# YALE®
## CORDAGE
A SLINGMAX GROUP COMPANY

# INDUSTRIAL



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6TH EDITION

SLINGMAX®
RIGGING SOLUTIONS

SAFETY • RELIABILITY • EFFICIENCY

## HEAVY LIFT SLING EXPERTS

- GLOBAL NETWORK OF 38 MANUFACTURING DEALERS
- STRONGEST OUTER SLING JACKET & INTERNAL CORE YARN AVAILABLE
- PROVEN SLING OVERLOAD DETECTION DEVICES




# INNOVATIVE OVERHEAD LIFTING PRODUCTS

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SINCE 1920 CORDAGE INSTITUTE ADVANCING ROPE AND CORDAGE PRODUCTS

AWRF Est. 1976 SERVING THE LIFTING, RIGGING & LOAD SECUREMENT INDUSTRIES

# 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

# FEATURED INDUSTRIES

- ARBORIST
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- ELECTRIC UTILITY
- HEAVY LIFT
- 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.

## 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.

## 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.

## 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 |

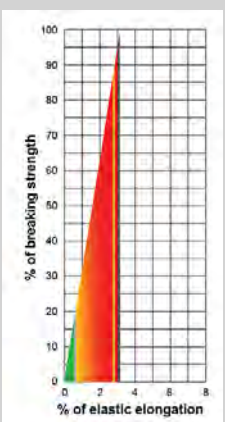
*Knots and abrupt bends significantly reduce the stregth of all ropes.

# 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.

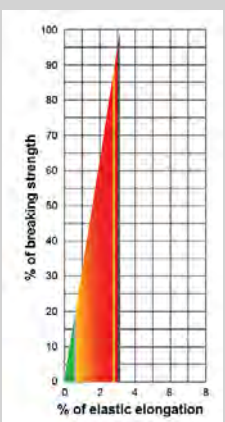
**Working load is based on static or moderately dynamic lifting/ pulling operations. Instantaneous changes in load, up or down, in excess of 10% of the rope's rated working load constitute hazardous shock load and would void the normal working-load recommendation. Consult Yale Cordage for guidelines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

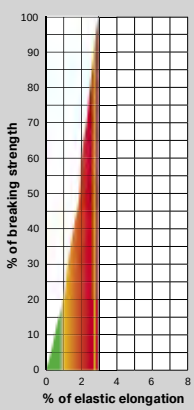
# Maxibraid
## Single Braid



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.

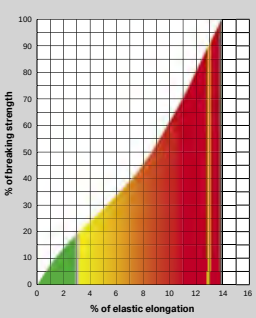
# PE-12
## Single Braid



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.

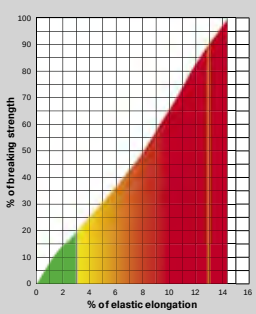
# Yalex
## Single Braid



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.

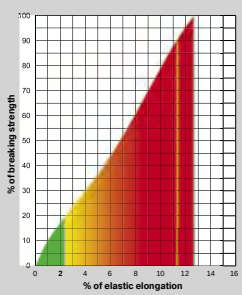
# Optimus
## Single Braid



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.

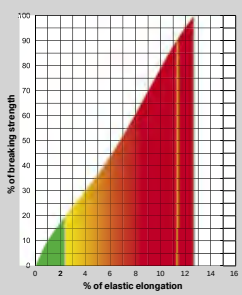
# Optimus Pro
## Single Braid



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.

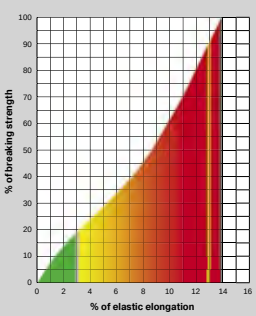
# Pilot Line
## Single Braid



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

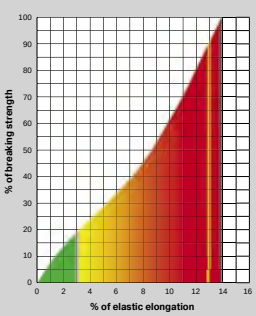


PolyPlus Braid is an a ordable 12-strand single-braid rope constructed of high-tenacity polyester plied over “Para-ep” polyolefin in each individual strand.

