

THE TUFLEX DIFFERENCE

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

What is a Tuflex Roundsliding?

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

Tufhide Jacket

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

Tuflex Roundslings Features, Advantages and Benefits

Promotes Safety

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

- Conforms to shape of load to grip securely
- Load bearing yarns protected from UV degradation
- Red striped white core yarns provide added visual warning of sling damage
- Color coding provides positive sling capacity information

Saves Money

- Double wall cover for greater sling life
- Soft cover won't scratch load surface
- Conforms to shape of load for reduced load damage
- Seamless - no sewn edges to rupture prematurely, requiring removal from service
- EN360 and larger *Tuflex* feature *Tufhide* wear resistant nylon jacket for extra sling life
- *Tuff-Tag* provides required OSHA information for the life of the sling, not just the life of the tag

Saves Time

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

Tuflex

 **WARNING**

Follow temperature and chemical information found on page 24.

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



See page 14

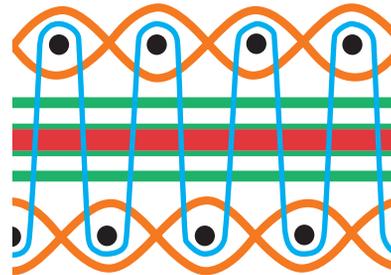
Construction Comparisons - Sling Webbing vs Tuflex

Sling Webbing

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

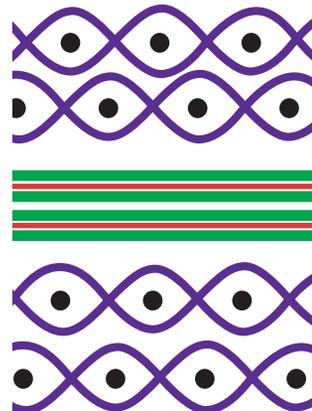
Tuflex

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



Sling Webbing (Side View)

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



Tuflex (Side View)

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

Tuflex

HOW TO ORDER

Ordering Tuflex Polyester Roundslings

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

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

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

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

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

USING TUFLEX ROUNDSLINGS

Protect Sling from Damage

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

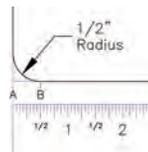
Do not ignore warning signs of misuse. Cut marks detected during any sling inspection serve as a clear signal that sling protection must be added or improved.

Exposure of slings to edges



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

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



Minimum Edge Radii suitable for contact with unprotected polyester roundslings.

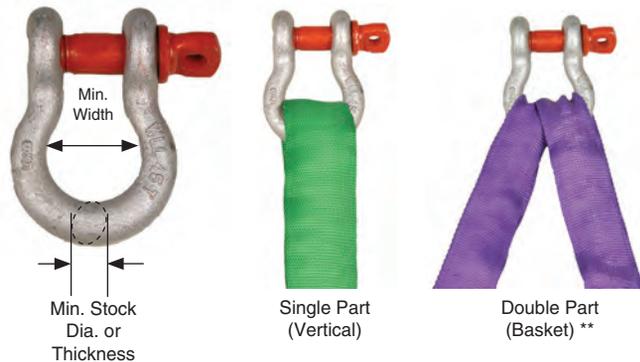
Vertical Rated Capacity (lbs.)	Minimum * Edge Radii (in.)	Sling Width At Load (in.)
EN30	3/16	1
EN60	1/4	1 3/8
EN90	5/16	1 3/4
EN120	5/16	1 7/8
EN150	3/8	2
EN180	7/16	2 1/8
EN240	7/16	2 5/8
EN360	1/2	3 1/4
EN600	11/16	4
EN800	3/4	4 5/8
EN1000	7/8	5 1/4

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

Sling Hardware and Connections

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

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



Minimum hardware dimensions suitable for use with roundslings.

