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NOTES

Buffalo Web Slings

Important Facts About Buffalo Web Slings *Nylon & Polyester

How to Choose the Right Sling

If you have any questions, please call Hanes Supply. Make sure you know the use, load and conditions for the sling you need. Reading the facts about web slings should help you decide.

Nylon vs. Polyester

Nylon Web - Strong & Economical
Nylon is strong, lightweight and very flexible. It is highly resistant to alkalies, but should never be used in acid conditions. When treated for abrasion it has a stretch factor of 10%. Nylon can be worked in up to 194° F.

Polyester Web - Less Stretch & Acid Resistant
Polyester webbing has become very valuable especially in applications which subject the sling to acid conditions. Also polyester slings are excellent where headroom is limited because of the webbing stretch characteristics. Polyester can worked in up to 180°F.

Sling Strength

OSHA standards demand that the rated capacity be noted on each sling.

Check the capacity tables in this catalog to make sure of the strength of the sling you may need. Do not ever exceed rated capacities of a web sling.

Each Buffalo Web Sling has a tyvex tag which states the manufacturer, the type of material rated capacities, type of sling, and length and width of the sling.

Each Buffalo Sling also has a warning tag about inspection and restrictions as to the web sling.

Use of Sling

1. Load surface problem
If edges come in contact with web slings, cutting or accelerated wear could occur. Certain accessories in this catalog could help protect the sling.

2. Avoid Crushing and Knotting of Slings
Don't crush a sling between load and other surface.

3. Do not expose the sling to the sun for an extended period of time. Prolonged exposure of sling to the sun will degrade lifting capacity.

4. Different Hitches' Rated Capacities
Slings have the largest load when used in the basket hitch. Capacity in the vertical hitch is 50% of that in the basket hitch. Capacity in the choker hitch is 40% of basket hitch capacity.

Web Material - Soft & Flexible

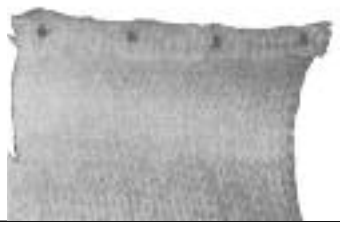
Web Slings are made from nylon or polyester lifting yarn that is woven into various widths and thicknesses.

Shock Absorption

The stretching of web slings allows a cushion against sudden shock. When loaded at rated capacity, a nylon sling will stretch 6-8% and polyester 3-4%. Slings return to normal length when not loaded.

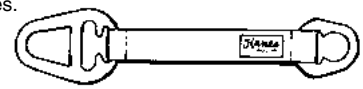
Red Core Yarns Warning System

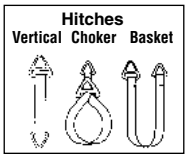
All Hanes Supply Inc., nylon and polyester web slings have red warning yarns. Red core yarns become exposed when the sing surface is cut or worn through the woven face yarns. This is one criteria, but not the only one for removal from service. For more information, see OSHA Requirements.



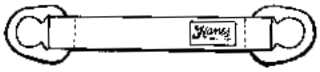
Standard Sling Types

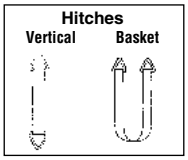
Type 1 – TC Slings: Slings have a triangle fitting on one end & a slotted triangle fitting (the choker) on the other end. Choice of lightweight aluminum or durable steel fittings.This is most commonly used in a choker hitch, but can also be used in basket and vertical hitches.



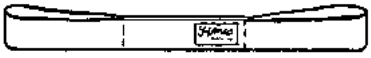


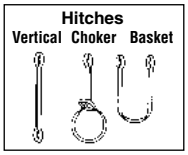
Type 2 – TT Slings: Slings have a triangle fitting on each end. Used in vertical and basket hitches only (basket hitch being most typical). Choice of light-weight aluminum or durable steel fittings.Type 2 slings are more economical than Type 1.



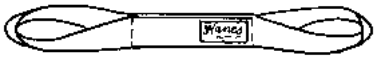


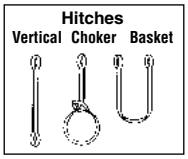
Type 3 – EE Slings: Slings have eyes at both ends– choice of straight or tapered eyes (tapered eyes are standard ≥ 2" web-width). Flat Eye slings are very popular slings which can be used in all three types of hitches. They are easy to remove from beneath the load after the load is in place. Unless Type 4 is requested, Type 3 will be supplied as the standard EE sling.



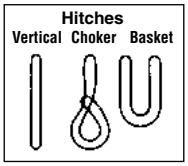


Type 4 – EE Slings: Twisted Eye slings are similar to Type 3 except the eyes are twisted to a 90° right angle to the sling body to form a better choker hitch. This type of eye also nests together better when used in a basket hitch. (Tapered eye are standard ≥ 2" web-width)

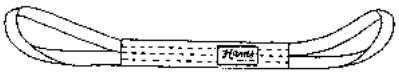


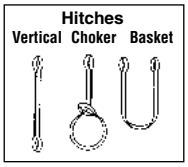


Type 5 – EN: Endless slings, sometimes also referred to as grommet slings, are very economical. This is the most versatile sling. They can be used in all three types of hitches and wear points can be moved to increase sling life. The sling legs can be spread for improved load balance.



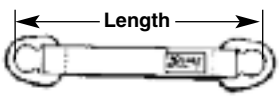
Type 6 – RE: Return Eye Sling is also referred to as Reversed Eye Sling. Sling body is formed by 2 parts of webbing sewn side by side using either a cordura tube or web in the finished width creating a protective webbing over the entire body and eyes. This extra webbing reinforces the sling and protects it from wear, resulting in an exceptionally strong sling.

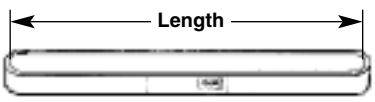




Measuring Web Slings

With sling layed flat, measure Pull-to-Pull.





Buffalo Web Slings

Ordering info., Warnings, Cautions & Considerations

How to Order Synthetic Web Slings

When ordering sling always consider:

a. Type of hitch
b. Capacity tables
c. The Sling to load angles

When Placing Web Sling Order Please Specify:

1. Sling Material (Nylon or Polyester)
2. Sling type and code number
3. Number of plies
4. Type of webbing
5. Web width
6. Sling length

Number of Plies - This refers to the number of layers of webbing in the body of the slings.

Type of Webbing - Buffalo Sling handles a Light Duty (#6) and Heavy Duty line of webbing (#8).

Sling Length - Web Slings can be made to virtually any length measured as follows:

Definition of Web Sling Order Code:

TC 2 - 803 x 10
(a) (b) (c)(d) (e)

a. Sling type
b. Number of plies
c. Type of webbing - heavy duty
d. Width of webbing
e. Length of sling

Capacity Tag and Warning Sheet

A sewn on durable Capacity Tag and Warning Sheet are included with each Buffalo Sling.

It is important to read and understand all use and warning information before using sling.

Remove sling from service if Capacity Tag or Warning Tag has been removed or is illegible.

Please call if you have any questions or concerns.

Sample Capacity Tag:

BUFFALO SLING			NYLON SLING
TYPE	SERIAL NO.	WIDTH	LENGTH
EE2-802	250000-12	2"	12'
RATED CAPACITIES IN LBS.			
VERTICAL	CHOKER	BASKET	
6400 lbs.	4800 lbs.	12,800 lbs.	

Sample Warning Sheet:

⚠WARNING

- Failure to comply with this warning may result in severe personal injury or death.
- Inspect sling for damage before each use.
- Always protect sling webbing from edges of load.
- Do not attempt to use sling above rated capacity.
- Do not use sling if capacity tag is removed.
- Do not expose sling to temperatures above 194°F.
- Do not use sling if there are any signs of cut webbing, heat or chemical damage, excessive wear, or other defects.
- Do not tie knots in sling webbing as strength is greatly reduced.
- Consult sling load chart for basket hitch capacity reduction due to sling angle.
- Do not use near acids.

NYLON

Physical Factors Effecting Sling Strength

A sling's life can be extended significantly with proper care and use. The following physical factors should be considered when utilizing any web sling:

Cutting: Movement of a load edge against the sling is the most frequent cause of web sling damage/failure.

Foreign Matter: Damage may be caused to a web sling both internally and externally by materials such as metal chips, weld spatter, heavy grit, etc.

Improper Loading: A sling's strength may be seriously compromised if there has been inadequate consideration of the effect of angle factors, if the load is unbalanced, shock loaded, or over loaded.

Punctures & Abrasions: These can seriously lessen a sling's strength. Be aware of the Red Core Yarns that can help to locate damaged webbing.

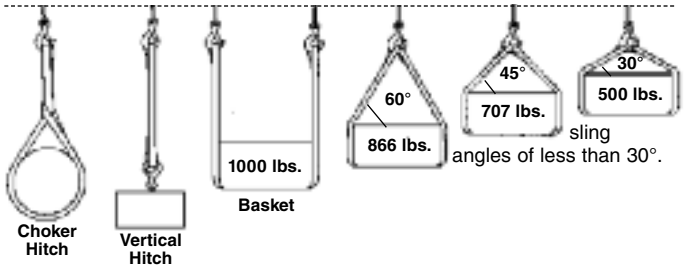
Temperature: Temperatures above 180°F for Polyester Slings, or 194°F for Nylon Slings, will cause serious degradation.

Ultraviolet Light: Prolonged exposure to UV light (sunlight or arc welding) can adversely effect Nylon & Polyester Web Slings. Inspect regularly to see if slings appear bleached/stiff.

Effect of Angle

The angle measured between a horizontal line and the sling leg or body is known as the SLING ANGLE. A slings rated capacity is effected by this angle and is therefore very important.

As shown below, when the sling's angle increases, the load capacity on each leg decreases. This is the case whether it's one sling being used to pull at an angle, a basket hitch, or multi-legged bridle sling. Do not use sling angles of less than 30°.



Environmental Considerations

⚠WARNING

- Temperatures above 194° F are seriously degrading to Nylon and above 180° F are seriously degrading to Polyester.
- Prolonged exposure to ultraviolet light adversely affects nylon and polyester. Slings become bleached and stiff when exposed to sunlight or arc welding.
- Some chemicals have an adverse effect on nylon and polyester. (See Table 1 below)

Chemical Environmental Data

General guide only. For specific concentration, temperature, and time factors, please consult us prior to purchasing or use.

Table 1

Sling Angle	
In Degrees	Factor
15	.259
20	.342
25	.423
30	.500
35	.574
40	.643
45	.707
50	.766
55	.819
60	.866
65	.906
70	.940
75	.966
80	.985
85	.996
90	1.000

Chemical	Nylon	Polyester
Acids	**NO**	OK[1]
Alcohols	OK	OK
Aldehydes	OK	**NO**
Strong Alkalis	OK	OK[2]
Bleaching Agents	**NO**	OK
Dry Cleaning Solvents	OK	OK
Ethers	OK	**NO**
Halogenated Hydro-Carbons	OK	OK
Hydro-Carbons	OK	OK
Ketones	OK	OK
Oils Crude	OK	OK
Oils Lubricating	OK	OK
Soap & Detergents	OK	OK
Water & Seawater	OK	OK
Weak Alkalis	OK	OK

1) Concentrated sulfuric acid will cause disintegration.
2) Strong alkalis at elevated temperatures will cause degradation.

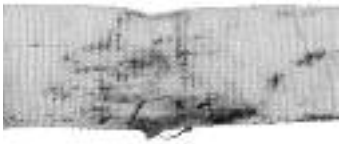
Web Slings

Web Sling Abuses, Safety Info.

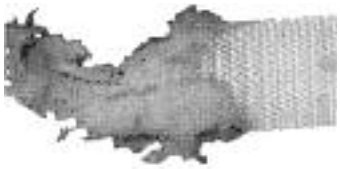
Web Slings Damage Examples

Web Slings must be removed from service whenever damaged. Prior to each use, all web slings must be examined for any of the following types of damage. In any instance when the red core warning threads are visible, the sling must be immediately removed from service. The following are common examples of web sling damage:

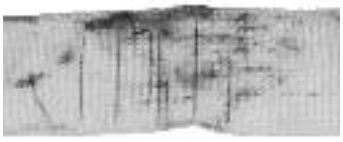
Abrasion Damage - Abrasion damage could happen when the sling tightens around a rough load or pulling a sling from under a load. Over a period of time, a sling that constantly rubs against a rough surface can show abrasion damage.



Acid Damage - Nylon Slings should not be exposed to an acid environment at any time. Acids in direct contact with nylon can cause rapid deterioration, any sling with any acid damage should be immediately replaced.

