



Synthetic Slings

Synthetic lifting slings are slings made with materials—yarns, webbing, rope, etc.—that are woven from synthetic or man-made fibers.

Background

Carbon steel was the dominant raw material used in rigging slings throughout the 19th and most of the 20th centuries. However, slings fabricated from synthetic fibers steadily gained popularity through the later half of the 20th century. Since the turn of the century, many industries and applications—such as aircraft construction and maintenance, aerospace, power generation, etc.—have moved entirely to the use of lightweight, high-strength synthetic slings, fabricated with the latest generation of synthetic fibers.

Modern synthetic lifting slings have their origins in the development of the first true synthetic fiber in 1935 by Wallace Carothers of DuPont. DuPont marketers christened this fiber *nylon*, a made-up name derived from the “on” suffix of cotton and the arbitrary letters “nyl” that simply “sounded good” together.

Nylon is a thermoplastic polymer made of repeating molecular units linked by amide bonds, and is often referred to as polyamide. It was the first commercially successful synthetic polymer. In the rigging industry, nylon has found wide use as the fiber of choice for inexpensive, light weight lifting slings fabricated from flat nylon webbing.

Numerous other synthetic fibers have been developed since nylon was introduced, and many of these fibers—most notably polyesters—are woven or spun into materials used to fabricate a wide range of synthetic rigging types.

Experience with nylon and polyester processing and manufacturing led to the development of aromatic



polyamide (aramid for short) fibers in the 1960s and 70s. Aramids are fibers in which the chain molecules are highly oriented along the fiber axis so that the strength of the chemical bond can be exploited. Aramid fibers made their first commercial appearance in the 1960s with the introduction of Nomex® from DuPont and Technora® from Tejin Aramid.

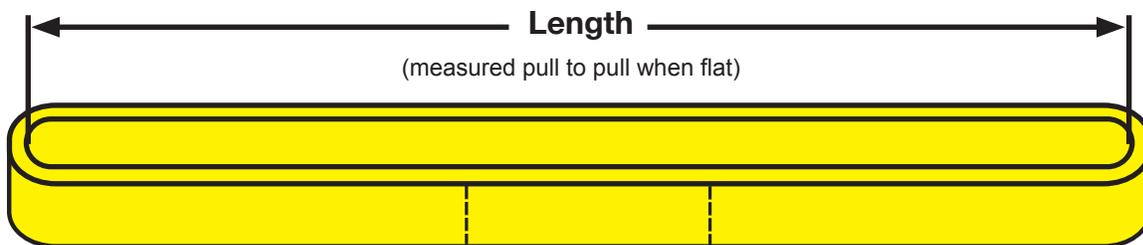
In 1971, Stephanie Kwolek of DuPont invented a fiber with a very high tensile strength-to-weight ratio. Introduced by DuPont as Kevlar® in 1973, this para-aramid fiber is 5 times stronger than steel on an equal weight basis. A similar fiber with roughly the same chemical structure was developed by Akzo and introduced as Twaron® in 1978. Patent disputes between DuPont and Akzo kept Twaron off the market until 1986.

Synthetic fibers of exceptional tensile strength were commercialized in the late 1970s by DSM and Honeywell under the trade names Dyneema® and Spectra®, respectively. These

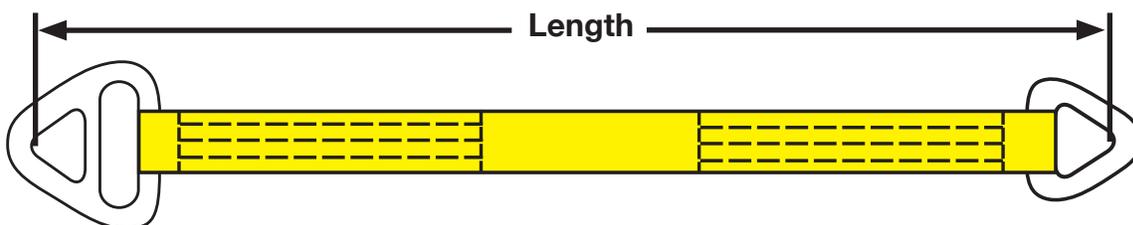
fibers are made from ultra high molecular weight polyethylene (UHMW), also known as high-modulus polyethylene (HMPE). UHMW compounds are characterized by extremely long molecular chains that serve to transfer the load to the polymer backbone more effectively by strengthening intermolecular interactions. The fibers are extremely lightweight, having a specific gravity less than 1 (i.e. they float). They are also highly resistant to abrasion, in some forms being 15 times more resistant to abrasion than carbon steel.

Lifting slings fabricated with polyester and ultra high strength synthetic fibers most often take the form of endless round slings, where the load carrying members of the sling are multiple loops of a single, continuous strand of yarn enclosed by a tubular, woven polyester cover. The yarns may be a single synthetic fiber such as polyester or a blend of two or more synthetic fibers, each selected for a particular set of characteristics.