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

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

DIRECT CONNECT HOOKS™

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

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



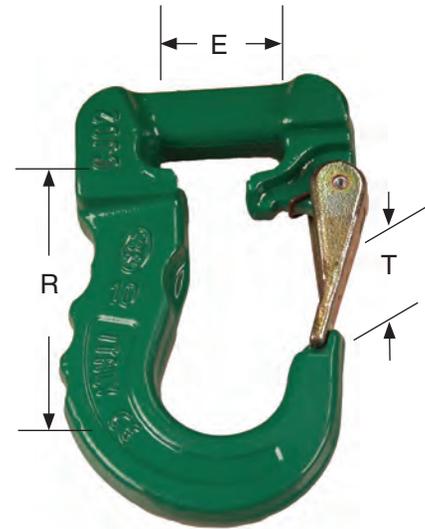
Tuflex

Features:

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

Benefits:

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



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

TUFLEX ENDLESS ROUNDSLINGS

Tuflex Endless (EN)
The Most Versatile Tuflex Roundsliding

Features, Advantages and Benefits

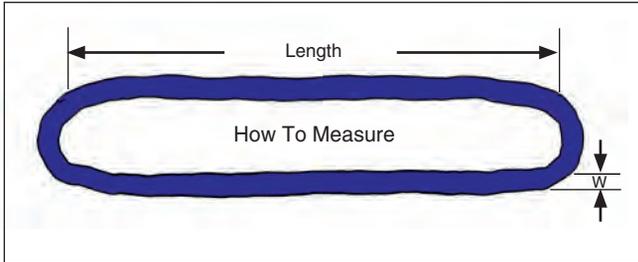
Maintains all the basic Tuflex features plus...

Promotes Safety

- Load stability and balance can be achieved by spreading sling legs.

Saves Money

- Wear points can be shifted to extend sling life
- The most flexible style of sling



Tuflex

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

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

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

TUFLEX EYE AND EYE

A More Rugged and Durable *Tuflex*

The Eye and Eye Advantage

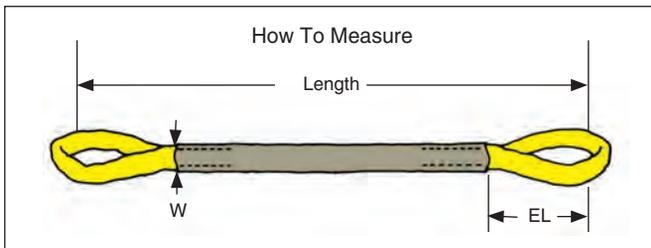
An additional jacket of texturized, abrasion resistant nylon covers the body of the standard *Tuflex*, forming two color coded lifting eyes.

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

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



Tuflex



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

⚠ WARNING

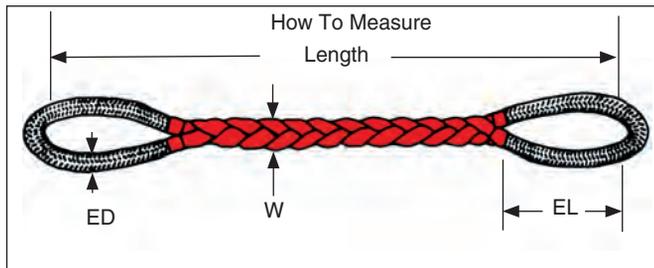
Do not exceed rated capacities. Sling capacity decreases as the angle from horizontal decreases. Slings should not be used at angles of less than 30°. Refer to Effect of Angle chart page 12.
 ** This is the smallest recommended connection hardware diameter to be used for a vertical hitch.
 + Shorter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

BRAIDED TUFLEX ROUNDSLINGS

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

Redundant Safety

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



Braided Tuflex Features, Advantages and Benefits

Maintains all the basic Tuflex features plus ...

Promotes Safety

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

Saves Money

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

Saves Time

- Easy to transport and hook-up

6 Part Flat Braid (B6E)

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

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

BRAIDED TUFLEX ROUNDSLINGS



Order Information

Ordering length should be based on sling at rest.

