

Slings

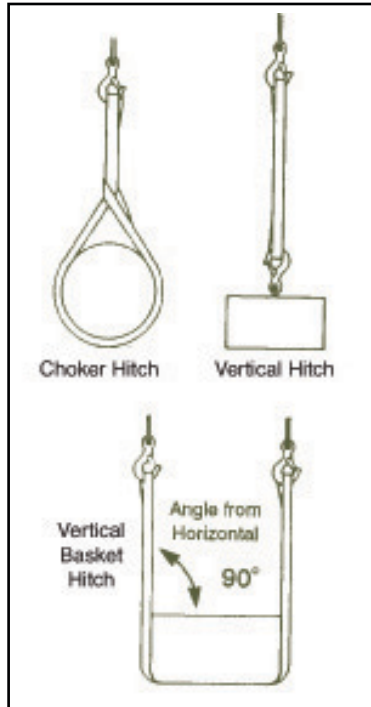
Effect of Angle of Lift on a Sling Rated Capacity

Using slings at an angle can become deadly if that angle is not taken into consideration when selecting the sling to be used. The tension on each leg of the sling is increased as the angle of lift, from horizontal, decreases. It is most desirable for a sling to have a larger angle of lift, approaching 90°. Lifts with angles of less than 30° from horizontal are not recommended. If you can measure the angle of lift or the length and height of the sling as rigged, you can determine the properly rated sling for your lift.

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

- Calculate the Reduction Factor [RF].
 - using the angle from horizontal, read across the Angle Chart to the corresponding number of the Reduction Factor column.
 - OR –
 - Divide sling height* [H] by sling length* [L]
- Reduction Factor [RF] x the sling's rated capacity for the type hitch that will be used = Sling's Reduction Rating.

*Measured from a common horizontal plane to the hoisting hook

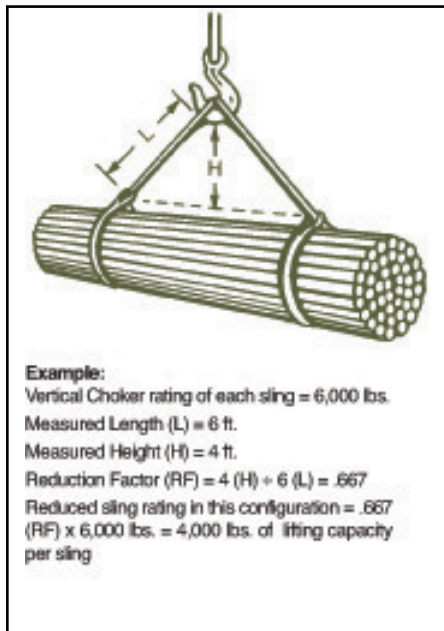


What capacity sling do I need?

- Determine the weight that the sling will be lifting [LW].
- Calculate the Tension Factor [TF].
 - using the angle from horizontal, read across the Angle Chart to the corresponding number of Tension Factor column.
 - OR –
 - Divide sling length* [L] by sling height* [H]
- Lifting Weight [LW] x the Tension Factor [TF] = Minimum Sling Rating for the type of hitch that will be used.

*Measured from a common horizontal plane to the hoisting hook

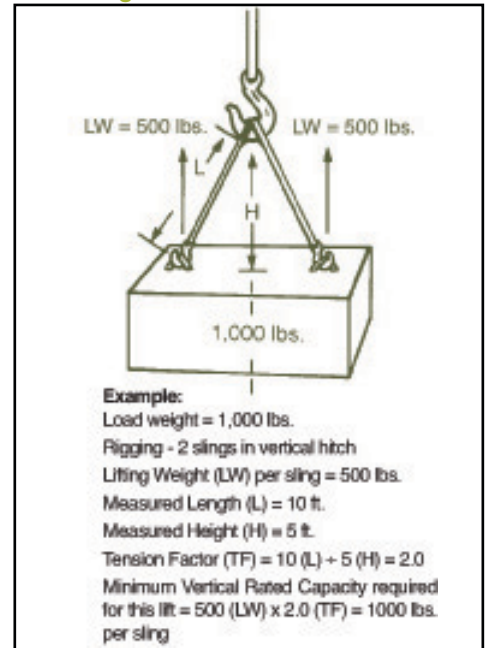
Reduced Capacity



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

Sling capacity decreases as the angle from horizontal decreases. Sling angles of less than 30° are not recommended.

