

THE TUFLEX® DIFFERENCE

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

What is a *Tuflex* Roundsling?

A *Tuflex* roundsling is an endless synthetic sling made from a skein of polyester yarn covered by a double-wall tubular jacket. The roundsling body can 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 on EN360 and Larger Slings

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

Features and Benefits

Promotes Safety

- Lightweight to reduce fatigue and strain on riggers.
- Synthetic materials will not cut hands.
- Consistent matched lengths for better multiple sling load control.
- No loss of capacity from abrasive wear to the cover.
- *Tuff-Tag* provides serial numbered identification for traceability.
- Low stretch (about 3% at rated capacity).
- Synthetic web resists marring of the load.
- Good for low headroom lifts.
- Extremely flexible, conforms to shape of load to grip securely.
- Tubular jacket protects load bearing yarns from UV degradation.
- Red 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.
- The soft cover will not scratch the load surface.
- Conforms to shape of the load for reduced load damage.
- The cover is seamless with no sewn edges, preventing rupture which requires removal from service.
- EN360 and larger *Tuflex* roundslings feature *Tufhide* wear-resistant nylon jacket for extra sling life.
- *Tuff-Tag* provides required OSHA information for the life of the sling.

Saves Time

- Color-coded capacities for quick identification.
- Lightweight and pliable for easy rigging and storage.
- Independent core yarns choke tightly but release easily after use.
- Easy to store and carry.

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



Refer to Sling Protection section in this catalog.

WARNING

Follow temperature and chemical information located in the Web section of this catalog.

CONSTRUCTION COMPARISONS

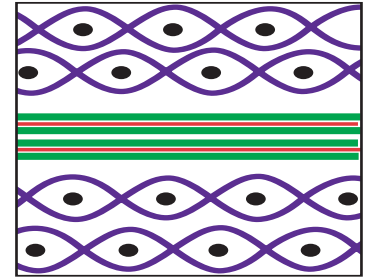
Tuflex® versus Sling Webbing

Tuflex

- Transverse pick yarns position surface yarns and protects core yarns.
- Woven surface yarns protect core yarns but carry no load.
- Longitudinal core yarns carry 100% of load.
- Red core warning yarns.



Tuflex
(Side View)

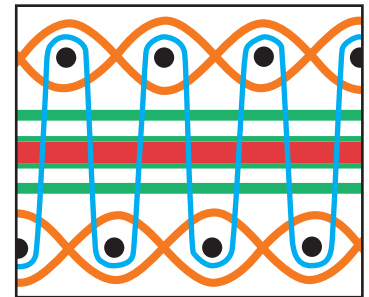


Roundslings construction (as shown above) protects all load carrying core yarns from abrasion with an independent, woven jacket. Replacement is not necessary until the red or white core yarns can be seen through holes in the jacket. When core yarns are visible, the sling must be removed from service.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

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 the majority of the load.
- Binder yarns secure the surface yarns to web core yarns.
- Red core warning yarns.

Sling Webbing
(Side View)



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

HOW TO ORDER

1. Specify sling part number 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.
3. Matched lengths of slings must be specified at time of order.

TOLERANCES FOR ENDLESS ROUNDSLINGS

The following sling length tolerances apply to roundslings when new, at the time of final manufacture. Standard Length Tolerance – Endless and Eye & Eye style Roundslings should be made in conformance with the length tolerance values listed in the table below. Matched Set Length Tolerance – When multiple legs of a bridle sling are made, or when multiple slings are prescribed to be made within a Matched Set Tolerance, their length variance from their nominal length shall remain within a dimension equal to one-half of their corresponding Standard Length Tolerance Values listed in the table below.

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

Roundslings Size / Vertical Capacity Range	Tolerance*
30,000 lbs. or Less	$\pm (1" + 1\%$ of sling length)
Higher than 30,000 lbs., up to 90,000 lbs.	$\pm (2" + 1\%$ of sling length)
Higher than 90,000 lbs., up to 175,000 lbs.	$\pm (3.0" + 1\%$ of sling length)
Higher than 175,000 lbs.	$\pm (\text{Sling Body Diameter} + 1\%$ of sling length)

* Prior to sling selection and use, please review and understand the General Information section in this catalog.

