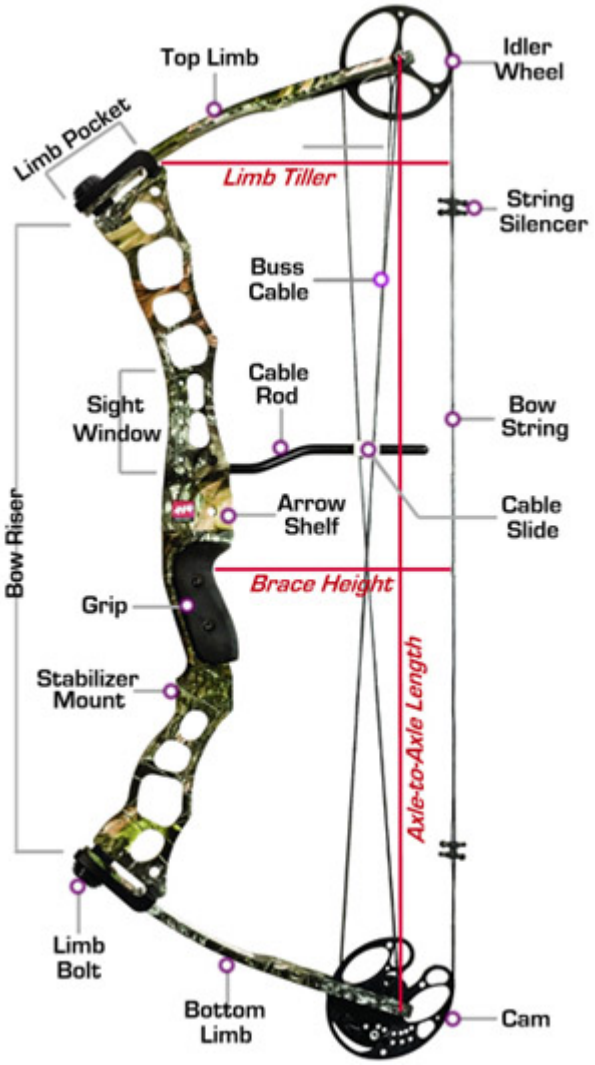
Compound Bow Selection

Introduction

Like many products, compound bows come in a variety of shapes, sizes, colours, and levels of sophistication. If you're new to the sport of archery, we'll guide you through all the jargon and technical hoopla and help you to make a better-informed choice on your new bow.

If you're not already familiar with the components of the compound bows, please take a moment to examine the illustration at right. Note the red lines denoting brace height and axle to axle length, as these attributes are mentioned frequently in this guide.



Keeping Things in Perspective

Undoubtedly, the modern compound bow is a fantastic piece of equipment. But let's try to keep things in some reasonable perspective.
Before you're swayed by an advertising campaign promising exclusive-technology and predatory bliss, try to keep in mind that the compound bow is still a relatively simple device. The compound bow is constructed from readily available materials, it has only a handful of moving parts, and it isn't yet micro-processor controlled.
So there's only so much technology which can realistically be applicable to the design and production of a compound bow.
However, most bows are specifically marketed as a "high-technology" product. Why? Because bow companies know what modern archers want the most - an edge - particularly a "technological edge".
Bowhunting has a historically low success rate, so it is no surprise that compound bow advertising campaigns focus on offering bowhunters a "technological" advantage - even if it's a little stretch of the truth. They also know that outdoor product consumers love big scientific words and impressive acronyms.
So beware. Your new compound bow could be packaged with a few Ultra-Lite Hyperpolyresin fibres of CBT (cock-n-bull technology).

The Brand Name Cult.

The archery industry is often plagued by a "better than your bow" mentality - as brand loyalty seems too often get out of hand. Some bow manufacturers even seem to develop a cult-like following of shooters

- who'll openly malign any other brand of bows (just visit an online archery forum).
This is unfortunate for beginning archers who could receive one-sided brand-x advice - which may or may not lead to a good bow purchasing decision. So beware of any advice declaring one type or brand of bow to be "the best".
Imagine being told that a Subaru, for example, is "the best" kind of car - and that every other brand was totally inferior. Ridiculous right? The Subaru is certainly a fine automobile, but it's not appropriate or practical for everyone. There are many other high quality brands and models you could choose from.
The same is true for compound bows. The Point: There is no "best" brand or "best" type of compound bow, so don't barricade yourself in too deeply on any particular bow manufacturer's ranch. The bow that is best for you is the bow that best fits your purpose, your size and strength, your shooting style, your skill level, and your budget.

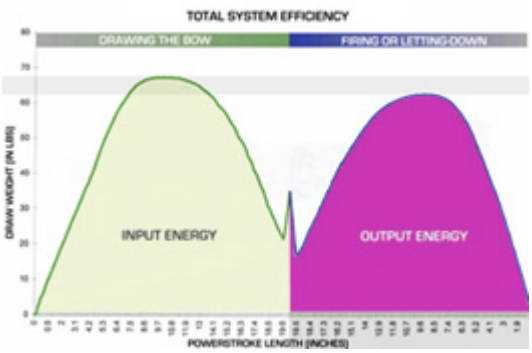
Statistical Deception in Advertising.

If Brand-X shoe company paid the world's 50 fastest sprinters to wear only Brand-X brand shoes during competitions, it would be no surprise that most of the big races would be won by athletes in Brand-X shoes. Would it be fair then to conclude that Brand-X shoes make runners go faster? Of course not!
But the company could make it seem that way if they advertised the race statistics without mentioning the paid endorsements. Sadly, some archery manufacturers use this same little trick to entice buyers, and it usually works. Beware of advertising campaigns that lead you to believe their brand of bows are more accurate, and tempt you with "stacked" statistics on how many tournaments their bows win.
The Point: Bows don't win tournaments any more than shoes win races. The most talented runners win races and the most talented shooters win archery tournaments. Many factors are involved in accurate shooting (proper fit, careful tuning, good technique, etc.). A good high-quality bow is just one part of the equation.

Understanding Trade Offs.

There are many characteristics that archers look for in a new bow. Most archers want a bow that has blazing fast performance, a silky smooth draw stroke, very low hand-shock, a generous valley, and high let-off. Most archers also want their bows to be very lightweight, compact, quiet, forgiving to any flaws in technique, easy to tune, easy to adjust, and affordable for any budget. Unfortunately, this perfect bow doesn't exist. To get a bow with a certain set of characteristics, you'll likely have to sacrifice some others. For example, very fast bows are generally less forgiving, low recoil parallel-limb bows are generally heavy, and so on. Ultimately you'll have to decide which characteristics are most important to you and choose the bow that best fits your personal criteria.

Limiting Factors of Compound Bow Performance

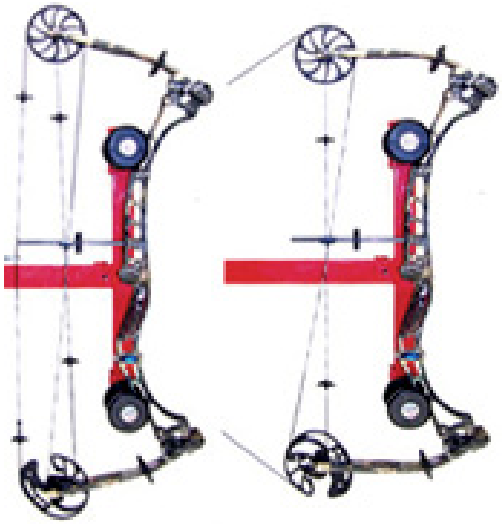


Since speed is often the #1 consideration for new bow buyers, let's begin with the issue power. First, we need to understand that bows don't make energy. They just convert energy from one form to another, so the chief performance-limiting factor is human power. So what makes a bow more "powerful" is quite unlike what makes a rifle more powerful. For a firearm, the "power" comes from the cartridge, not from the

shooter.
So providing you can withstand the recoil, you could shoot a gun for hours without ever breaking a sweat.

