

YALE® CORDAGE

A SLINGMAX GROUP COMPANY

INDUSTRIAL

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6TH EDITION

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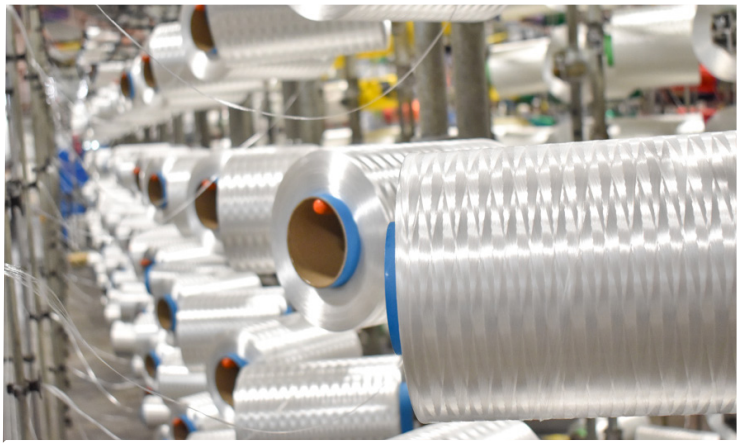
CAUTIONS AND WARNINGS

Note on tolerances: All published rope diameters and weights are nominal and are subject to plus or minus (+/-) 5%.

The below information corresponds with asterisks on product data tables (unless otherwise noted).

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









Performance. Passion. Possibilities.

Yale Cordage began in 1950 with a belief in how synthetic material and high quality braiding techniques could transform the cordage industry. Our continued commitment is to remain grounded in this objective – to provide innovative end-user solutions through superior approaches to the design, manufacture, and fabrication of synthetic rope and rope systems.

We are constantly improving the safety and productivity of our products and pledge to provide exceptional customer service and products that work as hard as we do – up in space, down to the deep seafloor, and everywhere in between. **A rope industry leader in expertise and innovation —Yale is passion for the pursuit of better performance.**

VISIT US AT www.yalecordage.com

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- ***MINING***
- ***SAFETY & RESCUE***
- ***ENTERTAINMENT***
- ***GOVERNMENT/DEFENSE***

ROPE CONSTRUCTIONS

Plaited Rope



Eight-strand “Square Braid” is comprised of eight individual strands, which are woven together as four pairs. Its major advantages are nonrotation and high energy absorption.

Single Braid



This construction leaves a void in the center and utilizes strand counts of 8, 12 or 16. The hollow is instrumental in making it easy to splice. Hollow braids are nonrotating and are an extremely efficient way to utilize fiber.

Parallel Core



This construction consists of a core of parallel yarns that are held together by a wide variety of different means from extrusion to braiding. Due to their low twist level, these linear cables achieve the highest fiber-strength efficiency.

Double Braid



This is really two separate ropes in one: the core, which is a single braid, is over-braided with a sleeve. This construction allows the rope to be used for more applications; the same or dissimilar fibers can be engineered into a rope suited for many specific applications. This construction entirely shields one of the two elements in the rope from abrasion.

Ultrex
Single Braid



Ultrex is the premier 12-strand single braid rope manufactured in the USA by Yale Cordage. Ultrex is made from **Dyneema® (HMPE) fiber** and enhanced with the extremely durable Maxijacket High Performance coating, which supplies superior abrasion resistance. The Maxijacket coating is applied on fiber / strand level, meaning that the coating is applied before braiding. Because of this, Ultrex offers exceptional abrasion resistance and long wear life—even in harsh environments. Ultrex's braid angles and twist level are designed to optimize break strength and keep stretch low.







Diameter (in)	Spliced Minimum Breaking Strength (lbf)*	Unspliced Minimum Breaking Strength (lbf)**	Average Breaking Strength (lbf)	Weight (lb/100ft)
1/16	950	1,000	1,100	0.1
1/8	1,900	2,000	2,200	0.3
5/32	3,000	3,300	3,400	0.5
3/16	5,400	5,900	6,000	1.0
1/4	9,000	9,900	10,000	1.6
5/16	13,000	14,000	14,500	2.3
3/8	18,000	19,500	20,000	3.3
7/16	23,500	25,500	26,500	4.5
1/2	33,500	36,500	37,500	6.4
9/16	40,500	44,500	45,000	8.0
5/8	47,500	52,000	53,000	9.2
3/4	67,000	73,000	75,000	13.8
7/8	88,000	96,000	98,000	17.7
1	115,000	125,000	130,000	24.2
1-1/8	130,000	140,000	145,000	28.7
1-1/4	155,000	170,000	175,000	35.3
1-5/16	170,000	185,000	190,000	41.8
1-1/2	225,000	245,000	250,000	55.6
1-5/8	275,000	300,000	310,000	63.1
1-3/4	295,000	320,000	330,000	75.4
2	355,000	390,000	395,000	89.3

*Knots and abrupt bends significantly reduce the strength of all ropes and lower maximum working load.

**Working load is based on static or moderately dynamic lifting/ pulling operations. Instantaneous changes in load, up or down, in excess of 10% of the rope's rated working load constitute hazardous shock load and would void the normal working-load recommendation. Consult Yale Cordage for guidelines for working loads and the safe use of rope.



Ultrex Endurance

Built For Durability

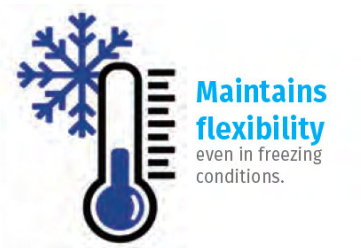
Single Braid

When an application requires a rope that is built for abrasion resistance and longevity in tough conditions, look to Ultrex E. Advanced fiber technologies, engineering, and strategic fiber selection provides Ultrex Endurance with dependable strength and next level abrasion resistance, out performing other ropes especially in high abrasion environments. This rope is manufactured in the United States using premium imported HMPE fiber, providing improved sheave-cycling performance compared to other high-tech fibers.

The 12-strand single braid construction of Ultrex Endurance, combined with optimized braid angles, and high denier yarns, are designed to provide Ultrex E with reliable and consistent break strength while keeping elongation low and durability high. To further enhance the abrasion durability of Ultrex E, fiber and strand-level coatings are applied during the fabrication process, greatly improving abrasion resistance and overall handling.







Diameter (in)	Spliced Minimum Breaking Strength (lbf)*	Unspliced Minimum Breaking Strength (lbf)**	Average Breaking Strength (lbf)	Weight (lb/100ft)
1/16	720	790	800	0.1
1/8	1,800	1,900	2,000	0.3
5/32	2,500	2,700	2,800	0.5
3/16	5,100	5,600	5,700	1.0
1/4	7,900	8,600	8,800	1.6
5/16	12,500	13,500	14,000	2.3
3/8	17,000	18,500	19,000	3.3
7/16	22,500	24,500	25,000	4.5
1/2	32,000	35,000	36,000	6.4
9/16	38,000	41,500	42,500	8.0
5/8	45,000	49,500	50,000	9.2
3/4	64,000	70,000	72,000	13.8
7/8	86,000	94,000	96,000	17.7
1	100,000	110,000	115,000	24.2
1-1/8	125,000	135,000	140,000	28.7
1-1/4	150,000	165,000	170,000	35.3
1-5/16	160,000	175,000	180,000	41.8
1-1/2	210,000	230,000	235,000	55.6
1-5/8	260,000	285,000	290,000	63.1
1-3/4	285,000	310,000	320,000	75.4
2	340,000	370,000	380,000	89.3

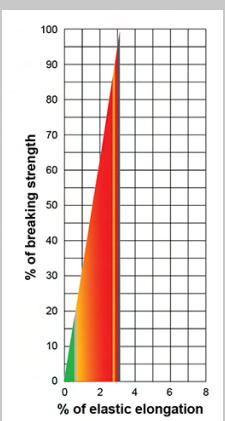
*Knots and abrupt bends significantly reduce the stregth of all ropes.

Ultrex^{SL}
Single Braid



Engineered specifically for the utility stringing line industry, this rope combines high tensile strength with an extremely lightweight construction for easier handling and aerial deployment. It is calibrated for use with industry-standard sheaves and equipment and features low stretch for controlled sagging and tensioning during stringing operations. Available in lengths of 6,000 feet or greater, it is made in the USA using premium Dyneema® SK-75 HMPE fiber.

Diameter (in)	Spliced Minimum Breaking Strength (lbf)*	Unspliced Minimum Breaking Strength (lbf)**	Average Breaking Strength (lbf)	Weight (lb/100ft)
7/16	23,500	25,500	26,500	4.5
1/2	33,500	36,500	37,500	6.4
5/8	47,500	52,000	53,000	9.2



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 318 ft. lbs./lb.
- Red ultimate 8,300 ft. lbs./lb.

Dielectric Strength: The maximum allowable leakage for clean, dry Ultrex^{SL} is 75 micro-amperes when tested at 100kV per Yale Method 712-1701 Rev 1 "Routine Production Test." Absorbed and entrained moisture or impurities will increase rope's conductivity dramatically.

Approved Splice Technique: #10015112, #10018009.

Minimum Break Strength

*Knots and abrupt bends significantly reduce the strength of all ropes and lower maximum working load.

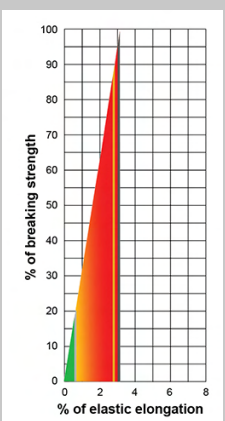
**Working load is based on static or moderately dynamic lifting/ pulling operations. Instantaneous changes in load, up or down, in excess of 10% of the rope's rated working load constitute hazardous shock load and would void the normal working-load recommendation. Consult Yale Cordage for guidelines for working loads and the safe use of rope.

Ultrex^{SLE}
Single Braid



Manufactured in the USA from internationally sourced fiber, Ultrex^{SLE} delivers the exceptional strength and reliability of Ultrex with added dimensional precision for compatibility with standard stringing equipment. Its diameter and braid design are calibrated for smooth performance through industry-standard pullers, tensioners, and pilot line systems—reducing wear, improving safety, and ensuring consistent tension control. Lightweight for easy aerial deployment and featuring low stretch for precise sagging and line placement, Ultrex^{SLE} provides dependable handling and performance on every transmission job.

Diameter (in)	Diameter (mm)	Spliced Minimum Breaking Strength (lbf)*	Unspliced Minimum Breaking Strength (lbf)**	Average Breaking Strength (lbf)	Weight (lb/100ft)
7/16	10.5	20,000	22,000	22,500	4.2
1/2	12	29,500	32,000	33,000	6.1
5/8	15.5	43,000	47,500	48,000	9.0



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 318 ft. lbs./lb.
- Red ultimate 8,300 ft. lbs./lb.

Dielectric Strength: The maximum allowable leakage for clean, dry Ultrex^{SLE} is 75 micro-amperes when tested at 100kV per Yale Method 712-1701 Rev 1 "Routine Production Test." Absorbed and entrained moisture or impurities will increase rope's conductivity dramatically.

Approved Splice Technique: #10015112, #10018009.

Minimum Break Strength

*Knots and abrupt bends significantly reduce the strength of all ropes and lower maximum working load.

**Working load is based on static or moderately dynamic lifting/ pulling operations. Instantaneous changes in load, up or down, in excess of 10% of the rope's rated working load constitute hazardous shock load and would void the normal working-load recommendation. Consult Yale Cordage for guidelines for working loads and the safe use of rope.

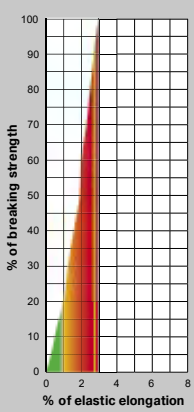
Maxibraid
Single Braid



Maxibraid is a 12-strand single-braid rope constructed from High Modulus Polyethylene (HMPE) fiber. HMPE has the highest strength-to-weight ratio of any synthetic or natural fiber, and it floats. The integral Maxijacket High Performance coating firms the construction, increases wear life and helps keep contaminants out of the rope.

Maxibraid also has extremely low stretch and is laid firmer than Ultrex, sacrificing some tensile strength for longevity in tough field conditions. In many instances, we have found this firmer lay retains higher percentages of original breaking strength after use in the field for extended periods. Available in a variety of Maxijacket colors, which can help identify time in service, differentiate one rope from another or denote load ratings.

Diameter (in)	Spliced Minimum Breaking Strength (lbf)*	Unspliced Minimum Breaking Strength (lbf)**	Average Breaking Strength (lbf)	Weight (lb/100ft)
1/8	1,100	1,300	1,300	0.4
5/32	2,400	2,600	2,700	0.6
3/16	3,800	4,200	4,300	0.9
1/4	5,900	6,500	6,600	1.6
5/16	11,500	12,500	13,000	2.3
3/8	15,500	17,000	17,500	3.6
7/16	16,500	18,000	18,500	3.8
1/2	27,000	30,000	30,000	6.1
9/16	34,500	38,000	38,500	7.7
5/8	40,500	45,000	45,000	9.1
3/4	50,000	55,000	56,000	12.4
7/8	63,000	69,000	70,000	16.4
1	76,000	83,000	85,000	20.2



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 318 ft. lbs./lb.
- Red ultimate 8,300 ft. lbs./lb.

Dielectric Strength: The maximum allowable leakage for clean, dry Mega Max is 75 micro-amperes when tested at 100kV per Yale Method 712-1701 Rev 1 "Routine Production Test." Absorbed and entrained moisture or impurities will increase rope's conductivity dramatically.

Approved Splice Technique: #10015106, #10018007.

Minimum Break Strength

Specific Gravity: 0.97

*Knots and abrupt bends significantly reduce the strength of all ropes and lower maximum working load.

**Working load is based on static or moderately dynamic lifting/ pulling operations. Instantaneous changes in load, up or down, in excess of 10% of the rope's rated working load constitute hazardous shock load and would void the normal working-load recommendation. Consult Yale Cordage for guidelines for working loads and the safe use of rope.

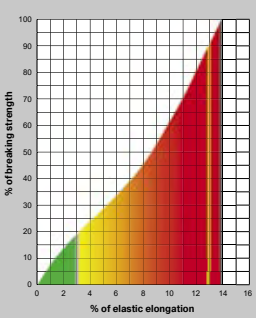
PE-12
Single Braid



PE-12 has been re-engineered, boosting its strengths significantly. Using the same high-tenacity fiber we use in our value-packed Portland Braid, this polyester single braid offers a single-end-per-carrier construction, which keeps the rope from flattening out in service and self centers in sheaves beautifully.

PE-12 comes with the same tough grades of Maxijacket urethane we use on our more expensive products. PE-12 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.

Diameter (in)	Spliced Minimum Breaking Strength (lbf)*	Unspliced Minimum Breaking Strength (lbf)**	Average Breaking Strength (lbf)	Weight (lb/100ft)
3/8	5,500	6,100	6,200	3.9
7/16	9,000	9,900	10,000	6.5
1/2	12,500	13,500	14,000	8.4
9/16	14,500	16,000	16,500	10.2
5/8	17,500	19,000	19,500	11.5
3/4	20,500	23,000	23,000	15.7
7/8	34,000	37,500	38,000	22.9
1	38,500	42,000	43,000	27.2



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 100kV per Yale Method 712-1701 Rev 1 "Routine Production Test." Absorbed and entrained moisture or impurities will increase rope's conductivity dramatically.

Approved Splice Technique: #10015101.

Minimum Break Strength

Specific Gravity: 1.38

*Knots and abrupt bends significantly reduce the strength of all ropes and lower maximum working load.

**Working load is based on static or moderately dynamic lifting/ pulling operations. Instantaneous changes in load, up or down, in excess of 10% of the rope's rated working load constitute hazardous shock load and would void the normal working-load recommendation. Consult Yale Cordage for guidelines for working loads and the safe use of rope.

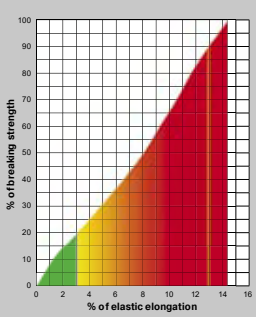
Yalex
Single Braid



Yalex is a single-braid 12-strand rope constructed of premium over finish polyester fiber. Yalex's two-end-per-carrier structure creates a larger void in the middle of the 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 rope's tendency to snag, greatly enhances abrasion resistance, and is a great way to color code ropes for application or load rating.