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

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



Tuflex

8 Part Round Braid (B8E)

Part No.	Color	Rated Capacity (lbs.)*			Minimum Length (ft.) +	Approximate Measurements					
		Vertical	Choker	Basket		Weight (lbs./ft.)	Standard Eye Length (EL) (in.)	Width at Load (W) (in.)	Thickness at Load (in.)	Eye Dia. (ED) (in.)	Minimum Hardware Dia. ** (in.)
B8E30	Purple	8,800	7,100	17,600	4 1/2	1.1	15	3 1/2	1	1 3/4	3/4
B8E60	Green	18,000	14,400	36,000	5	1.5	15	4	1 3/8	2	1 1/8
B8E90	Yellow	28,500	22,800	57,000	5 1/2	2.2	15	4 3/4	1 5/8	2 1/2	1 1/2
B8E120	Tan	36,000	28,800	72,000	5 1/2	2.6	15	5	1 3/4	2 1/2	1 1/2
B8E150	Red	44,900	35,900	89,800	6 1/2	3.6	20	6	2 1/8	2 3/4	1 3/4
B8E180	White	57,100	45,600	114,200	7	4.1	20	6 1/4	2 1/2	3 1/4	2
B8E240	Blue	72,000	57,600	144,000	9	5.6	20	7 1/2	2 3/4	3 3/4	2
B8E360	Grey	105,400	84,300	210,800	9 1/2	8.3	30	9 1/2	3 1/4	4 1/2	2 1/2
B8E600	Brown	180,200	144,100	360,400	10 1/2	12.0	30	13	3 3/4	5 1/2	3 1/2
B8E800	Olive	224,400	179,500	448,800	13	16.0	30	13 1/2	4 1/2	6	4
B8E1000	Black	306,000	244,000	612,000	14 1/2	20.0	31	15 3/4	5 1/4	6 1/2	4 3/4

⚠ WARNING

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

THE STRONGEST AND LIGHTEST SLINGS IN THE WORLD

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

Sling Weights per Capacities

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

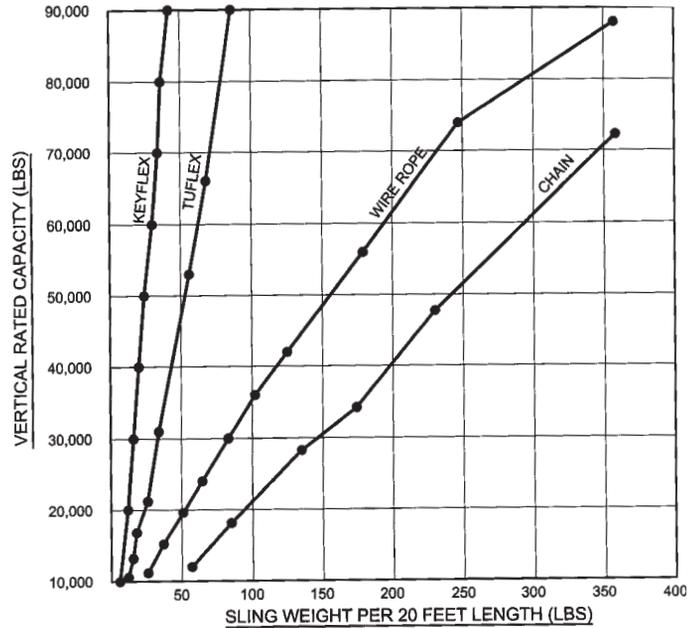
- 53% lighter than *Tuflex™* Roundslings,
- 82% lighter than Wire Rope Slings,
- 89% lighter than G80 Chain Slings

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

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

KeyFlex™ Benefits:

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



KeyFlex™ Capacities and Measurements

Part No.	Rated Capacity (lbs.)*				Minimum Length (ft.)	Approximate Measurements			
	Vertical	Choker	Basket @ 90°	Basket @ 45°		Weight (lbs. / ft.)	Body Dia. Relaxed (in.)	Width at Load (in.)	Minimum Hardware Dia. (in.)
KEN10K	10,000	8,000	20,000	14,100	3	.3	1	1 9/16	11/16
KEN15K	15,000	12,000	30,000	21,000	3	.5	1 1/8	1 3/4	7/8
KEN20K	20,000	16,000	40,000	28,000	3	.6	1 1/4	2	1 1/16
KEN25K	25,000	20,000	50,000	35,000	3	.7	1 1/4	2 1/8	1 1/4
KEN30K	30,000	24,000	60,000	42,000	3	.8	1 3/8	2 1/8	1 7/16
KEN40K	40,000	32,000	80,000	56,000	3	1.0	1 3/4	2 3/4	1 1/2
KEN50K	50,000	40,000	100,000	70,000	5	1.3	1 7/8	2 7/8	1 3/4
KEN60K	60,000	48,000	120,000	84,000	8	1.7	2	3 1/8	2
KEN70K	70,000	56,000	140,000	98,000	8	1.9	2 1/8	3 1/4	2 3/16
KEN80K	80,000	64,000	160,000	113,000	8	2.1	2 1/4	3 1/2	2 3/8
KEN90K	90,000	72,000	180,000	127,000	8	2.4	2 1/2	3 7/8	2 3/8
KEN100K	100,000	80,000	200,000	141,000	8	2.6	2 3/4	4 1/4	2 1/2
KEN125K	125,000	100,000	250,000	176,000	8	3.0	3	4 7/8	2 5/8
KEN150K	150,000	120,000	300,000	210,000	8	3.5	3 1/4	5 1/4	2 7/8
KEN175K	175,000	140,000	350,000	240,000	8	4.8	3 1/2	5 3/4	3 1/8
KEN200K	200,000	160,000	400,000	280,000	8	5.3	3 3/4	6 1/8	3 3/8