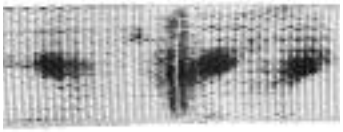


Cuts - A cut is a break of the nylon surface usually caused by the sling contact with an edge of the load being lifted. A complete cut can cause a load to be dropped. A cut that shows any sign of the red core warning yarn must be immediately removed from service. Wear pads can help to reduce the risk of nylon sling cuts.



Edge Cut - A nylon sling could experience a cut only on one edge. This will still reduce the strength of the entire sling and must be removed if and red core yarn is visible.

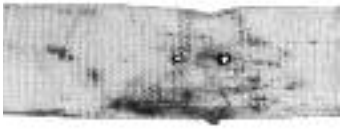
Face Cut - These cuts into the face of the sling material can be caused by a load shift of a lesser lift over an edge. These face cuts should be examined and the sling should possibly be removed even if no red core warning thread is visible as a second face cut in a damaged position could cause sling failure.



Heat Damage - Any nylon sling exposed to heat above 194° F or nylon slings in direct contact with flame must be immediately removed from service. Burn spots melting or charring are tell tale signs of heat damage.

Illegible or Missing Tag - Nylon slings with an unreadable or missing tag must be removed from service. The sling user must know the type and capacity of any nylon sling to be used with no exceptions.

Punctures and Snaps - Various points may snag or puncture nylon web material. This will compromise the strength of the damaged nylon sling. Such a sling must be removed from service.



Tensile Break - A tension break is caused by an overloading of a nylon sling or a shock load. These overloaded slings looked frayed at the point of the sling failure. These slings must be immediately removed from service.

Elasticity - The stretch characteristics of web slings depends on the type of yarn and the web finish.

Nylon		Polyester	
Treated	10%	Treated	7%
Untreated	6%	Untreated	3%

SYNTHETIC WEB SLINGS:

ASME B30.9-2010

9-5.9.1 Initial Inspection

Prior to use, all new, altered, modified, or repaired slings shall be inspected by a designated person to verify compliance with the applicable provisions of this chapter.

9-5.9.2 Frequent Inspection

(a) A visual inspection for damage shall be performed by the user or other designated person each day or shift the sling is used.

(b) Conditions such as those listed in para. 9-5.9.4 or any other condition that may result in a hazard shall cause the sling to be removed from service. Slings shall not be returned to service until approved by a qualified person.

(c) Written records are not required for frequent inspections.

9-5.9.3 Periodic Inspection

(a) A complete inspection for damage to the sling shall be periodically performed by a designated person. Each sling and component shall be examined individually, taking care to expose and examine all surfaces. The sling shall be examined for conditions such as those listed in para. 9-5.9.4 and a determination made as to whether they constitute a hazard.

(b) Periodic Inspection Frequency. Periodic inspection intervals shall not exceed 1 yr. The frequency of periodic inspections should be based on

- *(1)* frequency of sling use
- *(2)* severity of service conditions
- *(3)* nature of lifts being made
- *(4)* experience gained on the service life of slings used in similar circumstances

(c) Guidelines for the time intervals are

- *(1)* normal service – yearly
- *(2)* severe service – monthly to quarterly
- *(3)* special service – as recommended by a qualified person

(d) Documentation that the most recent periodic inspection was performed shall be maintained.

(e) Inspection records of individual slings are not required.

9-5.9.4 Removal Criteria

A synthetic webbing sling shall be removed from service if conditions such as the following are present:

(a) missing or illegible sling identification (see Section 9-5.7)
(b) acid or caustic burns
(c) melting or charring of any part of the sling
(d) holes, tears, cuts, or snags
(e) broken or worn stitching in load bearing splices
(f) excessive abrasive wear
(g) knots in any part of the sling
(h) discoloration and brittle or stiff areas on any part of the sling, which may mean chemical or ultraviolet/sunlight damage
(i) fittings that are pitted, corroded, cracked, bent, twisted, gourged, or broken
(j) for hooks, removal criteria as stated in ASME B30.10
(k) for rigging hardware, removal criteria as stated in ASME B30.26
(l) other conditions, including visible damage, that cause doubt as to the continued use of the sling

9-5.9.5 Repair

(a) Slings shall be repaired only by the sling manufacturer or a qualified person.

(b) A repaired sling shall be marked to identify the repairing agency per Section 9-5.7.

(c) Material used for sling repair shall comply with the provisions of this Chapter.

(d) Cracked, broken, melted, or damaged webbing material or fittings other than hooks shall not be repaired.

(e) Repair of hooks (ASME B30.10), rigging hardware (ASME B30.26), below-the-hook lifting devices (ASME B30.20), or other special devices shall comply with the repair instructions in the applicable volumes.

(f) All repairs shall comply with the proof test requirements of Section 9-5.6.

(g) Modifications, alterations, or repairs to end attachments or fittings shall be approved by the sling manufacturer, fitting or component manufacturer, or a qualified person, and shall conform to all other provisions of the Chapter.

(h) There shall be no repairs of a load-bearing splice.

(i) Temporary repairs of either synthetic webbing slings or fittings shall not be permitted.

Web Slings

Safety Info. Continued

POLYESTER ROUND SLINGS:

ASME B30.9-2010

Section 9-6.9: Inspection, Removal, and Repair

9-6.9.1 Initial Inspection

Prior to use, all new, altered, modified, or repaired slings shall be inspected by a designated person to verify compliance with the applicable provisions of this Chapter.

9-6.9.2 Frequent Inspection

(a) A visual inspection for damage shall be performed by the user or other designated person each day or shift the sling is used.

(b) Conditions such as those listed in para. 9-6.9.4 or any other condition that may result in a hazard shall cause the sling to be removed from service. Slings shall not be returned to service until approved by a qualified person.

(c) Written records are not required for frequent inspections.

9-6.9.3 Periodic Inspection

(a) A complete inspection for damage to the sling shall be periodically performed by a designated person. Each sling and component shall be examined individually, taking care to expose and examine all surfaces. The sling shall be examined for conditions such as those listed in para. 9-6.9.4 and a determination made as to whether they constitute a hazard.

(b) Periodic Inspection Frequency. Periodic inspection intervals shall not exceed 1 yr. The frequency of periodic inspections should be based on

(1) frequency of sling use

(2) severity of service conditions

(3) nature of lifts being made

(4) experience gained on the service life of slings used in similar circumstances

(c) Guidelines for the time intervals are

(1) normal service – yearly

(2) sever service – monthly to quarterly

(3) special service – as recommended by a qualified person

(d) Documentation that the most recent periodic inspection was performed shall be maintained

(e) Inspection records of individual slings are not required.

9-6.9.4 Removal Criteria

A synthetic roundsling shall be removed from service if conditions such as the following are present:

(a) missing or illegible sling identification (see Section 9-6.7)

(b) acid or caustic burns

(c) evidence of heat damage

(d) holes, tears, cuts, abrasive wear, or snags that expose the core yarns

(e) broken or damaged core yarns

(f) weld splatter that exposes core yarns

(g) knots in the roundsling, except for core yarns inside the cover

(h) fittings that are pitted, corroded, cracked, bent, twisted, gouged, or broken

(i) for hooks, removal criteria as stated in ASME B30.10

(j) for rigging hardware, removal criteria as stated in ASME B30.26

(k) other conditions, including visible damage, that may cause doubt as to the continued use of the sling

9-6.9.5 Repair

(a) Slings shall be repaired only by the sling manufacturer or a qualified person.

(b) A repaired sling shall be marked to identify the repairing agency per Section 9-6.7.

(c) Materials used for sling repair shall comply with the provisions of this Chapter.

(d) Cracked, broken, or bent fittings other than hooks shall not be repaired; they shall be replaced.

(e) Repair of hooks (ASME B30.10), rigging hardware (ASME B30.26), below-the-hook lifting devices (ASME B30.20), or other special devices shall comply with the repair instructions in the applicable volumes.

(f) All repairs shall comply with the proof test requirements of Section 9-6.6.

(g) Modifications, alterations, or repairs to end attachments or fittings shall be approved by the sling manufacturer, fittings or component manufacturer, or a qualified person, and shall conform to all other provisions of the Chapter.

(h) There shall be no repairs of load-bearing yarns.

(i) Temporary repairs of either roundslings or fittings shall not be permitted.

Nylon Slings

Light Duty Nylon Slings Specifications

1. The thickness of light duty webbing is 1/8".
2. The sling width and number of webbing piles will effect the eye length of Types 3 & 4.

NOTE: Tapering - Unless otherwise requested, Types 3, 4 & 5 are tapered at a width of 3" and above. These wider slings are tapered at the bearing points for crane hook accommodation.

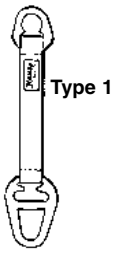
Eye Length Chart

Sling Width (in)	Plies of Webbing (in)			
	1	2	3	4
1	8-1/2	8-1/2	10	10
1-3/4	10	10	12	12
2	10	10	12	12
3	11	11	14	14
4	12	12	16	16
6	16	16	18	18

Types 1 & 2

	Web Width (in)	Type 1 (TC)	Type 2* (TT)	Rated Capacities (lbs)		
				Vertical	Choker	Basket
1 PLY	2	TC1-602	TT1-602	2,400	1,900	4,800
	3	TC1-603	TT1-603	3,600	2,900	7,200
	4	TC1-604	TT1-604	4,800	3,800	9,600
	6	TC1-606	TT1-606	7,200	5,800	14,400
2 PLY	2	TC2-602	TT2-602	4,800	3,800	9,600
	3	TC2-603	TT2-603	6,500	5,200	13,000
	4	TC2-604	TT2-604	8,600	6,900	17,200
	6	TC2-606	TT2-606	12,600	10,100	25,200

* Type Two cannot be used with a choker hitch.



Types 3-Flat Eye & 4-Twisted Eye

	Web Width (in)	Flat Eye Type 3 (EE)	Twisted Eye Type 4 (EE)	Rated Capacities (lbs)		
				Vertical	Choker	Basket
1 PLY	1	EE1-601		1,200	950	2,400
	1-3/4	EE1-601-3/4		2,100	1,700	4,200
	2	EE1-602		2,400	1,900	4,800
	3	EE1-603		3,600	2,900	7,200
	4	EE1-604		4,800	3,800	9,600
	6	EE1-606		7,200	5,800	14,400
2 PLY	1	EE2-601		2,400	1,900	4,800
	1-3/4	EE2-601-3/4		4,200	3,400	8,400
	2	EE2-602		4,800	3,800	9,600
	3	EE2-603		6,500	5,200	13,000
	4	EE2-604		8,600	6,900	17,200
	6	EE2-606		12,200	9,800	24,400
3 PLY	1	EE3-601		3,500	2,800	7,000
	1-3/4	EE3-601-3/4		6,000	4,800	12,000
	2	EE3-602		7,000	5,600	14,000
	3	EE3-603		9,400	7,500	18,800
	4	EE3-604		12,000	9,600	24,000
	6	EE3-606		18,000	14,400	36,000
4 PLY	1	EE4-601		4,200	3,400	8,400
	1-3/4	EE4-601-3/4		7,000	5,600	14,000
	2	EE4-602		8,000	6,400	16,000
	3	EE4-603		12,000	9,600	24,000
	4	EE4-604		16,000	12,800	32,000
	6	EE4-606		23,500	18,800	47,000

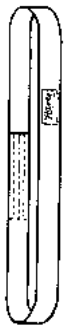
Type 3

Type 4

Type 5

	Web Width (in)	Type 5 (EN)	Rated Capacities (lbs)		
			Vertical	Choker	Basket
1 PLY	1	EN1-601	2,400	1,900	4,800
	1-3/4	EN1-601-3/4	4,200	3,400	8,400
	2	EN1-602	4,800	3,800	9,600
	3	EN1-603	6,500	5,200	13,000
	4	EN1-604	8,600	6,900	17,200
	6	EN1-606	12,200	9,800	24,400
2 PLY	1	EN2-601	4,800	3,800	9,600
	1-3/4	EN2-601-3/4	8,400	6,700	16,800
	2	EN2-602	9,600	7,700	19,200
	3	EN2-603	11,700	9,400	24,400
	4	EN2-604	15,500	12,400	31,000
	6	EN2-606	22,500	18,000	45,000
3 PLY	1	EN3-601	6,200	4,900	12,400
	1-3/4	EN3-601-3/4	10,900	8,700	21,800
	2	EN3-602	12,500	10,000	25,000
	3	EN3-603	16,300	13,000	32,600
	4	EN3-604	20,600	16,400	41,200
	6	EN3-606	29,300	23,400	58,600
4 PLY	1	EN4-601	7,700	6,200	15,400
	1-3/4	EN4-601-3/4	13,400	10,700	26,800
	2	EN4-602	15,500	12,400	31,000
	3	EN4-603	20,800	16,600	41,600
	4	EN4-604	26,600	21,200	53,200
	6	EN4-606	37,800	30,200	75,600

Type 5



Heavy Duty Nylon & Polyester Slings†

1) Heavy Duty Web thickness is approx. 3/16". 2) Eye length of Types 3 & 4 varies with sling width & number of webbing plies.