Diameter (in)	Spliced Minimum Breaking Strength (lbf)*	Unspliced Minimum Breaking Strength (lbf)**	Average Breaking Strength (lbf)	Weight (lb/100ft)
1/4	2,900	3,200	3,300	2.5
5/16	4,800	5,200	5,400	3.1
3/8	5,900	6,500	6,600	4.1
7/16	10,500	11,500	12,000	6.4
1/2	13,500	15,000	15,000	8.4
9/16	16,500	18,500	18,500	10.3
5/8	18,500	20,500	21,000	11.6
3/4	24,000	26,500	27,000	15.5
7/8	37,500	41,500	42,000	23.0
1	44,000	48,000	49,000	32.3



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 100kV per Yale Method 712-1701 Rev 1 "Routine Production Test." Absorbed and entrained moisture or impurities will increase rope's conductivity dramatically.

Approved Splice Technique: #10015101.

Minimum Break Strength

*Knots and abrupt bends significantly reduce the strength of all ropes and lower maximum working load.

**Working load is based on static or moderately dynamic lifting/ pulling operations. Instantaneous changes in load, up or down, in excess of 10% of the rope's rated working load constitute hazardous shock load and would void the normal working-load recommendation. Consult Yale Cordage for guidelines for working loads and the safe use of rope.

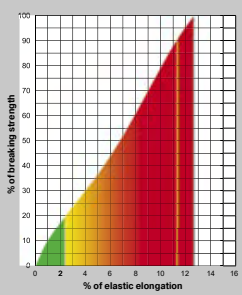
Optimus
Single Braid



Optimus is a single-braid 12-strand rope manufactured from a solution-dyed polyester and coated with our riggers-grade, abrasion resistant coating to maximize protection. The vibrant polyester colorfast fibers are resistant to fading and provide lifelong visibility.

Optimus provides optimal UV and weather resistance while maintaining its lightweight and flexible characteristics. The Optimus is color coded by diameter for easy identification in the field. Manufactured with a braid angle specifically designed for slings and splicing.

Diameter (in)	Spliced Minimum Breaking Strength (lbf)*	Unspliced Minimum Breaking Strength (lbf)**	Average Breaking Strength (lbf)	Weight (lb/100ft)
3/8	5,400	5,900	6,000	4.0
1/2	12,000	13,000	13,500	9.2
5/8	17,000	18,500	19,000	11.7
3/4	22,500	24,500	25,000	16.0
7/8	32,000	35,500	36,000	25.0



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 351 ft. lbs./lb.
- Red ultimate 9,915 ft. lbs./lb.

Dielectric Strength: The maximum allowable leakage for clean, dry Optimus is 100 micro-amperes when tested at 100kV per Yale Method 712-1701 Rev 1 "Routine Production Test." Absorbed and entrained moisture or impurities will increase rope's conductivity dramatically.

Approved Splice Technique: #10015101.

Minimum Break Strength

Specific Gravity: 1.38

*Knots and abrupt bends significantly reduce the strength of all ropes and lower maximum working load.

**Working load is based on static or moderately dynamic lifting/ pulling operations. Instantaneous changes in load, up or down, in excess of 10% of the rope's rated working load constitute hazardous shock load and would void the normal working-load recommendation. Consult Yale Cordage for guidelines for working loads and the safe use of rope.

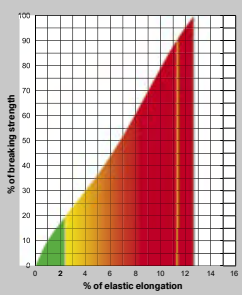
Optimus Pro
Single Braid



Optimus Pro is a 12-strand hollow braid rope manufactured from solution-dyed polyester and coated with our riggers-grade, abrasion-resistant coating to maximize protection. Built with the same performance specifications as Optimus, its hollow braid construction makes the rope easier to splice while maintaining lightweight and flexible handling characteristics. A key feature of this rope is its integrated tracers, which provide a visual reference to help identify twisting during use.

Optimus Pro provides optimal UV and weather resistance, while vibrant, colorfast polyester fibers help provide lifelong visibility. It is color-coded by diameter for easy identification in the field and is available in four variations: 1/2" Neon Green, 5/8" Orange, 3/4" Blue, and 7/8" Dark Green. Its braid construction is specifically designed for sling fabrication and easier splicing.

Diameter (in)	Spliced Minimum Breaking Strength (lbf)*	Unspliced Minimum Breaking Strength (lbf)**	Average Breaking Strength (lbf)	Weight (lb/100ft)
1/2	12,000	13,000	13,500	9.2
5/8	17,000	18,500	19,000	11.7
3/4	22,500	24,500	25,000	16.0
7/8	32,000	35,500	36,000	25.0



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 351 ft. lbs./lb.
- Red ultimate 9,915 ft. lbs./lb.

Dielectric Strength: The maximum allowable leakage for clean, dry Optimus Pro is 100 micro-amperes when tested at 100kV per Yale Method 712-1701 Rev 1 "Routine Production Test." Absorbed and entrained moisture or impurities will increase rope's conductivity dramatically.

Approved Splice Technique: #10015101.

Minimum Break Strength

Specific Gravity: 1.38

*Knots and abrupt bends significantly reduce the strength of all ropes and lower maximum working load.

**Working load is based on static or moderately dynamic lifting/ pulling operations. Instantaneous changes in load, up or down, in excess of 10% of the rope's rated working load constitute hazardous shock load and would void the normal working-load recommendation. Consult Yale Cordage for guidelines for working loads and the safe use of rope.

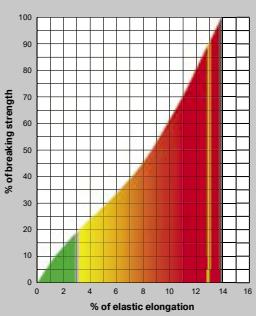
Pilot Line
Single Braid



Pilot Line is a 12-strand 100% polyester single braid with Maxijacket coating to improve abrasion resistance. It is used as a pilot line for stringing applications.

It is available in standard colors of black, blue, green and red. Other colors are available upon request.

Diameter (in)	Spliced Minimum Breaking Strength (lbf)*	Unspliced Minimum Breaking Strength (lbf)**	Average Breaking Strength (lbf)	Weight (lb/100ft)
5/16	3,200	3,500	3,600	2.3



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 Pilot Line is 100 micro-amperes when tested at 100kV per Yale Method 712-1701 Rev 1 "Routine Production Test." Absorbed and entrained moisture or impurities will increase rope's conductivity dramatically.

Approved Splice Technique: #10015101.

Minimum Break Strength

Specific Gravity: 1.38

*Knots and abrupt bends significantly reduce the strength of all ropes and lower maximum working load.

**Working load is based on static or moderately dynamic lifting/ pulling operations. Instantaneous changes in load, up or down, in excess of 10% of the rope's rated working load constitute hazardous shock load and would void the normal working-load recommendation. Consult Yale Cordage for guidelines for working loads and the safe use of rope.

PolyPlus Braid

Single Braid

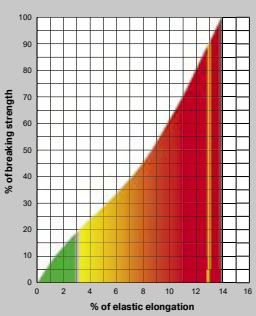


PolyPlus Braid is an a ordable 12-strand single-braid rope constructed of high-tenacity polyester plied over “Para-ep” polyolefin in each individual strand.

A unique plying technique as well as a generous proportion of polyester to olefin is coupled with Yale’s exclusive Aralube treatment to optimize the rope’s abrasion resistance. The “Para-ep” provides body to the rope and enhances its handling characteristics while keeping the rope’s weight to a minimum.

The two-end-per-carrier structure makes the rope very easy to splice, and it is entirely torque balanced. PolyPlus Braid is the strongest single-braid polyester/polyolefin blended rope available and is always manufactured with a single red strand.

Diameter (in)	Spliced Minimum Breaking Strength (lbf)*	Unspliced Minimum Breaking Strength (lbf)**	Average Breaking Strength (lbf)	Weight (lb/100ft)
1/4	2,500	2,700	2,800	1.6
3/8	5,200	5,800	5,800	3.6
7/16	6,500	7,100	7,300	4.3
1/2	8,600	9,500	9,600	5.9
5/8	12,500	14,000	14,000	9.3
3/4	18,000	20,000	20,000	12.3



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 353 ft. lbs./lb.
- Red ultimate 10,268 ft. lbs./lb.

Dielectric Strength: The maximum allowable leakage for clean, dry PolyPlus is 100 micro-amperes when tested at 100kV per Yale Method 712-1701 Rev 1 “Routine Production Test.” Absorbed and entrained moisture or impurities will increase rope’s conductivity dramatically.

Approved Splice Technique: #10015101.

*Knots and abrupt bends significantly reduce the strength of all ropes and lower maximum working load.

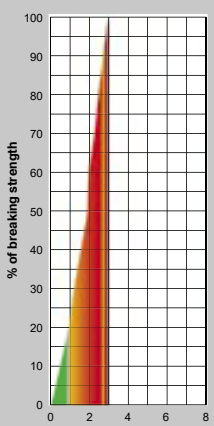
**Working load is based on static or moderately dynamic lifting/ pulling operations. Instantaneous changes in load, up or down, in excess of 10% of the rope’s rated working load constitute hazardous shock load and would void the normal working-load recommendation. Consult Yale Cordage for guidelines for working loads and the safe use of rope.

Vectrus
Single Braid



Vectrus is a single-braid rope of 100% Vectran™ LCP (Liquid Crystal Polymer) and is always treated with Yale's Maxijacket coating to increase abrasion resistance and enhance the fibers' UV resistance. LCP is more tolerant of tighter bending radii in terminations than other high-modulus fibers.

Diameter (in)	Spliced Minimum Breaking Strength (lbf)*	Unspliced Minimum Breaking Strength (lbf)**	Average Breaking Strength (lbf)	Weight (lb/100ft)
1/16	690	760	770	0.2
1/8	2,300	2,500	2,600	0.5
5/32	4,300	4,700	4,800	0.9
3/16	5,000	5,500	5,600	1.0
1/4	8,900	9,800	9,900	1.9
5/16	14,000	15,000	16,000	3.1
3/8	16,500	18,000	18,500	3.6
7/16	22,000	24,000	24,500	5.3
1/2	28,500	31,500	32,000	7.4
9/16	33,500	37,000	37,500	10.0
5/8	44,500	49,000	49,500	12.6
3/4	63,000	69,000	70,000	19.4
7/8	74,000	82,000	83,000	23.6
1	99,000	105,000	110,000	33.5
1-1/4	135,000	145,000	150,000	46.1
1-3/8	170,000	185,000	190,000	58.4
1-1/2	195,000	215,000	220,000	67.9



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 232 ft. lbs./lb.
- Red ultimate 4,446 ft. lbs./lb.

Dielectric Strength: The maximum allowable leakage for clean, dry Vectrus is 100 micro-amperes when tested at 100kV per Yale Method 712-1701 Rev 1 "Routine Production Test." Absorbed and entrained moisture or impurities will increase rope's conductivity dramatically.

Approved Splice Technique: #10015109, #10018009.

Minimum Break Strength

Specific Gravity: 1.40

*Knots and abrupt bends significantly reduce the strength of all ropes and lower maximum working load.

**Working load is based on static or moderately dynamic lifting/ pulling operations. Instantaneous changes in load, up or down, in excess of 10% of the rope's rated working load constitute hazardous shock load and would void the normal working-load recommendation. Consult Yale Cordage for guidelines for working loads and the safe use of rope.

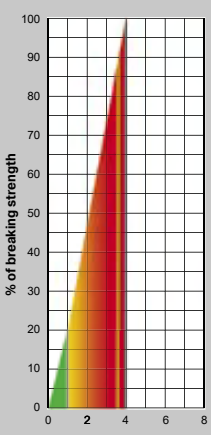
Aracom 100
Single Braid



Aracom 100 is a 12-strand rope comprised of 100% Technora® Aramid fiber. Teijin's Technora Aramid is selected for this rope due to its ease of handling and reduced internal yarn-on-yarn friction, which greatly increases this Aramid's longevity.

Before we twist this fiber, we apply our own exclusive Aralube coating, which improves its translation efficiency as we process it through our manufacturing facility. The rope is twisted and braided with sufficient firmness to be considered self-supporting although many users opt for our Maxijacket urethane coated version which greatly increases its abrasion resistance. Aramid has inherent temperature resistance and has little creep once the rope's permanent elongation is exercised out.

Diameter (in)	Spliced Minimum Breaking Strength (lbf)*	Unspliced Minimum Breaking Strength (lbf)**	Average Breaking Strength (lbf)	Weight (lb/100ft)
1/8	1,900	2,100	2,200	0.5
5/32	3,200	3,600	3,600	0.9
3/16	5,000	5,500	5,600	1.1
1/4	8,200	9,000	9,200	2.0
5/16	12,000	13,000	13,500	3.1
3/8	15,500	17,000	17,500	4.4
7/16	21,000	23,000	23,500	5.6
1/2	25,500	28,000	28,500	6.8
9/16	33,500	37,000	37,500	10.3
5/8	45,500	50,000	51,000	12.5
3/4	51,000	56,000	57,000	18.5
7/8	77,000	84,000	86,000	24.1



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 426 ft. lbs./lb.
- Red ultimate 8,144 ft. lbs./lb.

Dielectric Strength: The maximum allowable leakage for clean, dry Aracom 100 is 200 micro-amperes when tested at 100kV per Yale Method 712-1701 Rev 1 "Routine Production Test." Absorbed and entrained moisture or impurities will increase rope's conductivity dramatically.

Approved Splice Technique: #10015109, #10018009.

Minimum Break Strength

Specific Gravity: 1.44

*Knots and abrupt bends significantly reduce the strength of all ropes and lower maximum working load.

**Working load is based on static or moderately dynamic lifting/ pulling operations. Instantaneous changes in load, up or down, in excess of 10% of the rope's rated working load constitute hazardous shock load and would void the normal working-load recommendation. Consult Yale Cordage for guidelines for working loads and the safe use of rope.

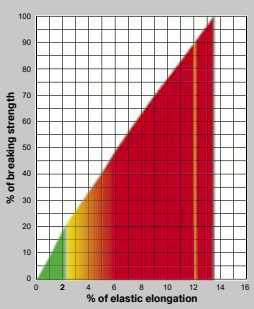
Lugger Line
Single Braid



Lugger Line is a 12-strand single braid of copolymer olefins. Polypropylene and high-density polyethylene are coextruded to form the fiber. Upon cooling, the molten polyethylene and polypropylene material coalesce into a unique fiber with tenacity comparable to polyester but without the friction associated with polypropylene filament.

This rope is lightweight, floats, remains flexible even in freezing conditions and won't kink or hockle. Splicing is fast, using our single-braid splice instructions. The standard color for this product is International Orange.

Diameter (in)	Spliced Minimum Breaking Strength (lbf)*	Unspliced Minimum Breaking Strength (lbf)**	Average Breaking Strength (lbf)	Weight (lb/100ft)
1/2	5,800	6,400	6,500	4.6
9/16	7,400	8,100	8,300	5.6
5/8	9,900	10,500	11,000	6.2
3/4	10,500	12,000	12,000	8.3
7/8	13,000	14,000	14,500	10.0
1	17,000	18,500	19,000	14.1



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 330 ft. lbs./lb.
- Red ultimate 11,400 ft. lbs./lb.

Dielectric Strength: The maximum allowable leakage for clean, dry Lugger Line is 100 micro-amperes when tested at 100kV per Yale Method 712-1701 Rev 1 "Routine Production Test." Absorbed and entrained moisture or impurities will increase rope's conductivity dramatically.

Approved Splice Technique: #10015101.

Minimum Break Strength

Specific Gravity: 0.95

*Knots and abrupt bends significantly reduce the strength of all ropes and lower maximum working load.

**Working load is based on static or moderately dynamic lifting/ pulling operations. Instantaneous changes in load, up or down, in excess of 10% of the rope's rated working load constitute hazardous shock load and would void the normal working-load recommendation. Consult Yale Cordage for guidelines for working loads and the safe use of rope.

Shark Byte 12

Single Braid



Shark Byte 12 is a 12-strand single braid product where the individual strands are a composite of copolymer olefins mixed randomly with Vectran LCP (Liquid Crystal Polymer) fiber. This product is the first synthetic rope ever designed from the ground up to resist shark-bite damage. By spreading the high-modulus Vectran fiber over a larger than required cross-sectional area to achieve a given strength and mixing it with a “tough to cut” lower modulus fiber, greater resistance to bite damage can be achieved.

Shark Byte 12 has successfully and extensively replaced wire on DART buoys, making them more easily serviced. Most importanly, this product is very hard to cut through and is also very easy to splice, entirely torque free, neutrally buoyant and supple in even sub-zero temperatures. This is especially important when line is near sharks using their teeth. Typically the residual strength of an attacked rope is in excess of 40% of a new rope’s published strength.

