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Arrow spine chart

Archery is a sport with many different details to learn and understand. The science behind it includes physics, energy, and aerodynamics. In addition to science, there are plenty of human factors to consider as well. Your archery form, mental toughness, and decision-making ability all come into play. There's no denying how technical archery can really be. One specific and important thing to understand is arrow spine. Some, like Bass Pro, refer to this as "size", but they are one-in the same. Whether you have heard of this or not, we'll be diving in so you can understand and determine the right arrow spine for you. The spine rating of an arrow is simply a measurement of its stiffness. The same arrow comes in a variety of stiffness: the lower the number, the stiffer the arrow. For example, a 300 arrow is stiffer than an arrow spine of 500. Depending on your draw weight, draw length, and arrow material, you'll adjust your arrow spine accordingly. Arrows bend and flex when shot, so having the correct arrow spine will help improve your consistency and accuracy. When discussing arrow spine, there are two types to consider, static and dynamic. While both are important, we'll only really be concerned about one of them. Static arrow spine measures flexibility in a static state (at a standstill). It's measured by applying an 880-gram weight to the arrow, suspended from the center of the shaft. The arrow must be 28" in length and supported at each end of the arrow. Spine is measured by the number of inches a shaft deflects (bends) X 1000. For example, a 500 spine arrow bends .5 inches when the weight is applied. Dynamic arrow spine describes the way an arrow reacts to stored energy, transferred upon release of a bow string. Many different factors determine the way an arrow reacts upon release. Increasing or decreasing peak bow weight, arrow length, arrow point weight, or the point/insert combination can all affect your arrow spine. Because of these variables, arrows are measured and sold based solely on static spine. Now that we know what arrow spine is, why is it important? If you don't have the correct arrow spine, you'll most likely experience inconsistencies. Erratic arrow flight and inconsistent impact are two major signs that you're shooting an incorrect arrow spine. Correct arrow spine is key to improving consistency and accuracy in your shots. In general, an under-spined arrow will stray to the right, while an arrow that is too stiff will veer to the left. Just the right amount of flex helps your arrow clear the bow riser and impact with pinpoint accuracy. This leads to an important aspect of arrow spine called, The Archer's Paradox. "The archer's paradox is the phenomenon of an arrow traveling in the direction it is pointed at full draw, when it seems that the arrow would have to pass through the starting position it was in before being drawn, where it was pointed to the side of the target. The bending of the arrow when released is the explanation for why the paradox occurs and should not be confused with the paradox itself." The definition is a little confusing, so let's simplify things a bit. Arrows bend and flex when shot. In order for them to be accurate, they must have the correct amount of flex. This allows an arrow to flex away from the bow riser and return to the correct path as it leaves your bow. An incorrect spine results in unpredictable contact between the bow and arrow, reducing accuracy. If an archer shoots several arrows with different dynamic spines, they will all deflect and react differently. This will affect arrow flight and create inconsistencies in impact. All your arrows must be 100% consistent and properly spined to fit your setup. Doing so will keep you consistently on target. So how do you find the correct arrow spine for you? Thankfully, many arrow manufacturers make it extremely easy. They provide charts to help you determine the correct spine for their arrows. There are, however, a few simple measurements you'll need to take in order to use them. Draw Length: In order to find your arrow spine, you must first find your draw length. This can be measured a number of ways and easily determined at your local archery shop. If you're looking for a quick at home measurement, you can find it by measuring your arm span and dividing by 2.5. So, if your arm span is 70 inches, your draw length would be 28 inches (70 / 2.5 = 28) No matter which method you choose, you must first find your draw length.Arrow Length: The next step is to use your draw length to find your arrow length. If you have already found your draw length, you can simply add roughly an inch to this to find your arrow length. So, taking our previous example of a 28 inch draw, your arrows would be about 29 inches in length. This is just a ballpark estimate, however.Poundage/Draw Weight: The last step is to find your draw weight or poundage. This can easily be measured with a scale at your local archery shop. If you'd like to determine this at home, you can simply purchase your own archery scale. They are relatively cheap and very easy to use. If you plan on doing any adjustments/tuning at home, I would highly recommend picking up a digital scale because it will save you time and money in the long run.Using an arrow spine chart: Once you've determined your arrow tip weight, draw weight, and arrow length, you're ready to determine your arrow spine. The charts below give you a simple way of finding the proper arrow spine for your particular bow setup. They use point weight, draw weight, and arrow length to determine your correct arrow spine. To use these charts, simply take your point and draw weight and correspond it with your arrow length. Where these two numbers meet on the chart should provide your proper arrow spine. Note* Arrow charts vary from company to company. These