Types 1 & 2

	Web Width (in)	Type 1 (TC)	Type 2 (TT)	Rated Capacities (lbs) Vertical	Choker	Basket
1 PLY	2	TC1-802	TT1-802	3,200	2,400	6,400
	3	TC1-803	TT1-803	4,800	3,600	9,600
	4	TC1-804	TT1-804	6,400	4,800	12,800
	5	TC1-805	TT1-805	8,000	6,000	16,000
	6	TC1-806	TT1-806	9,600	7,200	19,200
	8	TC1-808	TT1-808	12,800	9,600	25,600
	10	TC1-810	TT1-810	16,000	12,000	32,000
	12	TC1-812	TT1-812	19,200	14,400	38,400
	16	TC1-816	TT1-816	25,500	19,200	51,000
	18	TC1-818	TT1-818	28,700	21,000	57,400
	20	TC1-820	TT1-820	32,000	24,000	64,000
	24	TC1-824	TT1-824	38,400	28,800	76,800
2 PLY	2	TC2-802	TT2-802	6,400	4,800	12,800
	3	TC2-803	TT2-803	8,600	6,500	17,200
	4	TC2-804	TT2-804	11,500	8,600	23,000
	5	TC2-805	TT2-805	14,000	10,500	28,000
	6	TC2-806	TT2-806	16,800	12,600	33,600
	8	TC2-808	TT2-808	22,400	16,800	44,800
	10	TC2-810	TT2-810	28,000	21,000	56,000
	12	TC2-812	TT2-812	33,600	25,200	67,200
	16	TC2-816	TT2-816	44,800	33,600	89,600
	18	TC2-818	TT2-818	50,400	37,800	100,800
	20	TC2-820	TT2-820	56,000	42,000	112,000
	24	TC2-824	TT2-824	67,200	50,400	134,400

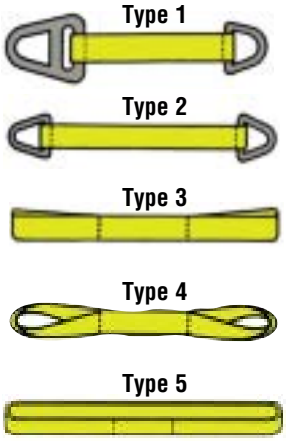
Three & Four Ply Hardware Slings are Available upon Request.
* Type Two cannot be used with a choker hitch.

Types 3-Flat Eye & 4-Twisted Eye

	Web Width (in)	Flat Eye Type 3 (EE)	Twisted Eye Type 4 (EE)	Rated Capacities (lbs) Vertical	Choker	Basket
1 PLY	1	EE1-801		1,600	1,200	3,200
	2	EE1-802		3,200	2,400	6,400
	3	EE1-803		4,800	3,600	9,600
	4	EE1-804		6,400	4,800	12,800
	5	EE1-805		8,000	6,000	16,000
	6	EE1-806		9,600	7,200	19,200
	8	EE1-808		12,800	9,600	25,600
	10	EE1-810		16,000	12,000	32,000
	12	EE1-812		19,200	14,400	38,400
2 PLY	1	EE2-801		3,200	2,400	6,400
	2	EE2-802		6,400	4,800	12,800
	3	EE2-803		8,600	6,500	17,200
	4	EE2-804		11,500	8,600	23,000
	5	EE2-805		13,600	10,200	27,200
	6	EE2-806		16,300	12,200	32,600
	8	EE2-808		19,200	14,400	38,400
	10	EE2-810		22,400	16,800	44,800
	12	EE2-812		26,900	20,100	53,800
3 PLY	1	EE3-801		4,100	3,100	8,200
	2	EE3-802		8,300	6,200	16,600
	3	EE3-803		12,500	9,300	25,000
	4	EE3-804		16,000	12,000	32,000
	5	EE3-805		19,200	14,400	38,400
	6	EE3-806		23,000	17,200	46,000
	8	EE3-808		30,700	23,000	61,400
	10	EE3-810		36,800	27,600	73,600
	12	EE3-812		44,000	33,000	88,000
4 PLY	1	EE4-801		5,000	3,800	10,000
	2	EE4-802		10,000	7,500	20,000
	3	EE4-803		14,900	11,100	29,800
	4	EE4-804		19,800	14,800	39,600
	5	EE4-805		24,800	18,600	49,600
	6	EE4-806		29,800	22,300	59,600
	8	EE4-808		39,700	29,700	79,400
	10	EE4-810		49,600	37,200	99,200
	12	EE4-812		59,500	44,600	119,000

Types 5

	Web Width (in)	Type 5 (EN)	Rated Capacities (lbs) Vertical	Choker	Basket
1 PLY	1	EN1-801	3,200	2,500	6,400
	2	EN1-802	6,400	5,000	12,800
	3	EN1-803	8,600	6,900	17,200
	4	EN1-804	11,500	9,200	23,000
	5	EN1-805	13,600	10,900	27,200
	6	EN1-806	16,300	13,000	32,600
	8	EN1-808	19,200	15,400	38,400
	10	EN1-810	22,400	17,900	44,800
	12	EN1-812	26,900	21,500	53,800
2 PLY	1	EN2-801	6,200	4,900	12,400
	2	EN2-802	12,200	9,800	24,400
	3	EN2-803	16,300	13,000	32,600
	4	EN2-804	20,700	16,500	41,400
	5	EN2-805	24,500	19,600	49,000
	6	EN2-806	28,600	23,000	57,200
	8	EN2-808	30,700	24,500	61,400
	10	EN2-810	33,600	26,800	67,200
	12	EN2-812	37,600	30,000	75,200
3 PLY	1	EN3-801	8,000	6,400	16,000
	2	EN3-802	16,000	12,800	32,000
	3	EN3-803	21,500	17,200	43,000
	4	EN3-804	28,700	23,000	57,400
	5	EN3-805	34,000	27,200	68,000
	6	EN3-806	40,700	32,500	81,400
	8	EN3-808	46,000	36,800	92,000
	10	EN3-810	51,500	41,200	103,000
	12	EN3-812	59,200	47,300	118,400
4 PLY	1	EN4-801	10,000	8,000	20,000
	2	EN4-802	19,800	15,800	39,600
	3	EN4-803	26,700	21,300	53,400
	4	EN4-804	35,600	28,400	71,200
	5	EN4-805	42,200	33,700	84,400
	6	EN4-806	50,500	40,400	101,000
	8	EN4-808	57,600	46,000	115,200
	10	EN4-810	67,200	53,700	134,400
	12	EN4-812	80,700	64,500	161,400



Eye Length Chart

Sling Width (in)	Plies of Webbing (in) 1	2	3	4
1	8-1/2	8-1/2	10	10
2	10	10	12	12
3	11	11	14	14
4	12	12	16	16
5	14	14	18	18
6	16	16	18	18
8	20	20	24	24
10	24	24	24	24
12	24	24	24	24

† Monster-Edge available for all Heavy Duty Type Slings. Most web sling damage starts on the edge and progresses across the face of the webbing. Polymer coated yarns are woven into the edges of Monster-Edge sling webbing to reduce damage and increase its useful life.

Monster-Edge is 67% more resistant to edge cutting than standard sling webbing.

NOTE: Add an "M" onto the end of ordering code for Monster-Edge.

Tapering - Types 3, 4 & 5 are tapered at 3" & wider unless otherwise ordered. These wider slings are tapered at the bearing points to accommodate a crane hook.

Treatment - Unless specifically requested, all nylon web slings will have an abrasion resistant treatment applied. The standard for polyester web slings, however, is without treatment.

NOTE: Add a "D" to the end of Sling Code for Polyester. Polyester webbing is not available over 10" in width.

Buffalo Sling
Single Path
Endless Polyester Round Slings

- A flexible solution to your lifting needs.
- Rotation of lift points extends service life of sling.
- Length measure from Bearing Point to Bearing Point.
- Two same color polyester tubular jackets.
- The economical choice!

Item No.	Color	Rated Capacity Vertical	Choker	Basket	Min. Lgth. (ft)	Approx. Measurements Wt. (lbs/ft)	Body Dia. Relaxed (in)	Width @ Load (in)
SP260	Purple	2,600	2,100	5,200	1-1/2	.2	5/8	1-1/8
SP530	Green	5,300	4,200	10,600	1-1/2	.3	7/8	1-1/2
SP840	Yellow	8,400	6,700	16,800	3	.4	1-1/8	1-7/8
SP1060	Tan	10,600	8,500	21,200	3	.5	1-1/8	2-1/8
SP1320	Red	13,200	10,600	26,400	3	.7	1-3/8	2-1/4
SP1680	White	16,800	13,400	33,600	3	.8	1-3/8	2-1/2
SP2120	Blue	21,200	17,000	42,400	3	1.1	1-3/4	3
SP3100	Grey	31,000	24,800	62,000	3	1.6	2-1/4	3-3/4
SP5300	Brown	53,000	42,400	106,000	8	2.5	2-3/4	4-5/8
SP6600	Olive	66,000	52,800	132,000	8	3.1	3-1/8	5-1/4
SP9000	Black	90,000	72,000	180,000	8	4.0	3-5/8	6

Nylon Slings

Reversed Eye (RE) Slings

Type 6 Reversed Eye Sling is a modified endless sling. Cordura wear pads offer added protection on the body and eyes of the sling. This extra Cordura webbing offers superior abrasion resistance and sling life.

	Code No.	Vertical (lbs)	Choker (lbs)	Basket (lbs)	Sling Width (in)	Sling Thkns. (in)	Eye Length (in)
Heavy Duty Web							
1 PLY	RE1-802	4,500	3,600	9,000	2	5/16	9
	RE1-804	7,700	6,200	15,400	4	5/16	15
	RE1-806	11,000	8,800	22,000	6	5/16	15
2 PLY	RE2-802	6,500	5,200	13,000	2	1/2	9
	RE2-804	13,000	10,400	26,000	4	1/2	15
	RE2-806	20,000	16,000	40,000	6	1/2	15
3 PLY	RE3-804	16,400	13,100	32,800	4	11/16	15
	RE3-806	25,500	20,400	51,000	6	11/16	15
4 PLY	RE4-806	34,000	27,200	68,000	6	7/8	15
Light Duty Web							
1 PLY	RE1-602	3,600	2,900	7,200	2	1/4	9
	RE1-603-1/2	5,000	4,000	10,000	3-1/2	1/4	12
	RE1-604	6,800	5,400	13,600	4	1/4	15
	RE1-606	8,000	6,400	16,000	6	1/4	15
2 PLY	RE2-602	5,200	4,200	10,400	2	3/8	9
	RE2-603-1/2	9,000	7,200	18,000	3-1/2	3/8	12
	RE2-604	10,500	8,400	21,000	4	3/8	15
	RE2-606	14,400	11,500	28,800	6	3/8	15
3 PLY	RE3-603-1/2	12,000	9,600	24,000	3-1/2	1/2	12
	RE3-604	14,000	11,200	28,000	4	1/2	15
	RE3-606	20,000	16,000	40,000	6	1/2	15

Wide Lift (WL) Slings

Continuous Eye Wide-Lift

For Heavy Loads - Constructed from one endless sling with the two body lengths butted and joined side by side. Stiffener webbing is used at the base of the eyes to deter the body webbing from folding down the middle.

Attached Eye Wide-Lift

For Light, Bulky Loads - that require wider bearing areas and some balance attributes. Eyes are made from separate material – WLA1 is 1 ply – WLA2 is 2 ply – both sewn to sling body. Body is single ply for both 1 & 2 ply eyes.