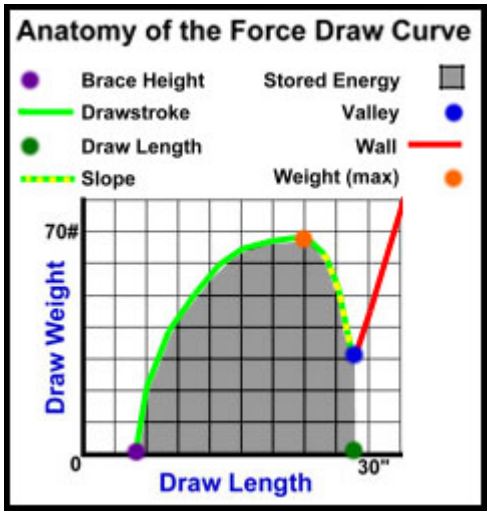
With a compound bow it is just the opposite. Don't be fooled into thinking that a bow capable of shooting 340 fps is somehow "more powerful" than one that shoots 300 fps, and that the effort required to draw and shoot each bow will be the same. In general, if a bow shoots faster it is because it requires more total effort to draw the bow back. A compound bow is simply a machine that stores energy, supplied by the shooter and then releases that energy into an arrow. And sadly, you can't get more energy out of the bow than you put in. No amount of high-tech engineering can change that.
The Point: The compound bow gets its energy from YOU. So if you choose a bow that takes an eye-bulging amount of effort to draw back, you may find that the bow isn't very enjoyable to shoot in spite of the gains in arrow velocity.

Energy Storage and Release.



When you pull the string of a compound bow, the limbs of the bow are squeezed inward. The energy you supplied to draw the bow is stored in the limbs, as potential energy, until you release the string. Upon release, the potential energy is transferred into the arrow as kinetic energy, as the limbs "spring" back into place returning the string to its original position. Seems simple enough! But careful examination of this process of storing and releasing energy is what gives a compound bow its performance characteristics, and it is something you should consider when selecting your new bow.
The Point: In essence, there are only two factors that determine how much "power" your bow will have:
1) The amount of energy that can be stored in the limbs during the draw stroke.
2) The amount of that potential energy that can be successfully transferred into the arrow upon release (efficiency).

Force-Draw Curve.



So how is one bow capable of a 330 fps IBO Speed, while another only shoots 290 or 300 fps? Again, it's all about energy storage.
As noted above, the key ingredients to arrow speed are draw weight, draw length, and arrow mass. But there's more. The amount of energy a bow stores also depends upon the aggression (geometry) of the cam or wheel design, the bow's let-off percentage, and the bow's brace height.
To better understand how each plays its role, you should familiarize yourself with the Force-Draw Curve. The Force-Draw Curve is simply a graph that shows how much energy is being stored in the limbs, inch-by-inch, until the bow reaches full draw. Draw weight (in pounds)

is plotted against draw length (in inches). The green line represents the amount of pressure the shooter must supply as the bow is drawn back. Notice that draw weight varies throughout the draw stroke (an important point for later in our discussion). When finished, the graph shows the amount of energy stored during the draw stroke, and the shape of the graph also gives us a good preview of the bow's performance characteristics and how smooth or radical the bow will feel to shoot. Take a look at the following example graph and familiarize yourself with it.

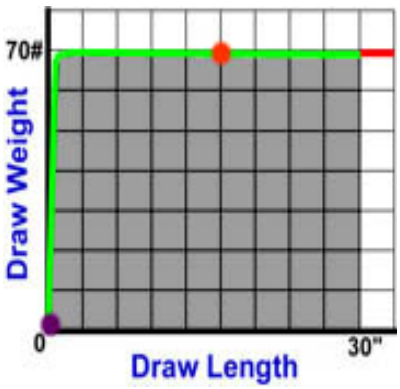
Area Under the Curve (no calculus required)

The Force Draw Curve (above) represents an average modern single-cam compound bow. The amount of energy the bow stores is represented by the darkened grey area under the curve. The more grey area you have, the faster the bow will shoot. So how do we get more grey area? Just change the shape of the curve. Of course, changing the shape of the curve requires changing the bow's major characteristics. This is where draw length, draw weight, cam design, let-off, brace height, and other attributes come into play.

The Bow's Draw stroke.

The curved line on the force draw curve represents the bow's draw stroke, commonly known as the power stroke. The power stroke represents your effort. The power stroke begins as you pull the string back from the resting position and is completed when the bow reaches full draw. Each bow will have a different power stroke depending upon its settings and cam characteristics. Power strokes which are longer, higher, or wider will result in increased energy storage and arrow velocity.

Theoretical Limits.

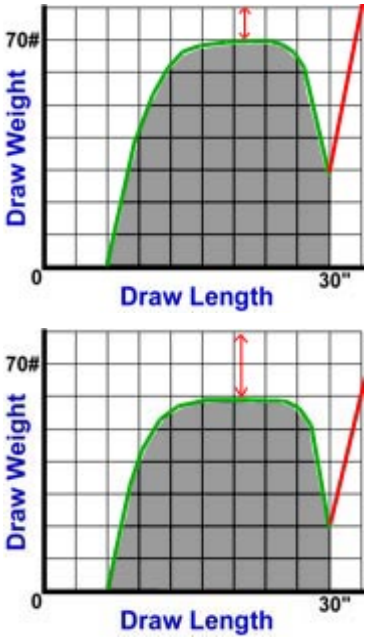


If speed were the only goal, a Force Draw Curve shaped like this one (Graph 1) would yield the greatest possible amount of stored energy for any bow at 70# max draw weight and 30" draw length.
Of course, a bow like this would be nearly impossible to aim and shoot. With a 0" brace height, the string would rest on the bow's handle, and would nearly chop off your hand with every shot. And the bow would have no let-off, leaving you to hold back the entire 70# until release. A bow like this would be far more dangerous to the archer than it would be to the game animals. And although this graph is only a theoretical example, it can help us to understand how today super-cam bows are yielding faster arrow speeds than ever before.
But beware! The closer a bow's Force Draw Curve comes to the theoretical limit graph, the more difficult it is to draw, shoot, and control.

Draw Weight - Height of the Power stroke.

The primary method for increasing the amount of stored energy during the power stroke is to shoot a bow with a higher maximum draw weight. All other things being equal, a 70# bow will store more energy and shoot faster than a 60# bow. However, this is a complicated issue you should consider carefully when selecting your new compound bow. The maximum draw weight of the bow is typically determined by the stiffness of the bow's limbs. Compound bows come in

a variety of maximum draw weights, but the most common are the 50-60# and 60-70# versions. Although you may purchase a bow with 70# limbs, you can generally adjust the draw weight 1-10# down from the maximum weight. So a 70# bow could actually be adjusted for 61#, 64#, 67#, or any draw weight within the allowable range. However, it should be noted that a 70# bow, turned down to 60#, will not perform as well as the same bow in a 60# version operating at its maximum draw weight. Bows are generally more efficient at or near their maximum draw weight.



Recommended Draw Weight Ranges
(Modern Compound Bows)

Here are some general guidelines for choosing an appropriate draw weight. Of course, each individual is different. You should apply your common sense here and interpret this chart with due respect to your own age, general physical condition, and Body Mass Index (BMI).

Selecting a Draw Weight

There are several factors to consider here, beyond just brute strength. First and foremost, we strongly recommend that you choose a draw weight that is COMFORTABLE for you and suitable for your particular purpose. Particularly for the purposes of recreational archery, a bow with too much draw weight will simply make you less successful and the sport less enjoyable. A good rule-of-thumb is to choose a draw weight that requires about 75% of your "maximum" strength. If your bow is too heavy, and you can only shoot a few times before you're fatigued, then you'll be reluctant to practice and improve your game. But you also want your bow to shoot with as much speed and power as possible, so you shouldn't choose too little weight either. Again, the right balance between comfort and performance - for YOU - will probably be at your "75%" mark.

Heavy Draw Weights.

If drawing your new bow makes you appear to be on the verge of a haemorrhage, it's unlikely you're going to enjoy the sport. While most of us guys understand the importance of preserving machismo, the truth is, shooting too much draw weight won't provide any benefits at all. Some compound bows are actually available up to a 100# draw weight. And while there may be some specific applications where such a bow may be necessary (African big-game hunting perhaps), for the vast majority of bowhunting and recreational archery applications, a super-heavyweight bow is completely unnecessary (commonly referred to as being "over-bowed").