Nylon Grommet or Endless Type



Triangle and Choker Slings



Flat Nylon Webbing Slings

The least expensive and most common synthetic slings are fabricated from flat nylon webbing. Flat nylon web slings are fabricated by arranging one or more lengths of webbing of various widths in a particular configuration, and sewing the webbing to itself with heavy nylon thread. Over the years, standard configurations of nylon web slings have evolved. Ordering a nylon web sling requires that the dimensions and type of sling be specified.

Nylon Web Sling Dimensions

Standard nylon web sling types are illustrated below. Three dimensions are required to specify these nylon slings:

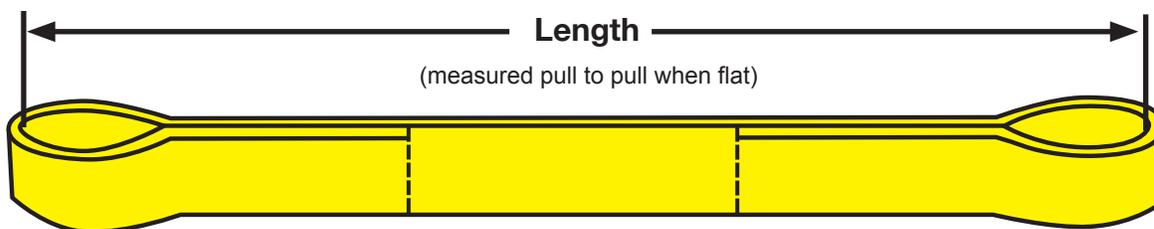
1. Nylon webbing width.
2. Number of layers (plys) of nylon webbing.
3. Sling length.

The **length of a nylon sling** is measured from the bearing surface of one eye or fitting to the

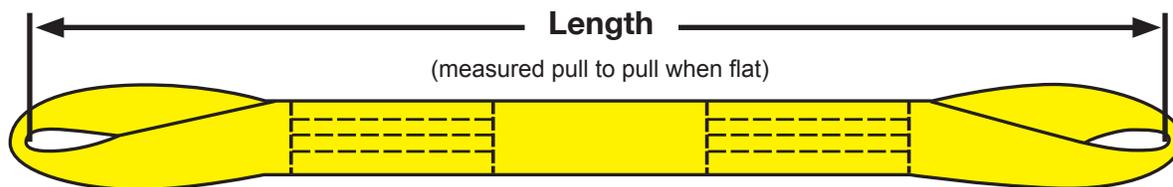
bearing surface of the opposite eye or fitting, as shown in the diagrams.



Nylon Plain Eye and Eye Type



Nylon Eye and Eye Half-Twist



Nylon Sling Types

In addition to sling dimensions, the desired configuration of the sling eyes must be specified. Nylon lifting slings are fabricated

from flat nylon webbing of various widths, in several standard configurations. Type numbers have been given to the end or eye configurations as follows:

Type 1 – Triangle-Choker



Triangle choker nylon web slings are fitted with steel or aluminum alloy triangles sewn into the eyes at each end of the sling. These triangles protect the nylon in the sling eyes from wear and from barbs on hooks and shackles. The sling has a larger triangle with a slot cut in it on one end. This permits the smaller triangle on the opposite end to pass through to create a choker hitch.

Type 2 – Triangle-Triangle



Triangle nylon web slings are fitted with steel or aluminum alloy triangles sewn into the eyes at each end of the sling. The triangles provide wear protection for the sling eyes, and protection from cutting by barbs on hooks and shackles. Triangle nylon slings can be used in vertical and vertical basket hitches only. For choker hitches, use a Type 1 triangle choker sling. For vertical or vertical basket hitches, use Type 1 or Type 2 triangle slings.

Type 3 – Flat Eyes Type 4 – Twisted Eyes

Type 3



Type 4



Type 3 slings with flat eyes are the most popular of all nylon webbing slings. The flat eyes lay flat just like the body of the sling.

Type 4 slings have twisted eyes which lay 90°, or perpendicular, to the sling body. Twisted eyes work especially well in choker hitches. Twisted eyes also provide a double wear surface as the eyes can be turned inside out to use the opposite side of the eye webbing.

Both types of slings work well in a wide range of applications, and can be used in a choker hitch, vertical hitch, or basket hitch configuration.

Type 5 – Endless



Endless nylon web slings are the most versatile of all nylon web slings. This sling can be used in a choker hitch, vertical hitch, and basket hitch. Unlike an eye/eye sling, the attachment point on the sling can be continuously varied to minimize wear, thus extending the life of the sling.

Nylon Web Sling Types – Nomenclature for Eye or End Descriptions

EF or EE	Type 3, flat eyes each end
ET	Type 4, twisted eyes each end
EN	Type 5, endless sling
TCA or TCS	Type 1, triangle-choker sling (TCA with aluminum triangle; TCS with steel triangle)
TTA or TTS	Type 2, triangle-triangle sling (TTA with aluminum triangle; TTS with steel triangle)

Nylon Web Sling Nomenclature

The various nylon web sling characteristics—sling eye or end nomenclature, the number of webbing layers, sling length, webbing type and width, and the finished length—are typically encoded in a single-line description as follows:

XX	#	- #	#	x ##
Ends, eyes, and eye fittings (if any)	Number of plys	Webbing type	Webbing width	Length in feet

Example:

EE	1	-9	1	x 10
Flat eyes each end	Single-ply	No. 9 nylon †	1 in. wide webbing	10 ft. long

† Number 9 nylon webbing is nylon webbing with a tensile strength of 9000 psi.

