



## ARBORIST ROPE CONSTRUCTION TYPES & MATERIALS

### KERNMANTLE CLIMBING



The mantle (cover) of this rope is woven tight to provide protection for the load-bearing core (up to 70%) strands, which are not woven (parallel). Core strands can also be twisted to add elasticity. Arborist ascent lines of this construction are considered "core-dependent kernmantles."

### SOLID BRAID RIGGING & PULL LINES



Made up of 12 large strands, arborist-grade solid braid lines are woven tight to keep a round shape under tension. However, this process that's made eye-splicing very impossible. Solid braids tend to be bulky for their strength but have less tendency to twist than other braided lines.

### 3-STRAND MODERATE LOAD RIGGING



Twisted constructions are abrasion resistant but a poor choice for climbing due to their bumpy surface and tendency to rotate (rav-el) under tension. Relatively less expensive than other lines, they can serve as natural crotch rigging lines with moderate loads.

### HOLLOW BRAID SLINGS & FIXED LINES



12-strand construction and woven with considerably less tension, leaving the center loose. These lines can accommodate a hand splice. Their loose weave allows these ropes to "flatten" under load.

### 16-STRAND CLIMBING



This abrasion resistant rope construction presents a thick mantle (cover) around a small interior core bundle that helps keep the rope round under tension and makes it easy to tie. The thick mantle provides all of the lines strength while the core keeps it round. Because the cover bears the bulk of the load, inspecting these lines is easier and more consistent than with other lines.

### DOUBLE BRAID CLIMBING / RIGGING



This braid inside a braid remains round under tension and provides a high strength-to-diameter ratio. Core and cover share loading equally, making for significantly stronger ropes even in smaller diameters. Double braids are ideal for low-elongation climbing and rigging.

### ROPE MATERIALS

**POLYESTER** - A synthetic polymer with lower elongation and higher tenacity and abrasion resistance than its close cousin, nylon. Melting point 480°F.

**NYLON** - A synthetic polymer with more elongation and with less abrasion resistance than polyester. Rarely used in arborist grade lines. Melting point 460°F.

**POLYOLEFIN** - A monofilament sometimes used to bring a rope's weight down. Melting point 260°F.

**ARAMID** - A family of fibers including Technora, Kevlar, and Nomex that pound for pound are five times stronger than steel and have high abrasion and heat resistance. Poor ultraviolet (UV) radiation resistance, and can be self-abrasive. Melting point 900°F.

### ULTRA-HIGH MOLECULAR WEIGHT

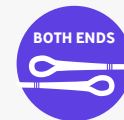
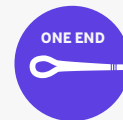
**POLYETHYLENE (HMPE)** - Includes Spectra and Dyneema. This lightweight fiber has super-high strength and abrasion resistance but at a very low melting point. Good for use where heat friction is not involved. Melting point 297°F.

### SPLICING OPTIONS

The icons represent the possible splicing options available for each rope.

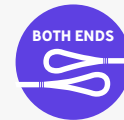
#### TIGHT EYE SPLICE

Hand-spliced, large enough to accommodate a carabiner



#### STANDARD EYE SPLICE

Hand-spliced, can be used with carabiner or girth hitched onto a fixed eye snap



#### GRIZZLY SPLICE

Machine termination large enough to accommodate a carabiner