All things in Moderation.

However, you may not want to choose an excessively light draw weight either (being "under-bowed"). Heavier draw weights will undoubtedly yield better kinetic energy (penetration) and quicker arrow velocities with less parabolic arc in flight.

The "archery muscles" used to draw a bow are primarily large muscle groups in your upper back (the same muscles you use to row a boat or pull-start a lawn mower). Most people don't specifically work to exercise these muscles. So you will probably find that once you do put them to work, your "archery muscles" will gain strength quickly and drawing your bow will become easier over time. Fortunately, most bows come with at least 10 lbs. of draw weight adjustment. So if you are a new shooter, you may wish to begin with your bow set at a lower draw weight - and gradually "crank-up" the draw weight as you become more conditioned.

General Recommendations

Here are some general guidelines for choosing an appropriate draw weight. Of course, each individual is different. You should apply your common sense here and interpret this chart with due respect to your own age, general physical condition, and Body Mass Index (BMI).

Very Small Child (55-70 lbs.)	10-15 lbs.
Small Child (70-100 lbs.)	15-25 lbs.
Larger Child (100-130 lbs.)	25-35 lbs.
Small Frame Women (100-130 lbs.)	25-35 lbs.
Medium Frame Women (130-160 lbs.)	30-40 lbs.
Athletic Older Child (Boys 130-150 lbs.)	40-50 lbs.
Small Frame Men (120-150 lbs.)	45-55 lbs.
Large Frame Women (160+ lbs.)	45-55 lbs.
Medium Frame Men (150-180 lbs.)	55-65 lbs.
Large Frame Men (180+ lbs.)	65-75 lbs.

Note: IFAA recommends that a bow that is used exclusively for archery competitions such as Field archery and Indoor archery should not exceed 50 lbs. In tournaments where less arrows are shot (3D) and unmarked events the draw weight can be increased …… as long as the arrows speed does not exceed 300 fps

Draw Weight - Effect on Arrow Velocity.

High poundage bows require heavier, stiffer arrow shafts. So while they will certainly generate more energy at the target, they may not necessarily generate much faster arrow speeds at IBO standards. Lower poundage bows can use lighter, more limber arrow shafts. IBO standards allow 5 grains of arrow weight per pound of draw weight [1]. So a 70# bow can shoot an arrow (safely) as light as 350 grains. A bow set for 60#, no less than 300 grains and so on. So surprisingly, when set for IBO minimum standards, many bows are only fractionally faster in the 70# version vs. the 60# version. Since a 70# bow must shoot the heavier arrow, the savings in arrow weight offsets the loss of energy storage during the power stroke. So properly set-up for best speed, a 60# version of most bows will perform within 10 fps of the heavier 70# version.

Note [1]: This only applies for modern compound bows. Older compound bows will require a much higher arrow weight to pound draw weight ratio!

Draw Weight - How Much is Necessary.

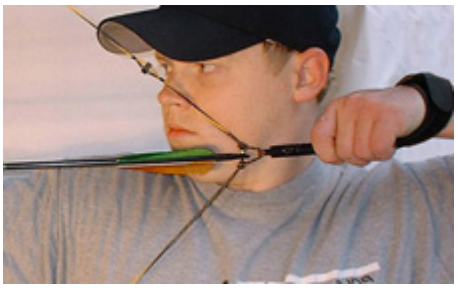
Some states require a compound bow to meet certain draw weight minimums in order to hunt large game.
Always observe the rules and regulations for legally harvesting game in your country. However, it should be noted that some of these rules have been in effect for many years, and do not necessarily consider the recent technological advances in archery manufacturing. The average bow of 15 years ago was struggling to shoot 230 fps, and even at those speeds many bowhunters got clean pass-through on large game like Whitetail Deer. Today the average bow is shooting over 300 fps at 70# draw weight and 30" draw length. This means that even bows in shorter draw lengths and lower draw weights will still provide plenty of velocity to penetrate the ribcage of a Whitetail Deer and other large game. A modern single cam bow with a 50# peak draw weight and just a 26" draw length will still zip arrows well over 220 fps. Of course, if you plan to hunt larger game like Elk or Moose, or if you plan to take shots from longer distances, you will need additional kinetic energy for complete penetration and best chance of a humane harvest. As a general rule, a 40-50# draw weight will provide sufficient energy to harvest deer and a 50-60# bow will provide sufficient energy to harvest larger elk-size species.
Unless you're planning to hunt huge animals like Cape Buffalo or Musk Ox, a 70+ pound bow really isn't necessary. You can often be just as effective with a more moderate draw weight.

Draw Length Basics.

Unlike a traditional recurve bow that can be drawn back to virtually any length, a compound bow will draw back only a specific distance before it stops (the wall). Compound bows are designed to be shot from the full-draw position. If a compound bow is set for a 29" draw length, it should always be shot from the full 29" draw position. But the bow cannot be over-drawn, say to 30" or 31", without modifying the setup on the bow. So the draw length on your compound bow must be set to match your particular size.
Fortunately, most compound bows use a series of interchangeable or "sliding" cam modules, which allows the bow to be adjusted to fit a given range of draw lengths. If you don't know your draw length, you should determine that before shopping for a new bow. Most men's bows adjust within a typical 26-30" draw length range, which fits shooters from roughly 5'5" to 6'3". But that's not true for every bow. Some bows have a narrow range of adjustment, or in some cases, no adjustment at all. So step #1 in selecting your new bow is finding a model will adjust to suit your particular draw length. Of course, if you have an unusually short or long draw length, your choices may be limited. So you'll need to take particular notice of the bow's advertised draw length range.

Draw Length Affects Power.

The longer your draw length, the longer your bow's power stroke will be - and the faster your bow will shoot. As a general rule, 1" of draw length is worth about 10 fps of arrow velocity. So if your particular bow has an IBO speed of 300 fps, and you intend to shoot the bow at 27" draw length - you should expect an approximate 30 fps loss in speed right off the top. But this is one area where speed should be a secondary concern.



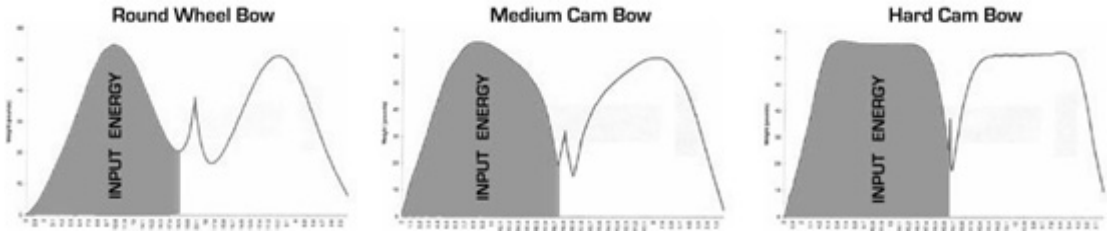
If you're 5'9", it would seem ridiculous to buy a #13 shoe for your #10 foot. Similarly, it's not such a good idea to buy a 30" draw length bow, when a 27" or 28" draw length

would fit you much better. Shooting an excessively long draw length will indeed earn you more speed, but to get the extra speed you're likely to give-up a considerable amount of control and comfort. It's a bad trade-off. As such, we strongly recommend you NOT shoot a draw length that's too long for your particular body size. Accuracy should never be sacrificed for a little more speed. After all, a fast miss is no more impressive than a slow miss.

Nonetheless, the majority of compound bow owners set their bows for too much draw length, which results in poor shooting form - inaccuracy - and painful string slap on the forearm. You will better enjoy and be more successful with your new bow when it is fitted properly to your body. And REMEMBER! If in doubt, choose a little LESS draw length rather than a little more.

Cam Aggression.

Of course, choosing a good bow isn't just about finding one that fits. You'll also want to choose a bow that offers the right blend of performance and accuracy. This is where cam design comes into play. Modern cams come in a variety of feels and levels of aggression. Some cams are specifically engineered to produce a smooth feel. Others are made for best possible performance. The actual geometry of the cam system determines how soft or aggressive the power stroke will be. Take a look at the additional sample graphs below, taken from bows with different types of popular cam systems.