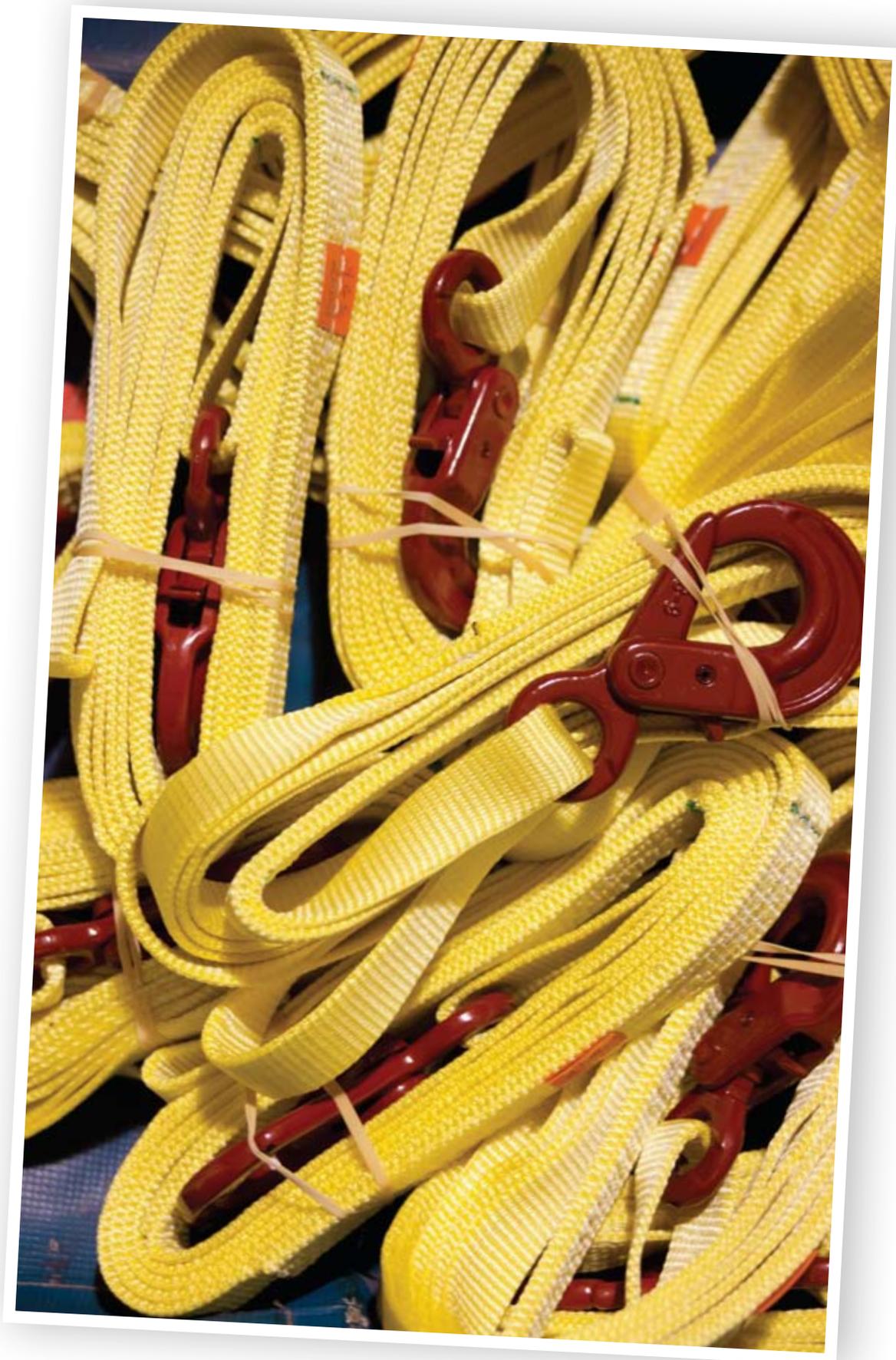
When combined into a single line, these individual sling characteristics create a sling description that reads **EE1-91 x 10**. This describes a Type 3 eye/eye sling with flat eyes, single-ply, made with number 9 webbing, 1 inch wide by 10 feet long.



Nylon Web Slings – Size of Standard Eyes

Nylon Sling Size (sling width in inches)	Number of Webbing Plies (layers of webbing)	Sling Eye Length (inches)	Sling Eye Width (inches)
1 in.	1	9 in.	1 in.
1 in.	2	9 in.	1 in.
1 in.	4	12 in.	1 in.
2 in.	1	9 in.	2 in.
2 in.	2	9 in.	2 in.
2 in.	4	12 in.	2 in.
3 in.	1	12 in.	1.5 in.
3 in.	2	12 in.	1.5 in.
3 in.	4	15 in.	1.5 in.
4 in.	1	12 in.	2 in.
4 in.	2	12 in.	2 in.
4 in.	4	15 in.	2 in.
6 in.	1	12 in.	2 in.
6 in.	2	15 in.	2 in.
6 in.	4	18 in.	3 in.