	Body Width (in)	Code	Vertical Basket Hitch Capacity (lbs)	Eye Length (in)	Eye Mat'l. Width (in)
Continuous Eye Wide-Lift					
1 PLY	6	WL1-806N	15,400	9	1-1/2
	8	WL1-808N	20,400	12	2
	12	WL1-812N	30,800	18	2
	16	WL1-816N	38,000	24	2-3/4
	20	WL1-820N	45,000	30	3-1/2
	24	WL1-824N	52,000	36	4
2 PLY	6	WL2-806N	28,600	9	1-1/2
	8	WL2-808N	38,000	12	2
	12	WL2-812N	57,200	18	3
	16	WL2-816N	75,000	24	4
	20	WL2-820N	90,000	30	5
	24	WL2-824N	110,000	36	6
Attached Eye Wide-Lift					
1 PLY EYE	6	WLA1-806N	5,000	6	1
	8	WLA1-808N	5,000	8	1
	10	WLA1-810N	5,000	10	1
	12	WLA1-812N	5,000	12	1
	16	WLA1-816N	10,000	14	2
	20	WLA1-820N	10,000	16	2
	24	WLA1-824N	10,000	20	2
2 PLY EYE	6	WLA2-806N	10,000	10	1
	8	WLA2-808N	10,000	10	1
	10	WLA2-810N	10,000	12	1
	12	WLA2-812N	10,000	12	1
	16	WLA2-816N	18,000	12	2
	20	WLA2-820N	18,000	18	2
	24	WLA2-824N	18,000	18	2

Cordura-Web Nylon Slings

Best in Abrasion Resistance

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

Cordura-Web Features, Advantages and Benefits

Promotes Safety: Red core yarn warning system aids in the inspection process, and striped webbing helps identify proper capacity.

Saves Money: Abrasion resistant Cordura covering on faces and edges for greater sling life.

Saves Time: Striped capacity for quick identification.

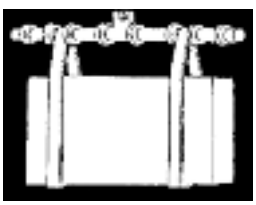
2000 Capacity 2 Stripes = 2,000 lbs. per inch of width (1 ply only). 25% stronger than other webbing. The strongest abrasion resistant sling available. Eyes of Cordura-Web 2000 slings for Types 3-4-5 are not tapered in any width.

1000 Capacity 1 Stripe = 1,000 lbs. per inch of width (1 ply only). The only light duty web sling with Cordura surface. Wider bearing surface, per capacity, helps protect load surface. Cordura-Web slings meet or exceed OSHA & ASME B30.9 requirements. Eyes of one ply Cordura-Web 1000 slings are tapered for Types 3-4 in web widths 3 & 4 inches.

	Code	Web Width (in)	Rated Capacity (lbs)* Vertical	Choker	V Basket	Code	Web Width (in)	Rated Capacity (lbs)* Vertical	Choker	V Basket
	CORDURA-WEB 2000 CAPACITY					**CORDURA-WEB 1000 CAPACITY**				
	Type U					**Type U**				
1 PLY	UU1-202	2	4,000	3,200	8,000	UU1-102	2	2,000	1,600	4,600
	UU1-203	3	6,000	4,800	12,000	UU1-103	3	3,000	2,400	6,000
	UU1-204	4	8,000	6,400	16,000	UU1-104	4	4,000	3,200	8,000
2 PLY	UU2-202	2	8,000	6,400	16,000	UU2-102	2	4,000	3,200	8,000
	UU2-203	3	10,800	8,600	21,600	UU2-103	3	5,400	4,300	10,800
	UU2-204	4	14,400	11,500	28,800	UU2-104	4	7,200	5,700	14,400
	Type 3			**Type 4**		**Type 3**			**Type 4**	
1 PLY	EE1-201	1	2,000	1,600	4,000	EE1-101	1	1,000	800	2,000
	EE1-202	2	4,000	3,200	8,000	EE1-102	2	2,000	1,600	4,000
	EE1-203	3	6,000	4,800	12,000	EE1-103	3	3,000	2,400	6,000
	EE1-204	4	8,000	6,400	16,000	EE1-104	4	4,000	3,200	8,000
2 PLY	EE2-201	1	4,000	3,200	8,000	EE2-101	1	2,000	1,600	4,000
	EE2-202	2	8,000	6,400	16,000	EE2-102	2	4,000	3,200	8,000
	EE2-203	3	10,800	8,600	21,600	EE2-103	3	5,400	4,300	10,800
	EE2-204	4	14,400	11,500	28,800	EE2-104	4	7,200	5,700	14,400
	Type 5					**Type 5**				
1 PLY	EN1-201	1	4,000	3,200	8,000	EN1-101	1	2,000	1,600	4,000
	EN1-202	2	8,000	6,400	16,000	EN1-102	2	4,000	3,200	8,000
	EN1-203	3	12,000	9,600	24,000	EN1-103	3	6,000	4,800	12,000
	EN1-204	4	16,000	12,800	32,000	EN1-104	4	8,000	6,400	16,000
2 PLY	EN2-201	1	7,800	6,200	15,600	EN2-101	1	3,900	3,100	7,800
	EN2-202	2	15,200	12,200	30,400	EN2-102	2	7,600	6,100	15,200
	EN2-203	3	20,400	16,300	40,800	EN2-103	3	10,200	8,200	20,400
	EN2-204	4	25,800	20,600	51,600	EN2-104	4	12,900	10,300	25,800

† Cordura is a registered trademark of DuPont.

Glass Lifting Slings



Buffalo Sling can custom make your company lifting slings to fit any glass size load. They can be designed to permit close stacking of glass and these two ply slings feature wear pad material for protection against those sharp edges, and side bridles for added load stabilization. Call Hanes Supply Inc., with your particular requirements.

Kevlar® and PVC rubber coated wear pads are available. Please contact Hanes Supply with your exact requirements.

Web & Bridle Slings

Stone Lifting Slings

Buffalo Stone Lifting Nylon Slings are reinforced with special abrasion resistant yarns. The standard stone lifting sling has a width of 4".

Type	Code	Rated Capacity (lbs) Vertical	Choker	Basket
1	S-TC1-704	5,400	4,000	10,800
1	S-TC2-704	9,400	7,000	18,800
2	S-TT1-704	5,400	–	10,800
2	S-TT2-704	9,400	–	18,800
3-4	S-EE1-704	5,400	4,000	10,800
3-4	S-EE2-704	9,400	7,000	18,800
5	S-EN1-704	8,000	6,000	16,000
5	*S-EN2-704	8,000	6,000	16,000

Boat Lifting Slings

These quality, high capacity slings are engineered to provide labor-saving convenience with all types of lifting devices. They are available in one or two-ply construction, in webbing widths from 2" to 12", to provide rated capacities for virtually any size boat normally lifted by an overhead device.

Rigged in basket hitches, pairs of standard slings offer total lifting capability to 53 tons per pair, and greater lifts can be achieved by rigging additional slings, or pairs, in the lift.

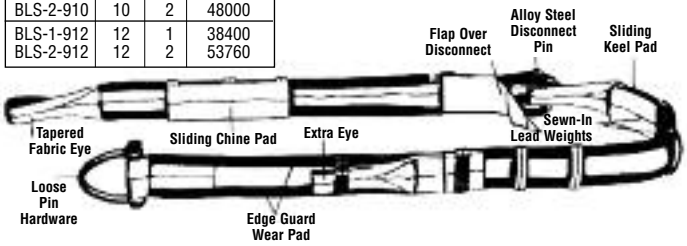
Both Polyester and Nylon provide outstanding resistance to rot and mildew, since neither fiber supports bacterial or fungal growth, and neither is adversely affected by immersion in water – either fresh or seawater. All loose pin hardware is plated for corrosion resistance.

Stock No.	Width (in)	Ply	Basket Hitch (lbs)
BLS-1-602	2	1	4800
BLS-1-902	2	1	5400
BLS-2-602	2	2	9600
BLS-2-902	2	2	12800
BLS-1-603	3	1	7200
BLS-1-903	3	1	9600
BLS-2-603	3	2	13320
BLS-2-903	3	2	17760
BLS-1-604	4	1	9600
BLS-1-904	4	1	12800
BLS-2-604	4	2	17280
BLS-2-904	4	2	23040
BLS-1-605	5	1	12000
BLS-1-905	5	1	16000
BLS-2-605	5	2	21000
BLS-2-905	5	2	28000
BLS-1-606	6	1	14400
BLS-1-906	6	1	19200
BLS-2-606	6	2	24480
BLS-2-906	6	2	32640
BLS-1-908	8	1	25600
BLS-2-908	8	2	40960
BLS-1-910	10	1	32000
BLS-2-910	10	2	48000
BLS-1-912	12	1	38400
BLS-2-912	12	2	53760

Polyester or Nylon

Standard Capacities 4,800 to 53,760 lbs. Per Sling

- Non-abrasive–protects hull and finish of boat.
- Low Weight–easy to handle and rig up.
- Durable– resistant to mildew, oil, seawater.
- Flexible–adapts to hull configuration to cradle load.
- Custom Designs–can be made for specific applications and usual rigging configurations.
- Wide choice of accessories and fittings.
- Low Stretch – Only 3% for Polyester, 6% for Nylon at Rated Capacity, with ability to return to original length when relaxed.
- Color Coded – Polyester slings are yellow. Nylon slings are orange.



Fittings and Accessories

Loose Pin Hardware Allows in-field removal for use on other slings or on additional eyes for use with different size boats.

Edge Guard Wear Pads Can be sewn on any portion of sling. Protects edges and prolongs useful life.

Sliding Chine & Knee Pads Permits positioning padding at any point to prevent rubbing on hull and to protect sling from sharp corners.

Steel Triangle Permanent end fitting of alloy steel is reusable. Slides easily onto lifting hook.

Extra Sewn Eyes Permits lifting of different size boats with one set of slings.

Lead Weights May be sewn into keel pad. Can be fixed or sliding, and promotes rapid sinking of sling.

Disconnect Permits removal of sling from beneath boat w/o removing sling eye from hook. Protective flap is standard.

Note: For loose-pin hardware (shackles) on two-ply slings made with 8", 10" or 12" webbing, consult Hanes Supply.

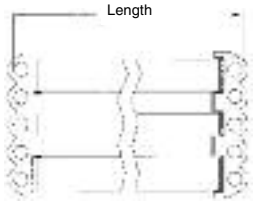
Model LIB - Lowering In Belt

Product Features:

- Efficient handling of large pipes
- Provides stable lift of long pipes
- Designed and manufactured to ASME B30.20 & B30.9

Lowering Belt - Model LIB

Model No.	Rated Cap. (lbs)	Max Pipe Dia. (in)	Belt Lgth. (ft/in)	Belt Wt. (lbs)
LIB-7212	48,000	12	4'9"	26
LIB-7418	73,000	18	7'	44
LIB-7420	73,000	18	7'6"	48
LIB-7524	97,000	24	8'6"	62
LIB-7630	122,000	30	10'	85
LIB-7736	146,000	36	11'6"	110
LIB-7742	146,000	36	13'6"	130
LIB-7748	146,000	36	15'	150
LIB-7842	171,000	42	13'6"	140
LIB-7848	171,000	48	15'	155
LIB-7948	195,000	48	15'	180



Lowering Belt

Head Iron - Model HI

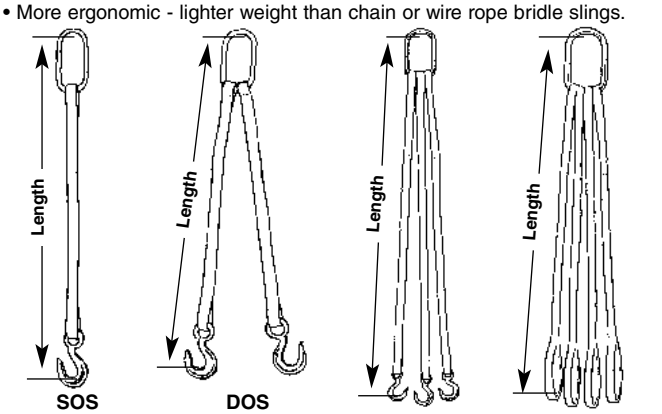
Head Iron Provided	Head Iron Lifting Eye A	B	C	T	Head Iron Wt. (lbs)
HI-212	1-3/4	4	5	1-1/2	40
HI-418	2-1/4	5	7	1-3/4	70
HI-420	2-1/4	5	7	1-3/4	70
HI-524	2-1/2	5	8	1-3/4	90
HI-630	2-3/4	5	8	2	110
HI-736	3	5	8	2-1/4	130
HI-742	3	5	8	2-1/4	130
HI-748	3	5	8	2-1/4	130
HI-842	3-1/2	6-1/2	10	2-1/4	145
HI-848	3-1/2	6-1/2	10	2-1/4	145
HI-948	4	6-1/2	10	2-1/2	150

Head Iron

Bridle Slings & Hardware

Advantages and Benefits of Application Economical, Safety and Time Saving Features

- Oblong links and hooks are alloy steel for strength and durability
- Better load control and balance. Bridle slings give fixed lifting points and multiple legs.
- Hardware also avoids cutting and wearing of synthetic slings at bearing points.
- Red core thread safety warning system helps in ease of inspection process.
- Soft web sling legs help prevent damage to load.
- Endless Type of web sling legs can be shifted to rotate wear points, longer lasting slings.
- Sling oblong links and hooks could be revised by adding new web sling legs if needed.
- More ergonomic - lighter weight than chain or wire rope bridle slings.