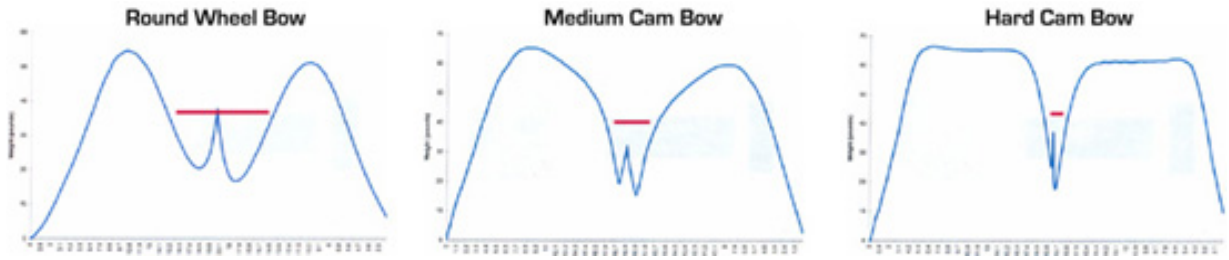


- **ROUND WHEEL/LESS AGGRESSIVE**: As you can see, a Round Wheel style bow has a very smooth bell-shaped curve which rises to peak weight for only a moment then gradually descends to full let-off. This cam style will feel very smooth and easy to draw, but will store the least amount of energy and shoot the slowest. Although this type of cam has been around for decades, some shooters still prefer the soft feel of this style cam - particularly instinctive-shooters and finger-shooters. So a number of manufacturers still offer bows with traditional round wheels or cam geometry ground to replicate the round wheel power curve.

- **MEDIUM CAM/MODERATELY AGGRESSIVE**: The Medium Cam graph is typical of today's basic single and hybrid cams. These cams are more aggressive, ramping to peak weight more quickly and then coming to full let-off more abruptly. So they tend to store up more energy than a Round Wheel bow, and shoot notably faster. However, a Medium Cam is sure to "feel" a little heavier than a Round Wheel bow of equal peak weight. This type of cam geometry suits most shooters well, offering a reasonable blend of feel and performance.
  Medium cam bows will usually have moderate IBO speeds in the 295-310 range.

- **HARD CAM / VERY AGGRESSIVE:** The last example is a Hard Cam system, optimized for maximum energy storage and speed. Notice how quickly the bow ramps up to peak weight and how quickly it transitions to let-off. Also notice the distinct high-plateau on the graph where the shooter must draw the bow over several inches at peak weight. This type of cam geometry will store dramatically more energy, and will usually have an IBO Speed of 320 fps or more. The downside is that Hard Cams feel

harsh and heavy compared to other bows of equal peak weight. So they certainly aren't for everyone. But for shooters who want the hottest possible arrow speeds, the Hard Cam is the way to go.



The Valley.

The "V" shape formed between the two halves of the graph is commonly referred to as the "valley", which represents how quickly the bow transitions to and from full let-off. A bow with a narrow valley is quick to "jerk forward" if you relax too much at full draw. On the other hand, a wide valley bow allows a little more leeway for shooters who tend to creep (a common shooting-form flaw). Aggressive hard-cams tend to have the most arrow valleys since delaying the let-off allows additional energy can be stored during the power stroke. But be advised, managing a narrow valley bow takes a little getting used to.

If you're accustomed to an older soft cycle bow, an aggressive narrow valley cycle may be a little nerve-racking at first. Very aggressive cams can have valleys that are effectively less than 1/2" wide at full draw. This can cause creepers to jerk and flail awkwardly at full draw, since the holding weight abruptly changes if the bow isn't held firmly against the stops. So to avoid being sucked thru your Whisker Biscuit, be prepared to make some moderate changes in your shooting form if you elect to go with an aggressive cam bow.

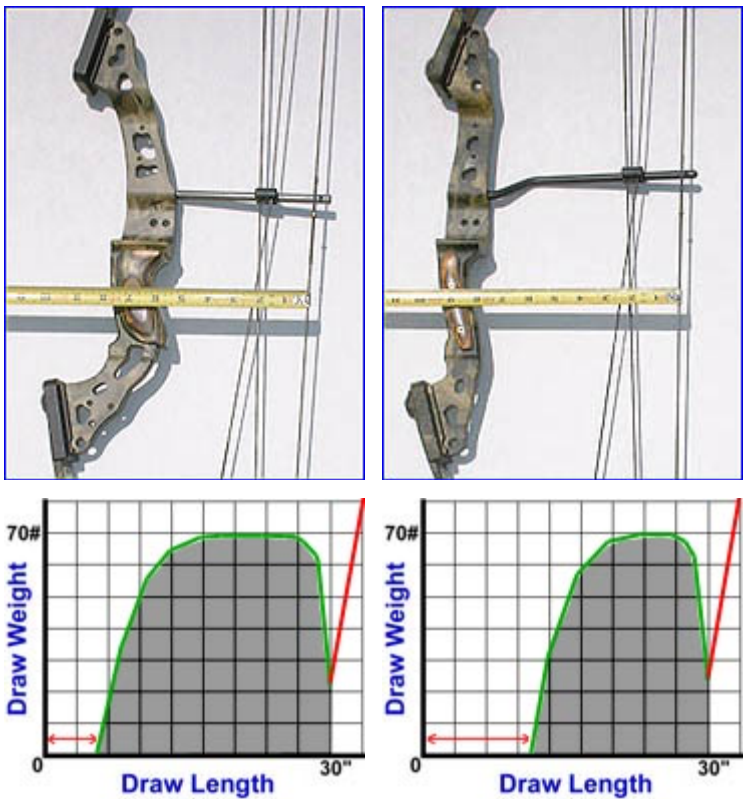
CAUTION: If you draw a high let-off bow without an arrow on the string, make sure you have a firm grip. High let-off bows are easily dry-fired. Once you draw the bow back and begin to relax, you're likely to forget that the full 70 lbs. is waiting for you, just an inch or two away. When you begin to let the bow down, your grip is too relaxed, and WHACK! DRY-FIRE! Dry firing a bow is not only dangerous to the shooter, but it is an ideal way to seriously damage your expensive compound bow and generally voids most manufacturer warranties.

Brace Height.

Brace height is yet another important factor in the energy storage equation. A bow's brace height is simply the distance from the string to the pivot point of the bow's grip. You can kind-of think of brace height as how close the string will be to your wrist when the bow is at rest. The closer the string is to your wrist, the more work you have to do to get the bow drawn back. If you're drawing a 6" brace height bow back to a 30" AMO draw length, you'll have to pull the string back a total distance of 22.25" before you reach full draw*. But if the string rests farther back from your wrist to start, say the bow's brace height is 8" and then you'll only have to pull the string back for 20.25". So the bow's brace height also figures into how LONG the bow's power stroke will be. And as you know, a longer power stroke generates more energy.

As a matter of energy storage, brace heights are analogous to the length of the rubber-band on a slingshot. If you hold a slingshot at arms-length and pull it back to your cheek, a shorter rubber-band would be stretched for a longer distance (and shoot faster) than the same

slingshot with a longer rubber-band. In much the same way, a short brace height bow stores more energy and shoots faster than a tall brace height bow (all other things being equal).
So brace height has the same effect on total power stroke length as does the bow's draw length setting. The only difference is that the brace height determines where you start and the draw length determines where you stop. But unlike draw lengths, brace heights aren't adjustable. So you have to get this one right the first time. You can't change your bow's brace height later, should you change your mind.



If you compare brace heights and IBO speeds, you'll find an obvious correlation. Shorter brace heights tend to make for faster bows.
Easy enough. Then it would seem that in order to get better performance from a compound bow, all you have to do is look for a model with a short brace height, right? Well, not so fast! Short brace height bows may be hot-performers, but they will come with a few drawbacks you should think about
*A bow's AMO draw length is measured 1.75" beyond the grip pivot point. So a bow's power stroke distance is found by subtracting the brace height and 1.75" from the AMO draw length.

Brace Height - Speed vs. Forgiveness.

