MARINE AND INDUSTRIAL ROPE PRODUCTS

3-Strand

The most common of all the rope constructions. They are composed of three strands laid up generally right handed and are the most popular products for the majority of applications. This is because of the low cost factor.

8-Strand

Constructed from 4 left hand and 4 right hand strands which gives it perfect balance. This construction provides a flexible and tough rope which is totally resistant to kinking and works well on all classes of deck machinery.

12-Strand

Constructed from 12 individual strands braided together to form a high strength torque balanced rope. This easily spliced, non-rotating rope is flexible and coils easily, will not kink or hockle and has high strength to weight ratio.

Double Braided

Two ropes in one. First the braided core is constructed A second rope is then braided over it to form the cover. You then have two ropes performing as a single integrated strength member. Over 50% of the rope strength is in the well protected core. Half the strands are braided right hand and half left for total balance. Double braid construction offers size for size greater strength than conventional 3, 8, or 12 strand ropes. If has high splice strength. It is flexible wet or dry, new or worn and works well on deck machinery.

3 and 8 Strand Constructions

Snapback: A serious hazard is created when a line under load parts because it will recoil at a high speed. A person positioned in the recoil path could be seriously injured if struck by the recoiling line. It's the responsibility of the user to know and use the proper techniques for the particular application.

Sunlight: All synthetic fiber ropes will undergo degradation with time when exposed to sunlight. Polypropylene is far more susceptible to UV degradation than polyester or nylon. To prolong the life of your ropes, avoid storing them in direct sunlight.

Chemical: Synthetic fibers have good chemical resistance. However, exposure to harsh chemicals (i.e. strong acids and alkalis) should be avoided.

Damage: Inspect ropes frequently for any signs of damage or wear. Retire any rope that has been cut or is heavily abraded.

Linear Density: Average with maximum 5% more than listed.

Tensile Strengths and Working Loads: As shown in our literature, these strengths are the approximate average for new rope tested under ASTM (D-4268) or Cordage Institute test methods. The tensile strength is the load at which a new rope tested under laboratory conditions can be expected to break. However, to estimate the minimum tensile strength of a new rope, reduce the approximate average by 15%.

(Cordage Institute defines minimum tensile strength as two standard deviations below the average tensile strength of the rope). Age, use and the type of termination used including knots will lower tensile strength significantly.

The Cordage Institute specifies that the Safe Working Load of a rope shall be determined by dividing the Minimum Tensile Strength by the Safety Factor. Safety factors range from 5 to 12 for non-critical uses. The working load is a guideline for the use of a rope in good condition for non-critical applications and should be reduced where life, limb, or valuable property are involved, or for exceptional service such as shock, sustained loading, severe vibration, etc.

Stretch Characteristics: Desired stretch is determined by the way in which the rope is used. High stretch rope (nylon) with good energy absorption, is preferred for mooring, anchoring and towing, while low stretch ropes (Dacron, Kevlar, Spectra) are preferred for applications where positioning is critical and energy absorption and high stretch are not desired.

Cordage Specifications

		Polypropylene		Polyester		Nylon		Manila (Grade A #1)	
Nominal Size		Linear Density (Lbs./100Ft.)	New Rope Tensile Strength (Lbs.)	Linear Density (Lbs./100Ft.)	New Rope Tensile	Linear Density	New Rope Tensile	Linear Densityt	New Rope Tensile Strength (Lbs.)
Diameter	Circumference								
3/16	5/8	.70	720	1.20	900	1.00	900	1.50	406
1/4	3/4	1.20	1,130	2.00	1,490	1.50	1,490	2.00	540
5/16	1	1.80	1,710	3.10	2,300	2.50	2,300	2.90	900
3/8	1 1/8	2.80	2,440	4.50	3,340	3.50	3,340	4.10	1,220
7/16	1 1/4	3.80	3,160	6.20	4,500	5.00	4,500	5.25	1,580
1/2	1 1/2	4.70	3,780	8.00	5,750	6.50	5,750	7.50	2,380
9/16	1 3/4	6.10	4,600	10.20	7,200	8.15	7,200	10.40	3,100
5/8	2	7.50	5,600	13.00	9,000	10.50	9,350	13.30	3,960
3/4	2 1/4	10.70	7,650	17.50	11,300	14.50	12,800	16.70	4,860
13/16	2 1/2	12.70	8,900	21.00	14,000	17.00	15,300	19.50	5,850
7/8	2 3/4	15.00	10,400	25.00	16,200	20.00	18,000	22.40	6,950
1	3	18.00	12,600	30.40	19,800	26.40	22,600	27.00	8,100
1 1/16	3 1/4	20.40	14,400	34.40	23,000	29.00	26,000	31.20	9,450
1 1/8	3 1/2	23.80	16,500	40.00	26,600	34.00	29,800	36.00	10,800
1 1/4	3 3/4	27.00	18,900	46.20	29,800	40.00	33,800	41.60	12,200
1 5/16	4	30.40	21,200	52.50	33,800	45.00	38,800	47.80	13,500
1 1/2	4 1/2	38.40	26,800	67.00	42,200	55.00	47,800	60.00	16,700
1 5/8	5	47.60	32,400	82.00	51,500	66.50	58,500	74.50	20,200
1 3/4	5 1/2	59.00	38,800	98.00	61,000	83.00	70,000	89.50	23,800
2	6	69.00	46,800	118.00	72,000	95.00	83,000	108.00	28,000
2 1/8	6 1/2	80.00	55,000	135.00	83,000	109.00	95,500	125.00	32,400
2 1/4	7	92.00	62,000	157.00	96,500	129.00	113,000	146.00	37,000
2 1/2	7 1/2	107.00	72,000	181.00	110,000	149.00	126,000	167.00	41,800
2 5/8	8	120.00	81,000	204.00	123,000	168.00	146,000	191.00	46,800
2 7/8	8 1/2	137.00	91,000	230.00	139,000	189.00	162,000	215.00	52,000
3	9	153.00	103,000	258.00	157,000	210.00	180,000	242.00	57,500
3 1/4	10	190.00	123,000	318.00	189,000	264.00	226,000	298.00	69,500
3 1/2	11	232.00	146,000	384.00	228,000	312.00	270,000	366.00	82,000
4	12	276.00	171,000	454.00	270,000	380.00	324,000	434.00	94,500