Sling Angle

⚠ When using two or more nylon slings together by attaching the eye of each sling to one point on a load and the opposite eye of each sling to a common point such as a hook, *the effect of sling angle must be considered when calculating the capacity of the sling.* The principal of sling angle applies whether one sling is used to pull at an angle, in a basket hitch, or for multi-leg bridle slings.

Sling angle is the angle measured between a horizontal plane and the sling body. This angle is very important because it can have a dramatic effect on the rated capacity of the sling. When the sling angle decreases, the load

on each sling leg increases. Care should be taken to avoid the use of sling angles of less than 30 degrees.

Yarborough Cable Nylon Slings

Yarborough Cable fabricates standard Type 1, 2, 3, 4, and 5 nylon slings in 1-inch, 2-inch, 3-inch, 4-inch, and 6-inch widths of any length using only premium grade #9 nylon webbing. Yarborough slings are available in 1-ply, 2-ply, and 4-ply construction. Nylon slings wider than 6 inches as well as cargo type or return eye type slings are available as special order items. Unless otherwise specified, all Yarborough nylon slings wider than 2 inches have tapered eyes.



Yarbrough Standard/Special Order Slings

Approximate Capacity of Type 3 & 4 Nylon Slings – pounds; 5:1 design factor †

Type 3



Type 4



Width (inches)	Ply (layers)	Vertical	Choker	Vertical Basket	60° Bridle Sling	45° Bridle Sling	30° Bridle Sling
Yarbrough Standard Slings							
1	1	1,600	1,300	3,200	2,800	2,300	1,600
1	2	3,200	2,600	6,400	5,500	4,500	3,200
1	4	5,500	4,400	11,000	9,500	7,800	5,500
2	1	3,200	2,600	6,400	5,500	4,500	3,200
2	2	6,400	5,100	12,800	11,100	9,000	6,400
2	4	11,000	8,800	22,000	19,000	15,500	11,000
3	1	4,800	3,800	9,600	8,300	6,800	4,800
3	2	8,900	7,100	17,800	15,400	12,600	8,900
3	4	16,500	13,200	32,900	28,500	23,300	16,500
4	1	6,400	5,100	12,800	11,100	9,000	6,400
4	2	11,500	9,200	23,000	20,000	16,300	11,500
4	4	20,400	16,300	40,800	35,300	28,800	20,400
6	1	9,600	7,700	19,200	16,600	13,600	9,600
6	2	16,300	13,100	32,600	28,300	23,100	16,300
6	4	30,600	24,500	61,200	53,000	43,200	30,600
Yarbrough Special Order Slings							
8	1	12,800	10,200	25,600	22,200	18,100	12,800
8	2	20,500	16,400	41,000	35,500	29,000	20,500
8	4	41,000	32,800	81,900	70,900	57,900	41,000
10	1	16,000	12,800	32,000	27,700	22,600	16,000
10	2	24,000	19,200	48,000	41,600	33,900	24,000
10	4	48,000	38,400	96,000	83,100	67,900	48,000
12	1	19,200	15,400	38,400	33,200	27,100	19,200
12	2	26,900	21,500	53,700	46,500	38,000	26,900
12	4	53,700	43,000	107,400	93,000	76,000	53,700

† All 9800 lb. webbing | For new slings or slings in new, unused condition.



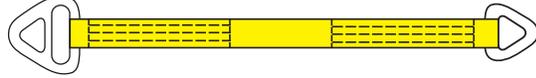
Yarbrough Standard/Special Order Slings

Approximate Capacity of Type 1 & 2 Nylon Slings – pounds; 5:1 design factor †

Type 1



Type 2



Width (inches)	Ply (layers)	Vertical	Choker	Vertical Basket	60° Bridle Sling	45° Bridle Sling	30° Bridle Sling

Yarbrough Standard Slings

2	1	3,200	2,600	6,400	5,500	4,500	3,200
2	2	6,400	5,100	12,800	11,100	9,000	6,400
3	1	4,800	3,800	9,600	8,300	6,800	4,800
3	2	8,900	7,100	17,800	15,400	12,600	8,900
4	1	6,400	5,100	12,800	11,100	9,000	6,400
4	2	11,200	9,000	22,400	19,400	15,800	11,200
6	1	9,600	7,700	19,200	16,600	13,600	9,600
6	2	16,300	13,100	32,600	28,300	23,100	16,300

Yarbrough Special Order Slings

8	1	12,800	10,200	25,600	22,200	18,100	12,800
8	2	20,500	16,400	41,000	35,500	29,000	20,500
10	1	16,000	12,800	32,000	27,700	22,600	16,000
10	2	24,000	19,200	48,000	41,600	33,900	24,000
12	1	19,200	15,400	38,400	33,200	27,100	19,200
12	2	26,900	21,500	53,700	46,500	38,000	26,900

† All 9800 lb. webbing | For new slings or slings in new, unused condition.



