



# The Thread Exchange

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## Polyester Thread Information



Our Polyester Thread Information page talks about this thread from the customers' viewpoint. Customers learn about when polyester thread should and should not be used, picking the right thread size (thickness), the difference between bonded and soft finishes, deciding how much thread is needed, polyester's elongation (stretchiness), and the difference between left and right twist thread. There are specifications for eleven polyester thread sizes at the bottom of the page and a new [Polyester Thread Size Guide](#).

**When to use polyester thread** - The short answer is that filament polyester thread can be used for any application that uses nylon thread. Like nylon, polyester is a strong, inexpensive thread with a glossy smooth finish and is used for upholstery, leather, webbing, canvas, an vinyl. Lighter weight ( sizes 15 to 69 ) are used for garments that have glossy finishes.

Polyester and nylon thread look identical when sewn and have similar strength and thickness. The chief differences are the way these threads respond to bleaches and the outdoors. He is an excerpt from the military specifications for these threads.

	Polyester Mil Spec 32072 - (VT-285F)	Nylon MIL SPEC A-A-59826(VT-295E)
<b>Effects of Heat</b>	Sticks at 440° to 445° Fahrenheit. Melts at 483° Fahrenheit.	Sticks at 445° Fahrenheit. Melts at 485° to 500° Fahrenheit. Yellows slightly at 300° Fahrenheit when held for 5 hours.
<b>Effects of Bleaches and Solvents</b>	Excellent resistance to bleaches and other oxidizing agents. Generally insoluble except in some phenolic (resin) compounds.	Can be bleached in most bleaching solutions. Generally insoluble in most organic solvents. Soluble in some phenolic (resin) compounds.
<b>Effects of Acids and Alkalis</b>	Good resistance to most mineral acids. Dissolve with partial decomposition in concentrated solutions of sulphuric acids. Good resistance to weak alkalis. Moderate resistance to strong alkalis at room temperature. Disintegrate in strong alkalis at boil.	Unaffected by most mineral acids, except hot mineral acids. Dissolves with partial decomposition in concentrated solutions of hydrochloric, sulphuric, and nitric acids. Soluble in formic acids. Substantially inert in alkalis.
<b>Effects of Mildew, Aging, Sunlight &amp; Abrasion</b>	Not weakened by mildew, excellent resistance to aging and abrasion. Prolonged exposure to sunlight causes some strength loss.	Excellent resistance to mildew, aging and abrasion. Prolonged exposure to sunlight causes some deterioration.

This means that polyester thread is a better choice for sewing things that are going to be bleached or have prolonged sunlight exposure. For example, nylon thread works fine for a canvas tent that is used for a few outings each year; polyester thread would be better for a canvas hammock that is left outdoors from May to October.

Polyester thread does not provided the ultimate sunlight (UV) resistance. Brands like Sunbrella™ and Tenara™ come with replacement guarantees and UV treated nylon and polyester threads will out perform regular polyester. None of this matters if the material sewn is not equally bleach and sunlight resistant. After all, the material makes up at least 90% of the content and cost of the item that is being sewn.

There are times when polyester thread is **not** recommended:

**Spun Polyester** - This thread is a thin filament of polyester thread wrapped in a cotton outer layer. It is very inexpensive and has a soft, cotton-like texture that makes it perfect for most garments

**Fire retardant garments and gear** - Polyester thread sticks at 440° to 445° Fahrenheit and melts at 483° Fahrenheit. First responder garments and gear and some high temperature conveyer belts require much more fire retardance. Use [Fire Retardant Sewing Thread](#), [Fire Retardant Embroidery Thread](#), [Filament Kevlar Thread](#), and [Filament Nomex Thread](#) in these situations. All are heat resistant to 700°F or more.

**Critical strength requirements** - Polyester is strong but [Filament Kevlar Thread](#) is about twice as strong. For example, size 92 polyester as a 14.5 pound tensile strength; the same size Kevlar has a 30 pound tensile strength. Kevlar's downside is that it costs about five times more than polyester and only available in yellow. Consider using heavier weight polyester or double-stitching to meet strength requirements.