reference Goldtip arrow charts, reference charts from your preferred arrow manufacturer to find the correct spine. There you have it! Arrow spines may seem complicated, but as long as you refer to the charts, you'll be fine. It's very important to have a properly spined arrow with your bow setup. Once you find the proper arrow spine for your bow, stick with it. It should change only if you adjust your draw weight, arrow length, or arrow point weight. When you order new arrows, be sure to let the archery shop employee know your spine and arrow length. You can also just provide one of your existing arrows to replicate. Once your set up with the correct arrow spine, you'll be shooting every shot with consistency. Archery is a sport with many different details to learn and understand. The science behind it includes physics, energy, and aerodynamics. In addition to science, there are plenty of human factors to consider as well. Your archery form, mental toughness, and decision-making ability all come into play. There's no denying how technical archery can really be. One specific and important thing to understand is arrow spine. Some, like Bass Pro, refer to this as "size", but they are one-in the same. Whether you have heard of this or not, we'll be diving in so you can understand and determine the right arrow spine for you. The spine rating of an arrow is simply a measurement of its stiffness. The same arrow comes in a variety of stiffness: the lower the number, the stiffer the arrow. For example, a 300 arrow is stiffer than an arrow spine of 500. Depending on your draw weight, draw length, and arrow material, you'll adjust your arrow spine accordingly. Arrows bend and flex when shot, so having the correct arrow spine will help improve your consistency and accuracy. 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These are based on a 100 gr. point, if you use a 125 gr. point you may need to use a stiffer spine if you use a 85 gr. point you may need to use the weaker spine. Easton Arrow Spine Charts Gold Tip Arrow Spine Charts For help finding the right shaft please email sales@extremeoutfitters.com or give us a call 910-355-2118 ARROW SELECTION GUIDE TIPS These are general Guidelines. Please contact us. In order to properly select the right arrows for your specific bow, you need to identify several variables, and make your selection accordingly. We will briefly discuss these variables, and how they affect your arrow needs. The first variable you need to look at is draw weight. As draw weight increases, so should arrow rigidity (spine). Also, we strongly recommend that you use an arrow with at least 5 grains of weight per pound or draw weight (if you are shooting a 60 lb. bow, you should use and arrow of not less than 300 grains). This includes your field point or broadhead. The next factor we will discuss is arrow length. For practical purposes, we use arrow length above draw length. Since the recent trends have been toward drop-away style arrow rests which are mounted to the rear of the riser, arrow length and draw length are no longer evenly proportional. Given a specific arrow spine, an arrow that is shorter will be more rigid than a shaft of the same spine that is longer. For example, if you have a 60 lb. bow with a 24″ arrow, you would need a more flexible shaft than a 60 lb. bow with a 30″ arrow. If you have any questions about selecting the proper arrow for your bow that isn't covered here, we will be glad to assist you. If you watch video of an arrow leaving a bow in super slow motion, you'll see the arrow flexing during those first few yards of flight. That's normal, as long as the flight is stable. That in-flight flexing is the effect of the arrow's spine, which is a measure of the arrow's stiffness. Matching the arrow's spine to your equipment is critical for accuracy. You must also understand how you can affect the arrow's spine as you build your arrows. Arrow manufacturers offer a spine chart that details their arrows' stiffness. Typically, the higher the number, the weaker the spine. Common spine ratings are 300, 400, 500 and 600, with 300-spine arrows being the stiffest. Manufacturers recommend which spine should work best for various draw weights, arrow lengths and point weights. All three factors affect arrow flexing. Higher draw weights require stiffer arrows, as do longer arrows shot by archers with long draw lengths. Let's say you have a 50-pound compound bow that shoots 27-inch Gold Tip arrows. Gold Tip's spine chart recommends an arrow with a 500-spine rating, assuming the arrow carries a 100-grain point. Take that same 50-pound bow, but increase the arrow length to 30 inches, and the chart calls for a 400 spine. Increase the bow's draw weight to 60 pounds and shoot that 27-inch arrow, and the chart again calls for a 400 spine. But if you increase the arrow length to 30 inches for the 60-pound bow, the chart calls for a 340 spine. New, raw arrows measure around 33 inches when shipped by the manufacturer. As you cut those arrows to fit your draw length, you make them stiffer. That's why Gold Tip recommends the 400 spine for a 27-inch arrow shot at 60 pounds, as compared to the 340 at 30 inches. Understand that the manufacturers' charts refer to arrow length, not draw length. Archers often confuse the two when picking arrows. Archers with a 27-inch draw length might shoot arrows anywhere from 26 to 29 inches long, depending on where your arrow rest is mounted, and how much arrow extends in front of the riser when you're at full draw. Use the arrow length you intend to shoot when consulting the spine charts. Your arrow point's weight also affects spine. Adding weight to the front of the arrow weakens its spine. That's why Gold Tip recommends a 400 spine for a 27-inch arrow with a 100-grain point shot from a 60-pound bow, but also recommends a 340-spine arrow if its length and draw weight stay