GENERAL INFORMATION/ROPE SAFETY

Double Braid Constructions

Nominal Size		Double Braid Polyester		Double Braid Nylon	
Diameter	Circumference	Avg. T.S.	Weight Per 100'	Avg. T.S.	Weight Per 100'
3/16	9/16	1,200	1.1	—	—
1/4	3/4	2,000	1.9	2,200	1.6
5/16	1	3,000	3.1	3,400	2.5
3/8	1 1/8	4,400	4.4	4,900	3.6
7/16	1 1/4	6, 000	6.1	6,600	4.9
1/2	1 1/2	8,200	8.0	8,500	6.3
9/16	1 3/4	11,000	10.1	10,800	8.0
5/8	2	14,000	12.6	13,500	10.0
3/4	2 1/4	20,000	17.5	19,400	14.3
13/16	2 1/2	—	—	—	—
7/8	2 3/4	29,900	23.7	26,300	19.4
1	3	38,000	33.0	34,000	25.4
1 1/8	3 1/2	46,000	42.0	46,000	35.0
1 1/4	3 3/4	55,000	51.0	52,000	40.0
1 5/16	4	61,000	57.0	58,000	45.0
1 1/2	4 1/2	72,000	68.0	74,000	58.0
1 5/8	5	89,000	85.0	90,000	71.0
1 3/4	5 1/2	104,000	101.0	106,000	85.0
2	6	124,000	123.0	126,000	102.0
2 1/8	6 1/2	145,000	144.0	145,000	119.02
2 1/4	7	166,000	168.0	166,000	138.0
2 1/2	7 1/2	190,000	196.0	189,000	159.0
2 5/8	8	212,000	216.0	213,000	181.0
2 3/4	8 1/2	234,000	246.0	237,000	204.0
3	9	278,000	293.0	261,000	228.0
3 1/4	10	326,000	344.0	319,000	282.0

FIBER ROPE

3 and 8 Strand Constructions

Sisal
Excellent low cost utility rope has about 80% of the strength of manila. Not recommended for any critical applications.

Manila
Made from the finest abaca fiber available, excellent resistance to sunlight, low stretch, and easy to tie a knot. Good surface abrasion resistance.

Polyester
Not quite as strong as nylon. Low stretch. Excellent surface abrasion and better resistance from sunlight than nylon. Other characteristics similar to nylon available in filament fiber type and multiplex (fuzzy) type “77” dacron.

Polypropylene
A lightweight material with good strength and great versatility it floats, is resistant to rot, oils, gasoline, most chemicals and is waterproof. Hooven Allison’s polypropylene rope contains a special additive which reduces but does not eliminate deterioration from sunlight. Available in splitfilm (S,F,T) and monofilament fiber form.

Nylon
One of the strongest fiber rope that we manufacture. High elasticity allows absorption of shock loads which would break other types of rope. Nylon is resistant to rot, oils, gasoline, grease, marine growth or most chemicals. High abrasion resistance.

Rope Working Characteristics	Relative Material Values				
	Sisal	Manila	Polyester	Polypropylene	Nylon
Strength	Fair	Fair	Excellent	Very Good	Excellent
Shock Load	Fair	Fair	Very Good	Very Good	Excellent
Surface Abrasion	Fair	Good	Excellent	Good	Very Good
Elasticity	Fair	Fair	Very Good	Good	Excellence
Floats	No	No	No	Yes	No
Storage Wet/Dry	Dry Only	Dry Only	Wet or Dry	Wet or Dry	Wet or Dry
Affected by Heat at	Weakens at 300º	Weakens at 300º	Weakens at 350º	Weakens at 150º	Weakens at 350º
Resistant To					
Rot & Mildew	Poor	Poor	Excellent	Excellent	Excellent
Sunlight	Excellent	Excellent	Excellent	Fair	Good
Oil& Gas	Fair	Fair	Excellent	Excellent	Excellent
Acids	Poor	Poor	Very Good	Excellent	Fair
Alkalis	Poor	Poor	Good	See Note #1	Excellent

#1 Very good except to concentrated Sodium Hydroxide at high temperature.