USING TUFLEX[®] ROUNDSLINGS

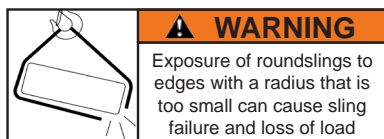
Protect Sling from Damage

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

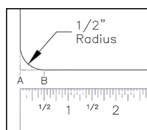
Do not ignore warning signs of misuse. **Cut marks detected during any sling inspection serve as a clear indication that cut protection is needed.** Refer to Sling Protection section of our catalog.

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.

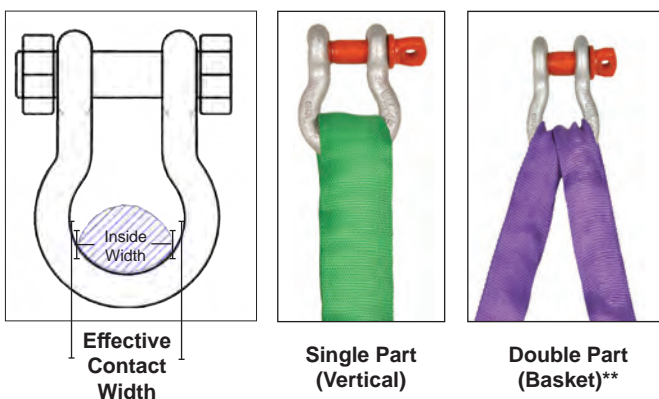
Minimum Edge Radii Suitable For Contact With Unprotected Polyester Roundslings		
Rated Capacity Vertical (lbs.)	Minimum* Edge Radii (in.)	Sling Width @ Load (in.)
EN30	0.14	1.00
EN60	0.21	1.38
EN90	0.26	1.75
EN120	0.30	1.88
EN150	0.33	2.00
EN180	0.40	2.13
EN240	0.41	2.63
EN280	0.44	3.00
EN360	0.50	3.25
EN460	0.56	3.75
EN600	0.67	4.00
EN800	0.72	4.63
EN900	0.80	5.00
EN1000	0.87	5.25
EN1100	0.92	5.50

* 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 slings. Roundslings can be damaged or weakened by excessive compression between the sling and the connection points. Select and use proper connection hardware that conforms to the size requirements listed for choker, vertical, or 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 Tuflex Roundslings				
Tuflex Size	Single Part		Double Part**	
	Minimum Stock Diameter (in.)	Minimum Contact Width (in.)	Minimum Stock Diameter (in.)	Minimum Contact Width (in.)
EN30	0.44	1.00	0.57	1.38
EN60	0.63	1.38	0.88	1.88
EN90	0.75	1.75	1.06	2.38
EN120	0.88	1.88	1.25	2.50
EN150	1.00	2.00	1.38	2.88
EN180	1.13	2.13	1.63	3.00
EN240	1.19	2.63	1.63	3.75
EN280	1.25	3.00	1.88	4.25
EN360	1.50	3.25	2.00	4.50
EN460	1.62	3.75	2.38	5.25
EN600	2.00	4.00	2.75	5.63
EN800	2.13	4.63	3.00	6.50
EN900	2.25	5.00	3.25	7.00
EN1000	2.50	5.25	3.50	7.38
EN1100	2.62	5.5	3.75	8.00

** For hardware connected to the body of Eye/Eye Tuflex Roundslings, use the double part columns.

For Temperature and Chemical Information refer to the *Environmental Consideration* page in the WEB section of this catalog.

DIRECT CONNECT HOOKS

Direct Connect 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 are needed.

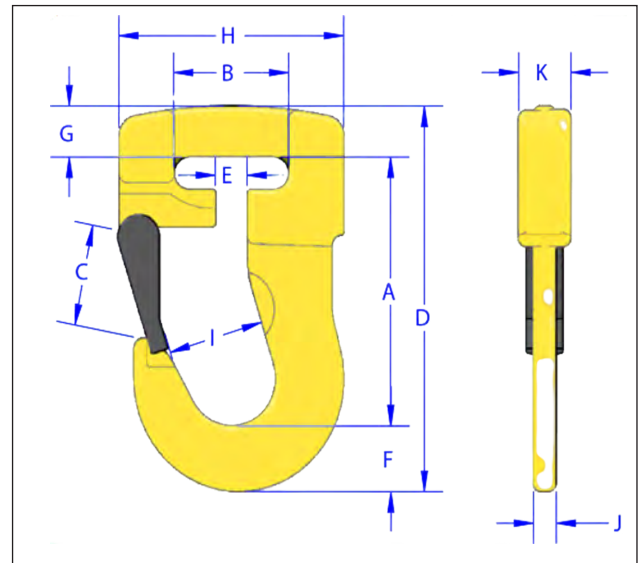
For *Tuflex* slings, just match the color-coded hook to the same color *Tuflex* sling, and you're ready to go. Rated capacities are the same for both the hook and the *Tuflex* roundslings.