Yarborough Standard/Special Order Slings

Approximate Capacity of Type 5 Nylon Slings – pounds; 5:1 design factor †

Type 5



Width (inches)	Ply (layers)	Vertical	Choker	Vertical Basket	60° Bridle Sling	45° Bridle Sling	30° Bridle Sling
Yarborough Standard Slings							
1	1	3,200	2,600	6,400	5,500	4,500	3,200
1	2	6,400	5,100	12,800	11,100	9,000	6,400
1	4	11,000	8,800	22,000	19,000	15,500	11,000
2	1	6,400	5,100	12,800	11,100	9,000	6,400
2	2	12,800	12,200	25,600	22,200	18,100	12,800
2	4	17,800	14,200	35,500	30,800	25,100	17,800
3	1	9,600	7,700	19,200	16,600	13,600	9,600
3	2	17,800	14,200	35,500	30,800	25,100	17,800
3	4	32,900	26,300	65,900	57,700	46,600	32,900
4	1	12,800	10,200	25,600	22,200	18,100	12,800
4	2	23,000	18,400	46,100	39,900	32,600	23,000
4	4	40,800	11,600	81,500	70,600	57,000	40,800
6	1	19,200	15,400	38,400	33,200	27,100	19,200
6	2	32,600	26,100	65,300	56,500	46,200	32,600
6	4	61,200	48,900	122,300	105,900	86,500	61,200
Yarborough Special Order Slings							
8	1	25,600	20,500	51,200	44,300	36,200	25,600
8	2	41,000	32,800	81,900	70,900	57,900	41,000
8	4	81,900	65,500	136,800	141,900	115,800	81,900
10	1	32,000	25,600	64,000	55,400	45,200	32,000
10	2	48,000	38,400	96,000	83,100	67,900	48,000
10	4	96,000	76,800	191,900	166,200	135,700	96,000
12	1	38,400	30,700	76,800	66,500	54,300	38,400
12	2	53,700	43,000	107,400	93,000	76,000	53,700
12	4	107,400	86,000	214,900	186,100	151,900	107,400

† All 9800 lb. webbing | For new slings or slings in new, unused condition.



Polyester Round Slings

Polyester round slings differ from nylon webbing slings in several ways. The slings themselves take the form of an endless loop. The outer cover of the loop is a highly flexible, tubular jacket of woven polyester. Contained within the jacket are multiple loops of a single strand of polyester yarn, with more loops used to deliver greater sling capacity. The all-polyester construction eliminates moisture absorption, rot, and mildew, providing a longer service life. The sling jacket protects the load bearing yarns and fibers from the effects of abrasion as well as from environmental conditions such as ultra violet radiation, dirt, debris, chemicals, sparks, etc.

The polyester yarns in these slings stretch only about 3% when loaded so the slings have less elongation than nylon slings of equal capacity (nylon slings will stretch about 6% when loaded). Round slings are highly flexible and will hug a load much better than a flat nylon

sling. As a result, round slings are ideal for use in a choker hitch because the round body of the sling prevents the sling from locking up on the load. Since round slings are endless, attachment points can be constantly changed, thereby extending the sling's useful life.

In addition to the traditional size and capacity tag on the sling, the covers of round slings are color coded to indicate the capacity of the sling. There is general but not complete standardization on cover colors to indicate sling capacity, so always check the tag to confirm the capacity of any round sling.

Measuring Polyester Round Slings

The length of a round lifting sling is determined by the distance from end to end, when the sling is laid out flat. Do not measure the circumference or the distance *around* the sling, as this will give you a sling twice the length you intended.



*** Measure end-to-end, *not* circumference**



Yarbrough Cable Polyester Round Slings

Yarbrough Cable fabricates polyester round slings in vertical capacities from 3,000 lbs. to 60,000 lbs. and lengths up to 45 feet, in increments of 1 foot. The Yarbrough round sling stock numbers and color capacity codes are shown in the following table. When ordering a polyester round sling, specify the stock number and the length. For example: SP600 x 20 ft., or SP2600 x 18 ft., etc.



Approximate Capacity of Polyester Round Slings – pounds; 5:1 design factor †

Catalog Number	Vertical	Choker	Vertical Basket
			
SP300	3,000	2,400	6,000
SP450	4,500	3,600	9,000
SP600	6,000	4,800	12,000
SP900	9,000	7,200	18,000
SP1200	12,000	9,600	24,000
SP1400	14,000	11,200	28,000
SP1700	17,000	13,600	34,000
SP2200	22,000	17,600	44,000
SP2600	26,000	20,800	52,000
SP3200	32,000	25,600	64,000
SP5000	50,000	40,000	100,000
SP6000	60,000	48,000	120,000

† For new slings or slings in new, unused condition.



Slingmax® High Performance Slings

Twin-Path® synthetic slings from Slingmax® Rigging Solutions are the world's first, true ergonomic slings. A bulked nylon outer cover surrounds a dual core of high-performance K-Spec® yarns to provide unmatched strength, flexibility, and abrasion resistance. K-Spec yarns are blended from Dyneema® HMPE and Vectran® liquid crystal polymer fibers. Twin-Path slings weigh approximately 90% less than steel wire rope slings of comparable lifting capacity, and have 1% stretch at rated capacity.