CAUTION: BECAUSE OF THE WIDE RANGE OF ROPE USE, ROPE CONDITION, EXPOSURE TO THE VARIOUS FACTORS AFFECTING THE ROPE, IT IS IMPOSSIBLE TO MAKE BLANKET RECOMMENDATIONS AS TO THE CORRECT CHOICE OR ROPE TO USE. HOWEVER, WE HAVE PROVIDED THE TENSILE STRENGTH AND RECOMMENDED WORKING LOADS FOR EACH DIAMETER AND TYPE OF ROPE. THESE GUIDELINES ARE BASED ON TESTS CONDUCTED BY THE U.S. CORDAGE INSTITUTE. THESE STRENGTHS ARE BASED ON TESTS OF NEW AND UNUSED ROPE, WITH APPROPRIATE SPLICES. PROPER CHOICE, CARE AND INSPECTION OF THE ROPE ARE ESSENTIAL FOR REASONABLY SAFE USE OF THE ROPE.

AMSTEEL®-BLUE

AmSteel®-Blue is a proven cost-saving replacement for wire rope in key applications where strength, weight and safety are important.

Recognized worldwide as the standard for single braid HMPE ropes, AmSteel®-Blue is easily spliced and inspected. These features, with the superior wear and tension fatigue of Dyneema® SK-75 fiber and Samthane coating, are combined in a torque-free 12-strand single braid design. The result is an industry leading braided synthetic rope that outlasts wire rope and has proven operator cost saving benefits.

AmSteel®-Blue, at only 1/7th the weight of wire, requires less committed crew for most operations, significantly reduces mooring times and tug costs, and improves crew safety. The reduced weight, high strength and low stretch also make it ideal for tug assist/maneuvering lines, resulting in quick, efficient connections and controlled response. AmSteel®-Blue is proven to provide longer service life and reduced costs when compared to wire in a variety of applications.

Standardized working pendants are available for mooring and tug assist lines. AmSteel®-Blue is recommended for split drum winch applications, not recommended for use on H-bitts, capstans or cleats if surging or rendering the rope is required.

Size Diameter Inches	Size Circumference Inches	Weight Per 100 Ft. Pounds	SRT MBS* Pounds	Size Diameter Millimeters	Weight Per 100 M Kilograms	SRT MBS* Metric Tonnes	ISO/BS EN919 MBS Metric Tonnes
3/16 in.	9/16 in.	1.0 lbs.	4,900 lbs.	5mm	1.5 Kg	2.2 MT	2.4 MT
1/4 in.	3/4 in.	1.6 lbs.	7,700 lbs.	6mm	2.4 Kg	3.5 MT	3.9 MT
5/16 in.	1 in.	2.7 lbs.	12,300 lbs.	8mm	4.0 Kg	5.6 MT	6.2 MT
3/8 in.	3/8 in.	3.6 lbs.	17,600 lbs.	9mm	5.4 Kg	8.0 MT	8.9 MT
7/16 in.	1-1/4 in.	4.2 lbs.	21,500 lbs.	11mm	6.2 Kg	9.8 MT	10.8 MT
1/2 in.	1-1/2 in.	6.4 lbs.	30,600 lbs.	12mm	9.5 Kg	13.9 MT	15.4 MT
9/16 in.	1-3/4 in.	7.9 lbs.	36,500 lbs.	14mm	11.8 Kg	16.5 MT	18.4 MT
5/8 in.	2 in.	10.2 lbs.	47,500 lbs.	16mm	15.2 Kg	21.5 MT	23.9 MT
3/4 in.	2-1/4 in.	13.3 lbs.	58,000 lbs.	18mm	19.8 Kg	26.3 MT	29.2 MT
7/8 in.	2-3/4 in.	19.6 lbs.	81,700 lbs.	22mm	29.2 Kg	37.1 MT	41.2 MT
1 in.	3 in.	21.8 lbs.	98,100 lbs.	24mm	32.4 Kg	44.5 MT	49.4 MT
1-1/16 in.	3-1/4 in.	27.5 lbs.	118,000 lbs.	26mm	40.9 Kg	53.6 MT	59.6 MT
1-1/8 in.	3-1/2 in.	31.9 lbs.	133,000 lbs.	28mm	47.5 Kg	60.4 MT	67.1 MT
1-1/4 in.	3-3/4 in.	36.2 lbs.	149,000 lbs.	30mm	53.9 Kg	67.5 MT	75.0 MT
1-5/16 in.	4 in.	41.8 lbs.	166,000 lbs.	32mm	62.2 Kg	75.2 MT	83.6 MT
1-3/8 in.	4-1/8 in.	45.0 lbs.	185,000 lbs.	34mm	67.0 Kg	83.9 MT	93.2 MT
1-1/2 in.	4-1/2 in.	51.7 lbs.	205,000 lbs.	36mm	76.9 Kg	93.0 MT	103.0 MT
1-5/8 in.	5 in.	65.2 lbs.	255,000 lbs.	40mm	97.0 Kg	116.0 MT	128.0 MT
1-3/4 in.	5-1/2 in.	78.4 lbs.	302,000 lbs.	44mm	117.0 Kg	137.0 MT	152.0 MT
2 in.	6 in.	87.0 lbs.	343,000 lbs.	48mm	129.0 Kg	155.0 MT	173.0 MT
2-1/8 in.	6-1/2 in.	109.0 lbs.	411,000 lbs.	52mm	162.0 Kg	186.0 MT	207.0 MT
2-1/4 in.	7 in.	116.0 lbs.	484,000 lbs.	56mm	173.0 Kg	219.0 MT	244.0 MT
2-1/2 in.	7-1/2 in.	148.0 lbs.	529,000 lbs.	60mm	220.0 Kg	240.0 MT	267.0 MT
2-5/8 in.	8 in.	167.0 lbs.	595,000 lbs.	64mm	248.0 Kg	270.0 MT	300.0 MT
2-3/4 in.	8-1/2 in.	187.0 lbs.	662,000 lbs.	68mm	278.0 Kg	300.0 MT	333.0 MT
3 in.	9 in.	206.0 lbs.	748,000 lbs.	72mm	307.0 Kg	339.0 MT	377.0 MT
3-1/4 in.	10 in.	240.0 lbs.	906,000 lbs.	80mm	357.0 Kg	411.0 MT	457.0 MT