**Thread Sizes** - A thread's size (or weight) refers to its thickness. We use U.S. commercial sizes on our site and cross-reference equivalent Tex and Government sizes. Here is an easy way to understand what happens as thread sizes increase:

When thread size increases...		When thread size increases...	
Thread diameter	Increases	Stitch visibility	Increases
Strength	Increases	Sewing machine size	Increases
Sewing heat and friction	Increases	Yards per pound	Decreases
Needle size	Increases		

The material sewn often costs ten times more than the thread used to sew it. So, it is usually (parachutes excepted) for the thread to break before the fabric tears. This means that the thickness and strength of the material sewn drives the thickness of the thread used. Here are two

### Free PDF Download

- [Polyester Thread Information](#)
- [Polyester Thread Size Guide](#)

### Topics

- [When to use polyester thread](#)
- [Thread Sizes](#)
- [Bonded or Soft](#)
- [How Much Thread](#)
- [Elongation](#)
- [Twist](#)
- [Non-Wicking](#)
- [Polyester Thread Specifications](#)
- [Polyester Thread Size Guide](#)

### Shopping

#### All Polyester Thread

#### Sizes

- [Size 15](#)
- [Size 33](#)
- [Size 46](#)
- [Size 69](#)
- [Size 92](#)
- [Size 1](#)
- [Size 2](#)
- [Size 3](#)
- [Size 4](#)
- [Size 5](#)

#### More

- [Juniors - 2 and 4 Ounce Spools](#)
- [Thread Boxes - 5 to 50 Pouches](#)
- [Wholesale Cases](#)

guides that relate material weight (ounces per square yard) to thread thickness

Fabric Weight / Thread Sizes from American & Efirid		Springfield Leather	
Fabric Ounces per Square Yard	Thread Size Range	Leather Ounces per Square Yard	Thread Size Range
2 to 4 Oz	15 to 23	8 Oz or Less	69 to 207
4 to 6 Oz	23 to 33	8 Oz to 12 Oz	138 to 277
6 to 8 Oz	33 to 46	12 Oz to 16 Oz	207 to 346
8 to 10 Oz	46 to 69	Multiple layers	207 to 346
10 to 12 Oz	69 to 92		
12 to 14 Oz	92 to 160		

These guides make it clear that there is a range of thread sizes that will work with different material weights. Also, sewing machine limitations may make double-stitching a lighter thread necessary and getting that "look" may justify using a heavier thread. Our [Polyester Thread Size Guide](#) gives size range recommendations for about 40 items. It is also available as a [PDF Download](#)

**Bonded or soft?** - Bonded means that a thread has a coating that reduces needle heat and fraying. It makes thread stiffer and about 5% thicker than soft thread. The choice between bonded and soft depends on how the thread is going to be used and thread thickness. Here are our recommendations:

Sewing Application	Recommendation
Machine sewing lightweight thread sizes 15 to 46	Lightweight thread sizes generate little needle heat and are unlikely to fray. Bonded and soft thread work equally well.
Machine sewing thread sizes 69 and higher	Bonded thread is strongly recommended
Hand sewing	It does not matter if you use bonded or soft thread.
Wrapping and gluing	Soft thread is preferred because bonded thread often repels glues and adhesives. You can soak a bonded thread in alcohol to remove the bonding
Other non-sewing applications such as hanging and reinforcing	Finish does not matter in most cases. Bonded thread is better if it is going through a narrow tube.

**How much thread?** - We sell most of our polyester thread in 2 Ounce, 4 Ounce, and 16 Ounce (1 Pound ) spool sizes or putups. The smaller putups cost more per ounce than the larger ones. But, they are better values for most casual sewers with one-time projects.

Polyester thread is sold by weight (ounces, pounds) - not yards. This is because the number of yards-per-pound decreases as thread thickness increases. Selling by weight means prices for a given size spool are about the same across most thread sizes.

Industry norms allow polyester thread spool weights to vary by ±10% from the stated nominal weight. This means that customers get slightly less or slightly more thread than the nominal weight shown on our site. The table on the right shows our nominal weights and the thread-weight range ( including the spool's weight ) for various sizes. When spools fall within these ranges we do not charge for overages or refund underages.