For safety and lift security, the dual core of Twin-Path slings provides two connections between the hook and the load for redundant protection. In addition, Twin-Path slings have overload tell-tales: a high-visibility red inner cover that is instantly visible if the outer cover is cut, and a fiber optic inspection system.

Yarbrough Twin-Path slings are equipped with the Check-Fast® Inspection System. The Check-Fast tag and External Warning Indicator (EWI) provide a pass/fail inspection of the internal load bearing core yarn. Damage to the core yarn from ultraviolet (UV) light degradation, fiber-on-fiber abrasion, fatigue, and severe

overload can be readily detected. If the sling is mistakenly overloaded, the EWI is designed to disappear before the sling fails. This provides the sling inspector with a go/no-go inspection device rather than relying on a subjective visual inspection.

Yarbrough Twin-Path slings are also equipped with a fiber optic inspection system. The condition of the internal core yarn can be quickly inspected by checking the continuity of a fiber optic cable within the sling body. If the sling is crushed, cut, or damaged by heat or chemicals, these conditions will damage the fiber optic cable and prevent light transmission from one end of the fiber to the other. This provides the inspector with a reason to remove the sling from service and send it in for repair or evaluation. Ambient light or a flashlight source may be used to check fiber optic continuity.

As an authorized Slingmax Dealer, Yarbrough Cable fabricates Twin-Path slings in a variety of sizes and lengths. When ergonomics, safety, and productivity are paramount, Twin-Path slings are the worldwide choice for wire rope replacement in heavy lifts.



Yarborough Slingmax Twin-Path Slings
Approximate Capacity in pounds; 5:1 design factor †

Twin-Path Sling	Vertical	Choker	90° Basket	60° Basket	45° Basket	Nominal Body Width (inches)
TPXC 1000	10,000	8,000	20,000	17,320	14,140	1.5 – 3
TPXC 1500	15,000	12,000	30,000	25,980	21,210	1.5 – 3
TPXC 2000	20,000	16,000	40,000	34,640	28,280	1.5 – 3
TPXC 2500	25,000	20,000	50,000	43,300	35,350	2.0 – 4
TPXC 3000	30,000	24,000	60,000	51,960	42,420	2.0 – 4
TPXC 4000	40,000	32,000	80,000	69,280	56,560	2.0 – 4
TPXC 5000	50,000	40,000	100,000	86,600	70,700	2.5 – 5
TPXC 6000	60,000	48,000	120,000	103,920	84,840	2.5 – 5
TPXC 7000	70,000	56,000	140,000	121,240	98,840	2.5 – 5
TPXC 8500	85,000	68,000	170,000	147,220	120,190	3.0 – 6
TPXC 10000	100,000	80,000	200,000	173,200	141,400	3.0 – 6
TPXC 12500	125,000	100,000	250,000	216,500	176,750	4.0 – 8
TPXC 15000	150,000	120,000	300,000	259,800	212,100	4.0 – 8
TPXC 17500	175,000	140,000	350,000	303,100	247,450	4.0 – 8
TPXC 20000	200,000	160,000	400,000	346,400	282,800	5.0 – 10
TPXC 25000	250,000	200,000	500,000	433,000	353,500	5.0 – 10
TPXC 27500	275,000	220,000	550,000	476,300	388,850	6.0 – 12
TPXC 30000	300,000	240,000	600,000	519,600	424,200	6.0 – 12
TPXC 40000	400,000	320,000	800,000	692,800	565,600	7.0 – 14
TPXC 50000	500,000	400,000	1,000,000	866,000	707,000	7.0 – 14
TPXC 60000	600,000	480,000	1,200,000	1,039,000	848,000	8.0 – 16

† For new slings or slings in new, unused condition.



Use of Synthetic Slings

Synthetic slings provide several key benefits over wire rope slings, the most notable of which are lighter weight and greater flexibility. Synthetic slings are mostly impervious to the effects of moisture and are highly resistant to a wide range of solvents, acids, and industrial chemicals.

Removing Synthetic Slings from Service

Remove all synthetic slings from service if you see damage such as the following, and return

to service only when approved by a designated person. These are removal criteria established by ANSI B30.9:

- Acid or caustic burns.
- Melting or charring of any part of the sling.
- Holes, tears, cuts, or snags.
- Broken or worn stitching in load-bearing splices.
- Excessive abrasive wear.
- Knots in any part of the sling.

 When using any synthetic sling, care must be exercised to avoid sling contact with sharp surfaces and edges that could cut the sling. One must also avoid using synthetic slings at high temperatures.

Nylon Web Slings	
Chemicals and Solvents †	
Alcohol	OK
Aldehydes	OK
Weak alkalis	OK
Dry cleaning solvent	OK
Ethers	OK
Most hydrocarbons	OK
Halogenated hydrocarbons	OK
Ketones	OK
Crude oil	OK
Lubricating oils	OK
Soaps & surfactants	OK
Detergents	OK
Seawater	OK
Acid	Avoid
Bleaching agents	Avoid
Concentrated sulfuric acid	Avoid
Sunlight and Temperature	
Avoid prolonged exposure to sunlight.	
Avoid temperatures above 194° F (90° C) and below -40° F (-40° C).	