Increasing Tension



Web Slings

Standard Web Sling Types

Hardware Slings

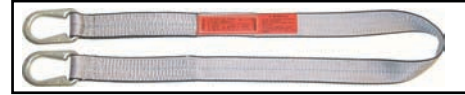
Unilink and Web-Trap hardware can help to extend sling life by protecting the webbing from abrasion on rough crane hooks. Hardware can often be reused, lowering sling replacement costs.

Type U (UU) - Has the preferred and economical Unilink fitting on each end for use in a vertical, choker or basket hitch. Unilinks allow choking from either end to save time and vary wear points.

Type 1 (TC) - Has a Web-Trap triangle and choker fitting on either end. Typical use is in a choker hitch. Can also be used in vertical and basket hitches.

Type 2 (TT) - Has a Web-Trap triangle on each end. Normally used in a basket hitch, but can also be used in a vertical hitch. They cannot be used as a choker.

Type U



Type 1



Type 2



Eye Type

Type 3 (EE) - Flat Eye slings are very popular and can be used in all three types of hitches. They are easier to remove from beneath the load than sling types 1, 2 and 4. Unless type 4 is requested, type 3 will be supplied as the standard EE sling.

Type 4 (EE) - Twisted Eye slings are similar to Type 3 except the eyes are turned 90° to form a better choker hitch. The eyes of a Type 4 nest better on the crane hook.

Endless Type

Type 5 (EN) - Endless slings are versatile and the most economically priced. They can be used in all three types of hitches. The sling can be rotated to minimize wear. The sling legs can be spread for improved load balance.

Reverse Eye Type

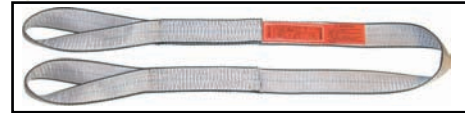
Type 6 (RE) - An endless sling with butted edges sewn together to double the sling width. They have reinforced eyes and wear pads on both sides of body and eyes.

The result is an extremely strong and durable sling.

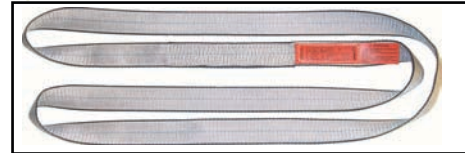
Type 3



Type 4



Type 5



Type 6



Lift-All Web Selector - Quick Comparisons

Type of Webbing	Approximate Thickness (in)	Relative Strength/Width Factor A	Price/Strength Factor B	Advantages
Webmaster 1600	3/16	100%	100%	Webmaster webs are the industry standard.
Webmaster 1200	1/8	75%	105%	Wider bearing surface per capacity.
Tuff-Edge	3/16	100%	105%	Tuff-Edge fights edge abrasion and cutting - the #1 cause of web sling damage. Up to 30% better against cuts.
Dura-Web 2000	5/16	125%	114%	Dura-Web lasts 25% longer against surface abrasion
Dura-Web 1000	3/16	62.5%	137%	Wider bearing surface per capacity.

Factor A - Relative strength factor. This column compares the strength of the various webs to Webmaster 1600 in the same widths.

Factor B - Price to strength comparison. This column compares the relative cost per capacity of the various webs to Webmaster 1600 using a 2" x 10' Type 3 sling.



Web Slings - Eye-to-Eye

Tuff-Edge & Webmaster 1600 Slings Specifications

Type 3 (Flat Eye)



Type 3 (Flat Eye)



Type 4 (Twisted Eye)



Type 4 (Twisted Eye)