*Spliced strength

Larger sizes my be available. Contact customer service for details.

Features

- Uses Dyneema® SK-75
- A size for size strength replacement for wire rope at only 1/7th the weight
- Torque-free, very flexible, easy to handle
- Similar elastic elongation to wire rope
- Easily inspected or field spliced
- Floats

Applications

- Primary vessel mooring lines
- Tractor tug lines
- Face and wing wires for push tugs
- Emergency and seismic tow lines

Specifications

Specific Gravity:
.98 (floats)

Elastic Elongation Percentage:

At % of break strength
10%.....0.46%
20%.....0.70%
30%.....0.96%

Splicing Procedures Required:

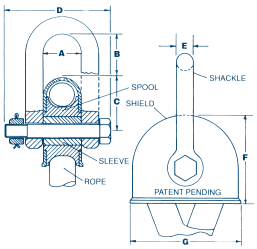
> **EYE SPLICE**
12-Strand/Class II Rope

> **END FOR END SPLICE**
12-Strand/Class II Rope

Samson Ocean Systems, Inc.

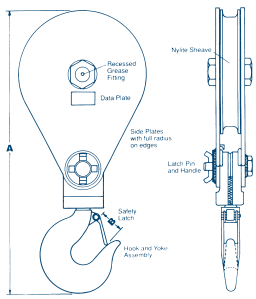
The Samson Nylite™ Spool, Shield, Shackle

Nylite™ Spool, Shield, & Shackle												
CERTEX Cat. Ref. No.	Size	Rope Size Dia.	Range Cir.	Spool I.D.	Pin* Dia.	A	B	C	D	E	F	G
CX09-0015	1	3/8 –1/2	1-1/8 – 1-1/2	.46	.44	.88	1.08	1.11	2.41	.38	1.99	2.34
CX09-0016	2	9/16 – 5/8	1-3/4 – 2	.58	.56	1.13	1.21	1.38	3.11	.50	2.38	2.88
CX09-0017	3	3/4 – 13/16	2-1/4 – 2-1/2	.64	.63	1.38	1.61	1.77	3.54	.56	3.02	3.70
CX09-0018	4	7/8 – 1-1/16	2-3/4 – 3-1/4	.89	.88	1.75	1.9	2.29	4.70	.75	3.79	4.71
CX09-0019	5	1-1/8 – 1-5/16	3-1/2 – 4	1.02	1.00	2.13	2.15	2.85	5.55	.88	4.85	5.95
CX09-0020	6	1-1/2 – 1-3/4	4-1/2 – 5-1/2	1.54	1.50	2.63	3.14	3.8	8.25	1.37	6.30	7.85



Nylite™ Spool, Shield, Shackle												
CERTEX Cat. Ref. No.	Size	Rope Size Dia.	Range Cir.	I.D.	O.D.	Pin* Dia.	A	B	C	D	E	F	G
CX09-0021	7	2 – 2-1/4	6 – 7	1.75	3.00	1.38	3.25	3.75	4.80	8.90	1.50	7.93	9.89
CX09-0022	8	2-1/2 – 2-5/8	7-1/2 – 8	2.00	3.25	1.50	3.75	4.13	5.61	10.00	1.75	9.24	11.47
CX09-0023	9	2-3/4 – 3-1/4	8-1/2 – 10	2.25	3.50	1.75	4.63	5.06	6.95	12.15	2.00	11.45	14.28

* Sizes 1 through 5 are supplied with jam nuts and cotter pins. Larger sizes have cotter pins and standard nuts.