Polyester Round Slings	
Chemicals and Solvents †	
Alcohol	OK
Aldehydes	Avoid
Weak alkalis	OK
Dry cleaning solvent	OK
Ethers	Avoid
Most hydrocarbons	OK
Halogenated hydrocarbons	OK
Ketones	OK
Crude oil	OK
Lubricating oils	OK
Soaps & surfactants	OK
Detergents	OK
Seawater	OK
Weak acid solutions	OK
Strong alkalis at elevated temps	Avoid
Hot bleaching solutions	Avoid
Concentrated sulfuric acid	Avoid
Sunlight and Temperature	
Avoid prolonged exposure to sunlight.	
Avoid temperatures above 194° F (90° C) and below -40° F (-40° C).	



- Excessive pitting or corrosion, or cracked, distorted, or broken fittings.
- Other visible damage that causes doubt as to the strength of the sling.
- Missing or illegible sling identification.
- For Twin-Path slings, missing Check-Fast early warning indicator or fiber optic indicator fault.

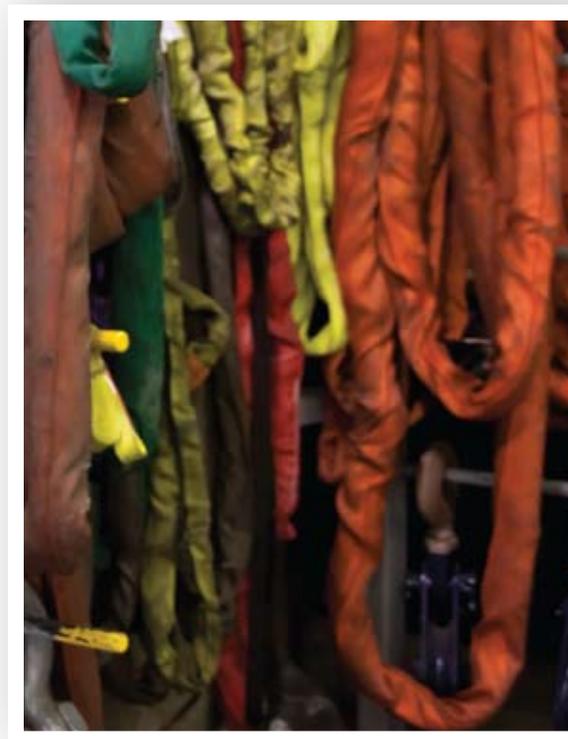
Cleaning Synthetic Slings

Ordinary dirt, grit, and grime will reduce the overall strength and life of synthetic slings, especially nylon web slings where the load bearing fibers are exposed. It's very easy for

these contaminants to penetrate between fibers anytime the webbing bends, pulls tight against loads, or stretches and relaxes during loading and unloading. Once in place, small particles of dirt and grit grind against the sling fibers, reducing their strength and useful life.

Store synthetic slings properly when they are out of service and clean them when they become soiled. When slings are clean, they are easier to inspect, they remain strong, and they last longer. Many procedures may be used to clean synthetic slings, depending on how soiled they are. For everyday dirt and grime, cleaning with soap or mild detergent and water will usually deliver good results.

Twin-Path Slings	
Chemicals and Solvents †	
Seawater	OK
Hydraulic fluid	OK
Kerosene	OK
10% Detergent solution	OK
Gasoline	OK
Toluene	OK
Glacial acetic acid	OK
1M Hydrochloric acid	OK
5M Sodium hydroxide	OK
Ammonium hydroxide (29%)	OK
Perchloroethylene	OK
Bleach	19% strength reduction
Hypophosphite solution (10%)	OK
Nitric acid (50% by volume)	3% strength reduction
Sulfuric acid (50% by volume)	OK
Phosphoric acid (50% by volume)	5% strength reduction
Sunlight and Temperature	
Do not use above 180° F (82° C).	
No lower temperature limit; Twin-Path slings actually become stronger at lower temperatures.	



† This is not an exhaustive list. In general, nylon is more stable when exposed to alkalis, while polyester performs better when exposed to acids. There are exceptions to this, some of which are noted in the charts. Contact Yarbrough Cable for details and guidelines regarding exposure of synthetic slings to specific solvents, chemicals, and other environmental conditions.