Specifications

Tuff-Edge Part No.	Ply Qty.	Web Width (in.)	Rated Capacity* (lbs)			Webmaster Part No. ***
			Vertical	Choker	V. Basket	
EE1-801T	One Ply	1	1,600	1,250	3,200	EE1-801
EE1-802T		2	3,200	2,500	6,400	EE1-802
EE1-803T		3	4,800	3,800	9,600	EE1-803
EE1-804T		4	6,400	5,000	12,800	EE1-804
EE1-806T		6	9,600	7,700	19,200	EE1-806
EE1-808T		8	12,800	10,200	25,600	EE1-808
EE1-810T		10	16,000	12,800	32,000	EE1-810
EE1-812T		12	19,200	15,400	38,400	EE1-812
EE2-801T	Two Ply	1	3,200	2,500	6,400	EE2-801
EE2-802T		2	6,400	5,000	12,800	EE2-802
EE2-803T		3	8,600	6,900	17,200	EE2-803
EE2-804T		4	11,500	9,200	23,000	EE2-804
EE2-806T		6	16,300	13,000	32,600	EE2-806
EE2-808T		8	19,200	15,400	38,400	EE2-808
EE2-810T		10	22,400	17,900	44,800	EE2-810
EE2-812T		12	26,900	21,500	53,800	EE2-812
EE3-801T	Three Ply	1	4,100	3,300	8,200	EE3-801
EE3-802T		2	8,300	6,600	16,600	EE3-802
EE3-803T		3	12,500	10,000	25,000	EE3-803
EE3-804T		4	16,000	12,800	32,000	EE3-804
EE3-806T		6	23,000	18,400	46,000	EE3-806
EE3-808T		8	30,700	24,500	61,400	EE3-808
EE3-810T		10	36,800	29,400	73,600	EE3-810
EE3-812T		12	44,000	35,200	88,000	EE3-812
EE4-801T	Four Ply	1	5,000	4,000	10,000	EE4-801
EE4-802T		2	10,000	8,000	20,000	EE4-802
EE4-803T		3	14,900	11,900	29,800	EE4-803
EE4-804T		4	19,800	15,800	39,600	EE4-804
EE4-806T		6	29,800	23,800	59,600	EE4-806
EE4-808T		8	39,700	31,700	79,400	EE4-808
EE4-810T		10	49,600	39,600	99,200	EE4-810
EE4-812T		12	59,500	47,600	119,000	EE4-812

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

*** Add a "D" to sling code for polyester.



Always use Wear Pads to protect synthetic slings from being cut by load edges.



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°.

Eye Length (Applies to all Web Slings)

Ply Qty.	Sling Width (in)							
	1	2	3	4	6	8	10	12
1	8 1/2	10	11	12	16	20	24	24
2	8 1/2	10	11	12	16	20	24	24
3	10	12	14	16	18	24	24	24
4	10	12	14	16	18	24	24	24



Web Slings - Endless

Tuff-Edge & Webmaster 1600 Slings Specifications



Type 5



Type 5



Specifications						
Tuff-Edge Part No.	Ply Qty.	Web Width (in.)	Rated Capacity* (lbs)			Webmaster Part No. ***
			Vertical	Choker	V. Basket	
EN1-801T	One Ply	1	3,200	2,500	6,400	EN1-801
EN1-802T		2	6,400	5,000	12,800	EN1-802
EN1-803T		3	8,600	6,900	17,200	EN1-803
EN1-804T		4	11,500	9,200	23,000	EN1-804
EN1-806T		6	16,300	13,000	32,600	EN1-806
EN1-808T		8	19,200	15,400	38,400	EN1-808
EN1-810T		10	22,400	17,900	44,800	EN1-810
EN1-812T		12	26,900	21,500	53,800	EN1-812
EN2-801T	Two Ply	1	6,200	4,900	12,400	EN2-801
EN2-802T		2	12,200	9,800	24,400	EN2-802
EN2-803T		3	16,300	13,000	32,600	EN2-803
EN2-804T		4	20,700	16,500	41,400	EN2-804
EN2-806T		6	28,600	23,000	57,200	EN2-806
EN2-808T		8	30,700	24,500	61,400	EN2-808
EN2-810T		10	33,600	26,800	67,200	EN2-810
EN2-812T		12	37,600	30,000	75,200	EN2-812
EN3-801T	Three Ply	1	8,000	6,400	16,000	EN3-801
EN3-802T		2	16,000	12,800	32,000	EN3-802
EN3-803T		3	21,500	17,200	43,000	EN3-803
EN3-804T		4	28,700	23,000	57,400	EN3-804
EN3-806T		6	40,700	32,500	81,400	EN3-806
EN3-808T		8	46,000	36,800	92,000	EN3-808
EN3-810T		10	51,500	41,200	103,000	EN3-810
EN3-812T		12	59,200	47,300	118,400	EN3-812
EN4-801T	Four Ply	1	10,000	8,000	20,000	EN4-801
EN4-802T		2	19,800	15,800	39,600	EN4-802
EN4-803T		3	26,700	21,300	53,400	EN4-803
EN4-804T		4	35,600	28,400	71,200	EN4-804
EN4-806T		6	50,500	40,400	101,000	EN4-806
EN4-808T		8	57,600	46,000	115,200	EN4-808
EN4-810T		10	67,200	53,700	134,400	EN4-810
EN4-812T		12	80,700	64,500	161,400	EN4-812

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

*** Add a "D" to sling code for polyester.



Always use Wear Pads to protect synthetic slings from being cut by load edges.