Nylite™ Spool, Shield, & Shackle			
Size	Color of Shield	Working Loads* (Tons**)	Minimum Eye Size
1	Blue	1-1/8	2-3/16"
2	Red	1-5/8	2-3/4"
3	Green	2-1/2	3-3/4"
4	Orange	4-1/2	4-7/8"
5	Black	7-1/2	6-1/8"
6	Yellow	12-1/2	7-5/8"
7	Black	20	9-3/4"
8	Black	25	11-1/4"
9	Black	35	14"

*Working Loads, as given, are based on pin/bore relationship provided by the use of a Samson shackle. When using a non-standard pin, the Working Load as given DOES NOT APPLY.
**Working Load in tons (2,000 lbs.)

Nylite™ Snatch Block	
CERTEX Cat. Ref. No.	CX09-0024
Part No.	915-321
Rope Dia.	7/8" to 1-1/8"
Max. Workload	8 tons
Block Wt.	33 lbs.
Overall Length (A)	23.0"
Hook Opening (B) w/latch	1.5"
Steel Cheek Plates & Hook - Request Blueprint #00201045 for strengths, standard for usage and maintenance	

For more Blocks for Fiber Rope see Blocks

FIBER ROPE SLINGS

Eye/Eye

Standard eye and eye sling for general purpose work. Lightweight, very flexible, non-marring and very strong.

Polyester Double Braid						Polyester Over Nylon Double Braid					12 Strand Polyester				
CERTEX Cat. Ref. No.	Diam.	Ratings			Min. Length	CERTEX Cat. Ref. No.	RATINGS			Min. Length	CERTEX Cat. Ref. No.	Ratings			Min. Length
		V	C	B			V	C	B			V	C	B	
CX09-0025	3/8	1,120	896	2,240	34"	–	1,000	800	2,000	–	CX09-0041	1,200	960	2,400	32"
CX09-0026	7/16	1,560	1,248	3,120	38"	–	1,500	1,200	3,000	–	CX09-0042	1,800	1,440	3,600	36"
CX09-0027	1/2	2,160	1,728	4,320	42"	CX09-0034	2,200	1,760	4,400	42"	CX09-0043	2,500	2,000	5,000	40"
CX09-0028	5/8	3,400	2,960	6,800	53"	CX09-0035	3,780	3,024	7,560	53"	CX09-0044	3,640	2,912	7,280	48"
CX09-0029	3/4	4,160	3,328	8,320	60"	CX09-0036	5,200	4,160	10,400	60"	CX09-0045	4,800	3,840	9,600	55"
CX09-0030	7/8	6,200	4,960	1,240	68"	CX09-0037	6,720	5,376	15,440	68"	CX09-0046	7,100	5,680	14,200	62"
CX09-0031	1	8,800	7,040	17,600	78"	CX09-0038	8,400	6,720	16,800	78"	CX09-0047	8,600	6,880	17,200	70"
CX09-0032	1 1/4	11,560	9,248	23,120	102"	CX09-0039	13,000	10,400	26,000	102"	–	–	–	–	–
CX09-0033	1 1/2	15,240	12,192	30,480	120"	CX09-0040	18,000	11,440	36,000	120"	–	–	–	–	–

Standard Size Eye is 4" Options – Thimbles in Eyes, Polyurethane Coating (1 1/4, 1 1/2 have 6" eyes)
V - Vertical
C - Choker
B - Basket

Endless Slings

A complete loop increases the lift capacity of a sling without going to a larger diameter line. Makes an excellent choker with a wider "footprint" on the load for more positive control.

Polyester Double Braid						12 Strand Polyester				
CERTEX Cat. Ref. No.	Diam.	Ratings			Min. Length*	CERTEX Cat. Ref. No.	Ratings			Min. Length*
		Vertical	Choker	Basket			Vertical	Choker	Basket	
CX09-0048	3/8	1,905	1,525	3,810	35"	CX09-0057	2,040	1,632	4,080	20"
CX09-0049	7/16	2,650	2,120	5,305	40"	CX09-0058	3,060	2,448	6,120	23"
CX09-0050	1/2	3,670	2,940	7,345	46"	CX09-0059	4,250	3,400	8,500	26"
CX09-0051	5/8	5,780	4,625	11,560	58"	CX09-0060	6,188	4,950	12,376	32"
CX09-0052	3/4	7,070	5,660	14,145	68"	CX09-0061	8,160	6,528	16,320	39"
CX09-0053	7/8	10,540	8,430	21,080	81"	CX09-0062	12,070	9,656	24,140	45"
CX09-0054	1	14,960	11,970	29,920	92"	CX09-0063	14,620	11,696	29,240	52"
CX09-0055	1 1/4	19,650	15,720	39,305	115"	–	–	–	–	–
CX09-0056	1 1/2	25,910	20,725	51,815	138"	–	–	–	–	–

*Bearing Point to Bearing Point Options – Polyurethane Coating.

FIBER ROPE SLINGS

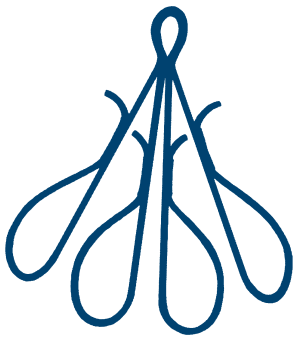
Adjustable Slings

Easily replaces a variety of different length slings accommodating a variety of different sized loads. Infinitely adjustable.