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.

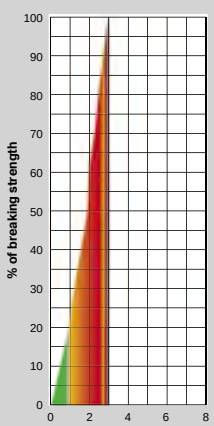
**Working load is based on static or moderately dynamic lifting/ pulling operations. Instantaneous changes in load, up or down, in excess of 10% of the rope’s rated working load constitute hazardous shock load and would void the normal working-load recommendation. Consult Yale Cordage for guidelines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

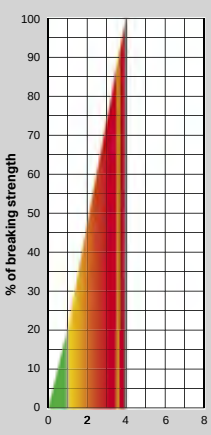
# Aracom 100
## Single Braid



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.

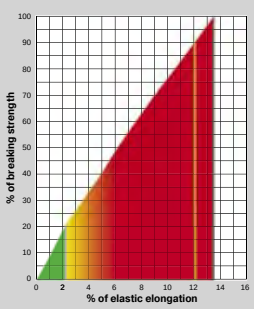
# Lugger Line
## Single Braid



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

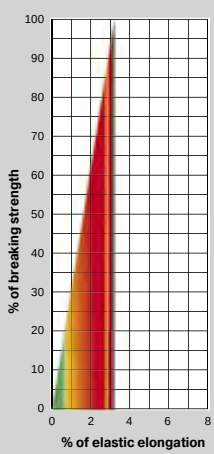
## Double Braid



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.

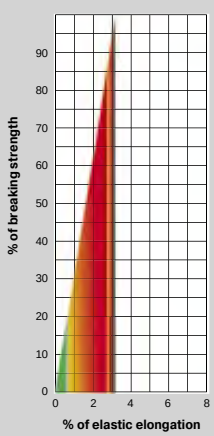
**Working load is based on static or moderately dynamic lifting/ pulling operations. Instantaneous changes in load, up or down, in excess of 10% of the rope's rated working load constitute hazardous shock load and would void the normal working-load recommendation. Consult Yale Cordage for guidelines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

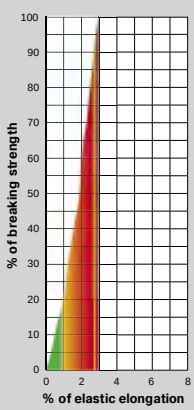
# River Max
## Double Braid



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** | 105,000 | 115,000 | 120,000 | 35.5 |
| **1-3/8** | 130,000 | 145,000 | 145,000 | 45.0 |
| **1-1/2** | 150,000 | 170,000 | 170,000 | 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.

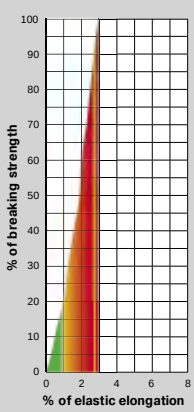
# Mega Max
## Double Braid



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** | 105,000 | 115,000 | 120,000 | 35.5 |
| **1-3/8** | 130,000 | 145,000 | 145,000 | 45.0 |
| **1-1/2** | 150,000 | 170,000 | 170,000 | 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.

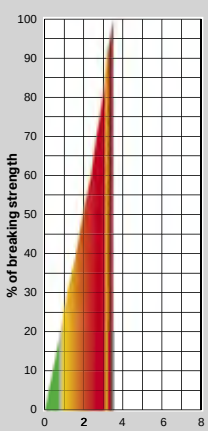
# Crystalyne
## Double Braid



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.

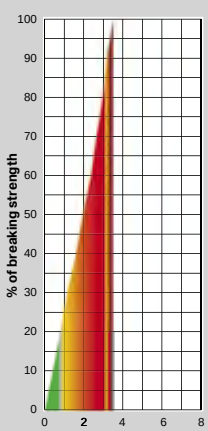
# Aracom T
## Double Braid



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.