Nominal Weight	Weight Range	
	Minimum	Maximum
2 Oz	2.6 Oz	4.5 Oz
4 Oz	4.6 Oz	5.9 Oz
6 Oz	6.0 Oz	7.9 Oz
8 Oz	8.0 Oz	10.5 Oz
12 Oz	10.6 Oz	15.5 Oz
16 Oz	15.6 Oz	19.9 Oz

Spool Weight	Dimensions	
	Base	Height
2 Oz	2.5"	4.5"
4 Oz	2.5"	4.5"
8 Oz	3.5"	5.5"
16 Oz	4.5"	7.5"



The table on the right gives typical spool dimensions for polyester thread putups. Some home sewing machines do not have spindles that can handle our spools. Use a [Thread Cone Holder](#) to solve this problem. It bypasses the spindle feeds the thread directly into the machine as shown on the far right.

**Elongation** - Polyester thread stretches about 25% before it breaks. This means that 10 yards of polyester thread will be 12.5 yards when it snaps. This stretchiness is a good thing in most cases. It allows the seams to expand and contract with the material and avoids puckering and breakage. Polyester's stretchiness may not be desirable in some hanging, reinforcing, or wrapping applications. When this is so, consider less stretchy threads such as cotton, spun polyester, or Kevlar.

**Twist** - Most of the polyester thread on our is left twist ( also called Z-twist) because that is what single-needle machines made for the U.S. use. We have a few, clearly marked, right twist ( also called S-twist) thread for double-needle machines. A thread's twist makes no difference when it comes to hand-sewing and non-sewing applications.

**Non-Wicking** - The thread has a finish that resists liquids flowing through seams. There is a trade-off--some non-wicking finishes weaken abrasion resistance. You can minimize this problem by only using this thread when you sew high tension seams.

**Polyester Thread Specifications**

**Size**

Commercial	<b>Size 15</b>	<b>Size 33</b>	<b>Size 46</b>	<b>Size 69</b>	<b>Size 92</b>	<b>Size 138</b>	<b>Size 207</b>	<b>Size 277</b>	<b>Size 346</b>	<b>Size 415</b>	<b>Size 554</b>
Tex	15	30	45	70	90	135	210	270	350	410	600
Government	A	AA	B	E	F	FF	3-Cord	4-Cord	5-Cord	6-Cord	8-Cord

**Strength**

Pounds	1.5	3.0	7.0	11.0	14.5	21.0	31.0	44.0	53.0	73.0	98.0
Kilos	0.7	1.4	3.2	5.0	6.6	9.5	14.1	20.0	24.1	37.7	44.5

**Thickness**

Inches - decimal	0.0047	0.0070	0.0080	0.0107	0.0124	0.0152	0.0186	0.0231	0.0258	0.0283	0.0330
Inches - thousandths	5/1000	7/1000	8/1000	11/1000	12/1000	15/1000	19/1000	23/1000	26/1000	28/1000	33/1000
Millimeters	0.1194	0.1778	0.2032	0.2718	0.3150	0.3861	0.4724	0.5867	0.5867	0.7188	0.8382

**Needle Size**

The Thread Exchange, Inc.: Polyester Thread Information

U.S.	10-12	12-14	14-16	16-18	18-20	20-22	22-24	24-26	26-28	28-30	30-32
Metric	70-80	80-90	90-100	100-110	110-120	120-14-	140-180	180-220	220-260	260-330	300-360
<b>Nominal Yards</b>											
2 Ounce Spool	3,750	1,525	1,188	750	563	375	263	187	163	125	79
4 Ounce Spool	7,500	3,050	2,375	1,500	1,125	750	525	375	325	250	158
8 Ounce Spool	15,000	6,100	4,750	3,000	2,250	1,500	1,050	750	650	500	315
12 Ounce Spool	22,500	9,150	7,125	4,500	3,375	2,250	1,575	1,050	975	750	473
16 Ounce Spool	30,000	12,200	9,500	6,000	4,500	3,000	2,100	1,500	1,300	1,000	630
<b>Type of Sewing Machine</b>											
Home	<input type="checkbox"/>										
Commercial	<input type="checkbox"/>										
Heavy Duty	<input type="checkbox"/>										
<b>Stitch Visibility</b>											
Inconspicuous	<input type="checkbox"/>										
Noticeable	<input type="checkbox"/>										
Stands Out	<input type="checkbox"/>										
Focal Point	<input type="checkbox"/>										

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