Diameter (in)	Spliced Minimum Breaking Strength (lbf)*	Unspliced Minimum Breaking Strength (lbf)**	Weight (lb/100ft)
1/2	8,400	9,200	4.3
3/4	20,500	22,500	10.4
1	38,500	42,500	19.5

Specific Gravity: 1.10

Shark Byte 12 is neutrally buoyant. The theoretical specific gravity of the combined fibers is greater than water, i.e. > 1.0, interstitially trapped air may affect the actual value for buoyancy.

*Knots and abrupt bends significantly reduce the strength of all ropes and lower maximum working load.

**The estimated residual strength is from laboratory and tank bite tests and may not represent the effects during actual use.

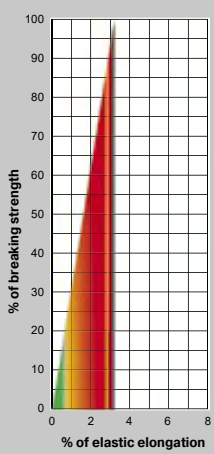
Maxibraid Plus
Double Braid



Maxibraid Plus is a double-braided rope constructed of an inner load-bearing core of High Modulus Polyethylene (HMPE). The polyester outer sleeve is slightly thicker than Ultrex Plus, which would provide more abrasion resistance in high-wear applications.

The HMPE core is coated with Yale's Maxijacket coating prior to being over-braided, for added toughness. Yale has developed a special splice for larger sizes (3/4 and larger), which incorporates a tucked core yet is covered as a conventional double braid. The advantage to this splice is no movement of the eye in service and a greatly shortened internal tail, making the rope more flexible and less prone to being damaged adjacent to the eye.

Diameter (in)	Spliced Minimum Breaking Strength (lbf)*	Unspliced Minimum Breaking Strength (lbf)**	Average Breaking Strength (lbf)	Weight (lb/100ft)
1/4	4,800	5,300	5,400	2.1
5/16	9,200	10,000	10,500	3.2
3/8	11,500	13,000	13,000	4.3
7/16	14,500	15,500	16,500	5.5
1/2	18,500	20,500	21,000	7.3
9/16	25,000	27,500	28,000	9.1
5/8	30,500	33,500	34,000	11.0
3/4	39,500	43,500	44,000	14.2
7/8	56,000	62,000	63,000	21.3
1	67,000	74,000	75,000	25.8
1-1/8	90,000	99,000	100,000	32.2
1-1/4	110,000	120,000	125,000	37.9



Energy Absorption
The colored area under the curve represents the rope's energy absorption capability.

- Green working 115 ft. lbs./lb.
- Red ultimate 4,295 ft. lbs./lb.

Dielectric Strength: The maximum allowable leakage for clean, dry Maxibraid Plus is 100 micro-amperes when tested at 100kV per Yale Method 712-1701 Rev 1 "Routine Production Test." Absorbed and entrained moisture or impurities will increase rope's conductivity dramatically.

Approved Splice Technique: #10015106, #10018007.

Minimum Break Strength

Specific Gravity: 1.40

*Knots and abrupt bends significantly reduce the strength of all ropes and lower maximum working load.

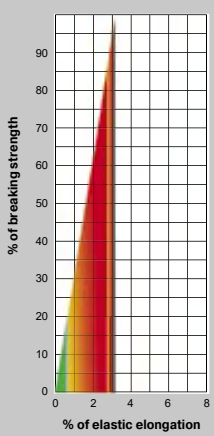
**Working load is based on static or moderately dynamic lifting/ pulling operations. Instantaneous changes in load, up or down, in excess of 10% of the rope's rated working load constitute hazardous shock load and would void the normal working-load recommendation. Consult Yale Cordage for guidelines for working loads and the safe use of rope.

Ultrex Plus
Double Braid



Ultrex Plus is a double braid constructed of an inner load bearing core of bio-based SK78 Dyneema® fiber, treated with Maxijacket coating for enhanced toughness. Sleeved with high-tenacity polyester, Ultrex Plus is spliceable, using conventional high-modulus splice techniques or the new Yale tuck splice, which shortens the bury portion and minimizes the length of the larger diameter associated with a bury-type splice.

Diameter (in)	Spliced Minimum Breaking Strength (lbf)*	Unspliced Minimum Breaking Strength (lbf)**	Average Breaking Strength (lbf)	Weight (lb/100ft)
1/4	5,500	6,100	6,200	2.4
5/16	8,600	9,400	9,600	2.9
3/8	11,500	12,500	13,000	3.8
7/16	14,000	15,500	16,000	4.9
1/2	20,000	22,000	22,500	7.3
9/16	27,000	29,500	30,000	9.0
5/8	31,500	34,500	35,000	11.6
3/4	41,500	45,500	46,500	14.1
7/8	58,000	64,000	65,000	22.8
1	69,000	76,000	77,000	26.0
1-1/8	92,000	100,000	105,000	35.8
1-1/4	110,000	120,000	125,000	43.5
1-5/16	135,000	150,000	150,000	45.7
1-1/2	155,000	175,000	175,000	61.3
1-5/8	170,000	185,000	190,000	71.7
1-3/4	210,000	230,000	235,000	85.6
2	260,000	290,000	290,000	108.6



Energy Absorption
The colored area under the curve represents the rope's energy-absorption capability.

- Green working 140 ft. lbs./lb.
- Red ultimate 5,428 ft. lbs./lb.

Dielectric Strength: The maximum allowable leakage for clean, dry Ultrex Plus is 100 micro-amperes when tested at 100kV per Yale Method 712-1701 Rev 1 "Routine Production Test." Absorbed and entrained moisture or impurities will increase rope's conductivity dramatically.

Approved Splice Technique: #10015106, #10018007.

Minimum Break Strength

Specific Gravity: 1.40

*Knots and abrupt bends significantly reduce the strength of all ropes and lower maximum working load.

**Working load is based on static or moderately dynamic lifting/ pulling operations. Instantaneous changes in load, up or down, in excess of 10% of the rope's rated working load constitute hazardous shock load and would void the normal working-load recommendation. Consult Yale Cordage for guidelines for working loads and the safe use of rope.

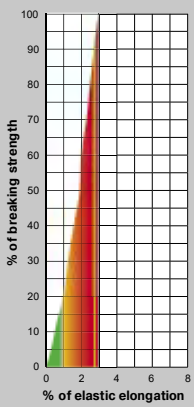
River Max
Double Braid



River Max is a double braid rope with a unique design that provides the ultimate in abrasion protection while still providing the highest strength possible, all in a High Modulus Polyethylene (HMPE) fiber construction. The load-bearing core is made of 12-strand Ultrex and provides 100% of the strength in this design. It is then over-braided and protected again by HMPE fiber.

This product floats and works very well on winches, around bollards and through chocks, making it the best solution for lightweight handling on deck. This product is ideally suited for face lines, wing wires, mooring lines and other applications on deck. It is also well suited for use in high-contact abrasion applications as found in commercial fishing, logging and industrial industries.

Diameter (in)	Spliced Minimum Breaking Strength (lbf)*	Unspliced Minimum Breaking Strength (lbf)**	Average Breaking Strength (lbf)	Weight (lb/100ft)
5/8	33,500	37,000	37,500	9.7
3/4	40,500	44,500	45,000	11.9
7/8	47,500	52,000	53,000	17.0
1	67,000	74,000	75,000	21.6
1-1/8	88,000	97,000	98,000	26.6
1-5/16	115,000	125,000	130,000	35.5
1-3/8	130,000	145,000	145,000	45.0
1-1/2	155,000	170,000	175,000	55.4



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 318 ft. lbs./lb.
- Red ultimate 8,300 ft. lbs./lb.

Dielectric Strength: The maximum allowable leakage for clean, dry River Max is 75 micro-amperes when tested at 100kV per Yale Method 712-1701 Rev 1 "Routine Production Test." Absorbed and entrained moisture or impurities will increase rope's conductivity dramatically.

Approved Splice Technique: #10015106, #10018007.

Minimum Break Strength

Specific Gravity: 0.97

*Knots and abrupt bends significantly reduce the strength of all ropes and lower maximum working load.

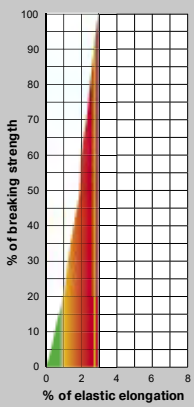
Mega Max
Double Braid



Mega Max is a double braid rope with a unique design that provides the ultimate in abrasion protection while still providing the highest strength possible, all in a High Modulus Polyethylene (HMPE) fiber construction. The load-bearing core is made of 12-strand Ultrex and provides 100% of the strength in this design. It is then over-braided and protected again by HMPE fiber.

This product floats and works very well on winches, around bollards and through chocks, making it the best solution for lightweight handling on deck. This product is ideally suited for face lines, wing wires, mooring lines and other applications on deck. It is also well suited for use in high-contact abrasion applications as found in commercial fishing, logging and industrial industries.

Diameter (in)	Spliced Minimum Breaking Strength (lbf)*	Unspliced Minimum Breaking Strength (lbf)**	Average Breaking Strength (lbf)	Weight (lb/100ft)
5/8	33,500	37,000	37,500	9.7
3/4	40,500	44,500	45,000	11.9
7/8	47,500	52,000	53,000	17.0
1	67,000	74,000	75,000	21.6
1-1/8	88,000	97,000	98,000	26.6
1-5/16	115,000	125,000	130,000	35.5
1-3/8	130,000	145,000	145,000	45.0
1-1/2	155,000	170,000	175,000	55.4



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 318 ft. lbs./lb.
- Red ultimate 8,300 ft. lbs./lb.

Dielectric Strength: The maximum allowable leakage for clean, dry Mega Max is 75 micro-amperes when tested at 100kV per Yale Method 712-1701 Rev 1 "Routine Production Test." Absorbed and entrained moisture or impurities will increase rope's conductivity dramatically.

Approved Splice Technique: #10015106, #10018007.

Minimum Break Strength

Specific Gravity: 0.97

*Knots and abrupt bends significantly reduce the strength of all ropes and lower maximum working load.

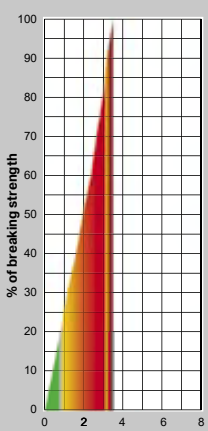
Crystalyne
Double Braid



Crystalyne is a double-braided rope constructed with an inner load-bearing core of Vectran Liquid Crystal Polymer (LCP) and has a tough polyester outer sleeve. LCP is more tolerant of bending than other high-modulus fibers and is not as a ected by overloading.

Crystalyne exhibits more tension cycles to higher percentages of break than all our other high-modulus o erings. Unlike High Modulus Polyethylene (HMPE) ropes, LCP fiber has little or no tendency to creep and can be used to hold tight tolerances in rope assemblies. Vectran is hydrophobic, meaning it cannot absorb water. This rope is spliced using the same technique as our Maxibraid Plus, resulting in a termination that finishes shorter than conventional splice techniques and remains supple.

Diameter (in)	Spliced Minimum Breaking Strength (lbf)*	Unspliced Minimum Breaking Strength (lbf)**	Average Breaking Strength (lbf)	Weight (lb/100ft)
3/16	3,000	3,300	3,400	1.4
1/4	4,900	5,400	5,500	2.2
5/16	7,700	8,500	8,600	3.0
3/8	11,000	12,000	12,500	4.4
7/16	13,500	15,000	15,000	6.1
1/2	18,000	19,500	20,000	8.5
5/8	26,500	29,500	29,500	12.0
11/16	32,000	35,500	36,000	18.8
3/4	38,000	42,000	42,500	20.0
7/8	50,000	55,000	56,000	24.4
1	64,000	70,000	72,000	33.3
1-1/8	78,000	86,000	87,000	41.6
1-1/4	96,000	105,000	110,000	46.0



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 187 ft. lbs./lb.
- Red ultimate 3,403 ft. lbs./lb.

Dielectric Strength: Crystalyne's core of LCP is hydrophobic, so its lack of core moisture gain is an advantage, as is its high melt point of 620°F (325°C). The polyester sleeve governs the leakage, which is 100 micro-amperes at 100kV per Yale Method 712-1701 Rev 1 "Routine Production Test."

Approved Splice Technique: #10015110, #10018007.

Minimum Break Strength

Specific Gravity: 1.40

*Knots and abrupt bends significantly reduce the strength of all ropes and lower maximum working load.

**Working load is based on static or moderately dynamic lifting/ pulling operations. Instantaneous changes in load, up or down, in excess of 10% of the rope's rated working load constitute hazardous shock load and would void the normal working-load recommendation. Consult Yale Cordage for guidelines for working loads and the safe use of rope.

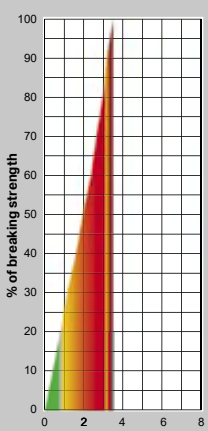
Aracom T
Double Braid



Aracom T is a double braid consisting of a Technora® Aramid core with a sleeve of high-tenacity polyester. Aracom T maintains a high degree of flexibility and is easily spliced.

Yale's exclusive Aralube process infuses the Technora with molten lubricant prior to entering our twisting equipment. Lab and field experience have shown that this added, internal permanent lubrication (nonsoluble) treatment leads to an extended wear life (as much as four times). It cuts down internal abrasion, reduces lament breakage in processing and helps us manage fiber tensions in the factory as we ply up a strand. The polyester sleeve is thicker than its sister product, Miniline, which gives it better protection in high-abrasion applications. The entire strength of racom T is derived from the core, and the sleeve's purpose is to protect the core from abrasion.

Diameter (in)	Spliced Minimum Breaking Strength (lbf)*	Unspliced Minimum Breaking Strength (lbf)**	Average Breaking Strength (lbf)	Weight (lb/100ft)
3/16	4,000	4,400	4,500	1.5
1/4	6,100	6,700	6,800	2.7
5/16	8,700	9,600	9,700	3.8
3/8	13,000	14,000	14,500	5.1
7/16	15,500	17,000	17,500	6.8
1/2	20,500	22,500	23,000	8.7
9/16	24,500	27,000	27,500	10.0
5/8	30,500	34,000	34,000	13.3
3/4	35,000	38,500	39,000	16.9
7/8	62,000	68,000	69,000	24.5
1	78,000	85,000	87,000	32.5
1-1/8	88,000	96,000	98,000	45.0
1-1/4	99,000	105,000	110,000	51.0



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 157 ft. lbs./lb.
- Red ultimate 4,409 ft. lbs./lb.

Dielectric Strength: Due to their moisture gain, high-dielectric applications are not recommended for Aracom T and Aracom Miniline.

Approved Splice Technique: #10018000, #10018007.

Minimum Break Strength

Specific Gravity: 1.40

*Knots and abrupt bends significantly reduce the strength of all ropes and lower maximum working load.

**Working load is based on static or moderately dynamic lifting/ pulling operations. Instantaneous changes in load, up or down, in excess of 10% of the rope's rated working load constitute hazardous shock load and would void the normal working-load recommendation. Consult Yale Cordage for guidelines for working loads and the safe use of rope.

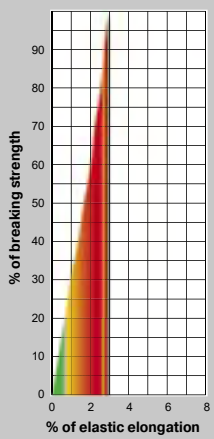
Aracom Miniline
Double Braid



Aracom Miniline combines a low helix angle core of Technora® Aramid with a very tightly woven over-braid of thin polyester. Aracom Miniline provides the maximum strength–to-weight ratio in a composite Aramid polyester construction.

Aracom Miniline can also be ordered with fuzz fairing, which is highly effective at eliminating strum and reducing drag where application is either hydrodynamic or aerodynamic. Yale's faired ropes can be wound on a reel without any damage to the fairing or rope. Contact Yale for more details.

Diameter (in)	Spliced Minimum Breaking Strength (lbf)*	Unspliced Minimum Breaking Strength (lbf)**	Average Breaking Strength (lbf)	Weight (lb/100ft)
1/16	420	460	470	0.2
3/32	800	880	890	0.4
1/8	1,500	1,700	1,700	0.8
5/32	2,200	2,400	2,500	1.0
3/16	3,700	4,100	4,200	1.7
1/4	5,600	6,200	6,300	2.5
5/16	7,500	8,300	8,400	3.3
3/8	12,000	13,500	13,500	4.2
7/16	15,500	17,000	17,500	6.7
1/2	19,500	21,500	22,000	8.0
9/16	27,000	30,000	30,000	10.6
5/8	32,000	35,500	36,000	12.0
3/4	50,000	55,000	56,000	21.0
7/8	70,000	77,000	78,000	25.9
1	84,000	93,000	94,000	33.9



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 100 ft. lbs./lb.
- Red ultimate 4,906 ft. lbs./lb.