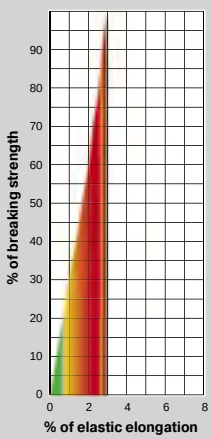
# Aracom Miniline
## Double Braid



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

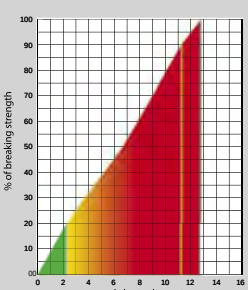
## Double Braid



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

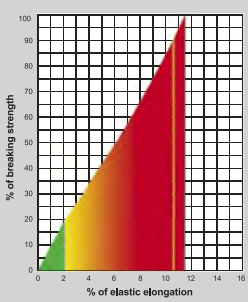
## Double Braid



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.

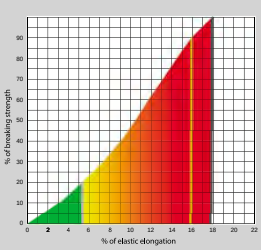
# Polydyne
## Double Braid



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.

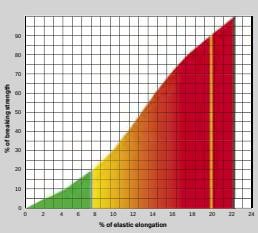
# Yalon
## Double Braid



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.

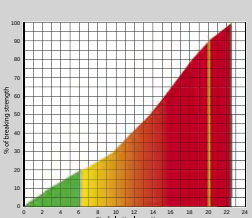
The braid also bends more easily and with less fatiguing of the core when cycled over sheaves or dropped over a parapet. The sleeve is either white with red tracers or solution-cast fiber (color added prior to yarn production), which makes for lasting colors and enhanced wear resistance.

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

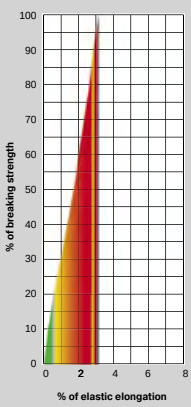


Tech-Kern is a Kernmantle-style rope consisting of a braided Technora® Aramid core covered by a 48-strand Technora mantle.

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

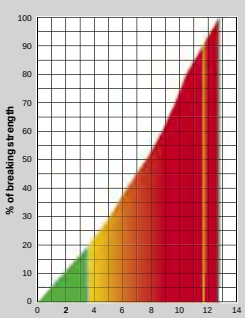


Uniline is a parallel-core cable of PET (polyester) filament. The Uniline core is bonded together with a rubber-based adhesive, wrapped with red rubber tape, over-braided with a tough polyester sleeve and entirely saturated with another rubber solution.

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)



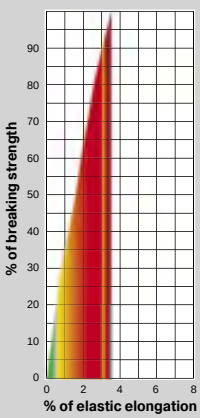
# Unitrex
## Parallel Core




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



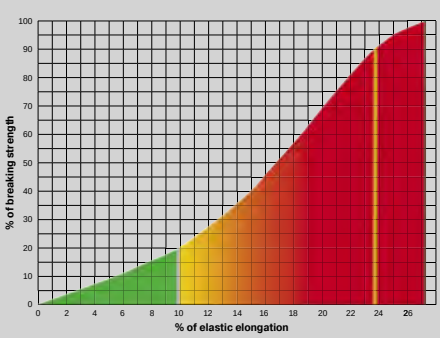
Nylon Brait combines braiding technology with plaited rope optimizing the best of both rope styles. Nylon Brait's most outstanding feature is its high energy absorption, which comes from a combination of the very long yarn path and stranditure developed especially to maximize energy absorption.