Tuflex

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

KeyFlex™ Roundslings Share Most of the Benefits of Standard Tuflex™ Roundslings

Promote Safety

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

Inspection Criteria

Remove from service when:

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

Environmental Considerations

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

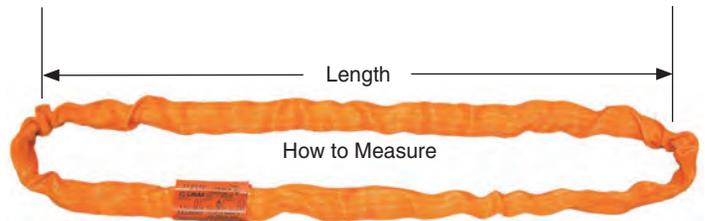
Saves Time

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

Saves Money

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

Tuflex



Ordering Information

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

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

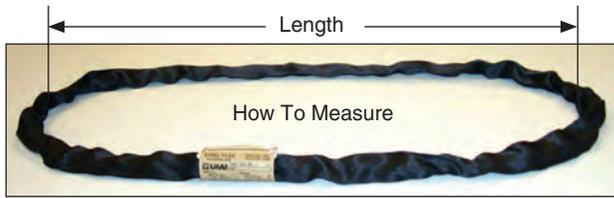
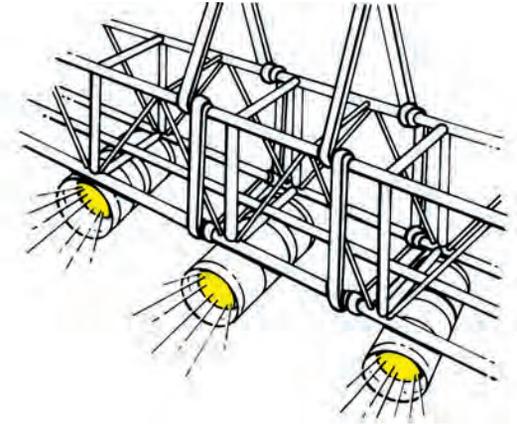
Note: Matched lengths of slings must be specified at time of order. Available in endless style only.



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

STEELFLEX ROUNDSLINGS

THE STEEL SLING WITH THE FABRIC FEEL



GACEN60

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

Designed for Suspension Applications where metal slings are required.

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

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

The benefits are many:

Increased Safety

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

Saves Time

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

Saves Money

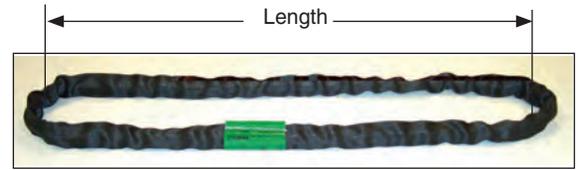
- Gives you the slings you want to use (roundslings), without having to buy the slings you would be required to use (wire rope or chain)
- Lowers show to show freight costs



Inspection Window

POLYESTER STAGE SLINGS - BLACK

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



STEELFLEX & POLYESTER STAGE SLING INFORMATION

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

Tuflex

WIDE-LIFT TUFLEX

WIDE-LIFT TUFLEX

Wide Load Support and Balance

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

Tuflex Wide-Lift Features, Advantages and Benefits

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

Promotes Safety

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

Saves Money

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

Saves Time

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

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

Consult factory for special requirements.



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



* Do not exceed rated capacities. Sling capacity decreases as the angle from horizontal decreases. Slings should not be used at angles of less than 30°. Refer to Effect of Angle chart page 12.
** Maximum length for Steelflex is 9 ft.