Features and Benefits

- Rugged: The alloy steel hook and latch are forged for superior toughness.
- Color-coded hook matches *Tuflex* color and capacity.
- *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.
- Quick connections with no tools needed.
- Increases the life of the sling by reducing wear at the bearing point.

Part No.*	Color	Rated Capacity (lbs.)	Tuflex	Web Slings		A (in.)	B (in.)	C (in.)	D (in.)	E (in.)	F (in.)	G (in.)	H (in.)	I (in.)	J (in.)	K (in.)	Weight (lbs.)
				Width	Plies												
DCH1	Purple	2,600	EN30	1	1	3.38	1.56	0.91	4.84	0.47	0.81	.67	3.07	1.22	0.70	1.13	1.54
DCH2	Green	5,300	EN60	1	2	4.00	1.75	1.28	5.83	0.75	1.07	.83	3.58	1.57	0.88	1.39	2.65
DCH3	Yellow	8,400	EN90	2	1 & 2	4.63	2.13	1.40	6.89	0.83	1.26	.98	4.45	1.97	1.00	1.76	4.85
DCH4	Red	13,200	EN150	—	—	5.75	2.34	1.83	8.78	1.63	1.60	1.42	5.21	2.34	1.23	2.21	9.90

* Add an 'L' to end of part number to order replacement latch.



TUFLEX® ENDLESS ROUNDSLINGS

The Most Versatile *Tuflex* Roundslings

Features and Benefits

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

Promotes Safety

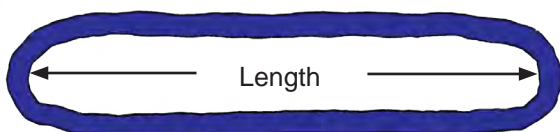
- Load stability and balance can be achieved by spreading sling legs.

Saves Money

- Wear points can be shifted to extend sling life.
- The most flexible style of sling.
- Individual slings can be attached together using appropriate hardware (see photo).



How To Measure



Tuflex Endless Roundslings

Part Number	Color	Rated Capacity* (lbs.)				Minimum Length (ft.)	Approximate Measurements			
		Vertical	Choker	Basket @ 90°	Basket @ 45°		Weight (lbs./ft.) (ft.)	Body Diameter Relaxed (in.)	Body Width @ Load (W) (in.)	Minimum Hardware Dia.** (in.)
EN30	Purple	2,600	2,100	5,200	3,600	1.5	0.20	0.63	1.00	0.44
EN60	Green	5,300	4,200	10,600	7,400	1.5	0.30	0.88	1.38	0.63
EN90	Yellow	8,400	6,700	16,800	11,800	3.0	0.52	1.13	1.75	0.75
EN120	Tan	10,600	8,500	21,200	14,000	3.0	0.60	1.13	1.88	0.88
EN150	Red	13,200	10,600	26,400	18,000	3.0	0.76	1.38	2.00	1.00
EN180	White	16,800	13,400	33,600	23,000	3.0	0.87	1.38	2.13	1.13
EN240	Blue	21,200	17,000	42,400	29,000	3.0	1.10	1.75	2.63	1.19
EN280	Orange	25,000	20,000	50,000	35,000	3.0	1.25	1.87	3.00	1.25
EN360	Gray	31,000	24,800	62,000	43,000	3.0	1.70	2.25	3.25	1.50
EN460	Orange	40,000	32,000	80,000	56,000	3.0	2.30	2.50	3.75	1.62
EN600	Brown	53,000	42,400	106,000	74,000	8.0	2.90	2.75	4.00	2.00
EN800	Olive	66,000	52,800	132,000	93,000	8.0	3.40	3.13	4.63	2.13
EN900	Orange	77,000	61,600	154,000	108,000	8.0	3.90	3.42	5.00	2.25
EN1000	Black	90,000	72,000	180,000	127,000	8.0	4.40	3.63	5.25	2.50
EN1100	Orange	100,000	80,000	200,000	140,000	8.0	4.80	4.10	5.50	2.62

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

* **WARNING** Always protect roundslings from corners, edges, or protrusions. Refer to the Sling Protection section of this catalog to choose the right protection product for your lift.