

String & Serving

Without a string, the bow is just a stick. The string is obviously a key element of any bow and arrow setup, from compound bows to longbows, but the string often plays an overlooked role. A good string helps an archer keep all his/her shots in the yellow, while a bad string will cause his/her groups to open up. With so many different string materials out there, it is very hard to choose one without a guide to help you along in the process. I am going to share my personal preferences with you in this article.

String Materials

In the beginning, there was animal sinew, plant fibers, and other natural string materials. Fast forward thousands of years and we have the first modern string material, Dacron (polyester), then came Kevlar. But Kevlar, as advanced as it was, was brittle and many broken strings later, Kevlar was replaced by the HMPE revolution. HMPE stands for high modulus polyethylene. The first of these HMPEs was Fast Flite made from Spectra, then came Dynafite 97, D75, 8125, D75 thin, Angel Dyneema, Dyneema 02, 8125 thin, 452X, 450, the list goes on. In addition to the major suppliers of HMPE string materials, there are other smaller companies that offer similar products. But the real question is—what are the differences between all these

different bowstring types?

Modern string materials can be grouped into three different categories, Dacron, HMPE and blended materials. In the Dacron category there is B50 and B500. Dacron strings are characterized by relatively large amounts of creep and stretch. They are also quite heavy and subsequently slow. So why is Dacron still around? First, Dacron is inexpensive and very popular with novice and traditional archers. Secondly, older recurve bows with non-reinforced limb tips require Dacron else the limb tips might break off or the bow crack if less elastic material is used.

Significant improvements really came with Fast Flite strings. They are much faster than Dacron and unlike Kevlar, Fast Flite strings are more elastic than Kevlar and won't break after a thousand shots. Before the War in Iraq, Fast Flite was made with Spectra, but since the military has claimed most Spectra production, Fast Flite is now made with Dyneema while remaining more or less unchanged.

Next are the Dyneema materials, Brownell makes D75, D75 thin and TS1 Plus. BCY makes Dynafite 97, Formula 8125, Dyneema 02 and 8125 thin. Angel manufactures Dyneema and Majesty string materials. D75

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and Dynaflite are essentially the same string material marketed by different companies as are D75 thin and 8125, which are thinner versions of D75 and Dynaflite 97. 8125 thin is just a thinner version of 8125. In theory a thinner string helps to create a rounder string bundle. TS1 Plus is the new version of TS1, made from Dyneema instead of Spectra now.

Blended materials are two materials blended together to create an ultra strong string material. Usually Vectran is blended with an HMPE to create such a string. The benefits are virtually no creep and very little stretch. Meaning the archer need not worry about checking brace height or peep rotation frequently. Unfortunately, blended materials are significantly heavier than HMPE strings and consequently are slower. Blended materials are very popular with compound shooters, who typically have greater speeds. Recurve archers usually prefer the extra speed afforded by HMPE strings.

With modern bows, any string material can be used. There are two measures of what makes a good string: how much the string creeps/stretches and how fast the string is. As it is, Dacron is the worst in both categories, being fairly weak and quite heavy. Blended materials being very strong have little to no creep, but are slower than HMPE strings. HMPE strings are normally characterized by low creep and high speeds. They are the fastest material available on the market today. What follows is a breakdown of the differences between HMPE materials. Blended materials perform pretty much on par with each other, so a comparison is not necessary.

Fast Flite (FF) is on the lower end of HMPE materials. FF is characterized by higher amounts of creep and it is heavier than other HMPE strings. It is also cheaper. 8125, D97, D75 & D75 are characterized by very low creep and are lightweight which translates into greater arrow speeds. These materials are the standard against which all other materials are judged. TS1 Plus has significantly more creep than 8125, but it is faster. Whether the tradeoff is worth it, you must decide.

Then there is Angel and their no-wax materials. Because Angel Dyneema has no wax or, in actuality, very little wax, it is incredibly light and very strong.