TUFLEX HARDWARE / BRIDLE SLINGS

Features, Benefits and Advantages

Promotes Safety

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

Saves Money

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

Saves Time

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

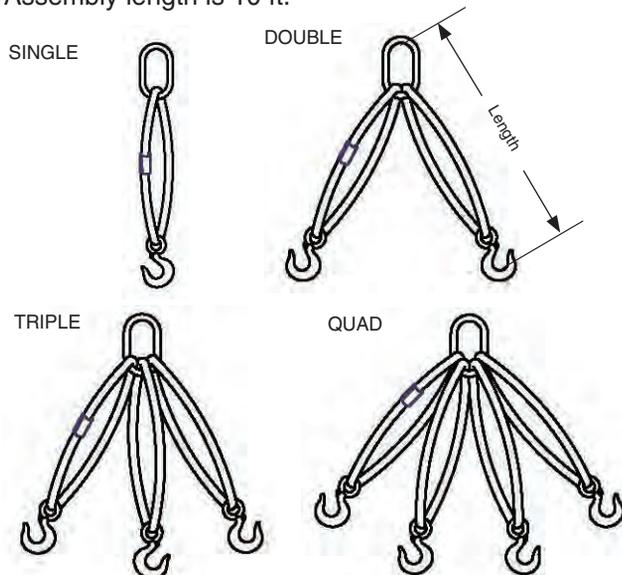
How to Order

Specify:

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

Example:

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



Legs	Tuflex Size	Rated Capacity (lbs.) for the following hitches			Hardware*		
		Vertical	Choker	Basket	Hook	Masterlink Stock Dia. (in.)	
SINGLE	EN30	2,600	2,100	5,200	2TA	1/2	
	EN60	5,300	4,200	10,600	4.5TA	3/4	
	EN90	8,400	6,700	16,800	7TA	3/4	
	EN120	10,600	8,500	21,200	11TA	3/4	
	EN150	13,200	10,600	26,400	11TA	1	
	EN180	16,800	13,400	33,600	15TA	1 1/4	
	EN240	21,200	17,000	42,400	22TA	1 1/4	
	EN360	31,000	24,800	62,000	20TC	1 1/2	
	EN600	53,000	42,400	106,000	30TC	2	
	EN800	66,000	52,800	132,000	40TC	2 1/4	
EN1000	90,000	72,000	180,000	NA	2 1/2		
		One Leg @ 90°	All Legs @				Masterlink Stock Dia. (in.)
			60°	45°	30°	Hook	
DOUBLE	EN30	2,600	4,500	3,600	2,600	2TA	1/2
	EN60	5,300	9,100	7,400	5,300	4.5TA	3/4
	EN90	8,400	14,500	11,800	8,400	7TA	1
	EN120	10,600	18,300	14,900	10,600	11TA	1 1/4
	EN150	13,200	22,800	18,600	13,200	11TA	1 1/4
	EN180	16,800	29,100	23,700	16,800	15TA	1 1/2
	EN240	21,200	36,700	29,900	21,200	22TA	1 1/2
	EN360	31,000	53,700	43,800	31,000	20TC	2
	EN600	53,000	91,800	74,900	53,000	30TC	2 1/2
	EN800	66,000	114,300	93,300	66,000	40TC	3
EN1000	90,000	155,800	127,200	90,000	NA	3 1/4	
TRIPLE	EN30	2,600	6,700	5,500	3,900	2TA	3/4
	EN60	5,300	13,700	11,200	7,900	4.5TA	1
	EN90	8,400	21,800	17,800	12,600	7TA	1 1/4
	EN120	10,600	27,500	22,400	15,900	11TA	1 1/2
	EN150	13,200	34,200	27,900	19,800	11TA	1 1/2
	EN180	16,800	43,600	35,600	25,200	15TA	1 3/4
	EN240	21,200	55,000	44,900	31,800	22TA	2
	EN360	31,000	80,500	65,700	46,500	20TC	2 1/4
	EN600	53,000	137,600	112,400	75,900	30TC	2 3/4
	EN800	66,000	171,400	139,900	99,000	40TC	3 1/2
EN1000	90,000	233,800	190,800	135,000	NA	4 1/4	
QUAD	EN30	2,600	9,000	7,300	5,200	2TA	3/4
	EN60	5,300	18,300	14,900	10,600	4.5TA	1 1/4
	EN90	8,400	29,100	23,700	16,800	7TA	1 1/2
	EN120	10,600	36,700	29,900	21,200	11TA	1 1/2
	EN150	13,200	45,700	37,300	26,400	11TA	1 3/4
	EN180	16,800	58,200	47,500	33,600	15TA	2
	EN240	21,200	73,400	59,900	42,400	22TA	2 1/4
	EN360	31,000	107,300	87,600	62,000	20TC	2 3/4
	EN600	53,000	183,600	149,900	106,000	30TC	3 1/2
	EN800	66,000	228,600	186,600	132,000	40TC	4 1/4
EN1000	90,000	311,700	254,500	180,000	NA	4 3/4	