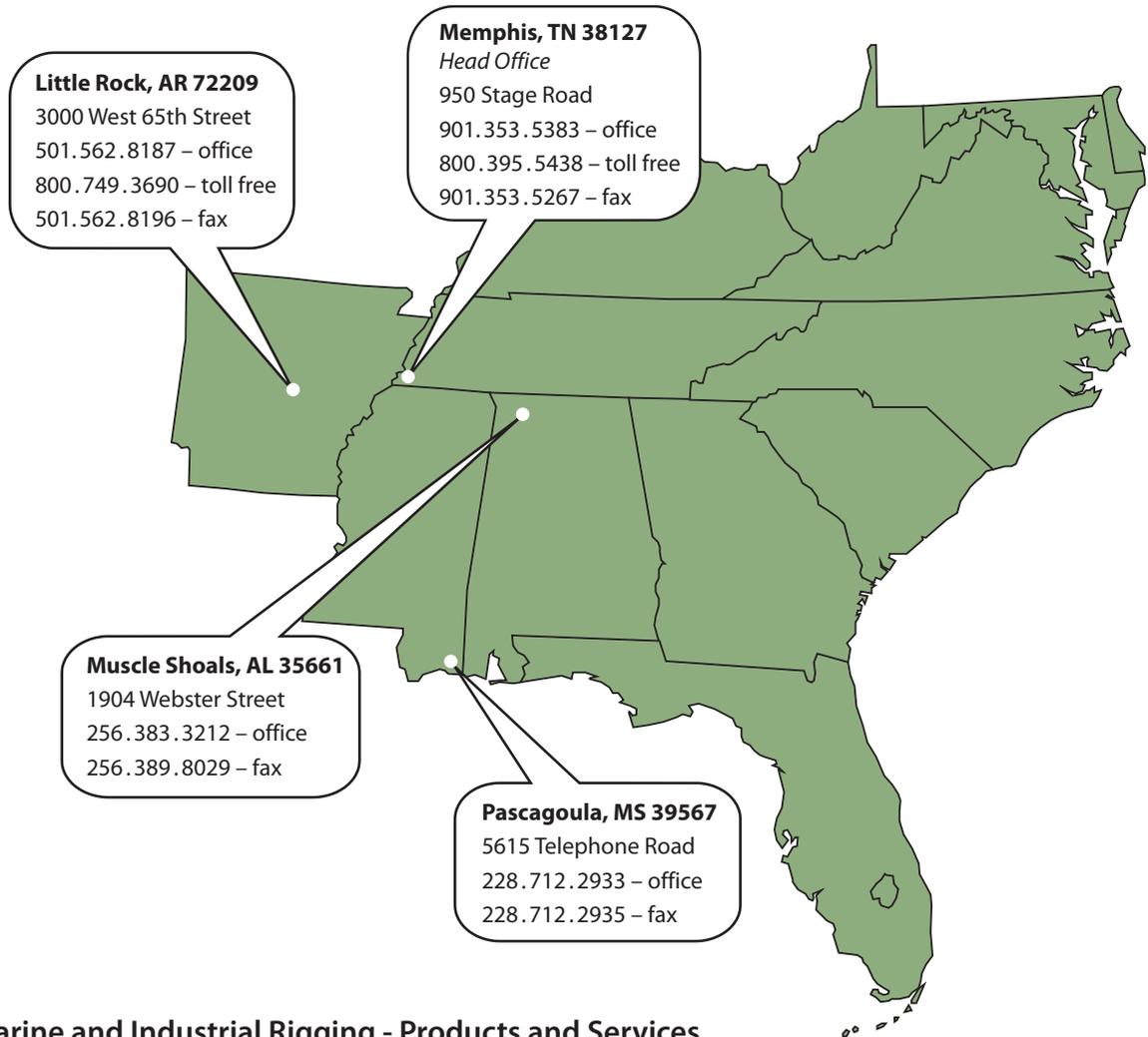
Whatever cleaning method you use, always hang wash slings in a dry, sheltered place. Always keep slings from prolonged contact with direct sunlight during drying and storage because ultraviolet rays can degrade synthetic fibers. Nylon or polyester slings that have been dyed any color but white will fade somewhat due to washing, but this in no way affects the strength of the webbing.

Nylon, polyester, and HMPE fibers have an extremely low water absorption rate, making them flexible, light, and easy to handle even after prolonged soaking in water. All show excellent resistance to mold, mildew, and fungus, although dirt that accumulates on slings may support their growth, which is also why regular cleaning is important.



Yarbrough Cable Service Locations and Contact Information

To meet your rigging needs, Yarbrough Cable has four locations in the Mid-South. All four of our branch locations provide the following products and services.



Marine and Industrial Rigging - Products and Services

Wire Rope and Slings: All types of wire rope to 4-1/2 in. diameter, Flemish eye mechanical splice slings, bridle slings, braided slings, endless grommets

Chain and Slings: All types of welded industrial chain to 1 in. diameter, Grade 80 and 100 alloy steel lifting chain, mechanically-assembled chain slings up to 4 legs

Synthetic Slings: Flat nylon slings, custom polyester round slings, custom Slingmax® Twin-Path® high performance round slings

Rigging Hardware and Fittings: Shackles, turnbuckles, hooks, swivels, wire rope clips, thimbles, eye bolts, swivel hoist rings, lifting eyes, hook latch kits, spelter and swage sockets, wedge sockets, eye nuts, and more

Hoists and Pullers: Chain lever hoists, manual and electric chain hoists, chain falls, beam clamps and trolleys, wire rope hoists, wire rope come-alongs

Inspection and Load Testing: Inspection and load testing of slings of all types, wire rope pre-stretching, load testing of rigging fittings and components of all types, test machine capacity from 40 tonnes to 1500 tonnes, calibrated to ASTM E4, traceable to NIST (load test capacity varies by location)