the same, but its point weighs 150 grains. Point weight is a big factor, because many bowhunters try to boost their arrows' penetrating power by adding weight to the front. They can do that by using extra-heavy point inserts, increasing the weight of their points, or both. Archers who don't consider the effects of heavier points on spine might wonder why their arrow suddenly flies erratically. Archers selecting arrows should stick to the manufacturer's spine recommendations. Moving away from those recommendations can hurt accuracy. Arrows that flex too much or not enough can fly erratically. Archers occasionally change their arrow spine incorrectly because they want to change their arrows' overall weight. Arrows with weaker spines generally weigh less than those with stiffer spines. The Gold Tip Hunter XT in a 500 spine, for example, weighs 7.3 grains per inch, while the same arrow model in a 300 spine weighs 9.3 grains per inch. Archers who want to increase or cut arrow weight sometimes think changing spine is the only way to achieve their goal. Instead, stick with the spine recommendations, and change the arrow's inserts or points to adjust the arrow's weight. Never forget that adjusting weight at the front of the arrow affects its spine. One of the cool things about archery are the processes around it. On one hand, it's science. You are dealing with physics, aerodynamics and energy transfers. On the other hand, it's an art; a human working with machines. Your form, mental state and decision-making all factors into the equation of a perfect shot. Bowhunting and archery terms can get technical. Arrow spine is one of those terms that can seem technical on the surface, but can be easily explained. Here is what arrow spine means and how it affects the flight of your hunting arrow. Arrow SpineThe spine rating of an arrow is simply a measurement of its stiffness. The same Easton arrow comes in a variety of stiffness: the lower the number, the stiffer the arrow. For example, a 330 arrow is stiffer than a 500 spine arrow. There are two kinds of spine (stick with us, we promise not to get too technical). There's static spine, which is how an arrow reacts when an 880-gram (1.94 lbs.) weight is suspended from the center of the arrow. The arrow must be 29" in length and supported by two points, which are 28" apart. The number of inches the arrow deflects or bends X 1000 due to the weight is the spine size or measurement of an arrow. So, a 500 arrow bends .5-inches when the weight is applied.Then there is dynamic spine, which describes the way an arrow reacts from the stored energy of a bow as it is shot. Too many factors determine the way an arrow is going to react when shot out of the bow, and because of the nearly unlimited variables in determining dynamic spine, Easton hunting arrows are measured using static spine. You can manipulate the dynamic spine of an arrow and make it act stiffer when shot from a compound bow by decreasing peak bow weight, point weight or the point/insert combination, using heavier bow string material or adding more strands to the string, heavier vanes, heavier serving material and/or nocking point and shortening the length of the arrow.Ok, now that we've determined what the spine of a hunting arrow is, why is it important? If you do not have the correct arrow spine for your bow set up, you are going to get erratic arrow flight and poor shooting groups. Having the proper arrow spine is key to optimizing the grouping of your arrows and for the best possible accuracy. Shooting an arrow that is not stiff enough, or a group of arrows that vary in stiffness, will cause you to be less accurate. An under-spined arrow will veer right, while an arrow that is too stiff will favor slightly left.All this said, how do you choose the proper spine of your hunting arrow? Well we have crunched the numbers for you. On nearly every wall of archery shops around the world is the famous Easton arrow selection chart. It's the gold standard when it comes to picking the best hunting arrow. Follow the "variables" portion of the chart carefully, and most of all, provide accurate bow weight (measured!) and accurate draw length data. The main reason a hunter chooses the wrong arrow with the chart is because people often guess at these instead of measuring.The Easton PromiseEaston hunting arrows, produced with our advanced technology and manufacturing processes, deliver uniform spine between all arrow shafts of the same size, and 360 degrees around each shaft. With Easton, you know that your next arrow will fly like the last.Spine is so important to arrow accuracy, Easton goes far beyond the rest of the industry to ensure you receive both the specified spine and matched weight for every shaft produced in a given model. There are reasons Easton shafts have been used to win every Olympic podium since 1984 and set world records. Spine consistency is one of them.Other Notes On Arrow SpineUsually as an arrow weight increases, so does the stiffness. Thus, a heavier arrow will be stiffer.As the largest carbon buyers in the archery industry, Easton works directly with the companies that make the carbon fiber to obtain only select material lots which are as close as possible to the exact stiffness needed for a given design. Using only select materials from the world's premiere carbon fiber manufacturers, and continually testing the materials as they are prepared for use, minimizes most of the carbon fiber variation.Now that you know how important a properly spined hunting arrow is to your setup, use the arrow selection chart to be sure you are shooting an arrow with the right stiffness. That will take care of the physical part of the equation. Knowing that Easton produces the most consistent arrows with the highest quality materials will help your mental game and is one more reason to fill your quiver with Easton arrows this hunting season.