Dielectric Strength: Due to their moisture gain, high-dielectric applications are not recommended for Aracom T and Aracom Miniline.

Approved Splice Technique: #10015111.

Minimum Break Strength

Specific Gravity: 1.40

*Knots and abrupt bends significantly reduce the strength of all ropes and lower maximum working load.

**Working load is based on static or moderately dynamic lifting/ pulling operations. Instantaneous changes in load, up or down, in excess of 10% of the rope's rated working load constitute hazardous shock load and would void the normal working-load recommendation. Consult Yale Cordage for guidelines for working loads and the safe use of rope.

Double Esterlon

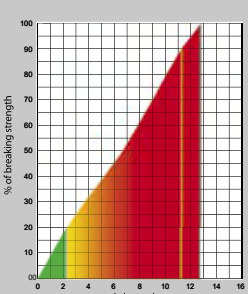
Double Braid



Double Esterlon is a double-braided rope constructed of premium over finish polyester fiber in both the sleeve and core. This product is identified by two green strands braided into the cover structure and is available with optional Maxijacket urethane coating to further enhance the rope's wear resistance.

Double Esterlon has low stretch, high dielectric strength, and excellent wear life. Double Esterlon yields the highest-strength double braid polyester available. It is completely spliceable, delivering the cataloged strengths when spliced properly.

Diameter (in)	Spliced Minimum Breaking Strength (lbf)*	Unspliced Minimum Breaking Strength (lbf)**	Average Breaking Strength (lbf)	Weight (lb/100ft)
1/4	2,400	2,600	2,700	2.4
5/16	3,300	3,600	3,700	3.1
3/8	4,900	5,300	5,500	4.2
7/16	6,500	7,100	7,300	5.9
1/2	9,800	10,500	11,000	7.8
9/16	11,500	12,500	13,000	10.1
5/8	14,500	15,500	16,500	13.9
3/4	17,500	19,000	19,500	17.0
7/8	27,000	29,500	30,000	24.6
1	38,500	42,000	43,000	33.9
1-1/8	48,500	53,000	54,000	44.7
1-1/4	57,000	62,000	64,000	50.9
1-5/16	60,000	66,000	67,000	57.5
1-1/2	70,000	77,000	78,000	70.0
1-5/8	80,000	88,000	89,000	83.5
1-3/4	91,000	100,000	105,000	103.0
2	125,000	135,000	140,000	130.0



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 291 ft. lbs./lb.
- Red ultimate 7,711 ft. lbs./lb.

Dielectric Strength: The maximum allowable leakage for clean, dry Double Esterlon is 100 micro-amperes when tested at 100kV per Yale Method 712-1701 Rev 1 "Routine Production Test." Absorbed and entrained moisture or impurities will increase rope's conductivity dramatically.

Approved Splice Technique: #10017200.

Minimum Break Strength

Specific Gravity: 1.38

*Knots and abrupt bends significantly reduce the strength of all ropes and lower maximum working load.

**Working load is based on static or moderately dynamic lifting/ pulling operations. Instantaneous changes in load, up or down, in excess of 10% of the rope's rated working load constitute hazardous shock load and would void the normal working-load recommendation. Consult Yale Cordage for guidelines for working loads and the safe use of rope.



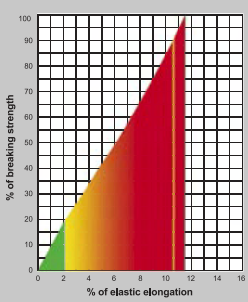
Portland Braid

Double Braid

Portland Braid double-braided polyester offers high value at a very competitive price. Built in the same manner as our Double Esterlon, Portland Braid offers consistent performance at an economical price.

The fiber used to produce Portland Braid is sourced from Yale's qualified suppliers. Portland Braid can be special ordered in ultra-long continuous lengths. We also offer our optional Maxijacket urethane coating to further enhance the rope's wear resistance.

Diameter (in)	Spliced Minimum Breaking Strength (lbf)*	Unspliced Minimum Breaking Strength (lbf)**	Average Breaking Strength (lbf)	Weight (lb/100ft)
1/4	1,700	1,800	1,900	2.0
5/16	2,800	3,000	3,200	3.0
3/8	4,300	4,700	4,800	4.2
7/16	6,200	6,800	6,900	5.7
1/2	8,300	9,100	9,300	7.8
9/16	10,000	11,000	11,500	10.0
5/8	13,500	14,500	15,000	13.0
3/4	17,000	18,500	19,000	16.1
7/8	26,000	28,500	29,000	24.6
1	35,500	39,000	39,500	32.8
1-1/8	43,500	47,500	48,500	44.9
1-1/4	52,000	57,000	58,000	50.2
1-1/2	68,000	74,000	76,000	68.0
1-3/4	88,000	96,000	98,000	102.0
2	110,000	120,000	125,000	129.0
2-1/8	130,000	140,000	145,000	149.0
2-1/4	150,000	165,000	170,000	170.0
2-1/2	200,000	220,000	225,000	204.0



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 265 ft. lbs./lb.
- Red ultimate 5,929 ft. lbs./lb.

Dielectric Strength: The maximum allowable leakage for clean, dry Portland Braid is 100 micro-amperes when tested at 100kV per Yale Method 712-1701 Rev 1 "Routine Production Test." Absorbed and entrained moisture or impurities will increase rope's conductivity dramatically.

Approved Splice Technique: #10017200.

Minimum Break Strength

Specific Gravity: 1.38

*Knots and abrupt bends significantly reduce the strength of all ropes and lower maximum working load.

**Working load is based on static or moderately dynamic lifting/ pulling operations. Instantaneous changes in load, up or down, in excess of 10% of the rope's rated working load constitute hazardous shock load and would void the normal working-load recommendation. Consult Yale Cordage for guidelines for working loads and the safe use of rope.

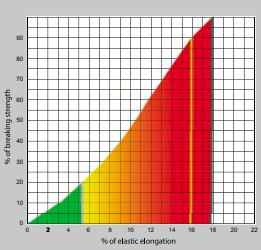
Polydyne
Double Braid



Polydyne is a double-braided rope that utilizes a polyester sleeve over a nylon core. Despite the dissimilar stretch characteristics of these fibers, Yale engineers have produced constructions where both fibers contribute.

The resulting rope has high breaking strength and more stretch in its working load range, which in many applications is a plus. Polydyne is up to taking more dynamic abuse without being degraded prematurely. Take special note of the working energy-absorption rating, which is the amount of energy a rope absorbs before reaching its working load. The ultimate energy absorption of this rope is also correspondingly high. All this and a tough polyester jacket make this a long-wearing rope with extraordinary dynamic capabilities.

Diameter (in)	Spliced Minimum Breaking Strength (lbf)*	Unspliced Minimum Breaking Strength (lbf)**	Average Breaking Strength (lbf)	Weight (lb/100ft)
1/4	2,500	2,800	2,800	1.9
5/16	3,900	4,300	4,400	2.8
3/8	5,100	5,600	5,700	4.4
7/16	7,700	8,500	8,600	5.8
1/2	11,500	13,000	13,000	7.6
9/16	14,000	15,500	16,000	9.7
5/8	20,000	22,000	22,500	13.6
3/4	27,000	30,000	30,000	18.5
7/8	34,500	38,000	38,500	24.4
1	43,000	47,500	48,000	31.5
1-1/8	51,000	56,000	57,000	41.5
1-1/4	64,000	70,000	72,000	50.8
1-5/16	76,000	83,000	85,000	55.0
1-1/2	89,000	98,000	99,000	66.0



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 576 ft. lbs./lb.
- Red ultimate 11,187 ft. lbs./lb.

Dielectric Strength: The maximum allowable leakage for clean, dry Polydyne is 100 micro-amperes when tested at 100kV per Yale Method 712-1701 Rev 1 "Routine Production Test." Absorbed and entrained moisture or impurities will increase rope's conductivity dramatically.

Approved Splice Technique: #10017200.

Minimum Break Strength

Specific Gravity: 1.24

*Knots and abrupt bends significantly reduce the strength of all ropes and lower maximum working load.

**Working load is based on static or moderately dynamic lifting/ pulling operations. Instantaneous changes in load, up or down, in excess of 10% of the rope's rated working load constitute hazardous shock load and would void the normal working-load recommendation. Consult Yale Cordage for guidelines for working loads and the safe use of rope.

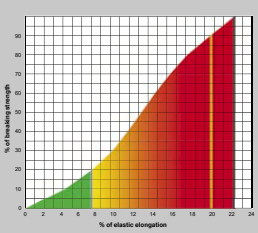
Yalon
Double Braid



Yalon is a double-braided rope constructed of a nylon core and sleeve. It o ers high energy absorption, controlled stretch, and exceeds the strength requirements of MIL-DTL-24050.

Yalon is easily spliced and can be purchased with our optional Max acket coating for enhanced abrasion protection or to color code lines for a given application. Also available in solid white or solid black.

Diameter (in)	Spliced Minimum Breaking Strength (lbf)*	Unspliced Minimum Breaking Strength (lbf)**	Average Breaking Strength (lbf)	Weight (lb/100ft)
1/4	1,800	2,000	2,000	1.5
5/16	3,100	3,400	3,500	2.8
3/8	4,300	4,700	4,800	3.7
7/16	5,800	6,400	6,500	5.3
1/2	7,400	8,200	8,300	7.0
9/16	10,500	11,500	12,000	10.0
5/8	15,000	16,500	17,000	13.0
3/4	18,500	20,500	21,000	16.2
7/8	26,500	29,000	29,500	23.3
1	30,500	33,500	34,000	28.5
1-1/8	42,500	47,000	47,500	37.7
1-1/4	47,500	52,000	53,000	43.9
1-5/16	54,000	60,000	60,000	49.6
1-1/2	72,000	79,000	80,000	61.1
1-5/8	79,000	87,000	88,000	68.5
1-3/4	95,000	100,000	110,000	85.9
2	115,000	125,000	130,000	101.0
2-1/4	150,000	165,000	170,000	131.0



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 796 ft. lbs./lb.
- Red ultimate 11,871 ft. lbs./lb.

Dielectric Strength: The maximum allowable leakage for clean, dry Yalon is 2 milli-amperes when tested at 100kV per Yale Method 712-1701 Rev 1 "Routine Production Test." Absorbed and entrained moisture or impurities will increase rope's conductivity dramatically.

Approved Splice Technique: #10017200.

Minimum Break Strength

Specific Gravity: 1.14

*Knots and abrupt bends significantly reduce the strength of all ropes and lower maximum working load.

**Working load is based on static or moderately dynamic lifting/ pulling operations. Instantaneous changes in load, up or down, in excess of 10% of the rope's rated working load constitute hazardous shock load and would void the normal working-load recommendation. Consult Yale Cordage for guidelines for working loads and the safe use of rope.

XTC-48 Kernmaster

Double Braid



Kernmaster is a static-rappelling line constructed with a traditional “mantle” sleeve consisting of 48 strands of polyester. The inside,or “kern,” is a braided core of energy-absorbing nylon. The core is fully steam-stabilized to enhance the rope’s flexibility and prevent hardening in service.

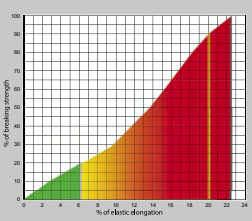
The braid also bends more easily and with less fatiguing of the core when cycled over sheaves or dropped over a parapet. The sleeve is either white with red tracers or solution-cast fiber (color added prior to yarn production), which makes for lasting colors and enhanced wear resistance.

Standards: 11 mm, 13 mm: CE0120 EN1891 Type A

Diameter (in)	Average Break Strength * (Lbs)	Minimum Spliced Break Strength * (Lbs)	Maximum Working Load 10:1 ** (Lbs)	Weight (lb/100ft)
7/16	7,300	6,570	730	5.5

*Knots and abrupt bends significantly reduce the strength of all ropes and lower maximum working load.

**Working load is based on static or moderately dynamic lifting/ pulling operations. Instantaneous changes in load, up or down, in excess of 10% of the rope’s rated working load constitute hazardous shock load and would void the normal working-load recommendation. Consult Yale Cordage for guidelines for working loads and the safe use of rope.



Energy Absorption
The colored area under the curve represents the rope’s energy-absorption capability.

- Green working 622 ft. lbs./lb.
- Red ultimate 9,775 ft. lbs./lb.

Dielectric Strength: The maximum allowable leakage for clean, dry Kernmaster is 500 micro-amperes when tested at 100kV per Yale Method 712-1701 Rev 1 “Routine Production Test.” Absorbed and entrained moisture or impurities will increase rope’s conductivity dramatically.

Minimum Break Strength

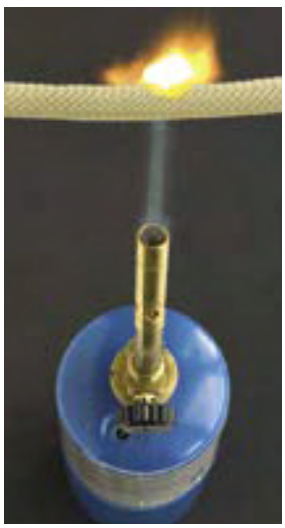
Specific Gravity: 1.23

Tech Kern
Double Braid

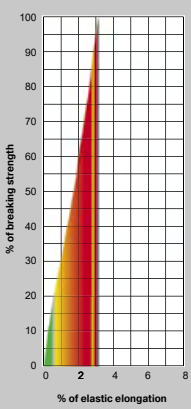


Tech-Kern is a Kernmantle-style rope consisting of a braided Technora® Aramid core covered by a 48-strand Technora mantle.

If you are familiar with our Kernmaster, you already know the advantages of a braided-core rappelling line. The Tech-Kern was designed to bring the highest heat resistance to the market. Technora has a high melting point and acts as a heat sink when used with high-friction applications, as with descent devices.



Diameter (inches)	Weight (Lbs/100f)	Minimum Spliced Break Strength *(lbs)	Unspliced Minimum Break Strength (lbs)
0.45	7.6	21,000	23,100



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 233 ft. lbs./lb.
- Red ultimate 4,571 ft. lbs./lb.

Dielectric Strength: Due to their moisture gain, high-dielectric applications are not recommended for Tech Kern.

Approved Splice Technique: #10018000.

Minimum Break Strength

Specific Gravity: 1.44

*Knots and abrupt bends significantly reduce the strength of all ropes and lower maximum working load.

**Working load is based on static or moderately dynamic lifting/ pulling operations. Instantaneous changes in load, up or down, in excess of 10% of the rope's rated working load constitute hazardous shock load and would void the normal working-load recommendation. Consult Yale Cordage for guidelines for working loads and the safe use of rope.



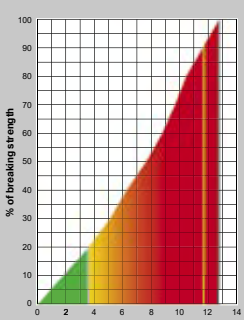
Uniline
Parallel Core

Uniline is a parallel-core cable of PET (polyester) filament. The Uniline core is bonded together with a rubber-based adhesive, wrapped with red rubber tape, over-braided with a tough polyester sleeve and entirely saturated with another rubber solution.

The cable is then cured in an oven, causing the rubber to advance to a solid layer with very tough mechanical properties. The red rubber layer not only acts as a moisture barrier, but is also a wear indicator. This cable carries a 4:1 workload rating for overhead work and a 3:1 rating for underground work. Uniline is the toughest conventional polyester stringing line you can buy and minimizes the elasticity and stretchiness seen in polyester ropes. Ropes removed from machines having seen 20 years of service regularly test at 75% of the original strength and above. Uniline can be spliced both in eyes and as a running splice, delivering the full strength as cataloged. Alternately, Uniline can be terminated and/or end-for-end joined together with our TechEye3 and TechJoin3 products.

Uniline Lifeline is a specialized construction utilizing a solution-dyed polyester sleeve and no additional external coating. Uniline Lifeline is only available in 1/2" and 5/8" diameters in the following color options – solid orange, solid black and solid gray.