12 Strand Polyester / Polyolefin						12 Strand Polyester				
CERTEX Cat. Ref. No.	Diam.	RATINGS			Min. Length	CERTEX Cat. Ref. No.	RATINGS			Min. Length
		Vertical	Choker	Basket			Vertical	Choker	Basket	
CX09-0064	3/8	792	634	1,584	20"	CX09-0071	1,056	845	2,112	20"
CX09-0065	7/16	1056	845	2,112	24"	CX09-0072	1,584	1,267	3,168	24"
CX09-0066	1/2	1,496	1,197	2,992	28"	CX09-0073	2,220	1,760	4,400	28"
CX09-0067	5/8	2,112	1,690	4,224	32"	CX09-0074	3,203	2,562	6,406	32"
CX09-0068	3/4	2,992	2,394	5,984	38"	CX09-0075	4,224	3,379	8,448	38"
CX09-0069	7/8	3,714	2,971	7,428	46"	CX09-0076	6,248	4,998	12,496	46"
CX09-0070	1	4,400	3,520	8,800	54"	CX09-0077	7,568	6,054	15,136	54"

4-Leg Adjustable

Each leg adjusts to accommodate any size load or lift point arrangement. Lifts can be made safely on any 2 legs, 3 legs, or all 4.



12 Strand Polyester				12 Strand Polyester / Polyolefin		
CERTEX Cat. Ref. No.	Diam.	Rating	Min. Length	CERTEX Cat. Ref. No.	Rating	Min. Length
CX09-0078	3/8	3,150	24"	CX09-0085	2,350	24"
CX09-0079	7/16	4,750	28"	CX09-0086	3,150	28"
CX09-0080	1/2	6,600	32"	CX09-0087	4,450	32"
CX09-0081	5/8	9,600	38"	CX09-0088	7,650	38"
CX09-0082	3/4	12,650	46"	CX09-0089	8,950	46"
CX09-0083	7/8	18,700	52"	CX09-0090	11,100	52"
CX09-0084	1	22,700	60"	CX09-0091	13,200	60"

YALEX

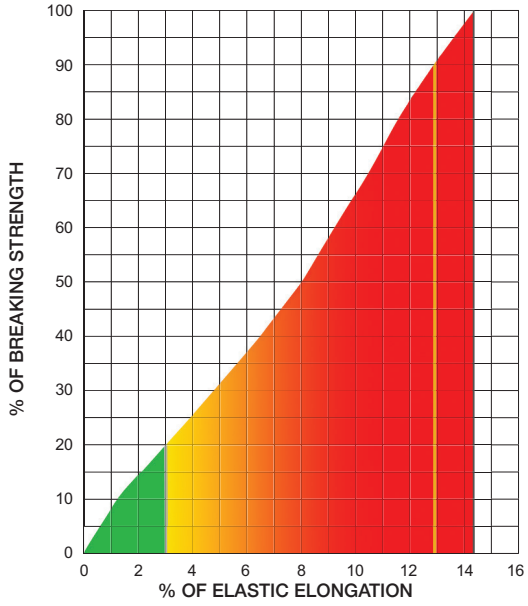
Yale Cordage

Yalex is a single braid, 12-strand rope constructed of specially lubricated 1W81 high tenacity polyester. Yalex's two end per carrier structure creates a larger void in the middle of rope which makes it easier to splice, and makes used rope splicing much easier to perform.

Yalex is always coated with Yale's Maxijacket urethane coating, which reduces the new ropes tendency to snag, greatly enhances abrasion resistance and is a great way to color code ropes for application or load rating.

Diamerter Inches (mm)		Average Spliced Break Strength*		Minimum Spliced Break Strength*		Maximum** Work Load 5:1		Weight	
		Lbs	Kg	Lbs	Kg	Lbs	Kg	Lbs/ 100ft	Kg/ 100m
1/4	(6.0)	2,000	1,135	2,250	1,020	500	225	2.2	3.3
5/16	(8.0)	4,000	1,815	3,600	1,630	800	360	2.8	4.2
3/8	(9.0)	6,000	2,720	5,400	2,459	1,200	540	4.0	6.0
7/16	(11.0)	9,000	4,085	8,100	3,675	1,800	815	7.1	10.6
1/2	(12.0)	12,500	5,675	11,250	5,105	2,500	1,135	9.0	13.4
9/16	(14.0)	16,500	7,490	14,850	6,740	3,300	1,495	11.2	16.7
5/8	(16.0)	18,200	8,260	16,380	7,435	3,640	1,650	12.7	18.9
3/4	(18.0)	24,000	10,895	21,600	9,805	4,800	2,175	17.0	25.3
7/8	(22.0)	35,500	16,115	31,950	14,505	7,100	2,330	25.6	38.1
1	(24.0)	43,000	19,520	38,700	17,565	8,600	3,900	32.3	48.1
1-1/8	(27.0)	56,000	25,420	50,400	22,880	11,200	5,080	34.9	52.0
1-1/4	(30.0)	65,500	29,735	58,950	26,760	13,100	5,945	39.3	58.5
1-5/6	(32.0)	74,750	33,935	67,272	30,540	14,950	6,785	46.6	69.4
1-1/2	(36.0)	93,500	42,445	84,150	38,200	18,700	8,485	60.0	89.3
1-5/8	(40.0)	112,500	51,075	101,250	45,965	22,500	10,215	83.0	123.6
1-3/4	(42.0)	120,000	54,480	108,000	49,030	24,000	10,900	94.0	140.0
2	(48.0)	133,200	60,470	119,880	54,425	26,640	12,090	117.0	174.2