*See hardware dimension charts on page 91.
Use sling leg calculator to determine length @ www.lift-all.com

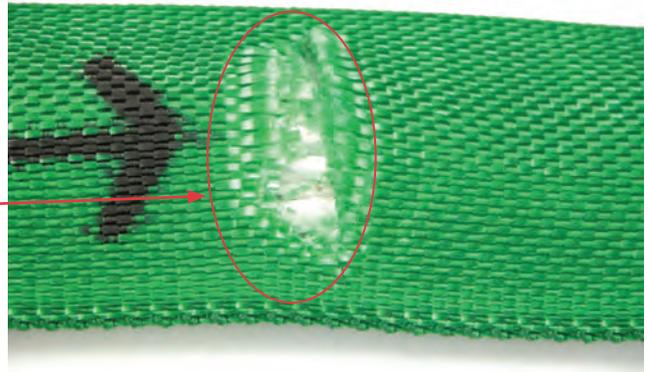
INSPECTION CRITERIA FOR TUFLEX / KEYFLEX

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

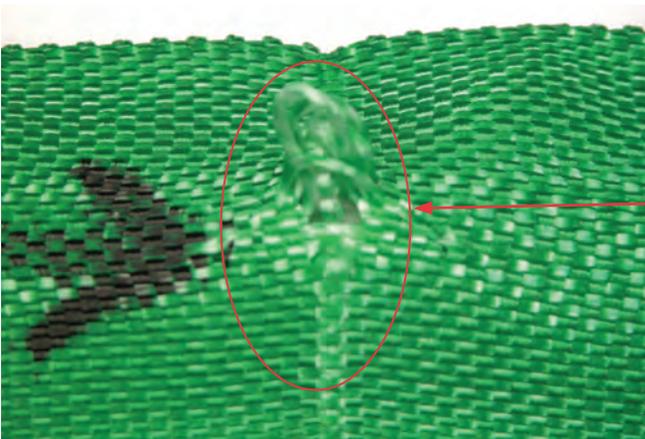
THE DAMAGE: Cuts to the cover exposing internal core yarns – When internal core yarns are visible, the amount of damage done to the core yarns and the sling strength can not be determined without breaking the sling. Therefore, the sling must be taken out of service.

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

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



Tuflex



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

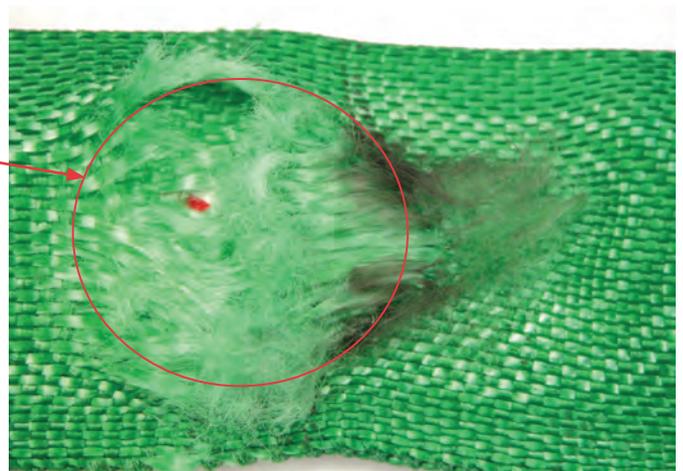
WHAT TO LOOK FOR: Punctures or areas where fibers stand out from the rest of the sling surface.

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

THE DAMAGE: Abrasion exposing internal core yarns.

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

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



INSPECTION CRITERIA FOR TUFLEX / KEYFLEX

THE DAMAGE: Heat/Chemical

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

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



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

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

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



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

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

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



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

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

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