Diameter Inches	Diameter mm	Weight Lbs/100ft	Weight Kg/100m	Average Spliced Break Strength* Lbs	Average Spliced Break Strength* Kg	Minimum Spliced Break Strength* Lbs	Minimum Spliced Break Strength* Kg	Maximum** Work Load 4:1 Lbs	Maximum** Work Load 4:1 Kg
3/8	10	7.0	10.4	6,000	2,720	5,400	2,448	1,500	680
7/16	11	8.1	12.1	7,150	3,243	6,435	2,918	1,788	811
15/32	12	8.3	12.4	7,750	3,515	6,975	3,163	1,935	879
1/2	13	10.0	14.9	10,500	4,675	9,450	4,289	2,625	1,191
5/8	16	15.6	23.2	17,200	7,805	15,480	7,025	4,300	1,951
3/4	19	21.7	32.3	24,200	10,985	21,780	9,887	6,050	2,746
7/8	22	30.6	45.6	32,800	14,890	29,520	13,401	8,200	3,723
1	25	38.7	57.6	42,200	19,155	37,980	17,240	10,550	4,789
1 1/8	29	48.8	72.7	53,000	24,060	47,700	21,654	13,250	6,015
1 1/4	32	60.4	89.9	64,500	29,280	58,050	26,352	16,125	7,320
1 3/8	35	73.1	108.9	78,000	35,410	70,200	31,869	19,500	8,853
1 1/2	38	86.9	129.4	92,000	41,765	82,800	37,589	23,000	10,441
1 5/8	41	102.1	152.0	108,000	49,030	97,200	44,127	27,000	12,258
1 3/4	44	118.4	176.3	125,000	56,750	112,500	51,075	31,250	14,188
1 7/8	48	135.3	201.5	144,000	65,375	129,600	58,838	36,000	16,344
2	51	155.0	230.8	164,000	74,455	147,600	67,010	41,000	18,614



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 262 ft. lbs./lb.
- Red ultimate 5,230 ft. lbs./lb.

Dielectric Strength: The maximum allowable leakage for clean, dry Uniline is 50 micro-amperes when tested at 100kV per Yale Method 712-1701 Rev 1 "Routine Production Test." Absorbed and entrained moisture or impurities will increase rope's conductivity dramatically.

Approved Splice Technique: #10018010, #10018051.

Minimum Break Strength

Specific Gravity: 1.38

*Knots and abrupt bends significantly reduce the strength of all ropes and lower maximum working load.

**Working load is based on static or moderately dynamic lifting/pulling operations. Instantaneous changes in load, up or down, in excess of 10% of the rope's rated working load constitute hazardous shock load and would void the normal working-load recommendation. Consult Yale Cordage for guidelines for working loads and the safe use of rope.

Custom colors for Uniline (Minimum order required)



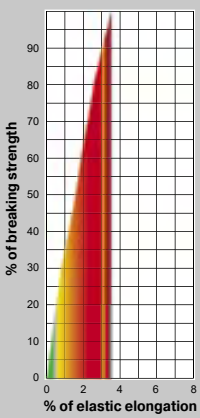
Unitrex
Parallel Core



Unitrex XS Max Wear, Uniline's high-tech cousin, is a parallel-core rope of High Modulus Polyethylene (HMPE), wrapped with a neoprene tape and over-braided with a tough jacket of high-tenacity polyester. The result is a synthetic cable, somewhat sti er than your usual rope, which is much like wire in its stretch characteristics.

Unlike wire, Unitrex is much lighter and easily handled. Due to its toughness, we are comfortable assigning it a higher working load rating, which is 25% of its breaking strength. Unitrex XS Max Wear has high strength retention in service, which is supported by field studies and our long-standing track record with Uniline polyester. Unitrex's tough rubber layer protects its HMPE core, and the outer jacket is saturated with urethane, making it the toughest HMPE rope you can buy. All of Yale's parallel-core ropes are torque free, with bonded cores preventing contamination of the internal strength member. Unitrex XS can be quickly terminated and/or joined with a TechEye2 or TechJoin2.

Diameter Inches	Diameter mm	Weight Lbs/100ft	Weight Kg/100m	Average Spliced Break Strength* Lbs	Average Spliced Break Strength* Kg	Minimum Spliced Break Strength* Lbs	Minimum Spliced Break Strength* Kg	Maximum** Work Load 4:1 Lbs	Maximum** Work Load 4:1 Kg
0.44	11	6.7	10.0	20,000	9,080	18,000	8,172	5,000	2,270
0.53	13	9.2	13.7	26,000	11,800	23,400	10,620	6,500	2,950
0.58	15	11.4	17.0	34,000	15,435	30,600	13,892	8,500	3,859
0.63	16	13.5	20.1	42,500	19,295	38,250	17,366	10,625	4,824
0.71	18	16.9	25.2	50,500	22,925	45,450	20,633	12,625	5,731
0.84	21	24.2	36.0	73,500	33,365	66,150	30,029	18,375	8,341
1.00	25	32.4	48.2	100,000	45,400	90,000	40,860	25,000	11,350
1.15	29	42.4	63.1	125,000	56,750	112,500	51,075	31,250	14,188
1.25	32	52.5	78.2	158,000	71,730	142,200	64,557	39,500	17,933
1.40	36	64.9	96.6	195,000	88,530	175,500	79,677	48,750	22,133
1.75	44	92.6	137.9	264,000	119,855	237,600	107,870	66,000	29,964
1.94	49	98.8	147.1	310,000	140,740	279,000	126,666	77,500	35,185
1.99	51	113.3	168.7	360,000	163,440	324,000	147,096	90,000	40,860
2.20	56	144.0	214.4	430,000	195,220	387,000	175,698	107,500	48,805



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 247 ft. lbs./lb.
- Red ultimate 6,893 ft. lbs./lb.

Dielectric Strength: The maximum allowable leakage for clean, dry Unitrex is 50 micro-amperes when tested at 100kV per Yale Method 712-1701 Rev 1 "Routine Production Test." Absorbed and entrained moisture or impurities will increase rope's conductivity dramatically.

Approved Splice Technique: #10018010, #10018008.

Minimum Break Strength

Specific Gravity: 1.10

*Knots and abrupt bends significantly reduce the strength of all ropes and lower maximum working load.

**Working load is based on static or moderately dynamic lifting/ pulling operations. Instantaneous changes in load, up or down, in excess of 10% of the rope's rated working load constitute hazardous shock load and would void the normal working-load recommendation. Consult Yale Cordage for guidelines for working loads and the safe use of rope.

Shark Byte 8
Plaited 8-Strand



Shark Byte 8 is an 8-plait construction that is a composite of copolymer olefins and polyester. It is made to match existing mooring line systems. This product was designed to have a higher specific gravity to ensure it would be a sinking rope, and also to be a less-expensive alternative to the Shark Byte 12 product.

Diameter Inches	Diameter mm	Average Break Strength* Lbs	Average Break Strength* Kg	Ultimate Energy Absorption Ft-Lbs/Lb	Ultimate Energy Absorption Ft-Lbs/Cft	Estimated Residual Strength** %	Linear Density Lbs/100ft	Linear Density Kg/100m
1 1/8	29	29,772	13,504	10,364	271,652	51	26.2	39.0
1 1/4	32	32,300	14,651	10,369	281,000	56	27.1	40.3

Specific Gravity: 1.14

*Knots and abrupt bends significantly reduce the strength of all ropes and lower maximum working load.

**The estimated residual strength is from laboratory and tank bite tests and may not represent the effects during actual use.

Nylon Brait

Plaited 8-Strand



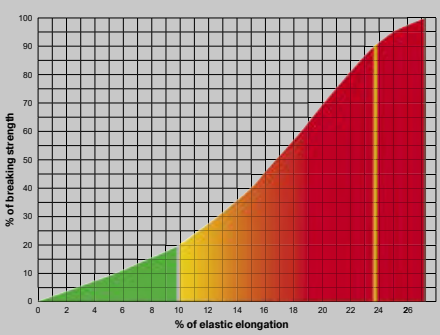
Nylon Brait combines braiding technology with plaited rope optimizing the best of both rope styles. Nylon Brait's most outstanding feature is its high energy absorption, which comes from a combination of the very long yarn path and stranditure developed especially to maximize energy absorption.

Nylon Brait can absorb (or mitigate) greater amounts of dynamic energy than 3-stranded or braided rope structures with less damage. Brait's energy absorption also keeps the corresponding loads on attachment points smaller since the rope does more work internally. Brait is easily spliced and the spliced rope delivers 100% of the ropes advertised strength.

Diameter (in)	Weight (lbs/100ft)	Avg Spliced Break Strength* (lbs)	Min Spliced Break Strength* (lbs)	Maximum Working Load 5:1 **(Lbs)
3/8	3.8	4,000	3,600	800
1/2	6.1	8,300	7,470	1,660
17/32	6.4	9,200	8,280	1,840
5/8	9.4	12,200	10,980	2,440
21/32	9.6	12,900	11,610	2,580
11/16	11	15,000	13,500	3,000
3/4	14	17,000	15,300	3,400
7/8	19	22,000	19,800	4,400
1	23.7	27,000	24,300	5,400
1-1/8	30.5	34,750	31,275	6,950
1-1/4	35.6	40,500	36,450	8,100
1-1/2	49.8	56,700	51,030	11,340
1-5/8	59.5	67,700	60,930	13,540
1-3/4	74	84,700	76,230	16,940

*Knots and abrupt bends significantly reduce the strength of all ropes and lower maximum working load.

**Working load is based on static or moderately dynamic lifting/ pulling operations. Instantaneous changes in load, up or down, in excess of 10% of the rope's rated working load constitute hazardous shock load and would void the normal working-load recommendation. Consult Yale Cordage for guidelines for working loads and the 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 1,426 ft. lbs./lb.
- Red ultimate 23,680 ft. lbs./lb.

Approved Splice Technique: #10017302.

Minimum Break Strength

Specific Gravity: 1.14

Oceanographer's Brait

Plaited 8-Strand

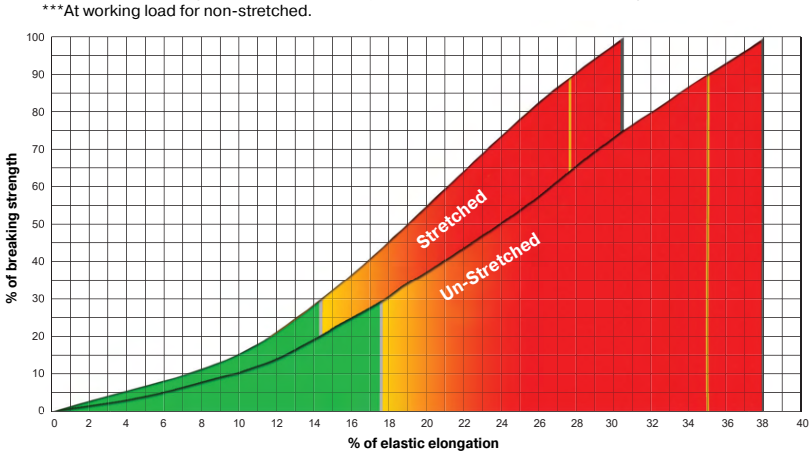


Oceanographer's Brait is the most predictable nylon rope you can buy. Yale begins this proces by **1.** utilizing nylon 6, which has a much higher energy-absorption capability than nylon 6-6. This can mean the difference between a mooring that stays on station or is lost. **2.** The fiber is twisted to add firmness, **3.** twisted again to add additional energy absorption, and **4.** then ply twisted as we close the strand using a counter-twisted veneering yarn creating a better-balanced strand. All of this makes a rope that is firm enough to be used over a less-than-perfect deck. **5.** Yale then plaits the eight strands loosely enough to accommodate a shrink process that further enhances the product. **6.** Steam stabilizes the rope over an eight-hour period so the shrinkage and strength reduction you have had to deal with in the past is eliminated. Although this firms the rope even more, there is no subsequent shrinkage so the rope splices just as easily after use as it did the day you deployed it. **7.** If you elect to have your rope stretched over our automated equipment, you can eliminate the guesswork of what the permanent non-recoverable elongation component of your rope will be after you deploy your mooring. The curves below show the difference this step can offer. This process will also increase your rope's length 4-8% permanently.



Diameter (in)	Weight (lbs/100ft)	Avg Spliced Break Strength* (lbs)	Min Spliced Break Strength* (lbs)	Maximum Working Load 3:1 **(Lbs)	Average WL Energy Absorption Ft Lbs***
11/16	10.5	15,000	13,500	4,500	24,150
3/4	13.4	17,820	16,038	5,347	30,820
7/8	18.5	24,200	21,780	7,261	42,550
1	23.7	29,700	26,730	8,911	54,510
1-1/8	28	37,510	33,759	11,254	64,400
1-1/4	34	46,420	41,778	13,927	78,200

*Knots and abrupt bends significantly reduce the strength of all ropes and lower maximum working load.
**33% of break strength. Your application may dictate a different maximum working load.
***At working load for non-stretched.



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 2,739 ft. lbs./lb.
- Red ultimate 26,074 ft. lbs./lb.

Approved Splice Technique: #10017302.

Minimum Break Strength

Specific Gravity: 1.14

Large Braits

Plaited 8-Strand



Exceptional tension fatigue and very low elongation. Geometry of the plaited fiber allows more substantial dynamic loads imparted on the rope without compromising longevity.

Larger Nylon Brait

Diameter Inches	Diameter mm	Weight Lbs/100f	Weight Kg/100m	Average Spliced Break Strength* Lbs	Average Spliced Break Strength* Kg	Minimum Spliced Break Strength* Lbs	Minimum Spliced Break Strength* Kg	Maximum Working Load 5:1** Lbs	Maximum Working Load 5:1** Kg
2	51	100	149	101,000	45,850	90,900	41,265	20,200	9,170
2-1/4	57	132	197	136,000	61,740	122,400	55,566	27,200	12,348
2-5/8	67	170	253	173,000	78,540	155,700	70,686	34,600	15,708
3	76	220	420	215,000	97,610	193,500	87,849	43,000	19,522
3-1/4	83	282	420	271,000	123,030	243,900	110,727	54,200	24,606
4	102	402	599	383,000	173,880	344,700	156,492	76,600	34,776
5	127	604	899	603,000	273,760	542,700	246,384	120,600	54,752

Larger Polyester Brait

Diameter Inches	Diameter mm	Weight Lbs/100f	Weight Kg/100m	Average Spliced Break Strength* Lbs	Average Spliced Break Strength* Kg	Minimum Spliced Break Strength* Lbs	Minimum Spliced Break Strength* Kg	Maximum Working Load 5:1** Lbs	Maximum Working Load 5:1** Kg
2	51	121	180	101,000	45,850	90,900	41,265	20,200	9,170
2-1/4	57	160	238	136,000	61,740	122,400	55,566	27,200	12,348
2-5/8	67	206	307	173,000	78,540	155,700	70,686	34,600	15,708
3	76	266	396	215,000	97,610	193,500	87,849	43,000	19,522
3-1/4	83	341	508	271,000	123,030	243,900	110,727	54,200	24,606
4	102	486	724	383,000	173,880	344,700	156,492	76,600	34,776
5	127	731	1,089	603,000	273,760	542,700	246,384	120,600	54,752

Larger HMPE Brait

Diameter Inches	Diameter mm	Weight Lbs/100f	Weight Kg/100m	Average Spliced Break Strength* Lbs	Average Spliced Break Strength* Kg	Minimum Spliced Break Strength* Lbs	Minimum Spliced Break Strength* Kg	Maximum Working Load 5:1** Lbs	Maximum Working Load 5:1** Kg
2	51	75	112	339,000	153,905	305,100	138,515	67,800	30,781
2-1/4	57	101	150	480,000	217,920	432,000	196,128	96,000	43,584
2-5/8	67	146	217	627,000	284,655	564,300	256,190	125,400	56,931
3-1/8	79	176	262	768,000	348,670	691,200	313,803	153,600	69,734
3-1/2	89	250	372	950,000	431,300	855,000	388,170	190,000	86,260
4	102	346	515	1,200,000	544,800	1,080,000	490,320	240,000	108,960

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

Fortis²® Sling

Slings



Fortis² Slings are heavy-lift, multipart slings made with our Unitrex XS Max Wear synthetic cable that has a core of Ultra High Molecular Weight Polyethylene (UHMWPE) fiber encased with neo-prene and a tough braided jacket of high-tenacity polyester. The result is a heavy-lift sling of Unitrex XS that has the durability and sti ness of a wire rope sling at a fraction of the weight.