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

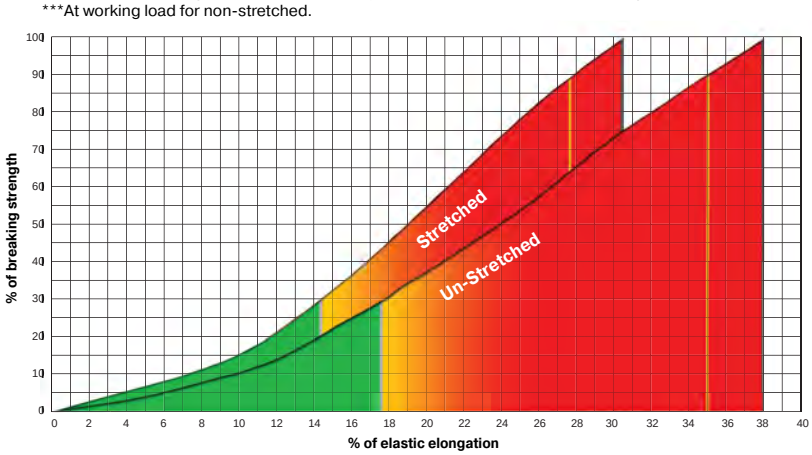


Oceanographer's Brait is the most predictable nylon rope you can buy. Yale begins this proces by **1.** utilizing nylon 6, which has a much higher energy-absorption capability than nylon 6-6. This can mean the difference between a mooring that stays on station or is lost. **2.** The fiber is twisted 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.

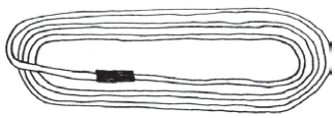
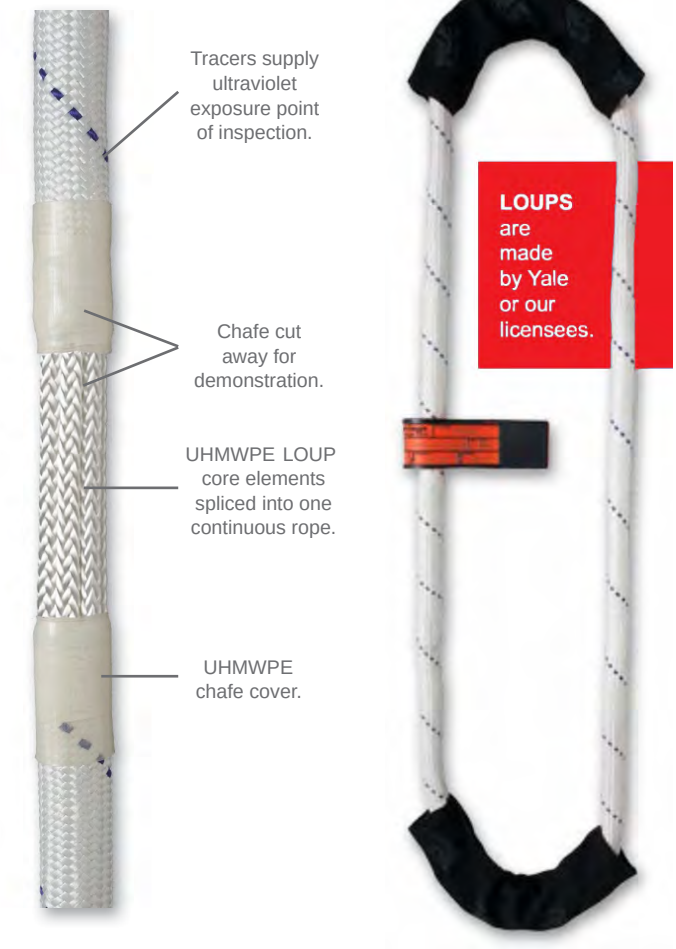


**Figure 1**

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.

**LOUPS through Model 13A06 are annealed.** 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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## 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) |

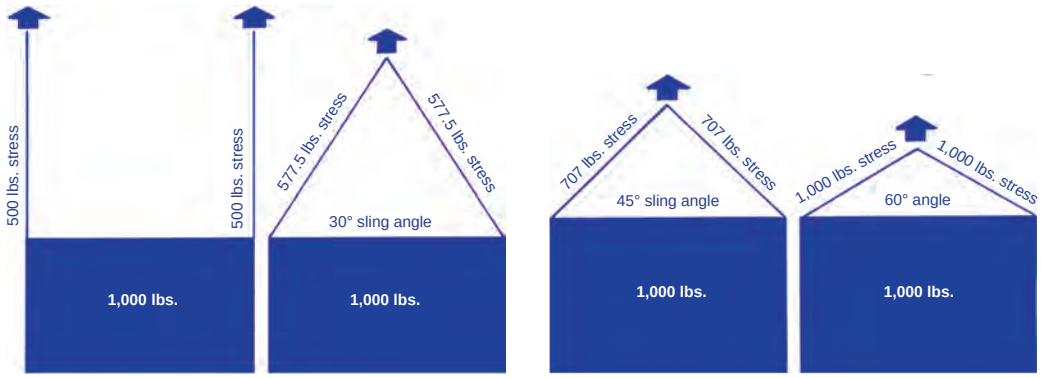
**Vectrus 4-Leg Adjustable Slings**

| 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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# 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.