SOS Single Leg Oblong Link Sling Hook (EE1-801)

DOS Double Leg Oblong Link Sling Hook (EE1-801)

TOS Triple Leg Oblong Link Sling Hook (EE1-801)

QO Quad Leg Oblong Link (EE1-801)

Synthetic Slings

Bridle Slings & Hardware/Twin-Path®

Bridle Slings & Hardware cont.

Code for Web Sling Legs	Web Width (in)	Web Plies	No. of Legs	Rated Capacity (lbs) @ 90°	@ 60°	@ 45°	@ 30°	Oblong Link A x B x C	Sling Hook D x E x F
EE1-801	1	1	Single	1,600	1,300	1,100	800	1/2 x 2-1/2 x 5	3/4 x 3-1/8 x 1
	1	1	Double	3,200	2,700	2,200	1,600	1/2 x 2 1/2 x 5	3/4 x 3-1/8 x 1
	1	1	Triple	4,800	4,100	3,300	2,400	3/4 x 3 x 6	3/4 x 3-1/8 x 1
	1	1	Quad	6,400	5,500	4,500	3,200	1 x 4 x 6	3/4 X 3-1/8 X 1
EE2-801	1	2	Single	3,000	2,500	2,100	1,500	1/2 x 2-1/2 x 5	7/8 x 3-21/32 x 1-1/16
	1	2	Double	6,000	5,100	4,200	3,000	3/4 x 3 x 6	7/8 x 3-21/32 x 1-1/16
	1	2	Triple	9,000	7,700	6,300	4,500	3/4 x 3 x 6	7/8 x 3-21/32 x 1-1/16
	1	2	Quad	12,000	10,300	8,400	6,000	1 x 4 x 8	7/8 x 3-21/32 x 1-1/16
EE1-802	2	1	Single	3,000	2,500	2,100	1,500	1/2 x 2-1/2 x 5	7/8 x 3-21/32 x 1-1/16
	2	1	Double	6,000	5,100	4,200	3,000	3/4 x 3 x 6	7/8 x 3-21/32 x 1-1/16
	2	1	Triple	9,000	7,700	6,300	4,500	3/4 x 3 x 6	7/8 x 3-21/32 x 1-1/16
	2	1	Quad	12,000	10,300	8,400	6,000	1 x 4 x 8	7/8 x 3-21/32 x 1-1/16
EE2-802	2	2	Single	6,000	5,100	4,200	3,000	3/4 x 3 x 6	1-1/4 x 4-11/16 x 1-1/4
	2	2	Double	12,000	10,300	8,400	6,000	1 x 4 x 8	1-1/4 x 4-11/16 x 1-1/4
	2	2	Triple	18,000	15,500	12,700	9,000	1 x 4 x 8	1-1/4 x 4-11/16 X 1-1/4
	2	2	Quad	24,000	20,700	16,900	12,000	1-1/4 x 4-3/8 x 8-3/4	1-1/4 x 4-11/16 x 1-1/4

How to Order

T O S - EE1 - 802 x 10

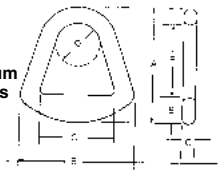
- **Number of Legs**: **S** - (Single - 1), **D** - (Double - 2), **T** - (Triple - 3), **Q** - (Quad - 4)
- **Master Link**: O - (Oblong)
- **Bottom Attachments**: S - (Sling Hook), O - (Oblong), SP (Special)
- **Web Sling Code**
- **Length of Assembly**: Bearing point to bearing point

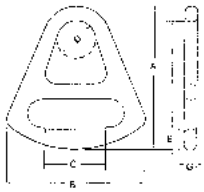
⚠WARNING Do not exceed rated capacities. Ratings must be reduced when slings are used at angles of less than 90° from Horizontal.

Forged Aluminum Triangles and Chokers

Forged aluminum triangles and chokers are forged from aircraft quality aluminum alloy that combines the highest strength and durability with the lightness of aluminum. Parts are hand ground and polished to a smooth finish.

Aluminum Triangles



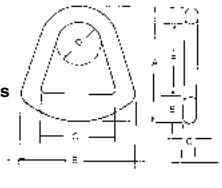


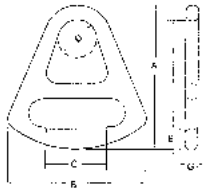
Aluminum Chokers

Size	Dimensions (in) A	B	C	D	E	F	G	Approx. Wt. (lbs)	WLL (lbs)	Min. Break Strength (lbs)
ALUMINUM TRIANGLE										
T2	4	3-5/8	2-1/4	1-3/4	15/16	2-3/8	9/16	.31	3,360	16,800
T3	5-1/4	5	3-1/4	2	1-3/16	3-5/16	5/8	.75	5,000	25,000
T4	6-1/4	6-5/8	4-3/8	2-3/8	1-7/16	4	11/16	1.1	6,700	33,500
T6	8-5/16	8-7/8	6-3/8	3-1/8	1-3/4	5-1/2	15/16	2.7	9,700	48,500
ALUMINUM CHOKER										
C2	6-1/8	5-1/4	2-1/8	1-3/4	15/16	2-3/8	9/16	.73	3,360	16,800
C3	7-1/2	7-1/8	3-1/8	2	1-1/8	3-5/16	5/8	1.3	5,000	25,000
C4	8-3/4	8-3/4	4-1/8	2-3/8	1-7/16	4	11/16	1.9	6,700	33,500
C6	11-5/16	11-3/4	6-1/8	3-1/8	1-3/4	5-1/2	15/16	5.1	9,700	48,500

Steel Triangles and Chokers

Steel Triangles





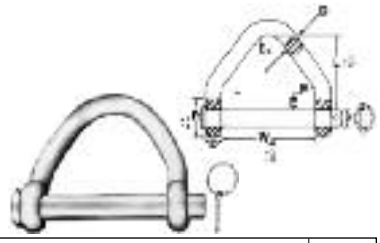
Steel Chokers

Steel Triangles and Chokers cont.

Size	Dimensions (in) A	B	C	D	E	F	G	Approx. Wt. (lbs)	WLL (lbs)	Min. Break Strength (lbs)
STEEL TRIANGLE										
ST2	2-7/8	3-3/4	2-1/8	1-3/4	1	2-5/16	1/2	1	6,600	33,000
ST3	5-3/16	5	3-1/16	2	1-1/4	3-5/16	1/2	1.6	8,900	44,500
ST4	6-7/16	6-5/8	4-5/16	2	1-5/8	3-7/8	1/2	2.7	11,600	58,000
ST5	7-7/8	7-15/16	5-3/16	2-1/2	2	4-15/16	1/2	3.5	14,000	70,000
ST6	9	9-1/4	6-1/8	2-3/4	2-5/16	5-9/16	1/2	5.3	16,800	84,000
ST8	11-7/16	12	8-1/4	3-5/8	2-7/8	7-3/16	3/4	12	22,400	112,000
ST10	13-1/4	14-1/8	10-1/8	4-7/8	3-5/8	8-1/4	3/4	17	28,000	140,000
ST12	13-13/16	16-7/16	12-3/8	5	4-1/16	8	3/4	19	32,000	160,000
STEEL CHOKERS										
SC2	6	5-1/2	2-1/8	2	1-1/16	2-1/4	1/2	2	6,600	33,000
SC3	7-1/2	7	3-1/8	2	1-3/16	3-3/16	1/2	2.9	8,900	44,500
SC4	9-5/16	9-9/16	4-1/8	2-1/2	1-13/16	3-1/2	1/2	6	11,600	58,000
SC5	10-9/16	11-5/8	5-1/8	2-3/4	2-1/16	4-7/16	1/2	7	14,000	70,000
SC6	12	12-3/4	6-1/8	2-7/8	2-11/16	4-9/16	1/2	9.8	16,800	84,000
SC8	14-7/16	16-1/2	8-1/8	5	2-13/16	6-7/16	3/4	24	22,400	112,000
SC10	16-1/2	18-3/4	10-1/4	5-1/8	3-1/2	7-5/8	3/4	28	28,000	140,000
SC12	19-1/4	22-5/8	12-1/8	5-1/2	4-1/4	9-3/4	3/4	40	32,000	160,000

Web Sling Shackle

- Finish: Hot Dip Galvanized.
- Klik Pin (zinc plated) as shown furnished as standard–cotter or hair pin can be used also.
- Shackle Body: Carbon Steel, Heat Treated and Tempered.
- Shackle Pin: Alloy Steel, Heat Treated and Tempered.



Part No.	Webbing Width (in)	Ultimate Strength (lbs)*	WLL*	Dimensions (in) W	L	D	P	R	E	Wt. Ea. (lbs)
SS-2	2	32,200	8,050	2	2-1/4	5/8	3/4	1-5/8	5/8	1.7
SS-3	3	52,200	13,050	3	3-1/4	3/4	7/8	1-7/8	3/4	2.8
SS-4	4	43,200	10,800	4	3-3/4	3/4	7/8	1-7/8	7/8	3.1
SS-5	5	72,000	18,000	5	4-1/4	7/8	1	2-1/8	7/8	4.8
SS-6	6	72,000	18,000	6	4-3/4	1	1-1/8	2-3/8	1	6.8
SS-6H	6	95,400	23,850	6	4-3/4	1-1/8	1-1/4	2-5/8	1	9.8

*Do Not Exceed Working Load Limit

Twin-Path® Slings

TWIN-PATH® LIFTING SLING
U.S. Patent #4,850,269
Canadian Patent #1,280,458

Throughout industrial plants, in utility companies, and on construction sites, riggers have a need for soft slings that can lift material and equipment without damage to the load or the sling. Traditionally, this requirement was filled with soft rope slings, such as manila, nylon, or poly, or with web slings or round slings. Customers began to tell Slingmax® designers the problems they associated with these types of slings. Soft rope slings and web slings became stiff when exposed to moisture and sunlight; they were easily cut and could fail in a catastrophic manner. Round slings sometimes were cut through the cover which caused unnecessary apprehension in that the sling might drop the load even if only a few load-bearing yarns were cut. Also, customers seemed to prefer the round sling over the web sling, but they asked for a firmer inspection criteria for the round sling that show red warning yarns when the cover is cut. So Slingmax® invented a new group of products call Twin-Path® Slings. These products have the specifications asked for by the customers. First, they have two load-bearing paths between the hook and the load. These equal and separate slings are encased in a double-walled tube. The outer cover is orange and the inner cover is red. If the orange outside cover is cut, then the red inside cover will show through, alerting the inspector to remove the sling from service. Since the sling has a double load-bearing trail, it can effectively be cut in half and still hold its rated capacity. This removes the apprehension of sudden failure associated with other products. Tell tails show the inspector if the sling has ever been overloaded. This combination of double

Twin-Path® & Twin-Path® Covermax Slings

load-bearing paths, two-color cover contrast and tell tails make these the most inspectable soft slings ever. Twin-Path® Slings are manufactured with chemical resistant polyester throughout up to 30 ton vertical capacity.

TWIN-PATH® and **TWIN-PATH® EXTRA SLINGS** are also made with Tell-Tails. Customers want to know if a sling is over-loaded.

Twin-Path® Extra Slings

As the machinery to manufacture Twin-Path® Slings began producing this new revolutionary product, another sling was on the drawing board. The Twin-Path® Extra Lifting Sling has totally turned the rigging world on its ear. This Twin-Path® Extra Lifting Sling is the strongest and lightest lifting sling in the world. Rated capacities range from 5 tons to 100 tons at a weight of about 1/7 that of steel wire rope slings. A recent test for the United States Government used a TPX Sling that weighed only 2 lbs., but broke at 203,000 lbs. The largest capacity Twin-Path® Extra Lifting Sling would hold over 3,000,000 lbs. before breaking. Other characteristics of TPX is its low stretch–about 1%–and the load-bearing paths are made of high-performance fibers with good to excellent chemical resistance. Recently a 419 ton ship was lifted with three 721 long Twin-Path® Extra Slings, and all of the slings combined weighed only 750 lbs. The Twin-Path® Sling and the Twin-Path® Extra Sling design presents a wider bearing area to the load, and will last longer without the cover wearing.

Three lightweight **Twin-Path® Extra Lifting Slings**, weighing only 250 lbs. each, were used in a recent launching of a 419 Ton Navy vessel. An equivalent wire rope sling would weigh approx. 1400 lbs.

Twin-Path®

U.S. Patent #4,850,629 Canadian Patent #1,280,458

The Ultimate Lifting Sling:
Provides the strength of steel without the drawbacks of weight, corrosion, and conductivity.