* **Knots** and abrupt bends significantly reduce the strength of all ropes and lowers maximum working load.
Working load is based on static of moderately dynamic lifting/pulling operations. Instantaneous changes in the load up or down, in excess of 10 percent of the rope's rated working load constitutes hazardous shock load and would void normal working load recommendations. Consult Yale Cordage for guidelines for working loads and safe use of rope.



Energy Absorption

The colored area under the curve represents the rope's ability to do "work" and is expressed in foot-pounds per pound of rope in tension.

- Green working 409 ft. lbs./lb.
- Red ultimate 10,700 ft. lbs./lb.

Dielectric Strength

The maximum allowable leakage for clean, dry Yalex is 100 Micro Amperes when tested at 90KV per ASTM 1701-05 "Routine Production Test". Absorbed and entrained moisture or impurities will increase ropes conductivity dramatically.

Splice using Yale's splicing technique document **#10015101** (all sizes).

Maximum Working Load
Minimum Break Strength
Average Break Strength

Specific Gravity: 1.38

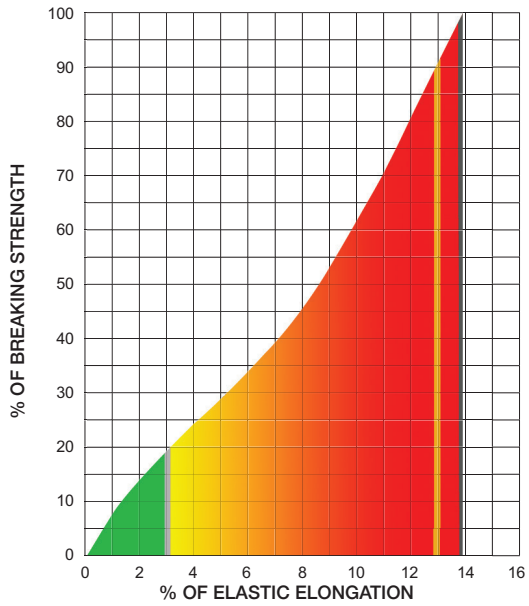
Yale Cordage

New and Improved

PE-12 has been recently re-engineered boosting its strengths significantly. Using the same high tenacity fiber we use in our value packed Portland Braid, this high tenacity polyester single braid offers a single end per carrier construction which keels the rope from flattening out in service and self centers in sheaves beautifully. PE-12 comes with the same tough grade of Maxijacket urethane we use on out more expensive products. PE-1q2 is easy to splice and field repairs are easily accomplished. It is available in unlimited lengths and brilliant colors for easy identification. PE-12 is torque free and is undamaged when rigging with swivels.

Diamerter Inches (mm)		Average Spliced Break Strength*		Minimum Spliced Break Strength*		Maximum** Work Load 5:1		Weight	
		Lbs	Kg	Lbs	Kg	Lbs	Kg	Lbs/ 100ft	Kg/ 100m
5/16	(8.0)	3,900	1,170	3,510	1,590	780	350	3.2	4.8
3/8	(9.0)	5,900	2,675	5,310	2,410	1,180	535	3.9	5.8
7/16	(11.0)	9,800	4,445	8,820	4,000	1,960	885	6.4	9.5
1/2	(12.0)	12,500	5,675	11,250	5,105	2,500	1,135	8.5	12.7
9/16	(14.0)	15,800	7,170	14,220	6,455	3,160	1,430	10.5	15.6
5/8	(16.0)	18,500	8,395	16,650	7,555	3,700	1,675	12.5	18.6
3/4	(18.0)	23,250	10,555	20,925	9,495	4,650	3,115	25.9	38.6
1	(24.0)	41,600	18,885	37,440	16,995	8,320	3,775	31.3	46.6

* **Knots** and abrupt bends significantly reduce the strength of all ropes and lowers maximum working load.
Working load is based on static of moderately dynamic lifting/pulling operations. Instantaneous changes in the load up or down, in excess of 10 percent of the rope's rated working load constitutes hazardous shock load and would void normal working load recommendations. Consult Yale Cordage for guidelines for working loads and safe use of rope.



Energy Absorption

The colored area under the curve represents the rope's ability to do "work" and is expressed in foot-pounds per pound of rope in tension.

- Green working 406 ft. lbs./lb.
- Red ultimate 8,738 ft. lbs./lb.

Dielectric Strength

The maximum allowable leakage for clean, dry PE-12 is 100 Micro Amperes when tested at 90KV per ASTM 1701-05 "Routine Production Test". Absorbed and entrained moisture or impurities will increase ropes conductivity dramatically.