- 80% lighter than a comparable wire rope sling
- Stiff enough to push under objects
- More durable than traditional fiber slings
- One person able to lift eye to crane hook
- Easy to inspect for damage
- Will not corrode or rust
- Will not soak up water or freeze

Sling Model	Rated Sling Capacity Lbs*			Weight Per Ft Lbs	Standard Eye Size Inches	Minimum Length Feet	Maximum Length Feet
	Vertical	Basket	Choker				
44	28,000	56,000	22,400	0.7	22	7	90
53	35,000	70,000	28,000	0.9	24	8	90
58	46,000	92,000	36,800	1.2	26	9	90
63	58,000	116,000	46,400	1.4	28	10	90
71	68,000	136,000	54,400	1.7	30	11	90
84	100,000	200,000	80,000	2.4	35	13	90
100	128,000	256,000	102,400	3.3	40	15	90
115	160,000	320,000	128,000	4.3	45	17	90
125	202,000	404,000	161,600	5.3	50	19	90
140	250,000	500,000	200,000	6.6	55	21	90
170	338,000	676,000	270,400	9.4	60	24	90
180	397,000	794,000	317,600	10.0	70	27	90
190	461,000	922,000	368,800	11.4	80	29	90
220	550,000	1,100,000	440,000	14.5	90	33	90

*Rated capacity is based on 5:1 Design Factor

Rated Sling Capacity Lbs*

15 Ft Sling	Rated Capacity Vertical Tons	Unit Weight in Lbs	Weight per Rated Ton
Fortis² Sling	50	44	0.9
9-Part Wire Rope	56	254	4.5
3-Part Wire Rope	46	200	4.4
Grade 80 Chain	36	363	10.1

U.S. Patent No. 9,296,593 B2 – Singapore Patent No. 11201507689 – China Patent No. CN 105209368 – Australia Patent No. 2014239887 AU South Africa Patent No. 2015/07153 – European Patent No. EP 2969881 – Saudi Arabia Patent No. 720

Fortis²® Sling

Slings



All Fortis² models come with standard ChafePro HB Series chafe protection for the eye of the sling.

The Chafe Pro® HB Series is constructed of multiple layers of FJORD, Inc.'s specially formulated and designed heavy-duty nylon weaves. Abrasion testing has shown the Chafe-Pro HB Series to be more resistant to chafe abrasion than marine-grade fire hose and chafing gear made from such materials as UHMWPE, Kevlar®, etc.

- Chafe-Pro HB series multi-layer design
- Easily removable for inspection
- Chafe-Pro Shore Grip Technology on inner layer prevents slipping on eye
- Easy latch system for quick opening of the material



Fortis² slings are tagged with the Etiflex tag.



- Ratings and warnings are molded into the tag, not printed
- Excellent abrasion resistance
- Resistant to most solvents and petroleum products
- Excellent UV resistance and all temperature performance
- High-visibility, two-color design
- Labels will not stain or mildew

LOUPS™
Slings

LOUPS are the most efficient synthetic slings available and far lighter than steel or conventional round slings. LOUPS bend gracefully. If you look inside a LOUP, you will find just one continuous looped piece of rope (Figure 1), which has been end-for-end spliced to itself.

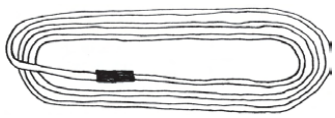
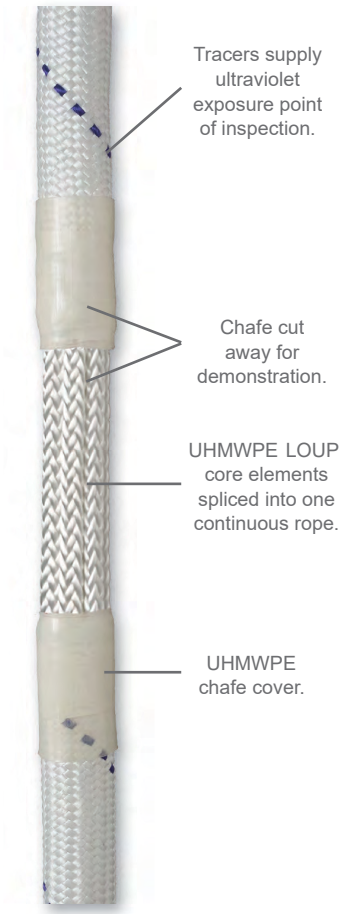


Figure 1

The diameter of the LOUP core and the number of wraps vary by the tensile strength of the LOUP Yale is building. **Since the strength element is small, this product has a 1.1:1 D/d ratio (or bending radius) for Vertical WL.** Simply put, LOUPS are less affected by sharp bending radii than larger ropes of comparable strength. LOUPS can be produced as small as 3" in length and as large as 5 million lbs. tensile.

Through an exhaustive research and development program, the right combination of stress and heat was identified, which now allows us to ship LOUPS at their full strength potential. LOUPS tell you when the sun has taken its toll. The distinctive tracer strands of LOUPS are, by design, more susceptible to ultraviolet attack than the rest of the sling. So, when the tracer yarns, which are nonload-bearing, start to break and fall out, it is time for you to replace the LOUP.







LOUPS™
Slings

LOUPS high-modulus endless slings, by Yale Cordage or a Yale Cordage licensee, significantly advance the technology of lifting slings by utilizing a strength-optimizing, multiple-strand endless braid of Ultra High Molecular Weight Polyethylene UHMWPE fiber encased in a polyethylene abrasion sleeve.

The completed LOUP then undergoes Yale's proprietary annealing process, which elevates the tensile strength by up to four times that of similar-sized polyester-fiber-based slings. For longer or shorter lengths, call for availability. Optional proof loading available.

Model	Diameter		Vertical Capacity*		Choker Capacity*		Basket Capacity*		Base Length	Max. Length
	Inches	(mm)	Lbs	Kg	Lbs	Kg	Lbs	Kg	Feet	Feet
4A03	0.39	(10)	4,280	1,941	**3,424**	**1,550**	8,560	3,883	2	40
4A04	0.44	(11)	5,700	2,586	**4,560**	**2,070**	11,400	5,171	2	40
4A05	0.48	(12)	7,140	3,239	**5,712**	**2,590**	14,280	6,477	2	40
7A02	0.54	(14)	8,560	3,883	**6,848**	**3,105**	17,120	7,766	2	40
7A03	0.67	(17)	12,800	5,806	**10,240**	**4,645**	25,600	11,612	4	40
7A04	0.71	(18)	17,100	7,756	**13,680**	**6,210**	34,200	15,513	4	40
7A06	0.83	(21)	25,600	11,612	**20,480**	**9,295**	51,200	23,224	4	40
7A07	0.91	(23)	29,800	13,517	**23,840**	**10,820**	59,600	27,034	4	40
7A08	0.98	(25)	34,000	15,422	**27,200**	**12,345**	68,000	30,844	6	40
13A04	1.18	(30)	50,800	23,042	**40,640**	**18,450**	101,600	46,085	6	90
13A05	1.30	(33)	63,400	28,758	**50,720**	**23,025**	126,800	57,515	6	90
13A06	1.38	(35)	76,000	34,473	**60,800**	**27,600**	152,000	68,946	6	90

*** Rated capacity is based on 5:1 Design Factor**

Industrial LOUPS™

Industrial LOUPS high-modulus endless slings, by Yale Cordage or a Yale Cordage licensee, significantly advance the technology of lifting slings by utilizing a strength-optimizing, multiple-strand endless braid of UHMWPE fiber encased in apolyethylene or polyester abrasion sleeve. For longer or shorter lengths, call for availability. Optional proof loading available.

UHMWPE Sleeve

Model	Diameter		Vertical Capacity*		Choker Capacity*		Basket Capacity*		Base Length	Maximum Length
	Inches	(mm)	Lbs	Kg	Lbs	Kg	Lbs	Kg	Feet	Feet
13N08	1.7	(44)	83,776	38,001	**67,021**	**30,425**	167,552	76,002	6	90
13N10	1.9	(47)	104,720	47,501	**83,776**	**38,030**	209,440	95,002	6	90
19N06	2.3	(58)	126,000	57,154	**100,800**	**45,760**	252,000	114,307	6	90
19N07	2.4	(61)	147,000	66,679	**117,600**	**53,390**	294,000	133,358	6	90
19N08	2.6	(65)	168,000	76,205	**134,400**	**61,015**	336,000	152,410	6	90
19N10	2.9	(74)	210,000	95,256	**168,000**	**76,270**	420,000	190,512	6	90

Polyester Sleeve

Model	Diameter		Vertical Capacity*		Choker Capacity*		Basket Capacity*		Base Length	Maximum Length
	Inches	(mm)	Lbs	Kg	Lbs	Kg	Lbs	Kg	Feet	Feet
32N05	3.6	(91)	240,800	109,227	**192,640**	**87,455**	481,600	218,454	8	90
32N06	3.9	(99)	288,960	131,072	**231,168**	**104,950**	577,920	262,145	8	90
32N07	4.1	(105)	337,120	152,918	**269,696**	**122,440**	674,240	305,835	8	90

*** Rated capacity is based on 5:1 Design Factor**

Eye/Eye & Endless Slings

All slings are rated 5:1



Eye/Eye Slings

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

Double Esterlon Eye/Eye Slings

Diameter		Vertical Ratings		Choker Ratings		Basket Ratings		Minimum Length	
Inches	(mm)	Lbs	Kg	Lbs	Kg	Lbs	Kg	Inches	(cm)
3/8	(10)	1,120	505	896	405	2,240	1,015	34	(86)
7/16	(11)	1,440	650	1,152	520	2,880	1,305	38	(97)
1/2	(13)	2,160	980	1,728	780	4,320	1,960	42	(107)
5/8	(16)	3,400	1,540	2,720	1,230	6,800	3,085	53	(135)
3/4	(19)	4,160	1,885	3,328	1,510	8,320	3,775	60	(152)
7/8	(22)	6,200	2,810	4,960	2,250	12,400	5,625	68	(173)
1	(25)	8,800	3,995	7,040	3,195	17,600	7,990	78	(198)
1-1/4	(32)	11,560	5,245	9,248	4,195	23,120	10,495	102	(259)
1-1/2	(38)	15,240	6,915	12,192	5,535	30,480	13,835	120	(305)

Yalex Eye/Eye Slings

Diameter		Vertical Ratings		Choker Ratings		Basket Ratings		Minimum Length	
Inches	(mm)	Lbs	Kg	Lbs	Kg	Lbs	Kg	Inches	(cm)
3/8	(10)	1,200	540	960	435	2,400	1,085	32	(81)
7/16	(11)	2,180	985	1,744	790	4,360	1,975	36	(91)
1/2	(13)	2,720	1,230	2,176	985	5,440	2,465	40	(102)
5/8	(16)	3,700	1,675	2,960	1,340	7,400	3,355	48	(122)
3/4	(19)	4,800	2,175	3,840	1,740	9,600	4,355	55	(140)
7/8	(22)	7,100	3,220	5,680	2,575	14,200	6,445	62	(157)
1	(25)	8,600	3,900	6,880	3,120	17,200	7,805	70	(178)

Vectrus Eye/Eye Slings

Diameter		Vertical Ratings		Choker Ratings		Basket Ratings		Minimum Length	
Inches	(mm)	Lbs	Kg	Lbs	Kg	Lbs	Kg	Inches	(cm)
3/8	(10)	3,840	1,740	3,072	1,390	7,680	3,485	34	(86)
7/16	(11)	4,900	2,220	3,920	1,775	9,800	4,445	38	(97)
1/2	(13)	6,400	2,905	5,120	2,320	12,800	5,810	43	(109)
9/16	(14)	7,600	3,450	6,080	2,760	15,200	6,900	48	(122)
5/8	(16)	10,500	4,765	8,400	3,810	21,000	9,530	52	(132)
3/4	(19)	14,000	6,355	11,200	5,080	28,000	12,710	60	(152)
7/8	(22)	17,800	8,080	14,240	6,460	35,600	16,160	68	(173)
1	(25)	21,800	9,895	17,440	7,915	43,600	19,790	78	(198)



Endless Slings

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

Double Esterlon Endless Slings

Diameter		Vertical Ratings		Choker Ratings		Basket Ratings		Minimum Length	
Inches	(mm)	Lbs	Kg	Lbs	Kg	Lbs	Kg	Inches	(cm)
3/8	(10)	1,904	860	1,523	690	3,808	1,725	35	(89)
7/16	(11)	2,448	1,110	1,958	885	4,896	2,220	40	(102)
1/2	(13)	3,672	1,665	2,938	1,330	7,344	3,330	46	(117)
5/8	(16)	5,780	2,620	4,624	2,095	11,560	5,245	58	(147)
3/4	(19)	7,072	3,210	5,658	2,565	14,144	6,420	68	(173)
7/8	(22)	10,540	4,785	8,432	3,825	21,080	9,570	81	(206)
1	(25)	14,960	6,790	11,968	5,430	29,920	13,580	92	(234)
1-1/4	(32)	19,652	8,920	15,722	7,135	39,304	17,840	115	(292)
1-1/2	(38)	25,908	11,760	20,726	9,405	51,816	23,520	138	(350)

Yalex Endless Slings

Diameter		Vertical Ratings		Choker Ratings		Basket Ratings		Minimum Length	
Inches	(mm)	Lbs	Kg	Lbs	Kg	Lbs	Kg	Inches	(cm)
3/8	(10)	2,040	925	1,632	740	4,080	1,850	20	(51)
7/16	(11)	3,706	1,680	2,965	1,345	7,412	3,365	23	(58)
1/2	(13)	4,624	2,095	3,699	1,675	9,248	4,195	26	(66)
5/8	(16)	6,290	2,855	5,032	2,280	12,580	5,710	32	(81)
3/4	(19)	8,160	3,700	6,528	2,960	16,320	7,405	39	(99)
7/8	(22)	12,070	5,475	9,656	4,380	24,140	10,955	45	(114)
1	(25)	14,620	6,635	11,696	5,305	29,240	13,270	52	(132)

Vectrus Endless Slings

Diameter		Vertical Ratings		Choker Ratings		Basket Ratings		Minimum Length	
Inches	(mm)	Lbs	Kg	Lbs	Kg	Lbs	Kg	Inches	(cm)
3/8	(10)	6,144	2,785	4,915	2,230	12,288	5,575	38	(96)
7/16	(11)	7,840	3,555	6,272	2,845	15,680	7,115	44	(112)
1/2	(13)	10,240	4,645	8,192	3,715	20,480	9,295	51	(129)
9/16	(14)	12,160	5,520	9,728	4,415	24,320	11,040	57	(145)
5/8	(16)	16,800	7,625	13,440	6,100	33,600	15,250	64	(163)
3/4	(19)	22,400	10,165	17,920	8,135	44,800	20,335	72	(183)
7/8	(22)	28,480	12,925	22,784	10,340	56,960	25,855	86	(218)
1	(25)	34,880	15,835	27,904	12,665	69,760	31,670	97	(246)

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YALE CORDAGE
A SLINGMAX GROUP COMPANY



Adjustable Slings

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

PolyPlus Adjustable Slings

Diameter		Vertical Ratings		Choker Ratings		Basket Ratings		Minimum Length	
Inches	(mm)	Lbs	Kg	Lbs	Kg	Lbs	Kg	Inches	(cm)
3/8	(9)	790	355	632	285	1,580	715	20	(51)
7/16	(11)	1,060	480	845	380	2,110	955	24	(61)
1/2	(13)	1,500	680	1,200	540	2,990	1,355	28	(71)
5/8	(16)	2,110	955	1,690	765	4,225	1,915	32	(81)
3/4	(19)	2,990	1,355	2,395	1,085	5,985	2,715	38	(97)

Yalex Adjustable Slings

Diameter		Vertical Ratings		Choker Ratings		Basket Ratings		Minimum Length	
Inches	(mm)	Lbs	Kg	Lbs	Kg	Lbs	Kg	Inches	(cm)
3/8	(9)	1,056	475	845	380	2,112	955	20	(51)
7/16	(11)	1,918	870	1,535	695	3,837	1,740	24	(61)
1/2	(13)	2,394	1,085	1,915	865	4,787	2,170	26	(66)
5/8	(16)	3,256	1,475	2,605	1,180	6,512	2,955	32	(81)
3/4	(19)	4,224	1,915	3,379	1,530	8,448	3,835	38	(97)
7/8	(22)	6,248	2,835	4,998	2,265	12,496	5,670	46	(117)
1	(25)	7,568	3,435	6,054	2,745	15,136	6,870	52	(132)

Vectrus Adjustable Slings

Diameter		Vertical Ratings		Choker Ratings		Basket Ratings		Minimum Length	
Inches	(mm)	Lbs	Kg	Lbs	Kg	Lbs	Kg	Inches	(cm)
3/8	(9)	3,072	1,390	2,458	1,115	6,144	2,785	34	(86)
7/16	(11)	3,920	1,775	3,136	1,420	7,840	3,555	38	(97)
1/2	(13)	5,120	2,320	4,096	1,855	10,240	4,645	43	(109)
9/16	(14)	6,080	2,760	4,864	2,205	12,160	5,520	48	(122)
5/8	(16)	8,400	3,810	6,720	3,050	16,800	7,625	52	(132)
3/4	(19)	11,200	5,080	8,960	4,065	22,400	10,165	60	(152)
7/8	(22)	14,240	6,460	11,392	5,170	28,480	12,925	68	(173)
1	(25)	17,440	7,915	13,952	6,330	34,880	15,835	78	(198)

4-Leg Adjustable Slings



Each leg adjusts to accommodate any-sized load or lift-point arrangement. Lifts using less than four legs reduce the ratings proportionately.