Tremendous Labor Savings - Time is money. The ease of handling ultra-light Twin-Path® Extra Slings adds up to substantial labor savings, each and every time the sling is used. There is no need to have an extra crane, forklift or personnel to handle heavy slings.

Safety in Lifting and Pulling - Twin-Path® Slings are without a doubt the most inspectable lifting slings available.

Tests have shown that Twin-Path® Slings do not recoil at break, thereby eliminating the devastating whiplash effects characteristic of chain, wire rope, synthetic web and rope.

Patented Back-Up Protection - Twin-Path® Slings are actually two complete and separate slings in one. Each path makes its own separate connection between the hook and the load. We do not recommend the use of damaged slings, but chances are good that if damage to one of the paths went undetected that, unlike web slings or round slings, you would have sufficient reaction time to maintain control of the load. Only Twin-Path® provides this security.

Early Warning System - Twin-Path® Slings have two independent covers that are color coded for easy inspection. When the outer cover is cut, the red inner cover instantly becomes visible providing the sling user with a visual alert to remove the sling from service. Only Twin-Path® provides such a warning and inspection mechanism.

Tell Tails - Tell Tails provide a simple means of inspection. Before using the sling check that both Tell Tails are showing. If one or both of the tails are not visible, or are chemically degraded, remove the sling from service.

Labeling - Twin-Path® Slings are labeled with a unique hot branded leather tag. The specifications including model, length, and rated load are clearly legible. This is the best sling tag in the industry. The leather tag is permanently affixed. It is inflammable and tamper proof. This leather tag outlasts and outperforms fabric and silk screened vinyl tags.

Space Saver - Sometimes space is a scarce commodity. Storage problems are easily resolved as Twin-Path® Extra Slings require substantially less space to store than the cumbersome wire rope slings and chain slings that they replace.

Versatility - Twin-Path® Extra Slings are easily used in all three sling hitches, choker, vertical and basket. Choking loads is no longer a chore. Hitching is made easy because of the free form, and supple body of Twin-Path® Extra Slings. You will never experience “choke-lock” when disengaging the sling from the load.

Twin Path® Covermax and Twin-Path® Extra Covermax Slings Superior Abrasion Resistance - Twin-Path® and Twin-Path® Extra Slings have orange outer covers that are 100% polyester. These seamless covers are specially woven to provide superior abrasion resistance. Twin-Path® Covermax and Twin-Path* Extra Covermax Slings have all the features of Twin-Path®, and Twin-Path® Extra and more. They have gray outer covers made from Covermax which are a minimum four times more abrasion resistant than polyester or nylon. Twin-Path® Covermax Slings put a Covermax wear pad in contact with the load at all times. Twin-Path®, Covermax Slings out last all other synthetic slings. So when abrasion and longevity are a consideration, choose Twin-Path® Covermax and Twin-Path® Extra Covermax Slings. To be sure!

Maintenance Free - Twin-Path® Slings, unlike wire rope and chain, do not require lubrication or reannealing.

Twin-Path® Slings & Twin-Path® Covermax

Overload Indicators - Twin-Path® and Twin-Path® Covermax slings are the first and only slings of any kind to be manufactured with built in overload indicators. If the tell-tails shrink to where 1/2" or less is exposed, this is an indication that the sling has been overloaded, and the sling should be removed from service immediately.

In other words, when 1/2" or less of the tails are visible, this is an Indication that the sling has been overloaded. Round slings and web slings provide no such warning or inspection mechanism before failing or breaking. This lack of warnIng and inspection device greatly contributes to the potential for catastrophic failure.

Patented Back Up Protection - Twin-Path® and Twin-Path® Covermax slings are actually two complete and separate slings in one. Each path makes its own separate connection between the hook and the load. We do not recommend the use of damaged slings, but chances are good that if damage to one of the paths went undetected that, unlike web slings or round slings, you would have sufficient reaction time to maintain control of the load. Only Twin-Path® and Twin-Path® Covermax provide this security.

Ease of Inspection - The Twin-Path® and Twin-Path® Covermax provide an early warning mechanism. The load carrying yarns never come into contact with the load. There is no wear to them as long as the protective outer covers remain intact. Twin-Paths® and Twin-Path® Covermax slings have two independent covers that are color coded for easy inspection. When the outer cover is cut, the red inner cover instantly becomes visible providing the sling user with a visual alert to remove the sling from service, and send it to the manufacturer for inspection and repair. Damage which exposes the Inner load bearing yarns is one criteria for immediate removal from service for inspection and repair. Only Twin-Path® and Twin-Path® Covermax assure such a warning system.

Superior Abrasion Resistance - Twin-Path® slings have an orange outer cover th is 100% polyester. These seamless covers are specially woven to provide superior abrasion resistance. Twin-Path® Covermax slings have all the features of Twin-Path® slings and more. They have gray outer covers made from DuPont Cordura which are a minimum four times more abrasion resistant than polyester or nylon. Twin-Path® Covermax slings put a cordura wear pad in contact with the load at all times. Twin-Path® Covermax slings outlast all other synthetic slings. Choose Twin-Path® Covermax slings when abrasion and longevity are a consideration.

Versatility - Twin-Path® and Twin-Path® Covermax slings are easily used in all three sling hitches, vertical, choker, and basket. Choking loads is no longer a chore. Hitching is made easy because of the free form, and supple body of Twin Path® and Twin Path® Covermax slings. You will never experience “choke-lock” when disengaging the sling from the load.

Durability - The hook and load contact points of Twin-Path® and Twin-Path® Covermax slings can be continually rotated and reversed to further extend not only the life of the protective outer covers, but the overall life of the sling. Wire rope slings “remember” their last load and usually become distorted after the first lift.

Soft and Flexible - Twin-Path® and Twin-Path® Covermax slings adapt to all sizes and types of load configurations. They also easily adapt to fit hooks and shackles that might be otherwise too small for alternative sling types. Unlike other slings, you never have to be concerned with minimum D to D ratios when using Twin-Path® and Twin-Path® Covermax slings. As long as the lifting points are smooth and have the same lifting capacity as the Twin-Path® and Twin-Path® Covermax sling... NO PROBLEM!

Load Protection - Twin-Path® and Twin-Path® Covermax slings afford the sling user with the ultimate degree of load protection,” The strength of steel in a velvet glove!” Twin-Path® and Twin-Path® Covermax slings WILL NOT mar, scratch, or deface most delicate metallic surfaces, and are equally gentle on non-metallic loads.

Synthetic Slings

Twin-Path® & Twin-Path® Covermax Slings

Repairable - All Twin-Path® slings are internally inspectable by factory personnel. Unlike other round slings and web slings, all the slings in the Twin-Path® line are repairable and recertifiable.

Twin-Path® Extra Slings & Twin-Path® Extra Covermax

Overload Indicators - Twin-Path® Extra and Twin-Path® Extra Covermax slings are the first and only slings of any kind to be manufactured with built in overload indicators. If the tell-tails shrink to where 1/2" or less Is exposed, this is an indication that the sling has been overloaded, and should be removed from service immediately. In other words when 1/2" or less of the tells are visible, this is an indication that the sling has been overloaded.

Patented Back Up Protection - Twin-Path® Extra and Twin-Path® Extra Covermax Slings are actually two complete and separate slings in one. Each path makes its own separate connection between the hook and the load. WE DO NOT RECOMMEND the use of damaged slings, but chances are good that if damage to one of the paths went undetected that, unlike web slings of round slings, you would have sufficient reaction time to maintain control of the load. Only Twin-Path® Extra and Twin-Path® Extra Covermax provide this security.

Ease of inspection - The Twin-Path® Extra and Twin-Path® Extra Covermax provide an early warning and inspection mechanism. The load carrying yarns never come into contact with the load. There is no wear to them as long as the protective outer covers remain intact. Twin Path® Extra and Twin Path® Extra Covermax slings have two Independent covers that are color coded for easy inspection. When the outer cover is cut, the red inner cover instantly becomes visible providing the user with a visual alert to remove the sling from service and send it to the manufacturer for inspection and repair. Damage which exposes the Inner load bearing yarns is one criteria for immediate removal from service for Inspection and repair. Only Twin Path® Extra and Twin Path® Extra Covermax assure such a warning system.

Super Strong - Ultra Light - Twin-Path® Extra and Twin-Path® Extra Covermax slings are manufactured with DuPont's Kevlar® 29 Yarn, an incredible material that is many times stronger than steel, at a fraction of the weight Twin-Path® Extra and Twin-Path® Extra Covermax are ideal for helicopter and aerospace applications.

Repairable - All Twin-Path® Extra and Twin-Path® Extra Covermax slings are internally inspectable by factory personnel. Unlike other round slings and web slings, Twin-Path® Extra and Twin-Path® Extra Covermax Slings are truly repairable.

Extreme Temperatures & Electrical Currents - DuPont's Kevlar® Yarn actually becomes stronger when exposed to cold temperatures. Moisture combined with sub zero temperatures renders most synthetic products rigid and non-pliable. Kevlar® does not absorb moisture to the same degree as does nylon and polyester fiber. Kevlar products actually "shed" moisture to remain soft and flexible. At the other end of the scale Kevlar® Yarn withstands temperatures of up to 800 degrees F. and self extinguishes when exposed to flame. Kevlar® is inherently non-conductive. As such, it prevents stray currents from welding operations from damaging the crane motor. Twin-Path® Extra and Twin-Path® Extra Covermax slings are Ideal for lifting and positioning electrical equipment.

Nuclear Environments - The performance of Kevlar® fibers In nuclear environments Is detailed In a report titled, "Radiation Effect on Organic Materials in Nuclear Power Plants" (Report #EPRINP 2128, dated Nov. 1981). When Kevlar® as exposed to radiation at the level of 1,000,000,000 rads, there was no effect on the fiber. Twin-Path® Extra and Twin-Path® Extra Covermax slings are well suited to use in nuclear generating stations.

WARNING! Twin-Path® round slings can be cut by contact with sharp or unprotected load edges. Padding must be used to protect the sling.

TWIN-PATH® SLINGS SAFETY INFO.

Mechanical Considerations

1. Load both paths of Twin-Path® slings equally. Do not side load. Do not load the edge of the sling.
2. Determine the weight of the load. The weight of the load shall be within the rated capacity of the sling.
3. Select a sling having suitable characteristics for the type of load, hitch and environment.
4. Slings shall not be loaded in excess of the rated capacity. Consideration shall be given to angle of lift which may affect the lifting capacity. Diameters of pins and edges also may affect the capacity of the lifting sling.
5. Slings used in a choker shall not be forced to tighten around the load by pounding with hammers or other objects. Choker hitches are the least effective way to use a sling based on capacity. Two chokers should be used to balance the load. One choker in the center of the load may create an unbalanced situation which could lead to an accident.
6. Slings used in a basket hitch must have the load balanced to prevent slippage and accidents.
7. Slings used with fittings shall be compatible with the fittings used. The lifting capacity shall be rated at the lower of the fitting or sling. Fitting openings shall be of the proper shape and size to assure that the sling will seat properly.
8. Slings in contact with edges, corners, protrusions, or abrasive surfaces shall be protected with a material of sufficient strength, thickness, and construction to prevent damage. The pin area of a shackle can cause synthetic slings to cut or tear.
9. Slings shall not be dragged on the floor or drawn across other surfaces which may damage the sling.
10. Slings shall not be twisted or tied in knots to shorten.
11. Slings can be damaged by resting loads on them or by pulling slings from under a load.
12. Do not drop objects on slings or run over them with vehicles.
13. Slings which are damaged shall not be used.
14. Sling hitches must provide control of the load.
15. Portions of the human body shall be kept from between the sling and the load and from between the sling and any attachment to lifting devices such as hooks.
16. Personnel shall stand clear of suspended loads.
17. Personnel shall not ride on the sling or suspended loads.
18. Avoid shock loading.
19. Twisting and kinking the legs of the sling shall be avoided.
20. Load applied to the hook should be centered in the bowl of the hooks. Do not point-load the hook.
21. During lifting with or without the load all personnel shall be alert for possible snagging.
22. The slings shall contain or support the load from the sides above the center of gravity so the load will not tilt when the load is lifted.
23. Synthetic roundsling users shall be trained in the selection, inspection, cautions to personnel, effects of environment, and rigging practices.
24. Only legibly marked or labeled slings must be used. If the tag is not legible, or missing, the sling must not be used.
25. Keep labels or tags away from the load, the hook and the angle of choke.
26. Synthetic slings should be inspected before each lift.