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°.

Nylon Web Slings

Type 3 Flat Eye

Type 4 Twisted Eye



Heavy Duty (900 Webbing) 1"-5"								
Width	Model	Ply Qty.	Rated Capacity In Pounds			Inside Eye Size Laying Flat	Weight In LBS	
			Vertical	Choker	Basket		5' Base	add/ft
1"	91EE1	1	1,600	1200	3,200	9"	.42	.056
1"	91EE2	2	3,200	2,600	6,400	9"	.68	.112
1"	91EE3	3	4,100	3,300	8,200	9"	1.00	.160
1"	91EE4	4	5,500	4,400	11,000	9"	1.30	.224
2"	92EE1	1	3,200	2,500	6,400	9"	.84	.110
2"	92EE2	2	6,400	5,100	12,800	9"	1.30	.220
2"	92EE3	3	8,200	6,600	16,400	12"	1.90	.330
2"	92EE4	4	11,000	8,800	22,000	12"	2.50	.440
3"	93EE1	1	4,800	3,800	9,600	12"	1.40	.180
3"	93EE2	2	8,900	7,200	17,800	12"	2.16	.350
3"	93EE3	3	12,300	9,900	24,600	15"	3.13	.520
3"	93EE4	4	17,800	14,400	35,600	15"	4.10	.700
4"	94EE1	1	6,400	5,100	12,800	12"	1.75	.222
4"	94EE2	2	11,500	9,200	23,000	12"	2.45	.444
4"	94EE3	3	15,300	12,200	30,600	15"	3.85	.666
4"	94EE4	4	23,000	18,000	46,000	15"	5.20	.888
5"	95EE1	1	8,000	6,400	16,000	12"	2.46	.274
5"	95EE2	2	13,600	10,900	27,200	15"	3.28	.548
5"	95EE3	3	19,000	15,000	38,000	18"	4.80	.822
5"	95EE4	4	27,200	20,400	54,400	18"	6.35	1.090

NOTE: Standard eye construction is Type 3 flat eyes. When requiring twisted eyes, must specify Type 4 Tapered eyes on all sling widths 3" and larger.
 NOTE: Angles of less than 30° will not be used.
 REFER TO ANGLE EFFICIENCY CHART

Heavy Duty (900 Webbing) 6"-12"								
Width	Model	Ply Qty.	Rated Capacity In Pounds			Inside Eye Size Laying Flat	Weight In LBS	
			Vertical	Choker	Basket		5' Base	add/ft
6"	96EE1	1	9,600	7,700	19,200	12"	2.78	.330
6"	96EE2	2	16,300	13,000	32,600	15"	3.78	.662
6"	96EE3	3	23,000	18,400	46,000	18"	5.71	.993
6"	96EE4	4	32,600	24,500	65,200	18"	7.65	1.320
8"	98EE1	1	12,800	10,200	25,600	18"	4.06	.470
8"	98EE2	2	22,000	17,600	44,000	18"	5.45	.960
8"	98EE3	3	33,000	24,750	66,000	24"	8.18	1.410
8"	98EE4	4	44,000	33,000	88,000	24"	10.90	1.880
10"	910EE1	1	16,000	12,800	32,000	18"	5.23	.596
10"	910EE2	2	24,000	19,200	48,000	18"	7.05	1.190
10"	910EE3	3	36,000	28,800	72,000	24"	10.65	1.780
10"	910EE4	4	48,000	38,400	96,000	24"	14.25	2.380
12"	912EE1	1	19,200	15,360	38,400	24"	6.45	.734
12"	912EE2	2	26,900	21,500	53,800	24"	8.67	1.470
12"	912EE3	3	40,320	32,250	90,640	30"	13.33	2.200
12"	912EE4	4	53,700	43,000	107,400	30"	18.00	2.930