If you've been shopping for a new compound bow, you've certainly noticed a variety of advertised brace heights, generally ranging from 5-9". But if shorter brace heights result in faster bows, then why aren't all bows designed with short brace heights? Trade-offs! That's why. Short brace heights aren't automatically favoured because **a bow's brace height has a profound effect on the bow's forgiveness and accuracy**. Short brace height bows are generally less forgiving and require more skill to shoot accurately. Since the arrow is in contact with the string for a longer distance and period, there is more opportunity for any glitches in your shooting form (hand-torque, trigger punching, etc.) to have a detrimental effect on the arrow's flight. Longer brace heights have the opposite effect, limiting the effects of form glitches. In addition, very short (sub-6") brace height bows tend to yield more string-slap on the shooter's forearm (ouch!). So there are some trade-offs to consider here.

If you shoot with absolutely perfect form and technique, a short brace height bow will be just as accurate as its longer brace height cousins. But if you have average skills and are prone to occasional goof-ups, a bow with a little longer brace height will yield better accuracy in most shooting situations. The average new compound bow has a brace height of approximately 7". Bows with shorter brace heights (5-6.5") will be faster but less forgiving to shoot. Bows with longer brace heights (7.5-9") will generally shoot slower but will be more forgiving to your errors. Consider this carefully when choosing your new hunting or 3D bow. Unless you have a

specific need for a blazing fast bow, you may find that a more moderate brace height will increase your enjoyment of archery and your success in the field.

SPECIAL NOTE: Tall guys with draw lengths 30" and above should be especially conscious of brace height - as a long draw length and a short brace height are a particularly bad combination, especially for new shooters.

Brace Height Market Trends.

Just as 300 fps seems to be the accepted IBO speed-minimum, 7 inches is the generally accepted brace height minimum in today's compound bow market. When reading Compound bow specification charts, you'll surely notice that a disproportionate number of bows are advertised with exactly a 7" brace height. This isn't by accident. Experienced shooters - particularly bowhunters - tend to avoid short brace height bows, regarding any brace height less than 7 inches as "radical" or "unforgiving". So a bow with a 6 7/8" brace height is often a lame duck - at least regarding bow sales. As such, most manufacturers try to aim to hit the market-pleasing 7+ inch brace heights on most of their new bow designs. As a matter of selecting a new bow, we submit there's probably no justification for such an exacting prejudice, as there's nothing particularly lucky about a 7" brace height. But that does seem to be the commonly accepted line-in-the-sand between performance and shootability.

Short-Draw Archers - Built in Forgiveness.

If you are a short-draw archer (27" draw length or less), you'll be pleased to know you have a nice advantage regarding forgiveness and shootability on your compound bow. As we noted earlier, a bow which has a 6" brace height and is set for long 30" draw length will have 22.25" power stroke. This means during the shot, the arrow will remain in-contact with the string for approximately 23-24" (including string follow-thru) until the arrow finally releases. This would generally make for a rather unforgiving setup. But that same bow in the hands of the short-draw archer will be considerably MORE forgiving to shoot. If a short-draw archer shoots the same bow at - say - 26" draw length, his/her power stroke will only be 18.25" long. So the short-draw archer's arrow gets off the string in a shorter distance - thus the short-draw archer has some "built-in" benefits of forgiveness. If you are a short-draw archer, don't spend too much time fretting over brace height. Instead, consider shooting a bow that's a little more aggressive. The same bow that might give your 6'4" hunting buddy fits will be quite manageable when set for your short draw length. And choosing a more aggressive bow will help you to recover some of the speed and power lost in a short-draw setup.

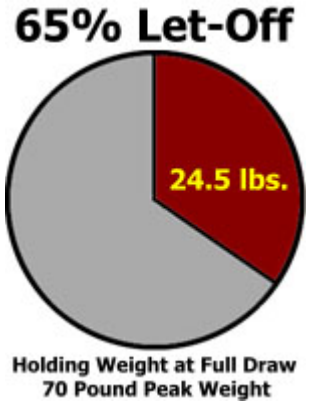
Let-Off Basics.

If you've ever shot a heavy recurve or longbow, you've certainly noticed that you're holding back the maximum draw weight just when you come to full draw, so you must aim and release the arrow quickly before you run out of steam or begin to shake. The original compound bow was designed to eliminate this problem, offering the shooter more time to aim and release the arrow. In contrast with the traditional bow, the draw weight of the compound bow decreases (sometimes dramatically) just as you come to full-draw.
This is known as LET-OFF, which is controlled by the geometry of the cam system.

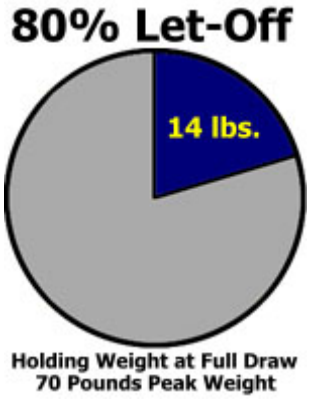
Early compound bows featured a 35-50% let-off, a welcome relief. But today it is common for bows to have let-off in excess of 75%. A bow with a 70# draw weight and 80% let-off will require the shooter to hold back only 14 lbs. once the bow reaches full draw. Holding back

such a small amount of weight, the shooter has the luxury to take more time aiming and releasing the arrow. Of course, some argue that you can have too much of a good thing. There is some concern that a bow can have too much let-off, making the bow feel "sloppy" at full draw. Maintaining some level of resistance at full draw is perhaps necessary to keep things in good natural alignment. However, the average archer will find the mid to high let-off bow to be more comfortable to shoot. Advanced archers and back-tension shooters often prefer a little less let-off.

The only other disadvantage to a high (over 75%) let-off cam is a small reduction in arrow velocity vs. a lower let-off cam system. All other things being equal, a bow with 65% let-off will shoot faster than a bow with 80% let-off. However, the difference in speed is usually only a few fps. Fortunately, many cams use interchangeable modules which give you the option to easily switch between different available let-offs. Some cam systems even offer adjustable let-off right on the cam without the need for additional modules. If you would like the option to experiment with different let-offs, look for this feature on your new bow.



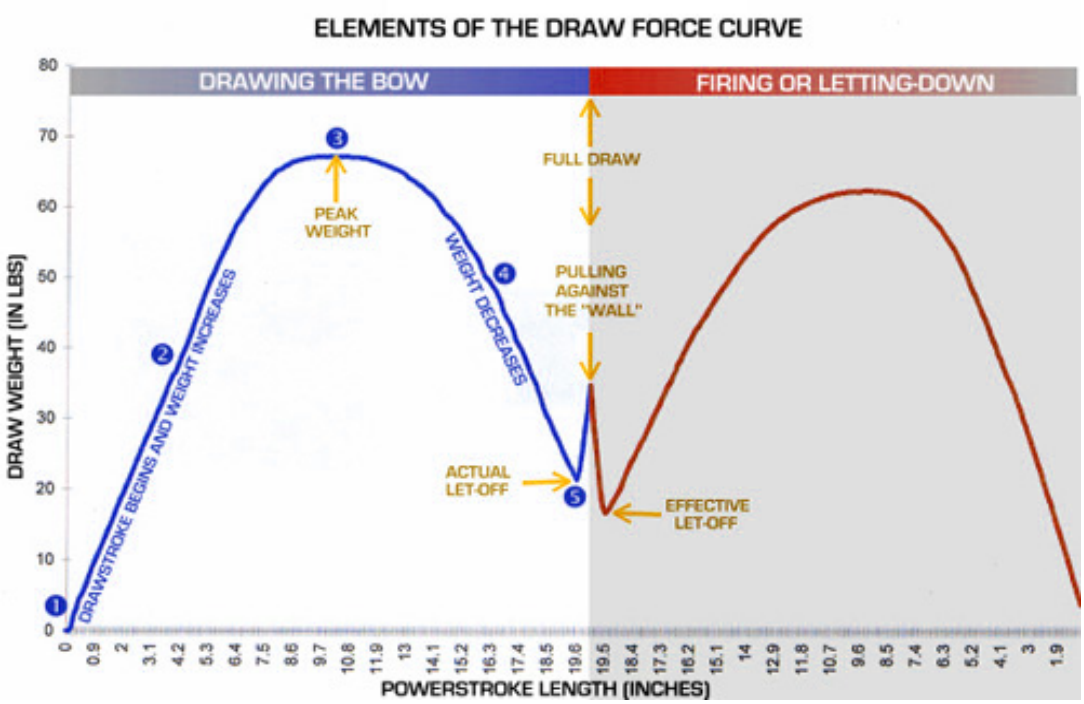
While you're bow shopping, you may notice some bows are advertised with 2 different let-off percentages. There's a bit of a technical snafu here, so bear with us, this takes a little time to explain. Depending upon how you compute the let-off percentage, you can get two clearly different let-offs for the same bow, the "Effective" and "Actual" let-off. While you're drawing the bow back, friction in the bow's cables, cam bushings, cable slide, etc. adds a little draw weight to the cycle. Unfortunately, the extra energy you used to overcome that friction gets lost when you let the bow back down (or fire the bow). So basically, the bow doesn't put-out as much energy as you put-in. Some of the energy is stolen by friction (hysteresis).