Environmental Considerations

K-Spec® core yarn strength retention is based on test results of components at 65°C/150°F (or less) for 6 months. K-Spec® has a 100% strength retention when exposed to: age, 10% detergent solution, rot and mildew, sunlight and toluene; 99% strength retention when exposed to: acetic acid, gasoline, hydrochloric acid 1m, hydraulic fluid, kerosene, and sea water; 98% retention when exposed to: 25% ammonium hydroxide, 10% hypophosphite solution, and 40% phosphoric acid; 97% retention when exposed to 5m sodium hydroxide; 95% retention when exposed to Portland cement and sulfuric acid; and 88% retention when exposed to Clorox® bleach, and nitric acid.

Twin-Path® & Twin-Path® Covermax Slings

Fiber Properties

	Nylon	Polyester	Aramid	Poly-Arylate (Liquid Crystal)	UHMwPE	K-Spec® fiber
Fiber Properties						
Tenacity - dry g/d	7.5 - 10.5	7.0 - 10.0	28	26 - 29	35 - 40	35
Tensile 000 psi	113 - 158	123 - 176	90	424 - 525	397 - 546	472.5
Elongation at break %	15 - 28	12 - 18	4.6	3.8	3.5 - 3.8	3.8
Moisture Regain %	4.0 - 6.0	<0.5	2	<0.10	0	0
Specific Gravity	1.14	1.38	1.38	1.41	0.97	1.11
Bulk Strength	1.00	0.9	2.7	2.8	2.8	2.8
Chemical Resistance						
Solvents	Good	Good	Excel	Excel	Excel	Excel
Acids						
Dilute:	Good	Good	Good	Excel	Excel	Excel
Conc:	Fair	Fair	Good	<90%	Excel	Excel
Alkalis						
Dilute:	Excel	Good	Good	Excel	Excel	Excel
Conc:	Excel	Fair	Good	<30%	Excel	Excel
Temperature Tolerance						
Melt Point	425°F	490°F	900°F	625°F	300°F	320°F
	218°C	225°C	500°C	330°C	150°C	160°C

Inspections of Twin-Path® Products

1. Check-Fast® Early Warning Indicator (EWI) and Tell-Tail indicators shall extend past the tag area of each sling. If your sling is equipped with Check-Fast® and the EWI is not visible or both Tell-Tails are not visible, remove the sling from service. Send to manufacturer for repair evaluation.
2. If Fiber-Optic inspection is installed in the sling, inspect by allowing light to enter the fiber optics. If the fiber optics do not transmit light from end to end, remove the sling from service and contact the manufacturer for repair evaluation.
3. Slings shall be inspected for evidence of cutting or tearing of the outer cover. Slings with cuts shall be removed from service and sent back to the manufacturer for repair evaluation. Damage to the cover may indicate core damage.
4. Inspect slings for evidence of heat damage. Sparkeater® slings shall not be exposed to temperatures over 200°C/300°F. K-Spec® and polyester slings shall not be exposed to temperatures above 82°C/180°F. Cold temperature exposure down to minus 40°C/minus 40°F do not affect the strength of the products.
5. If any part of the sling shows evidence of chemical degradation or damage, remove the sling from service. Return the sling to the manufacturer for repair evaluation.
6. Slings using aluminum fittings shall not be used where fumes, vapors, sprays or mists of alkalis or acids are present.
7. Twin-Path® lifting slings and any fittings attached shall be the subject of frequent and regular inspections. In addition to the initial inspection by a competent person and frequent written inspections, the slings shall be visually inspected before each use.
8. Written inspections shall be performed as required and documents of such inspection by a competent person shall be kept on file in the safety department of the plant or site where used. Inspections may be done more often based on frequency of use, severity of conditions, experience of past service life.
9. Slings shall be examined throughout their length for abrasion, cuts, heat damage, fitting distortion or damage, tag legibility, and if any doubts are held by the inspector, the sling shall be removed from service. If deterioration is found, the sling must be removed from service.
10. Slings removed from service that are not repairable shall be destroyed and rendered completely unfit for future use.
11. Abrasion, heat damage or cuts to the cover may indicate a loss of strength to the core yarns, and these slings shall not be used until evaluated by the manufacturer.

Test Procedures for Twin-Path® Sling Products

1. Proof tests shall consist of pulling the slings to twice their rated capacity.
2. Testing of Twin-Path® sling products and core yarn shall be on a testing machine which meets or exceeds the standards as described in ASME E-4.
3. Break testing of slings shall be as above with results documented. Pin size for break testing should be a diameter equal to half the nominal sling width, or larger.
4. Repaired fittings or slings shall be proof-tested before they are returned to service. Certifications may be provided to the fitting or sling owner.

Twin-Path® Extra Sling with Covermax® and K-Spec® Core Yarn

TPXC

This is the world's first truly ergonomic sling with Covermax® covers for superior abrasion resistance. These are made in sizes up to 600 tons vertical rated capacity. Larger capacity slings are available on special order. These slings have overload indicators, inner red cover, and are used worldwide in place of wire rope slings for heavy lifts. They are approximately 10% of the weight of a steel sling. These products are repairable. The Twin-Path® patented design provides the rigger with two connections between the hook and the load for redundant back-up protection. These slings have less than 1% stretch at rated capacity. If ergonomics, productivity and safety are important, then these slings are the only choice. This is the lightest and strongest sling on the market today with K-Spec® – the longest lasting loadbearing core yarn, backed by independent testing.

Twin-Path Sling Stock No.	Rated Capacities (lbs) 5-1 D/F Choker	Vertical	Vertical Basket	Basket Hitches 60°	Basket Hitches 45°	Approx Wght (lbs per ft) (bearing - bearing)	Nominal Body Width (in)
TPXCF/TPXC 1000	10,000	8,000	20,000	17,320	14,140	.40	1.5-3
TPXCF/TPXC 1500	15,000	12,000	30,000	25,980	21,210	.45	1.5-3
TPXCF/TPXC 2000	20,000	16,000	40,000	34,640	28,280	.51	1.5-3
TPXCF/TPXC 2500	25,000	20,000	50,000	43,300	35,350	.57	1.5-3
TPXCF/TPXC 3000	30,000	24,000	60,000	51,960	42,420	.71	2.0-4
TPXCF/TPXC 4000	40,000	32,000	80,000	69,280	56,560	.83	2.0-4
TPXCF/TPXC 5000	50,000	40,000	100,000	86,600	70,700	1.14	2.5-5
TPXCF/TPXC 6000	60,000	48,000	120,000	103,920	84,840	1.27	2.5-5
TPXCF/TPXC 7000	70,000	56,000	140,000	121,240	98,980	1.39	2.5-5
TPXCF/TPXC 8500	85,000	68,000	170,000	147,220	120,190	1.65	3.0-6
TPXCF/TPXC 10000	100,000	80,000	200,000	173,200	141,400	1.84	3.0-6
TPXCF/TPXC 12500	125,000	100,000	250,000	216,500	176,750	2.35	4.0-8
TPXCF/TPXC 15000	150,000	120,000	300,000	259,800	212,100	2.66	4.0-8
TPXCF/TPXC 17500	175,000	140,000	350,000	303,100	247,450	3.14	5.0-10
TPXCF/TPXC 20000	200,000	160,000	400,000	346,400	282,800	3.45	5.0-10
TPXCF/TPXC 25000	250,000	200,000	500,000	433,000	353,500	4.07	5.0-10
TPXCF/TPXC 27500	275,000	220,000	550,000	476,300	388,850	4.61	6.0-12
TPXCF/TPXC 30000	300,000	240,000	600,000	519,600	424,200	4.92	6.0-12
TPXCF/TPXC 40000	400,000	320,000	800,000	692,800	565,600	6.54	7.0-14
TPXCF/TPXC 50000	500,000	400,000	1,000,000	866,000	707,000	8.15	8.0-16
TPXCF/TPXC 60000	600,000	480,000	1,200,000	1,039,000	848,000	10.20	9.0-18

Note: Capacities shown include both paths and are for one complete sling. Sling ratings based on fittings of equal or greater capacity. Conforms to ANSI/ASME B30.9 chapter 6, NAVFAC P-307 section 14.6.4.3, and the Cordage Institute Roundsling Standard. This chart is based on a 5:1 Design Factor, but any other DF can be fabricated. Higher capacity slings are available. CAPACITIES ARE IN POUNDS (lbs).

SLINGMAX® RIGGING PRODUCTS

WARNING! Sling can fall if damaged, misused or overloaded. Inspect before use. Damaged sling shall not be used. Use only if trained. Do not exceed rated capacity. Protect sling from being cut by load edges, corners, protrusions and abrasive surfaces. Avoid exposure to acid, alkali and temperature over 180°F. **DEATH** or **INJURY** can occur from improper use or maintenance.

Synthetic Slings

Twin-Path® & Twin-Path® Covermax Slings

Check-Fast® Inspection System

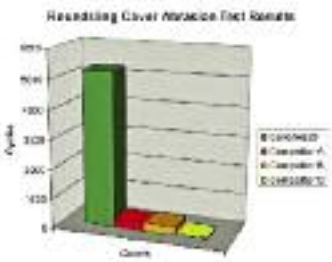
The Check-Fast® System is designed to improve job-site safety. The Check-Fast® Tag and External Warning Indicator (EWI) on a roundsling product provides for pass/fail inspection of the internal load bearing core yarn. Damage to the core yarn from ultraviolet (UV) light degradation, fiber on fiber abrasion, fatigue, and severe overload can be detected. If the sling is mistakenly overloaded beyond rated capacity, the EWI is designed to disappear before the sling fails. The sling inpector now has a GO/NO-GO inspection device rather than relying on a subjective hand-over-hand inspection to make an educated guess if the load bearing core yarns are in good condition. This safety system is available for High performance K-Spec® Fiber Roundslings or polyester roundslings fabricated by authroized SLINGMAX® dealers.

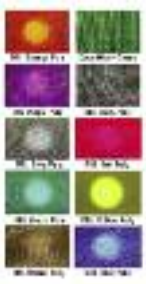
Fiber Optic Inspection for Twin-Path Slings

Twin-Path® slings have the Fiber Optic inspection system. The condition of the internal core yarn can be inspected just by checking the continuity of the fiber optic cable. If crushing or cutting, heat or chemical damage, has occurred then the damage to the fiber optic cable will destroy its ability to transmit light from one end to the other giving the inspector a reason to remove the sling from service and send it in for repair evaluation. The fiber optic cable will conduct light using natural, overhead or flashlight sources. The inspector simply covers and removes his finger from one end and watches the other end for blinking which indicates that the sling is OK to use for another lift.

Covermax® Covers

Any Twin-Path® sling can be made with a Covermax® cover. This is made of a heavy-duty, double-layer industrial nylon material. The outside cover is green and the inside cover is red. If you see any red showing through the green cover, stop using the sling and get a repair evaluation. This cover has been tested to provide the best ultraviolet (UV) protection and the best abrasion protection of any commercially available synthetic lifting sling.





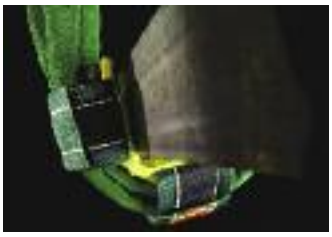
Cornermax® Pads: Engineered Cut Protection

CornerMax® pads create a “tunnel” of cut protection – a no-touch zone. Therefore, the edge does not come in contact with the pad or sling thus protecting the sling. Note that the sides of the load must completely support the pads in order to create and maintain the “tunnel.”

Simulated load edge

CornerMax® Part No.	Sling Width (in)	CornerMax® Approx. Width (in)	CornerMax® Approx. Weight (lbs)
CRNMX02	1 & 2	4	1.00
CRNMX03	3	5	1.25
CRNMX04	4	6	1.50
CRNMX05	5	8	2.00
CRNMX06	6	8	2.00
CRNMX08	8	10	2.50
CRNMX10	10	12	3.00
CRNMX12	12	16	5.50
CRNMX14	14	18	6.50

Cornermax® Pads cont.



WARNING! Damaged or misused protection can result in damage or sling failure. Inspect before each use. Inspect for cuts, tears or damage that may prevent protection of the sling. Ensure protection is the correct size and type to protect the sling. Prevent pads and sling from slipping or sliding across load edge. **DEATH** or **INJURY** can occur from improper use, maintenance and/or inspection. **MAXIMUM LOADING**: Do NOT exceed 25,000 lbs. per inch of sling width.