Note: 4-leg adjustable slings have a vertical rating based on four legs at 5:1. **All Rated Capacities (WLL's) on multiple-leg slings are based on EQUAL loading of all sling legs.**

PolyPlus 4-Leg Adjustable Slings

Diameter		Vertical Ratings		Minimum Length	
Inches	(mm)	Lbs	Kg	Inches	(cm)
3/8	(9)	3,160	1,430	24	(61)
7/16	(11)	4,240	1,920	28	(71)
1/2	(13)	6,000	2,720	32	(81)
5/8	(16)	8,440	3,830	38	(96)
3/4	(19)	11,960	5,425	46	(117)

Yalex 4-Leg Adjustable Slings

Diameter		Vertical Ratings		Minimum Length	
Inches	(mm)	Lbs	Kg	Inches	(cm)
3/8	(9)	4,220	1,915	24	(61)
7/16	(11)	7,674	3,480	28	(71)
1/2	(13)	9,574	4,345	32	(81)
5/8	(16)	12,820	5,820	38	(96)
3/4	(19)	16,900	7,670	46	(117)
7/8	(22)	25,000	11,350	52	(132)
1	(25)	30,280	13,745	60	(152)

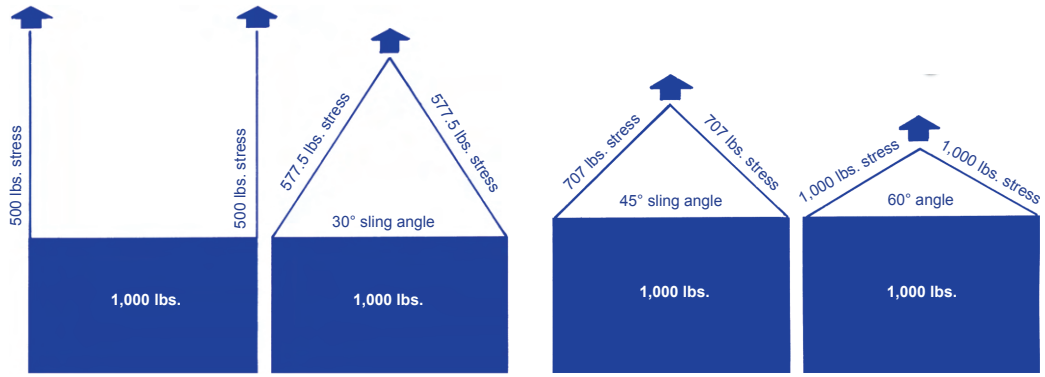
Vectrus 4-Leg Adjustable Slings

Diameter		Vertical Ratings		Minimum Length	
Inches	(mm)	Lbs	Kg	Inches	(cm)
3/8	(9)	12,288	5,575	30	(76)
7/16	(11)	15,680	7,115	33	(84)
1/2	(13)	20,480	9,295	36	(91)
9/16	(14)	24,320	11,040	37	(94)
5/8	(16)	33,600	15,250	57	(145)
3/4	(19)	44,800	20,335	67	(170)
7/8	(22)	56,960	25,855	76	(193)
1	(25)	69,760	31,670	90	(229)

Angle Effect: Sling Capacities

The capacity of a multiple-leg sling is directly affected by the angle of the sling leg with the vertical. As this angle increases, the stress on each leg increases. The capacity can be readily determined by multiplying the sling's vertical capacity by the appropriate load-angle factor.

Sling Angle Vertical	Load Angle Factor
0˚	1.000
15˚	0.966
30˚	0.866
45˚	0.707
60˚	0.500
75˚	0.259



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YALE CORDAGE
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Optimus Slings

Slings

Optimus Slings are manufactured from solution-dyed polyester fibers, providing a lightweight, durable, and versatile lifting solution. The vibrant, colorfast fibers resist fading, while an abrasion-resistant Maxijacket™ coating provides added protection to extend service life. The lifting portion is further protected by a chafe sleeve to minimize wear during use.



Optimus Slings feature adjustable eyes on both ends, allowing for adjustability to accommodate varying load sizes and lifting requirements. Designed to withstand UV exposure and demanding weather conditions, these slings maintain their flexibility and ease of handling. Customization options are available to meet specific lifting applications.

Diameter (in)	Vertical WLL (lbf)	Basket 90° WLL (lbf)	Basket 15° WLL (lbf)
3/8	950	1,900	490
1/2	2,100	4,200	1,000
5/8	2,900	5,900	1,500
3/4	3,900	7,900	2,000
7/8	5,600	11,000	2,900

*Knots and abrupt bends significantly reduce the strength of all ropes and lower maximum working load.

**Working load is based on static or moderately dynamic lifting/ pulling operations. Instantaneous changes in load, up or down, in excess of 10% of the rope's rated working load constitute hazardous shock load and would void the normal working-load recommendation. Consult Yale Cordage for guidelines for working loads and the safe use of rope.



Navy RIB Boat Sling

Slings

Our Navy RIB Boat Slings were developed in conjunction with NSWC Carderock Division to handle RIB Boats. The initial goal was to eliminate wire rope from existing slings, reducing electronic interference, corrosion, wire fish hooks, and generally engineering a safer system.

The results are slings made with our Aracom T double braid rope consisting of a Technora® Aramid core and a high-tenacity polyester sleeve. It is then coated with our battleship gray Maxijacket urethane coating for added abrasion resistance. The hardware used in these assemblies are designed with ease of handling in mind and are tested and certified.

These slings are available as 11M RIB boat slings and 4-Leg RIB boat slings.

Our most popular sizes and constructions include:

- 11M Cabin Boat Sling 7/8 Aramid
- 11M Open Boat Sling 7/8 Aramid
- 11M NSW Boat Sling 7/8 Aramid
- 5.4m Rib Boat Sling – 3/8” Aramid
- 7m Rib Boat Short Sling – 5/8” Aramid
- 7m Rib Boat Long Sling – 5/8” Aramid

Other styles of boat slings are available – please contact us for more details.



Cable Joiners & Pulling Eyes

TechEye2 and **TechJoin2** are used for terminating or joining Yale's Unitrex XS parallel-core cables. Each strand of the structure is an individual Technora® braid. **TechEye3** and **TechJoin3** are used for terminating or joining Yale's Uniline parallel-core cables. Each strand of the structure is a blend of Technora and colored polyester braid. Both are coated with our Maxijacket High Performance coating for 50% more abrasion resistance. Both are easily applied and supplied with the required assembly tools. Test thoroughly for suitability before using in a real-world situation with any ropes other than the Yale ropes **specified for each product.**

Technora®
The power of Aramid

Yale TechEye2

Custom designed to be used with our Unitrex XS product. Preassembled high-modulus synthetic alternative to eye splicing.



Part Number	UNITREX Size Range		Color	Length		Working Load		Weight	
	Inches	(mm)		Feet	Meters	Lbs	Kg	Lbs	Kg
940TE10	0.44	(11)	Red	8	2.4	5,000	2,268	1	0.45
940TE15	0.53	(13)	Yellow	9.5	2.8	6,600	2,993	1.5	0.68
940TE20	0.58	(15)	Blue	10.5	3.2	9,000	4,082	2	0.9
940TE25	0.63	(16)	Orange	11	3.4	10,625	4,819	3	1.4
940TE30	0.71	(18)	Green	13	4	12,700	5,761	4	1.8
940TE35	0.84	(21)	Red	14	4.3	18,500	8,391	7	3.2
940TE40	1	(25)	Yellow	17	5.2	25,000	11,340	9	4.1
940TE45	1.15–1.25	(29–32)	Blue	22	6.7	39,500	17,917	13	5.9
940TE50	1.4	(36)	Orange	26	7.9	49,000	22,225	19	8.6

Yale TechJoin2

Custom designed to be used with our Unitrex XS product. Preassembled high-modulus, end-for-end rope joiners.



Part Number	UNITREX Size Range		Color	Length		Working Load		Weight	
	Inches	(mm)		Feet	Meters	Lbs	Kg	Lbs	Kg
940TJ10	0.44	(11)	Red	16	4.9	5,000	2,268	2	0.9
940TJ15	0.53	(13)	Yellow	19	5.8	6,600	2,993	3	1.4
940TJ20	0.58	(15)	Blue	21	6.4	9,000	4,082	4	1.8
940TJ25	0.63	(16)	Orange	22	6.7	10,625	4,819	6	2.7
940TJ30	0.71	(18)	Green	26	7.9	12,700	5,761	8	3.6
940TJ35	0.84	(21)	Red	28	8.5	18,500	8,391	14	6.4
940TJ40	1	(25)	Yellow	34	10.4	25,000	11,340	19	8.6
940TJ45	1.15–1.25	(29–32)	Blue	44	13.4	39,500	17,917	26	11.8
940TJ50	1.4	(36)	Orange	52	15.8	49,000	22,225	38	17.2

Yale TechEye3

Custom designed to be used with our Uniline product. Preassembled high-modulus synthetic alternative to eye splicing.



Part Number	UNILINE Size Range		Color	Length		Working Load		Weight	
	Inches	(mm)		Feet	Meters	Lbs	Kg	Lbs	Kg
94032TEU	1/2	(13)	Red/Gold	6	1.8	2,625	1,191	0.6	0.3
94040TEU	5/8	(16)	Green/Gold	7.5	2.3	4,300	1,951	1.2	0.5
94048TEU	3/4	(19)	Orange/Gold	8.6	2.6	6,050	2,746	2	0.9
94056TEU	7/8	(22)	Blue/Gold	10	3	8,200	3,723	3.1	1.4
94064TEU	1	(25)	Purple/Gold	11.5	3.5	10,550	4,789	4.4	2

Yale TechJoin3

Custom designed to be used with our Uniline product. Preassembled high-modulus synthetic alternative to eye splicing.



Part Number	UNILINE Size Range		Color	Length		Working Load		Weight	
	Inches	(mm)		Feet	Meters	Lbs	Kg	Lbs	Kg
94032TJU	1/2	(13)	Red/Gold	11	3.4	2,625	1,191	1.1	0.5
94040TJU	5/8	(16)	Green/Gold	14	4.3	4,300	1,951	2.2	1
94048TJU	3/4	(19)	Orange/Gold	16	4.9	6,050	2,746	3.7	1.7
94056TJU	7/8	(22)	Blue/Gold	19	5.8	8,200	3,723	5.8	2.6
94064TJU	1	(25)	Purple/Gold	22	6.7	10,550	4,789	8.3	3.8

Synthetic Shackle



Synthetic Shackle is made from our Ultrex 12-strand High Modulus Polyethylene HMPE fiber and is Maxijacket High Performance coated for structural firmness and increased abrasion resistance. It is lightweight and offers a quick connection with no tools required.





*Open length of the shackle describes the length as shown in the image above, omitting the knot.

Diameter		Minimum Open Length*	Minimum Increment	Knot Diameter	Maximum Diameter**	Average Break Strength	Work Load 5:1
Inches	(mm)	Inches	Inches	Inches	Inches	Lbs	Lbs
1/4	6	7	2	1.1	1.2	11,200	2,240
5/16	8	9	2	1.4	1.5	23,000	4,600
3/8	10	11	2	1.7	1.8	34,000	6,800
7/16	11	12	4	2.0	2.0	43,700	8,740
1/2	13	14	4	2.2	2.5	63,600	12,720
9/16	14	16	4	2.5	2.8	76,500	15,300
5/8	16	18	4	2.8	3.1	90,100	18,020
3/4	19	21	6	3.4	3.8	127,500	25,500
7/8	22	25	6	4.0	4.4	166,600	33,320
1	25	28	6	4.5	5.0	204,000	40,800
1-1/8	29	32	6	5.0	5.5	251,600	50,320
1-1/4	32	35	8	5.7	6.0	292,400	58,480
1-1/2	38	43	8	6.8	7.2	391,000	78,200
1-5/8	41	47	8	7.5	8.0	484,500	96,900
2	51	57	8	9.0	9.5	663,000	132,600

*Larger sizes available, contact Yale for details.

**Maximum diameter indicates the diameter of an object that the shackle can be closed around. Values represented are based on the minimum open lengths shown.

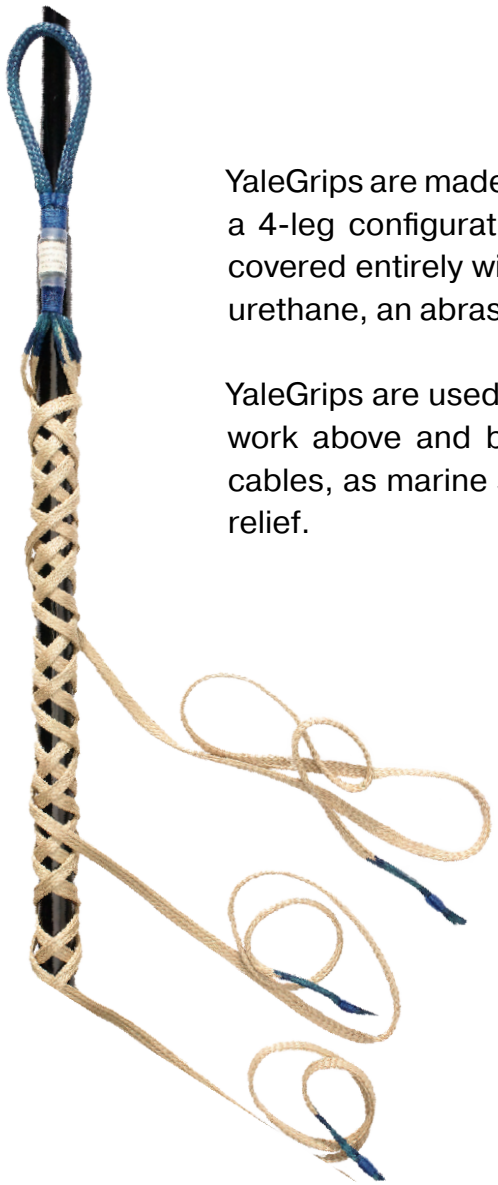
Tandem Stopper Assembly



An appropriately sized Tandem Stopper Assembly is the only recommended midspan termination technique for Unitrex. When properly configured, it is rated to the full working load of the underlying Unitrex (see load rating table below).

Other conventional termination devices/techniques have been demonstrated to cause an unacceptable amount of damage to Unitrex when tested. The Tandem Stopper Assembly will be packaged to include all necessary materials and hardware for installation, including a single shackle matched to the total assembly working load. connecting sling, allowing the load to be evenly shared between the two applied Stoppers.

Unitrex Diameter (inches)	Unitrex Diameter (mm)	Working Load (lbs)	Working Load (kg)
0.44	11	5,000	2,268
0.53	13	6,500	2,948
0.58	15	8,500	3,856
0.63	16	10,625	4,819
0.71	18	12,625	5,727
0.84	21	18,375	8,335
1.00	25	25,000	11,340
1.15	29	31,250	14,175



YaleGrip

YaleGrips are made from a Technora® Aramid fiber at braid and are assembled in a 4-leg configuration extending from a reinforcing, securing eye. The eye is covered entirely with an extra layer of braid, which is saturated with Maxijacket urethane, an abrasion-resistant coating for extended life.

YaleGrips are used as pulling and stopping grips for electrical-line construction work above and below ground, for deployment and retrieval of a variety of cables, as marine stoppers on hawsers and for temporary or permanent strain relief.

They are noncorrosive, have good dielectric properties and are compact and lightweight. Installed, the grip remains flexible and does less damage to mating surfaces than other types of grips.

YaleGrips are far stronger than wire mesh grips and do not form dangerous “fishhooks,” as do wire mesh grips, making them safer to handle.

YaleGrips may be used for temporary or permanent eyes, both in midspan or on the end.