Actual vs. Effective Let-Off Computation.

Due to hysteresis, it would take more energy to draw the bow all the way back than it would to hold it while slowly letting it back down from full draw. It's kind of an abstract concept, so imagine if we put a bow in a vice and then draw it back using a rope and winch. Now imagine we also had a spring scale hooked to our winch, so we would know exactly how much pressure was on the rope at all times. If we started drawing back the bow by cranking the winch, and watched the reading on the scale the whole time, the weight would go up and up until the bow reached its peak weight about 1/2 of the way back. If we kept cranking on back to full draw, the weight would drop-off as we arrived at the draw cycle's point of let-off (full draw). NOW! If we reverse our winch and slowly let the bow back down, we should expect the scale to read the same, just with the cycle in reverse, right? Nope! As soon as we begin letting the bow back down, all the readings will be slightly less than they were when we drew the bow back. This degradation or loss of effective draw weight due to friction forces is called hysteresis.

SO....to compute our percentage let-off, all we need to know is the bow's peak weight and its minimum weight at full draw. In the example above (blue line), the bow's peak weight is roughly 67# and the minimum weight is about 20#, which computes to a 70% actual let-off.



But when you measure the peak and minimum weight on the return stroke (red line), you'll get slightly different numbers. The minimum holding weight is clearly less on the return stroke (about 16#). So if you compute the 16# on the red line as a percentage of the original 67# on the blue line, you get 76% let-off. This is the bow's "effective" let-off.

Why the mathematical trickery? Simply put, high let-off bows are better sellers. So it's pretty common for manufacturers to only list their effective let-offs, and make little mention of actual let-off. In fact, unless the manufacturer specifically notes the word "actual" in their let-off specifications, assume the let-off measurement is the *effective* variety.

Cam Type

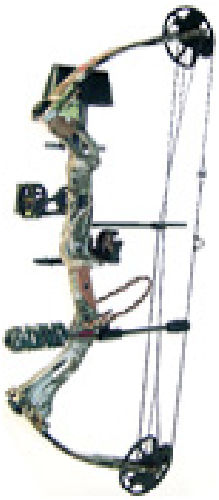
Modern compound bows generally come with a choice of 4 different types - or styles - of cam systems. While they all accomplish a similar mechanical goal, they each have a unique set of attributes and respective advantages and disadvantages.

- **Single Cams.**
  Often described as a Solocam or One Cam, the single cam system features a round idler wheel on the top of the bow and an elliptical shaped power-cam on the bottom. The single cam is generally quieter and easier to maintain than traditional twin cam systems, since there is no need for cam synchronization. However, single cam systems generally do not offer straight and level nock travel (though the technical debate continues), which can make some single-cam bows troublesome to tune. Of course, all single cams aren't created equal. There are good ones and bad ones. Some are very fast and aggressive; others are quite smooth and silky. Some offer easy adjustability and convenient let-off choices, others don't. But most single cams do offer reasonable accuracy and a good solid stop at full draw. Overall, the smoothness and reliability of the single cam is well respected. And the single cam is today's popular choice on compound bows.

- **Hybrid Cams**

The Hybrid Cam system has gained considerable popularity over the last few years. The hybrid cam system features two asymmetrically elliptical cams: a control cam on the top, and a power cam on the bottom. The system is rigged with a single split-harness, a control cable, and a main string. Though originally invented and marketed by Darton Archery as the C/P/S Cam System, Hoyt's introduction of the Cam & 1/2 (a variation of the original C/P/S System) in 2003 brought hybrid systems into the limelight. Hybrid cams claim to offer the benefits of straight and level nock travel, like a properly-tuned twin-cam bow, but without the timing and synchronization issues. Indeed, hybrid cams require less maintenance than traditional twin cams, but it's probably a technical stretch to say that hybrid cams are maintenance free. They too need to be oriented (timed) properly for best overall efficiency and performance. There are several hybrid cam models available which are impressively fast and quiet, rivalling the best of the single cam bows.

- **Twin Cams**



A twin cam system is sometimes described as a Two Cam or a Dual Cam. The twin cam system features two perfectly symmetrical round wheels or elliptical cams on each end of the bow. When properly synchronized, twin cam systems offer excellent nock travel, accuracy, and overall speed. However, twin cams do require more maintenance and service to stay in top shooting condition. But thanks to today's crop of advanced no-creep string fibres, they are becoming increasingly easier to maintain. Many hard-core competition shooters are quite loyal to the twin cam concept. And it's probably worth noting that the twin cam bow is dramatically more popular outside of the US and Canada, where there is less advertising to hype the single and hybrid systems. Aside from maintenance issues, the only true disadvantage to twin cams is the tendency for increased noise (compared to typical single and hybrid cams).

Nonetheless, the twin cam is still the cam system of choice for many serious shooters. Twin cams are also very popular choice for youth bows.

- **Binary Cams**

Introduced by Bowtech Archery as a new concept for 2005, the Binary cam is a modified 3-groove twin-cam system that slaves the top and bottom cams to each other, rather than to the bow's limbs. Unlike single and hybrid systems, there is no split-harness on a binary system - just two "cam-to-cam" control cables. This creates a "free-floating" system which allows the cams to automatically equalize any imbalances in the limb deflections or string and control cable lengths. So technically, this self-correcting cam system has no timing or synchronization issues and should achieve perfectly straight and level nock travel at all times. The only drawback is that without split harnesses to equalize the limb tips, slaved cams can be subject to cam lean - which realistically causes little

to no shooting drama - but it stirs a lot of debate and complaint. Since 2005, many bow companies have licensed the slaved/binary concept through Darton, who has their own patented version of the slaved cam system. Only time will tell, but we strongly suspect that the binary cam and its variants will continue to gain popularity

Cam Type Hype.

Cam technology (and its licensing to other bow companies) is the financial bread-n-butter for some bow manufacturers. So it's no surprise that they focus much of their efforts on marketing and promoting their particular cam style(s). As a result, this is one area in particular where CBT often gets out of hand. For example, if a cam is designed to feature an unusually deep string groove, the consumer won't see an ad that says *"Now with deeper grooves in the cams"*. You're more likely to see something like, *"Now featuring the CoreTrack™ XS4 Cam with Accugroove Technology"*. So don't be too swayed by high-tech sounding cam advertisements.
Manipulating the geometry of a small piece of machined aluminium isn't exactly a clean-room technology.

Cam Parity.