SLINGMAX® RIGGING PRODUCTS

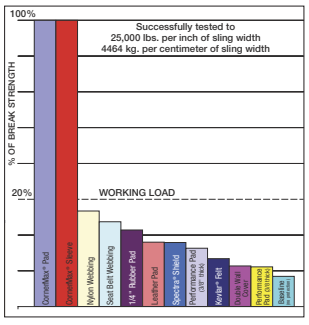
Cornermax® Sleeves: Engineered Cut Protection

The CornerMax® sleeve is the latest in rigging protection from SLINGMAX® Rigging Solutions. The CornerMax® sleeve is the ideal solution to protect synthetic slings from cutting when it is not practical to use a CornerMax® pad, whether due to curvature of the load edge or repetitive uses such as unloading steel coils. Independent field and laboratory testing has shown the CornerMax® sleeve to be extremely cut resistant. The CornerMax® sleeve is made with high tech fiber and is proven tough. In some applications the CornerMax® sleeve may be attached to the sling to prevent slippage. The true benefits of this revolutionary material far outweigh the costs and now provide for the use of synthetic slings in applications previously dominated by heavy chain, mesh and wire rope slings.

CornerMax® Sleeve Part No.	External Sleeve Width	Fastened over both legs of Twin-Path® Sling
CRNMXS04	6 in	Up to TPXC 7,000
CRNMXS10	10 in	Up to TPXC 25,000

Twin-Path® Coil Sling

- 10 times lighter than conventional steel coil gripper slings.
- The Twin-Path® Coil Sling is so light that it is easy to grab and pull the sling.
- Will not damage the load.
- Repairable as manufacturer can remove a damaged CornerMax® sleeve and sew a new one to the sling.



SLINGMAX® RIGGING PRODUCTS

WARNING! Damaged or misused protection can result in damage or sling failure. Inspect before each use. Inspect for cuts, tears or damage that may prevent protection of the sling. Ensure protection is the correct size and type to protect the sling. **Prevent sleeve and sling from slipping or sliding across load edge. DEATH** or **INJURY** can occur from improper use, maintenance and/or inspection. **MAXIMUM LOADING**: Do NOT exceed 25,000 lbs. per inch of sling width.

Synthetic Slings/Wear Pads

BUFFALO SLING
Check-Fast® High Performance Roundslings

This is the only single-path, high performance fiber roundsling with an overload indicator. The Covermax® cover is the most durable available for a synthetic sling. Also available in polyester.

Single-Path Extra Covermax® with Check-Fast® Inspection

Single-Path K-Spec® Slings Stock No.	Rated Capacities (lbs)					Approx. Weight (lbs per ft) Bearing-Bearing	Nominal Body Width (in)
	Vertical	Choker	Vertical Basket	Basket Hitches			
			90°	60°	45°		
SPXCF 500	5,000	4,000	10,000	8,660	7,070	.34	2.5
SPXCF 1000	10,000	8,000	20,000	17,320	14,140	.38	2.5
SPXCF 1500	15,000	12,000	30,000	25,980	21,210	.44	2.5
SPXCF 2000	20,000	16,000	40,000	34,640	28,280	.52	2.5
SPXCF 2500	25,000	20,000	50,000	43,300	35,350	.59	3
SPXCF 3000	30,000	24,000	60,000	51,960	42,420	.65	3
SPXCF 4000	40,000	32,000	80,000	69,280	56,560	.85	3
SPXCF 5000	50,000	40,000	100,000	86,600	70,700	.98	4
SPXCF 6000	60,000	48,000	120,000	103,920	84,840	1.11	4
SPXCF 7000	70,000	56,000	140,000	121,240	98,980	1.24	4
SPXCF 8500	85,000	68,000	170,000	147,220	120,190	1.63	5
SPXCF 10000	100,000	80,000	200,000	173,200	141,400	1.81	5

DO NOT EXCEED RATED CAPACITY

Twin-Path® Sparkeater®

SE When you have a hot environment up to 300°F, use a Sparkeater® to lift the load without marring the surface of the lifted piece. Also, when doing stage rigging, order this product with a black cover for the protection it gives from exposure to fire, heat, sparks and pyrotechnics. These slings are made from aramid high performance core yarns and an aramid cover. The Offshore Certification Bureau identified these slings as being as good as wire rope or chain for use in offshore applications in the oil industry. As with all Twin-Path® slings, an inner red cover provides an early warning safety alert.

Twin-Path® Stock No.	Rated Capacities (lbs)					Approx. Weight (lbs per ft) Bearing-Bearing	Nominal Body Width (in)
	Vertical	Choker	Vertical Basket	Basket Hitches			
			90°	60°	45°		
TPSE 1000	10,000	8,000	20,000	17,320	14,140	.40	1.5-3
TPSE 1500	15,000	12,000	30,000	25,980	21,210	.45	1.5-3
TPSE 2000	20,000	16,000	40,000	34,640	28,280	.51	1.5-3
TPSE 2500	25,000	20,000	50,000	43,300	35,350	.57	1.5-3
TPSE 3000	30,000	24,000	60,000	51,960	42,420	.71	2.0-4
TPSE 4000	40,000	32,000	80,000	69,280	56,560	.83	2.0-4
TPSE 5000	50,000	40,000	100,000	86,600	70,700	1.14	2.5-5
TPSE 6000	60,000	48,000	120,000	103,920	84,840	1.27	2.5-5
TPSE 7000	70,000	56,000	140,000	121,240	98,980	1.39	2.5-5
TPSE 8500	85,000	68,000	170,000	147,220	120,190	1.65	3.0-6
TPSE 10000	100,000	80,000	200,000	173,200	141,400	1.84	3.0-6

DO NOT EXCEED RATED CAPACITY
PLEASE NOTE: CAPACITIES SHOWN INCLUDE BOTH PATHS AND ARE FOR ONE COMPLETE SLING. SMALLER AND LARGER CAPACITIES AVAILABLE UPON REQUEST.

WARNING: Sling can fail if damaged, misused or overloaded. Inspect before use. Damaged sling shall not be used. Use only if trained. Do not exceed rated capacity. Protect sling from being cut by load edges, corners,protrusions and abrasive surfaces. Avoid exposure to acid, alkali and temperature over 300°F. DEATH or INJURY can occur from improper use or maintenance.

SLINGMAX® RIGGING PRODUCTS

Twin-Path® Adjustable Bridle Sling

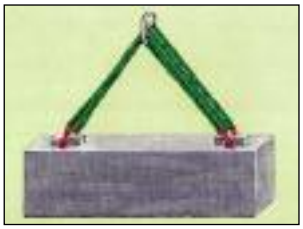
TPXA (with K-Spec® Fiber), **TPA** (with polyestyer) This sling is a two-leg bridle with one leg having twice the capacity of the other. Apply tension to the Twin-Path® Adjustable bridle until it self-adjusts over the center of gravity. Then make your level lift.

Twin-Path® Adjustable Bridle Specifications

STOCK NUMBERS	BRIDAL CAPACITY (LBS.)	NOMINAL SLING WIDTH	ADJUSTABLE RING DIMENSIONS			SHACKLE DIMENSIONS		SLING WEIGHT (LBS.)	
			RING STOCK DIAMETER	MAIN HOOK AREA (WIDTH)	RING AREA (LENGTH)	NOMINAL SHACKLE SIZE	TONNAGE (WLL)	APPROX 3 FOOT BASE	APPROX ADDER PER FOOT
TPA 6	6,000	2"	37/64"	2-1/2"	2-1/4"	5/8"	3-1/4T	4.40	1.35
TPXA 12	12,000	3"	13/16"	3"	2-5/8"	7/8"	6-1/2T	6.80	1.95
TPXA 20	20,000	4"	1-1/8"	4"	3-5/8"	1-1/4"	12T	13.60	2.70
TPXA 40	40,000	5"	1-5/8"	5-1/4"	4-3/4"	1-3/4"	25T	31.10	4.20
TPXA 60	60,000	5"	2"	7"	6-1/4"	2"	35T	60.00	5.70
TPXA 90	90,000	6"	2-1/4"	8"	7-1/4"	2-1/4"	55T	86.00	8.10

Twin-Path® Adjustable Bridle Sling

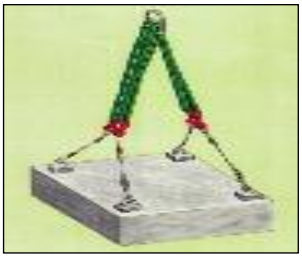
The Twin-Path® Adjustable Bridle sling is a multi-purpose rigging tool and it's important that it is used properly. The adjustment ring has a double sling on one side and a single sling on the other side.



If the lifting points are an equal distance from the center of gravity, then the Twin-Path® Adjustable can be hooked-up with the double or single sling on either lifting point.

If the lifting points are an equal distance oneither side of the center of gravity but one is higher, then the double sling should be attached to the higher lifting point.

If one of the lifting points is closer to the center of gravity, then attach the double sling to this lifting point. It will have the highest weight concentration. If the Twin-Path® Adjustable is attached so that the single sling is nearest the center of gravity, it will not allow the lift to be made.



Never use the Twin-Path® Adjustable Bridle in situations where the sling-to-hook angle is greater than 45°. Always connect above the center of gravity. If connections are made below the center of gravity, then the load may turn when lifted.

Wear Pads

Synthetic Armor™ Pads: Abrasion Protection

Synthetic ArmorTM pads protect slings from abrasion damage which can be caused by contact with rough surfaces such as concrete beams and structures. They are also used to protect finished or painted loads from marring. These pads can be made to fit any length or width sling. They can also be made in long lengths which the customer can cut into suitable sizes on the job. Double or triple thickness provides resistance for the more severe conditions. There is no maximum width and a variety of materials are used to protect slings and to protect loads depending on the degree of abrasion expected in the application.

SYNARM–SL "Sliding"

SYNARM–RM "Removable"

SYNARM–EE "Eye and Eye"

Shackle Pin Pads

The pin area of a shackle can cause synthetic slings to cut or tear. Placing synthetic slings on the pin should be avoided. Any shackle can have a sharp edge where the threaded pin goes through the shackle ear. If the sling is exposed to this area, it can cut and fail. If you must rig on the pin, protect your sling with a Shackle Pin pad.

- Sized for the model of shackle.
- Protects sling along entire pin including ear seams.
- Three connection points secure pad to shackle.
- Install and uninstall in seconds

SLINGMAX RIGGING PRODUCTS

WARNING: Can cause damage or failure of sling if misused or damaged. Inspect before each use. Inspect for cuts, tears or damage that may prevent protection of the sling. Be sure wear protection is the correct size and type to protect the sling. **DEATH** or **INJURY** can occur from improper use or maintenance.

Poly Pads

Sliding Poly Pads protect slings and tie down straps for loads that have sharp and/or abrasive conditions.

Tough, woven polyester fibers with impregnated and coated PVC are the materials which the poly pads are manufactured from.

Poly Pad	Web Width (in)
3-1/2 x 12	1 - 2
6 x 12	3 - 4
10 x 24	6 - 8
14 x 24	10 - 12

Flat Fast Sleeves

Flat Fast Sleeves Widths and Appropriate Slings*

Sleeve Width (in)	Web Sling Width** (in.)	Wire Rope Sling Dia. (in)	Chain Sling Size (in)
3	1	1/4 – 3/4	7/32
4	2	7/8 – 1-1/2	9/32 – 3/8
5	3	1-5/8 – 2	1/2
6	4	2-1/4 – 2-1/2	5/8 – 3/4
8	6		7/8
10	8		1
12	10		1-1/4

* Slings shown are the maximum recommended size for each sleeve width.
**One or two ply only. For three or four ply, go to the next larger sleeve.

Standard Stitched Sleeves

Stitched-Sleeves Widths and Appropriate Slings*

Sleeve Width (in)	Web Sling Width* (in)	Wire Rope Sling Dia. (in)	Chain Sling Size (in)
3	1	1/4 – 3/4	7/32
4	2	7/8 – 1-1/2	9/32 – 3/8
5	3	1-3/4 – 2	1/2
6	4	2-1/4 – 2-1/2	5/8 – 3/4
8	6		7/8
10	8		1
12	10		1-1/4

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

How to Order

1. Choose a Style

_____ Edge Protector
_____ Flat Fast Sleeve
_____ Flat Stitched Sleeve
_____ Poly Pad
_____ Stitched-On Wear Pad

2. Length of Sleeve
(If Stitched-On pad, describe position on sling)
_____ Feet

3. Choose a Material

_____ TWP (Thick White Pad)
_____ Shark-Skin
_____ Rough Rider
_____ Other

4. For Use On

_____ Web Sling - Code or Width
_____ Round Sling-Twin Path
_____ Single-Leg - Code _____
_____ Double-Leg - Code _____

_____ Chain Sling Size _____ inches
_____ Wire Rope Sling - Dia. _____ inches

WARNING! Wear pads are not a guarantee against cutting or other sling damage. To avoid personal injury or death, keep all personnel clear of loads about to be lifted and suspended loads.

Notes

NOTES