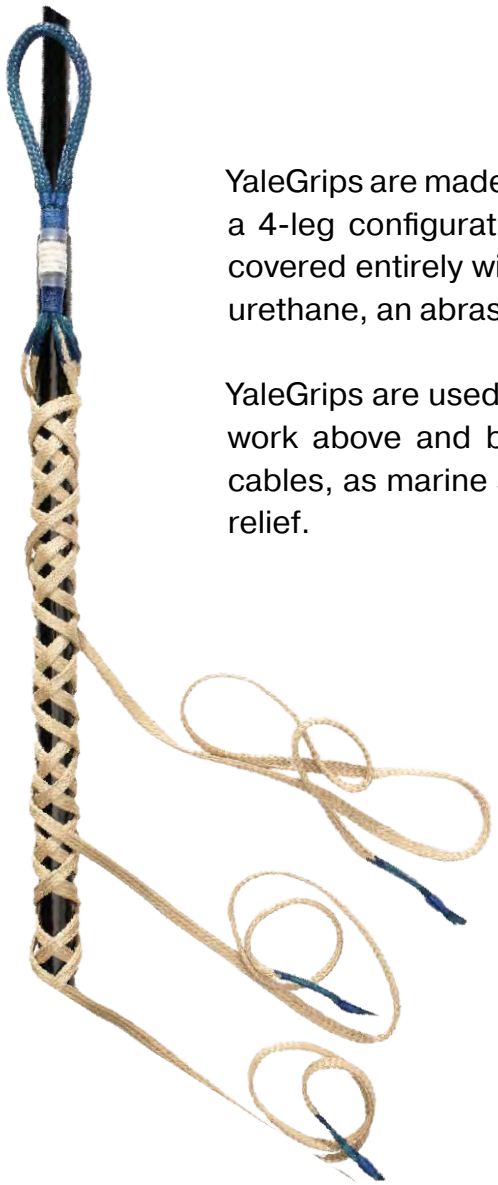
# Tandem Stopper Assembly



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.

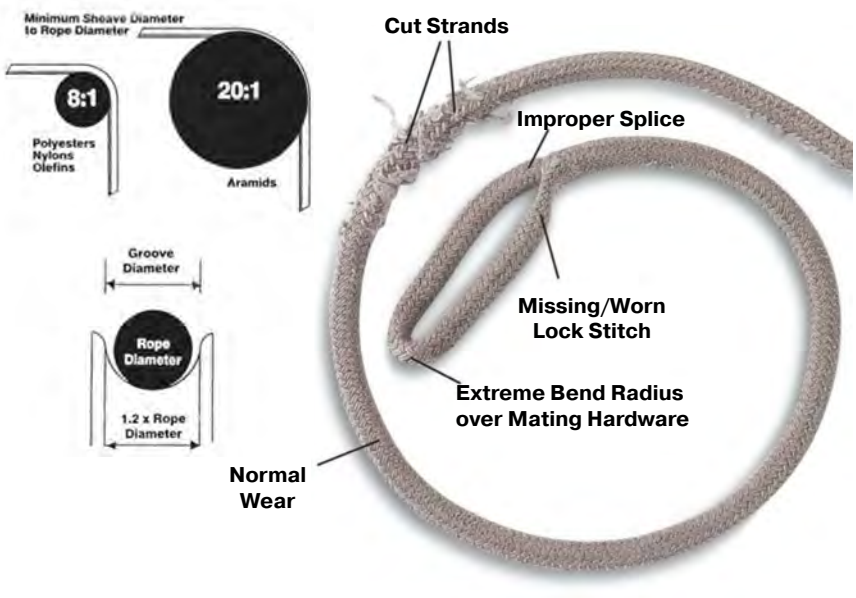
**Dielectric Strength**, as shown in the catalog, is offered as a guideline to help you compare various fibers and constructions. We recommend that you consider all ropes, regardless of their initial new rated dielectric strength, as conductive in service.

**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.

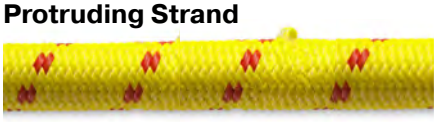
### Brait Lay Length Change



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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- ✓ Product data sheets
- ✓ Rope Selection & Inspection Guide
- ✓ Yale in the News

**6TH EDITION**