While the technical subtleties and respective merits of the various cam systems could be debated in perpetuity, in the real world there is obvious performance parity among them all. This isn't to say that they all perform exactly the same. But to say that one cam style really offers a crucial field-advantage over another would be something of a stretch.
They all accomplish the same basic mechanical goals and there are great-shooting bows available in all of the cam style categories. As such, we recommend you not be too cam-monogamous when doing your bow shopping.
The cam system you choose probably has more to do with "*who gets the check"* than "*who hits the Spot''.*

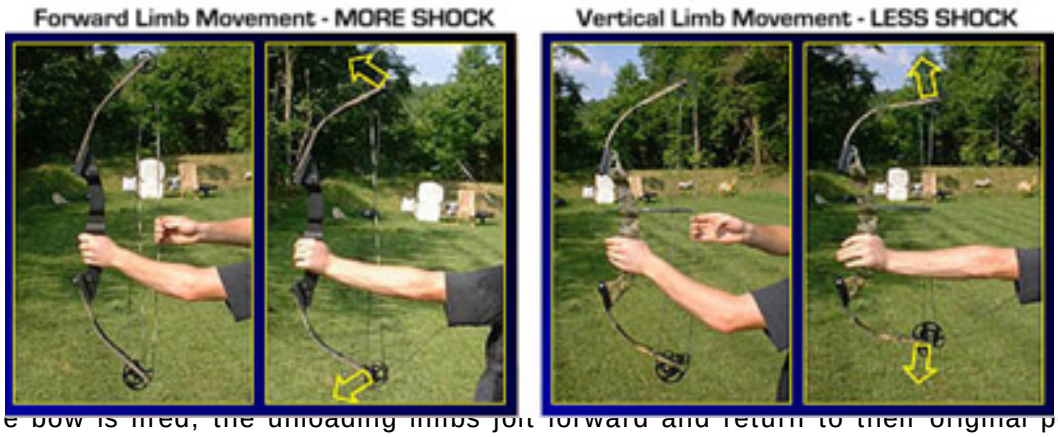
Solid vs. Split Limbs.

This is a tough one. Solid limb proponents claim that solid limbs offer better torsional stiffness and more accurate than split limbs. Split limb proponents claim that split limbs are more durable and produce less hand-shock than solid limbs. While we don't see much evidence to support either of these positions, it does seem clear that there is ebb and flow to solid vs. split limb thinking (and the way it's generally perceived by archery enthusiasts). Years ago, limb type (regardless of which side) was used as a selling feature. Makers of split limb bows would tell you how much better split limbs were than solid limbs, while their competitors did the exact opposite. But over the years, many of those manufacturers have crossed their own lines in the sand, and changed some, or all, of their bows to split from solid, or to solid from split. In spite of the seasonal marketing hype, many bow manufacturers are willing to switch back and forth as situations warrant. For example, Bowtech had always exclusively used solid limbs. However, for 2007 they introduced 2 new bows utilizing split limbs to accommodate a new riser design. The same flip is true for PSE and Mathews, traditionally

solid-limb proponents, who have recently introduced split-limb bows in 2007 and 2009 respectively.
So perhaps the choice of solid limbs vs. split limbs isn't really such a critical black or white choice for enthusiasts. Of course, you're bound to hear some marketing jabber about how one limb outperforms another. But in the field, solid and split limb bows perform similarly. Whatever your preference, limb type should be a minor consideration compared to the other bow design characteristics we've discussed. Weigh this bow attribute lightly. Beyond the aesthetic appeal, it probably doesn't matter. The type of limb installed on any particular bow is probably the limb type that works best with that particular riser, limb pocket system, and cam system.

Bow Recoil - *AKA, Hand-Shock.*

Some call it *kick*, or *hand-shock*, or refer to it as *shot-vibration*, but we're all usually referring to the same thing, **recoil**. Of course, a bow's recoil is rather backwards from that of a gun - pushing away instead of towards you. But the phenomenon is basically the same - an undesirable jolt at the point of the shot. Why does it happen? It's Sir Isaac Newton's fault of course. When a bow is drawn, the limbs compress back under tension.

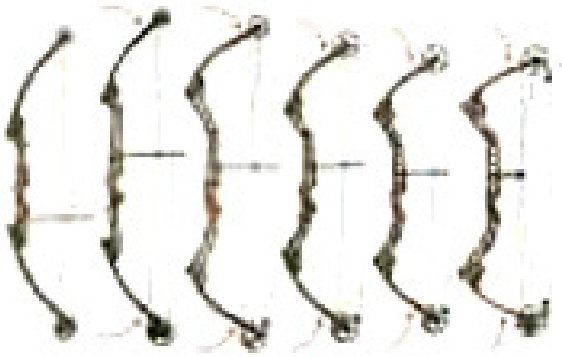


When the bow is fired, the unloading limbs jolt forward and return to their original positions. Since the cams are attached to the bow's riser, the inertia of the fast-moving limbs (Limb Thrust) causes the bow's riser to jump forward too. And since your hand is attached to the riser at the bow's grip, you feel the riser's abrupt movement as recoil. It's a natural by-product of such an explosive energy release, and on some bow designs it's quite noticeable - perhaps even detrimental.

The Path to Recoil Abatement.

Very little was said about bow recoil 20 years ago. Of course, there wasn't much that could be done about it at the time, and most enthusiasts went about their merry ways never knowing the difference. But as cam technology improved, and the compound bow began storing/releasing more and more energy, recoil became more of a centre-stage issue. By the late 90's, the average bow literally leapt out of your hand at the shot. The industry's immediate response was to develop dampening technologies.
By the turn of the millennium, archery consumers were spending millions on rubber stick-ons, jiggley stabilizers, hydraulic whatchamacallits, and harmonic doo-dads in an attempt to reduce bow recoil. The whole industry seemed almost obsessed with it. Unfortunately, these aftermarket wonder products did little, if anything, to counteract forward limb thrust. In all fairness, they did make bows quieter, but they could not defeat the inertia of the forward thrusting limbs.

Higher Limb Angles.



So while the accessory manufacturers were busy making vibration analysis graphs and marketing dubious claims of oscillatory abatement, the bow manufacturers were digging into the root of the problem - limb thrust. The obvious solution was to reorient the limbs such that they didn't thrust forward upon release. But in order to do that, the limbs would have to be oriented almost horizontally - parallel with each other - such that they could load and unload vertically.
That way the top limb would thrust upward, the bottom limb downward, and the opposing forces would cancel each other out. Of course, archery consumers needed a little time to warm up to the concept. After all, a bow with horizontally oriented limbs would hardly look like a bow at all. So over the next 5 years, bow manufacturers began to present bows with increasingly steep limb angles. And the steeper the limb angles got, the less recoil the bows seemed to have. As expected, archery consumers were sceptical at first.
But by 2005, high limb angle parallel style bows were totally dominating the compound bow market. In fact, bows built today without parallel limb orientation are considered "classic" designs.

Parallel-Limb Bows are Born.

Creating a parallel-limb bow has not been without some manufacturing headaches Among the fundamental challenges, a parallel limb bow is built using a riser that's twice as long, and limbs that are half as long (that's an exaggeration - but you get the point). As you might expect, this precipitated a number of problems that took a while to solve. So early parallel limb bows showed some ugly signs of the learning curve.
But season by season, the parallel limb designs got better and better.
Today the market abounds with smartly refined parallel limb models which are arguably some of the best compound bows ever produced. And can you guess what they're all missing? Exactly...RECOIL. Today's parallel limb bows generate little to no forward limb thrust and offer the smoothest releases of any bows ever produced.

Who's Your Daddy?

So who do we thank for birthing the parallel limb bow? As you might expect, the various bow companies can't help but squabble about who deserves the credit - each spinning their own versions of how the technology was "created". But the fact is, the parallel limb concept isn't really an invention in the traditional sense. It's more of a fundamental change in thinking, like making a car more aerodynamic so it gets better mileage. We submit that the trend to parallel limb bows is more of an inevitable evolution in the bigger scheme of compound bow manufacturing. But in all fairness, a handful of the key manufacturers, like Bowtech & Mathews, were brave enough to stick their necks-out first and prime the pump.

Parallel Limb Popularity Soars.

Parallel limb bows have undoubtedly become the hottest-selling bows on the market. Even considering their once hefty price-tags, parallel limb bows have managed to become the new standard. And today, parallel limb bows are no longer just reserved for the $700+ elite buyers.
By 2007, every bow manufacturer from Alpine to Reflex has adopted the parallel limb designs and the prices came back in-line.
From 2009, there are some really nice parallel limb bows on the market for as little as $299. So it seems that the traditional D-shaped bows are destined for the bargain-bin and everyone can take advantage of the parallel limb innovation without paying the premiums of a few years ago.

