 | 148.00 | 39.00 | 70.00 | - |
| 2-1/2 | 278.00 | 12.00 | - | - | 39.00 | 126.00 | - |

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


## SLING WEIGHTS

## Estimate Bridle Sling Weights

$$
\text { Sling Weight }=\text { (Length } \times \text { Per Foot Weight })+ \text { Zero Base Weight }
$$

|  | 2-Leg Bridle |  | 3-Leg Bridle |  | 4-Leg Bridle |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  |
| Rope Dia. (in.) | *Zero <br> Base Weight (Ibs.) | Per <br> Foot Weight (2-Legs) | *Zero <br> Base Weight (lbs.) | Per Foot Weight (lbs.) (3-Legs) | *Zero <br> Base Weight (lbs.) | Per Foot Weight (lbs.) (4-Legs) |
| 1/4 | 2.8 | 0.23 | 2.8 | . 35 | 4.7 | 0.46 |
| 5/16 | 3.2 | 0.36 | 5.7 | . 54 | 6.9 | 0.72 |
| 318 | 5.8 | 0.52 | 7.5 | . 78 | 12 | 1.0 |
| 7116 | 8.1 | 0.70 | 14 | 1.0 | 17 | 1.4 |
| 1/2 | 10 | 0.92 | 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 |
| 314 | 38 | 2.1 | 60 | 3.1 | 85 | 4.2 |
| 718 | 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 | 11.0 | - | - | - | - |
| 2 | 550 | 15.0 | - | - | - | - |

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


## ACKNOWLEDGMENT

Litt-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.


[^0]:    * 

    A 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 $30^{\circ}$. Refer to the Effect of Angle chart in the General Information section of this catalog.

[^1]:    ** Minimum length based on thimbled eye and eye hook.

[^2]:    Basket ratings are based on a minimum D/d of 15 .

[^3]:    Non-standard buttons are available.

[^4]:    * Malleable clips are not to be used for overhead lifting. Use in light duty, non-critical applications only.