Splice using Yale's splicing technique document **#10015101** (all sizes).

Maximum Working Load
Minimum Break Strength
Average Break Strength

Specific Gravity: 1.38

HORIZONTAL SWIVEL

PENGO-MILLER Line Stringing Swivels


PENGO-MILLER Swivels


90° Connectors

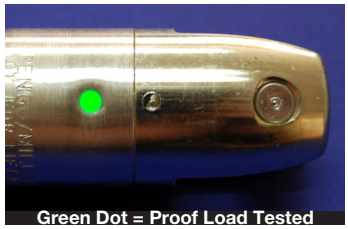
- The original PENGO-MILLER tension line stringing swivels and 90° connectors.
- Designed specifically for horizontal pulling of tension lines and passage over sheaves, overhead or through conduit.
- Swivels have Working Loads up to 100,000 lbs. with a 3:1 design factor.
- Equipped with low friction angular contact ball bearings.
- Machined, heat treated from solid forged alloy steel bar. Single-piece shank.
- Zinc plating inside and out for effective protection against corrosion.
- Hex socket pins are standard. Optional slotted pins available for sizes A thru D.
- Factory lubricated and sealed with neoprene seals.
- 90° Connectors permit limited movement of connected cables in two perpendicular planes. Short, bullet shape accommodates passage though blocks. Mean Breaking Load up to 150,000 lbs.
- Order spare pins by type (hex or slotted), and by model number of the swivel or connector. For example, “two hex pins for A-13-L” or “two slotted pins for B-13-L-SL”.

NEW
PROOF LOAD TESTED

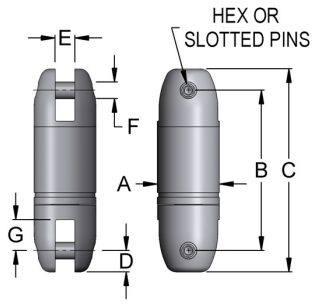
All swivel models A-13-L, BB-13-L and B-13-L are individually proof load tested to 100% of their working load limit as indicated by a green proof test marking.

Test certificates available.

Other sizes tested upon request.

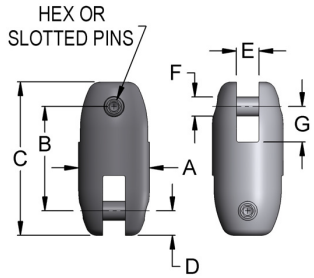

Green Dot = Proof Load Tested

Safety Note: These swivels are designed for straight line pulling and will not support side loads as would be encountered traveling over a bull wheel. Miller line stringing swivels are not intended for general lifting applications. Swivel selection should be based on pulling line diameter, grip size, opening dimensions, pin sizes, working load, and sheave groove diameter. For general lifting applications, see Miller Y-Link and Miller Econo-Link Swivels.



Line Stringing Swivels

Model # Hex Pin	Model # Slotted Pin	WLL* Lbs	A	B	C	D	E	F	G	Weight Lbs.
A-13-L	A-13-L-SL	1,800	.875	2.34	3.09	0.375	0.31	.31	0.47	0.38
BB-13-L	BB-13-L-SL	4,000	1.25	3.66	4.34	0.44	0.59	.38	0.69	1
B-13-L	B-13-L-SL	7,500	1.44	4	5.13	0.56	0.59	.44	0.81	1.38
C-13-L	C-13-L-SL	10,000	1.875	5.44	7.06	0.81	0.75	.62	0.94	3.63
D-13-L	D-13-L-SL	16,000	2.44	7.88	10.19	1.125	1	.88	1.56	8
EE-13-L	N/A	25,000	2.875	9.81	12.31	1.25	1.28	1	2.13	15
D13-4BL	N/A	30,000	2.5	8.91	11.16	1.125	1	.88	1.56	9
GG-13-L	N/A	50,000	3.875	13.25	16.75	1.75	1.75	1.5	3.54	0
HH-13-L	N/A	100,000	4.875	15.81	20.56	2.375	2	2	3.69	78



90° Connectors

Model # Hex Pin	Model # Slotted Pin	MBL Lbs.	ROPE	A	B	C	D	E	F	G	Weight Lbs.
PL 1/4	PL 1/4-SL	5,400	1/4	.88	1.31	2.06	.38	0.31	.31	0.47	0.19
PL 3/8	PL 3/8-SL	12,000	3/8	1.25	1.75	2.63	.44	0.59	.38	0.69	0.38
PL 1/2	PL 1/2-SL	22,500	1/2	1.44	2.13	3.25	.56	0.59	.44	0.81	0.69
PL 5/8	PL 5/8-SL	30,000	5/8	1.88	2.5	4.13	.81	0.75	.62	0.94	1.69
PL 3/4	PL 3/4-SL	60,000	3/4	2.44	3.38	5.63	1.13	1	.88	1.31	3.75
PL 7/8	N/A	75,000	7/8	2.63	3.88	6.38	1.25	1	1	1.5	6.5
PL 1	N/A	150,000	1	3.88	8	11.5	1.75	1.75	1.5	3.5	18.5