Angel Dyneema is faster than any other string material out there, but it comes at a price. The lack of wax shortens Dyneema's lifespan and it tends to snag on rough surfaces. Dyneema 02 is BCY's answer to Angel Dyneema.

In 2005, Angel released their new Majesty material. This is another non-waxed

string material, but unlike Dyneema, it is coated with a proprietary formula which helps to protect the string and increase longevity. However, Majesty is slower than Dyneema, but is still faster than 8125 and is on par with TS1 plus.

In the end, it is up to you to decide which material better suits you. I personally use Angel Majesty even though Dyneema is faster. Prior to Majesty, I used 8125 to good effect while my experiments with TS1+ proved to be ill advised. I don't like the blended materials because they rob my bow of too much speed. So there you have it, all the information you need to make a decision on which string material to use.

Servings

Strings need servings to prolong their lives, both in the center of the string, the center serving, and at the end loops, the end loop servings. In the beginning there was no such thing as an end loop serving. In fact, the idea of an endless loop string had not even been thought up yet. String loops were made by "braiding" an end loop, most typically in what is called a Flemish string, and these are still quite popular with traditional archers. Then came the endless loop string and end servings were born. End serving material is very similar to center serving material, typically it is just thinner.

The most basic end loop serving thread is made from nylon such as #4 by Brownell or BCY's 350 serving. Nylon is very inexpensive, but has a low breaking point which means it will break if served too tightly. Nylon is also significantly thicker and heavier than HMPE based servings. Consequently, it will make your string slower (by adding weight to the middle of the string).

Other popular loop materials are Brownell's diamondback and BCY's No. 62 center serving. While these are normally used for center servings, they also make excellent end servings. Being of braided construc-

tion, the servings hold up well and do not fuzz up like nylon.

As with string material, HMPE servings are of much greater quality than older materials. Brownell's #1D and BCY's #3D are the two examples of this type of serving. Not only are these servings extremely strong, they are significantly lighter than other materials and are probably the best material available. They also come in very thin diameters which is important for compound strings. Some people like to use BCY's Halo or Angel's Majesty as an end loop material, but I see no advantage over #3D.

While end loop servings such as #3D work fine as a center serving, there are materials that are much better suited for center serving use. Monofilament (similar to fishing line) is the basic center serving material and is inexpensive and slick. It is also quite hard and has a low breaking point. Braided servings such as diamond-back are popular especially among traditional archers and release shooters. Braided servings are very durable and give the archer a good grip on the bowstring. While having a good grip is not a problem for release shooters, friction tends to hinder finger shooters. The slicker the serving, the cleaner a release can be. BCY's Halo is very popular for good reason, it is very slick, priced fairly and comes in a plethora of colors. Brownell's response to Halo is Crown, which is actually smoother, but lays down a lot flatter, which means more surface area. Angel also makes a center serving under their own name. Angel is even slicker than Halo, but is more expensive. In 2005, along with the release of Majesty string material, Angel released their new Majesty center serving thread. This serving holds true to its name and can justifiably call itself the king of serving materials. Not only is Majesty incredibly smooth, it manages to provide for a good grip on the string up until the release. It is able to do this because it lays down round and consequently has less surface area.

As you can see, certain materials are more suited to certain disciplines than others are. However, certain materials are also inherently superior in many respects. Clearly, HMPE servings are better than nylon end servings. In addition, for archers wanting the best durability and performance, Halo, Crown, or Angel servings are the way to go. But don't discount monofilament, it may be old and break easily, but it is very slick and is the favorite of Michele Frangilli, one of the top FITA recurve archers in the world. If one is after the fastest smoothest string with a long lifespan, BCY #3D with

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Angel Majesty is the way I chose to go. I use them on my own personal strings and I highly recommend the combination to anyone who wants the best.

Leighton Tyau is a Level 2 coach and president of HNL Archery Strings. He began archery 13 years ago and hopes to make it to the USAT as well as to pursue his coaching career.