Diameter Inches	Diameter mm	Working Load Lbs	Working Load Kg	Average Break Strength Lbs	Average Break Strength Kg	Color	Eye Size Inches	Eye Size mm	Tail Length ft	Tail Length m	Minimum Cable Diameter Inches	Minimum Cable Diameter mm	Maximum Cable Diameter Inches	Maximum Cable Diameter mm
7/16	11	1,200	544	6,000	2,722	Red	6	15	4.5	1.4	3/16	5	1/2	13
9/16	14	2,400	1,089	12,000	5,443	Blue	6	15	5.5	1.7	1/4	6	3/4	19
11/16	17	3,600	1,633	18,000	8,165	Green	6	15	6.5	2	3/8	10	7/8	22
7/8	22	6,000	2,722	30,000	13,608	Orange	8	20	8	2.4	1/2	13	1	25
1	25	9,600	4,355	48,000	21,773	Yellow	8	20	10	3	5/8	16	1-1/8	29
1-1/4	32	14,400	6,532	72,000	32,659	Black	12	30	16	4.9	7/8	22	1-3/4	44
1-1/2	38	24,000	10,886	120,000	54,432	Red	16	41	22	6.7	1-1/8	29	3	76
1-3/4	44	36,000	16,330	180,000	81,648	Blue	18	46	28	8.5	1-3/8	35	3-1/2	89
2	51	58,000	26,309	290,000	131,544	Green	18	46	34	10.3	2	51	4	102
2-1/4	57	73,000	33,113	365,000	165,564	Orange	20	51	40	12.2	3-1/4	83	5	127
2-1/2	64	90,000	40,824	450,000	204,120	Yellow	24	61	52	15.8	4	102	6	152

The optional 6-leg YaleGrip will spread the load on the substrate more evenly.

The 6-legged YaleGrip is the best way to handle an umbilical as point compression loads are minimized.

The 6-leg grip has the same tensile rating as the 4-leg model but spreads the compressive forces more evenly across the surface.

The 6-leg and the 4-leg are both available with our optional Max acket marine coating.



ZipGrip

ZipGrip® is a patented system to allow the installation of a pulling or holdback eye on various cylindrical or nearly cylindrical substrates. These units were primarily developed for use in the offshore pipe lay and umbilical installation and maintenance arena.

Yale Cordage started manufacturing our line of YaleGrips synthetic pulling and stopping grips more than 20 years ago, and they have been used successfully worldwide for the deployment of umbilicals, hard pipes, flex cables and armored cables. Our ZipGrip design is based on the same successful platform, and it utilizes the Aramid grip stock in a new design, which not only decreases the overall grip length by approximately 75%, but also significantly increases the working load and distributes the compressive forces, preventing damage to the pipe's outer layers.

ZipGrip lengths when installed are approximately 1/3 of the installed length of our time-tested YaleGrips product. As a guideline, the installed length is 19 times the pipe diameter. **Example** pipe: 170 mm = 3,230 mm installed length. ZipGrips are very fast to install and even faster to remove. Install times are generally 10%–20% of a similar working load and diameter YaleGrips. They also require less application space because you are not dealing with extremely long tails. The installation zone needed is only about 10% longer than the installed length. ZipGrips can be installed on a coiled pipe or umbilical. No need to fully straighten it prior to installation.

Construction: Standard product is made with Technora®. Technora Aramid fiber is high strength, low stretch, heat resistant and lightweight.

Installation/Removal: Quick and easy to install and remove; temporary or permanent; install at any point along the pipeline.

Uses: Pipe lay install or holdback; umbilical install or holdback; pipeline catenary float attachment.

US Patent No. 9,616,579 – Canada Patent No. 2,965,100 CN – UK Patent No.

Material Size (in)	Material Size (mm)	Minimum Cable Diameter at Given Work Load	Maximum Working Load 5:1 (lb)	Maximum Working Load 5:1 (kg)	Color	Eye Size (in)	Eye Size (mm)	Example Cable Diameter	Installed Length (in)	Installed Length (mm)	Example Unit Weight (lb)	Example Unit Weight (kg)	Estimated Installation Time (min)	Estimated Removal Time (min)
7/16	11	64	6,800	3,070	Red	6	15	100	75	1,910	2.0	0.9	6	2
9/16	14	71	10,400	4,700	Blue	6	15	150	113	2,870	4.6	2.1	8	2
11/16	17	79	14,400	6,530	Green	6	15	200	151	3,820	8.1	3.7	9	2
7/8	22	102	19,800	9,000	Orange	8	20	250	188	4,780	18.0	8.2	11	3
1	25	119	31,000	14,070	Yellow	8	20	300	226	5,740	34.0	15.0	13	3
1-1/4	32	145	43,200	19,610	Black	12	30	350	263	6,690	59.0	27.0	16	4
1-1/2	38	168	67,600	30,670	Red	16	41	400	301	7,650	112.0	51.0	19	5
1-3/4	44	241	84,000	38,090	Blue	18	46	450	339	8,600	192.0	87.0	23	6
2	51	277	111,500	50,570	Green	18	46	500	376	9,560	299.0	136.0	26	7
2-1/4	57	343	159,000	72,140	Orange	20	51	600	452	11,470	539.0	244.0	34	9
2-1/2	64	384	192,000	87,110	Yellow	24	51	630	474	12,050	731.0	332.0	37	9

ZipGrip Properties for a Selection of Diameters: This table represents various examples of what we can manufacture based on different diameters at a specific load. Options are not limited to the loads shown. Please contact Yale to discuss your specific application for custom designs.

Use & Care

Storage and care
All rope should be stored clean, dry, out of direct sunlight and away from extreme heat. Some synthetic rope may be severely weakened by prolonged exposure to ultraviolet (UV) rays, unless specifically stabilized and/or pigmented to increase its UV resistance. UV degradation is indicated by discoloration and the presence of splinters and slivers on the surface of the rope. To properly unreel rope, a shaft should be inserted through the center of the reel, and the rope should be pulled off the top while the reel is free to rotate. Reverse rope ends regularly to promote even wear and assure a longer life. Apply a steady, even pull to achieve full strength from rope or synthetic cable. Formulas to determine reel and storage capacities (use inch reel dimentions):

$$\text{Rope length} = \frac{(\text{traverse width})(\text{flange diameter}^2 - \text{barrel diameter}^2)}{(16)(\text{rope diameter}^2)} \text{ feet}$$

Formulas to determine bin capacity: $V=(C)^2 \times (L) \times (R)$
V = volume in cubic inches
C = rope circumference in inches
L = length of rope in feet
R = 1.58 for carefully stores rope or 2.0 for random packing

CAUTIONS
Overloading and Use of Working Loads
Because of the wide range of rope use, exposure to the several factors affecting rope behavior and the degree of risk to life and property involved, it is impossible to make blanket recommendations as to working loads. However, to provide guidelines, working loads are tabulated for rope in good condition with appropriate splices, in noncritical applications and under normal service conditions.

A higher working load may be selected only with expert knowledge of conditions and professional estimate of risk, and if the rope has not been subject to dynamic loading or other excessive use; if the rope has been inspected and found to be in good condition, and is to be used in the recommended manner: and if the applications do not involve elevated temperatures, extended periods under load or obvious dynamic loading, such as sudden drops, snubs or pickups. For all such applications, consult Yale.

Many uses of rope involve serious risk of injury to personnel or damage to valuable property. ***This danger is often obvious, as when a heavy load is supported above one or more workers. An equally dangerous situation occurs if personnel are in line with a rope under tension. Should the rope fail, it may recoil with lethal force. Persons should be warned against the serious danger of standing in line with any rope under tension.***

In all cases where such risks are present, or there is any question about the loads involved or the conditions of use, the working load should be substantially reduced. Minimum breaking strength is based on test data of new, unused rope and is a value not greater than two standard deviations below the mean.

Dynamic loading voids normal working load
Normal working loads are not applicable when rope is subject to significant dynamic loading. Instantaneous changes in load constitute hazardous shock load and would void the normal working loads.

Whenever a load is picked up, stopped or swung, there is an increased force due to such dramatic loading. The more rapidly actions occur, the greater the increase will be. In extreme cases, the force put on the rope may be two, three, or even more times the normal load involved and may result in the rope parting. Examples could be picking up a tow on a slack line or using a rope to stop a falling object. Therefore, in all dynamic applications, working loads as given do not apply.

Users should be aware that dynamic effects are greater on a low-elongation, high-modulus rope such as Aramid and lesser on a higher-elongation, nylon-based product. Dynamic effects are greater on a shorter rope than on a longer one. The working load ratios listed contain provision for very modest dynamic loads. This means, however, that when the working load has been used to select a rope, the load must be handled slowly and smoothly to minimize effect and avoid exceeding provision for it.

Example:
A load of 3,500 lbs is being lowered using 5/8” diameter Double Esterlon, which has a maximum recommended working load of 3,400 lbs. With 15 feet of line in tension, the line accidentally slips, dropping the load 1 foot before arresting the fall.

Question:
How much energy did the rope have to absorb, and has the rope been overloaded or damaged?

Work done (ft lbs): (weight)(length of fall) = 3,500 ft lbs

Rated maximum working energy absorption

Capacity = (weight of the rope in use)(working energy absorption capacity rating for the rope used)

From the data page, Double Esterlon has a working energy absorption capacity of 291 ft lbs per pound of rope and a weight of 13.7 lbs per 100 ft of 0.137 lbs/ft.

Rated maximum working energy-absorption capacity of 16 feet of 5/8" Double Esterlon = (16 ft)(0.137 lbs/ft)(291 ft lbs/lb) = 638 ft lbs.

In this example, 2.19 lbs of rope (16ft x 0.137 lbs/ft) in use must absorb 3,500 ft lbs : or 3,500 ÷ 2.19 lbs equals 1,596 ft lbs/lb of rope.

In this example, the maximum working energy-absorption capacity has been exceeded by nearly six (6) times. The effect is to drive the maximum load the rope encounters until it arrests the load or breaks.

Rated ultimate energy absorption of 16 feet of 5/8" Double Esterlon = (16 ft)(0.137 lbs/ft) (7,711 ft/lbs/lb) = 16,902 ft lbs, and any dynamic load exceeding this total would break the line. Note that there is a linear relationship between the weight of the rope in tension versus its energy-absorption capability. In the above example, some degree of the rope's integrity has been compromised, and the prudent safety practice would call for downgrading or discarding the line.

Abrasion: Avoid all abrasive situations. Rope can be severely damaged if subjected to rough surfaces or sharp edges. Chocks, bits, winches, drums and other surfaces must be kept in good condition and free of burrs and rust. Sheaves must be free to rotate and should be of proper size to avoid excessive wear. Clamps and similar devices will damage and weaken the rope and should be used with the extreme caution. Do not drag rope over rough ground. Dirt and grit picked up by rope can work into strands, cutting the inside fibers and reducing the rope's strength.

Chemicals: Avoid chemical exposure, as rope is apt to be damaged. Consult Yale for recommendations when a rope will be used where chemical exposure can occur.

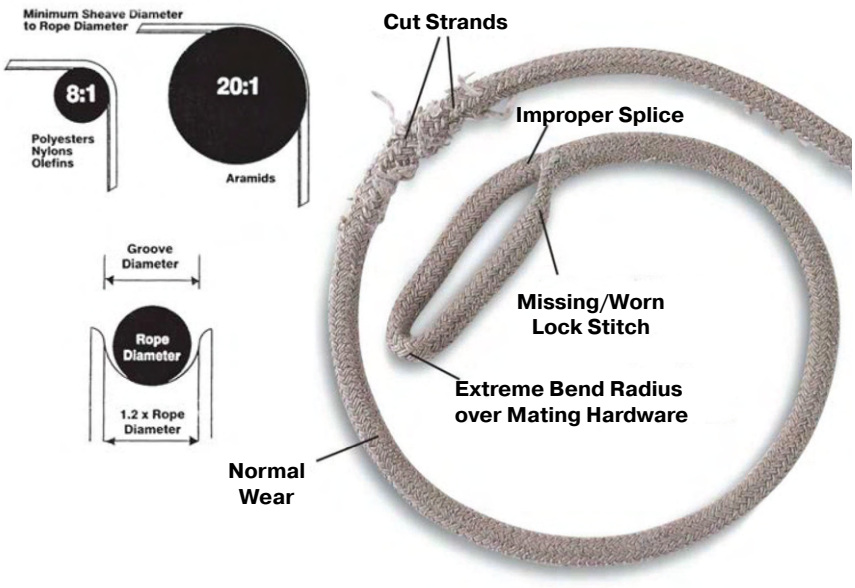
Temperature: The tensile strength charts apply to ropes tested at normal room temperature (70$_{o}$F). Ropes have lower tensile strengths at higher temperatures. Continued exposure at elevated temperatures can melt and part synthetic ropes or cause permanent damage.

Dielectric Strength, as shown in the catalog, is offered as a guideline to help you compare various fibers and constructions. We recommend that you consider all ropes, regardless of their initial new rated dielectric strength, as conductive in service.

Splicing: Join rope by splicing. Use Yale's recommended splices for maximum efficiency. The strengths shown in this catalog are for spliced lengths. Other terminations can be used, but their strength loss with a particular type of rope and construction should be determined and not assumed.

Knots and abrupt bends significantly reduce the strength of all ropes and lower the maximum working load.

Avoid using rope that shows signs of aging and wear. If there is any question, destroy the used rope. No type of visual inspection can be guaranteed to accurately and precisely determine actual residual strength. When the fibers show wear in any given area, the rope should be respliced, eliminating the damaged area; downgraded; or replaced. Check the line regularly for frayed strands and broken yarn. Pulled strands should be rethreaded into the rope if possible. A pulled strand can snag during a rope operation. Both the outer and inner rope fibers contribute to the strength of rope. When either is worn, or the rope is compacted or hard, this indicates reduced strength. The dielectric strength of rope in this condition is also reduced.







Inspection Criteria

Single Braid

Protruding Strand



THE REPAIR: Work the strand back into the rope as soon as you notice it by carefully tugging on adjacent strands until the excess is distributed evenly. A protruding strand in service could easily snag or break, causing further complications.

Abrasion



THE REPAIR: There isn't a repair for abrasion, but you should still inspect for it. If the strength loss is minimal, go ahead and continue use. If the strength loss is moderate, consult Yale or retire the rope. If it's excessive, always retire.

Melting or Glazing



THE REPAIR: If possible, remove the affected section and re-splice with an end-for-end splice. Otherwise – or if you suspect the rope has experienced shock loading – retire the rope.

Cut Strand



THE REPAIR: If possible, remove the affected section and re-splice with an end-for-end splice. If re-splicing is not possible, retire the rope. As a general rule, 12-strand ropes should be retired when more than three broken strands are visible.

Diameter Change



THE REPAIR: If the diameter is reduced by less than 10 percent, it is still able to remain in service. If the diameter reduction is 11—20 percent, downgrade the rope. Should the diameter reduction from new to used exceed 20 percent, retire the rope.

Incorrect End to End Splice



THE REPAIR: Re-splice the rope correctly.

Balanced Double Braid

Protruding Strand



THE REPAIR: One to four strands spaced out by several feet can be removed and rewoven into the line with minimal impact on strength (less than 12 percent).

Deeply Abraded Spot



THE REPAIR: If you encounter a deeply abraded spot, where more than 50 percent of the strand is affected, you can re-splice the rope to repair it.

Worn-Out Eye



THE REPAIR: To repair a worn-out eye, you'll want to shorten, re-splice and reverse the rope. Proceed by putting the unused end into service.

Discontinuity in Rope Diameter



THE REPAIR: Open the rope sleeve to remove and inspect the core. If the core is parted, you will need to retire the rope.

High-Modulus Double Braid

Flat Spot Inside Rope



THE REPAIR: Open the rope sleeve to remove and inspect the core. If the core is parted, you will need to retire the rope.

Bumps on Cover



THE REPAIR: This rope can be returned to service. Simply flex the rope to remove the compression.

Cut Strand



THE REPAIR: As long as the core remains covered, you can repair cut strands by whipping into place, without impact on the strength.

8-Strand Plaited

Abraded Spot



THE REPAIR: As long as the core remains covered, you can repair cut strands by whipping into place, without impact on the strength.

Cut Strand



THE REPAIR: If possible, remove the affected section and re-splice with an end-for-end splice. If re-splicing is not possible, retire the rope.

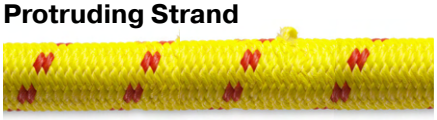
Brait Lay Length Change



THE REPAIR: If permanent deformation results in a longer lay length in excess of 15 percent, retire the line.

Parallel Core

Protruding Strand



THE REPAIR: To repair a protruding strand on a parallel core rope, you'll need to cut off excess strand, execute a careful heat seal and whip with twine.

Abrasion



Abraded Spot



Deep abrasions through the rubber but not into the core



Deep abrasions through the rubber and damaging the core

THE REPAIR: To repair an abraded spot, evaluate the depth of the abrasion. If the rubber jacket is not compromised, whip and return to service. If you notice deep abrasions through the rubber but not into the core, you can repair the rubber layer and then whip the area. Abrasions and cuts through the rubber layer and damaging the core should be cut out and repaired with TechJoin™.

Share your photos, videos, and projects with us by tagging #yalecordage on social media. Instructional splicing videos and company information can be found on our YouTube channel.



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