Parallel Neurosis

Unfortunately, the parallel limb craze has precipitated an almost neurotic obsession with detecting and palm-analysing recoil - so much that buyers are practically ignoring other attributes.
We see bow shoppers every day who shoot a bow just one time, then make their judgment based solely on how much recoil they feel. Some enthusiasts are so focused on recoil, or enamoured by the lack thereof, they almost forget to consider the bow's grip comfort, balance, and draw stroke feel.
We suggest you not focus your attention beam so tightly on just how recoil-free a bow can get. If the bow has parallel limbs, the recoil is going to be low. So don't let all other characteristics get demoted to tertiary concerns. There's more to a good-shooting, good-feeling bow than just the absence of recoil.

Are Parallel Limb Bows More Accurate?

Probably not.
While the parallel limb bow is notably smoother and quieter at the shot, there's no direct evidence to suggest a parallel limb bow is inherently more or less accurate than a standard D-shaped bow. In fact, target archery professionals still prefer the more upright standard limb designs.
Of course, we must also consider that parallel limb bows tend to be short. Target shooters generally prefer longer axle-to-axle designs. And since target shooters aren't usually concerned about noise, or recoil for that matter, the parallel limb bow isn't as much of a phenomenon on the competition circuits.
But for bowhunters, it's a different story. Within a typical bowhunter's range, a parallel limb bow is likely to provide the same consistency and accuracy as any other style bow.

Do All archers Love Parallel Limb Bows?

Certainly not! Parallel limb bows don't appeal to everyone, as they have a few drawbacks of their own. While the generation-x buyers tend to love the radical batwing shape of parallel limb bows, we hear a number of more traditional buyers comment that parallel limb bows are "ugly". And perhaps it's a fair criticism.

For those who appreciate the sleek lines and traditional appearance of a bow, the parallel limb bow is no beauty queen. A parallel limb bow isn't really even shaped like a bow. Of course, we hear that beauty is in the eye of the beholder ... and the market seems to indicate that the vast majority of new bow buyers are beholding the parallel limbs bows quite fondly. Nonetheless, some still haven't warmed up to the batwing physique.

Parallel Limb Bows on the Chunky Side.

As we mentioned earlier, parallel limb bows start with a very long riser. Since most of the bow's weight is in the riser, the parallel limb bow is typically 1/2 pound heavier than standard D-shaped bows. In 2001, the average compound bow weighed just 3.6 lbs. Today, that average is well over 4 lbs. You may in fact notice that the term "lightweight" has largely disappeared from bow advertising. The dilemma is balancing weight against structural stability. The longer a riser is, the stronger it must be. So there is only so much material the manufacturer can machine away (cut-outs in the riser) to reduce the riser's finished mass. So for now, parallel limb bow buyers will simply have to live with the extra weight. But we expect this situation will continue to improve over the next few seasons.

Total Bow Mass.

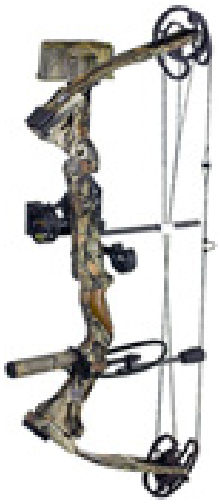
Interestingly, adding some mass to the bow isn't automatically a bad thing. Some shooters actually prefer a little more weight, particularly competition shooters. A heavier bow tends to be more stable at full draw and easier to hold steady while aiming. So in that respect, PLB's aren't necessarily a step backwards. On the other hand, some shooters clearly prefer the lightest bow possible - particularly hunters who hike long distances.
Perhaps there is no right or wrong here, as this is clearly a matter of personal preference. But let's keep things in reasonable perspective. Less than 2 lbs. separates the very lightest from the very heaviest bows on the market. Unless you have a specific need for a very lightweight bow, you shouldn't spend too much time splitting hairs over whether you should get a bow that weighs 3.9 lbs. or 4.1 lbs., as it is likely you'll never notice the difference. Other design features should take much higher precedence in your selection of a new compound bow.

How Long or Short Should I Go?

First, as the name suggests, bows are measured for length from the centre of one cam axle (a round metal rod connecting the cam to the bow's limb) to the other. Please note that a bow will actually stand 3-5" taller than its published axle-to-axle length. This is because the cams extend well beyond the axles. So if you are buying a new bow and need the bow to fit into a particular case, or storage space, you should take this into account.

OK. So how long should a good bow be? Compound bows range in length from well under 28" to over 45". But the average length is about 34"; dramatically shorter than the average bow of 15 years ago which was a staggering 43" long. So the market trend is certainly towards more compact designs, and what was once called a "short-axle" bow is now hardly considered mid-length.
However, shooters take this attribute very seriously - as they should. Bows can be sorted by axle-to-axle length into one of 3 broad categories:

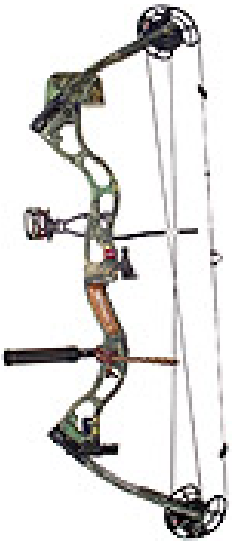
(Under 32") Short Axle Bow.



Short axle bows are very popular with Eastern tree stand hunters and those who want a compact, lightweight, and manoeuvrable bow. These bows are best shot with a mechanical release and require a little more practice for best long-range accuracy.

(32" to 38") Mid Axle Length Bow.

Mid axle length bows represent the majority of the market and include most of today's most popular units. The mid-axle bow offers a good blend of manoeuvrability and long-range accuracy.
This bow type is a popular choice for recreational shooters, Bowhunting newcomers, 3D enthusiasts and those who hunt from both the ground and a tree stand.



(Over 38") Long Axle Bow

Longer axle bows are sometimes called "finger-shooter" bows, as they offer a less acute angle at full draw for a more comfortable finger release. Long axle bows are usually the choice of serious competition archers and/or dedicated finger shooters, but they are often considered "too long" for tree stand hunting. However, many shooters still prefer the added stability of the longer axle bow.

There is no right or wrong here either. But the traditional wisdom is that longer bows are more forgiving, stable, and accurate. This isn't to say that a short-axle bow cannot be shot accurately. It just means that your technique will need to be more exacting - particularly at longer ranges.

Nonetheless, the most popular bowhunting bows are 31-34" long. Much like the market trend with a 7" brace height, bowhunters largely regard bows under 31" as too short, and bows over 34" as too long. There seems to be some magic in the 31-34" bow. The most popular units of the last few years (Mathews DXT, Bowtech Admiral, PSE X-Force, Hoyt Alphamax, Diamond Iceman, etc.) all fall into this axle-to-axle length range. So it's no surprise that nearly half the bows on the market have similar axle-to-axle lengths.
However, don't be swayed just by what's popular. Not every bow is suited for every shooter and purpose. For example, if you are a finger shooter, the acute finger-pinching string angle at full-draw will make holding back a short-axle bow quite uncomfortable. Most finger shooters

look for bows with at least a 38-40" axle-to-axle length to avoid this problem. On the other hand, bowhunters who hunt exclusively from a tree stand often appreciate a small bow that can be manoeuvred around shooting rails, tree limbs, etc. So the right choice is the choice that's best for you.

With all that said, if you're a new shooter, or plan to shoot at longer distances, we suggest you not choose the shortest bow you can find. Instead, choose a more moderate length bow to help tip the forgiveness scales in your favour while you learn the craft.

Speaking of Forgiveness

Forgiveness is quite a buzz-word in archery. More forgiving bows, more forgiving arrows, more forgiving arrow rests, etc. The term would imply that you can do things wrong, and everything will still be OK. Of course, this is a bit misleading. Even with the best equipment money can buy, a shooter still must possess a certain amount of skill. So when equipment is described as "forgiving", what does that mean?
The term "forgiving" really means "forgiving to human errors", which is something that isn't easily quantified - and the reason the term is used so loosely. If we were to test a variety of properly-functioning bows in a mechanical shooting machine, the varying axle-to-axle lengths, brace heights, and cam characteristics would have no significant effect on the accuracy and repeatability of the bows. The shooting machine would shoot each bow exactly the same, each and every time.
Unfortunately, humans cannot shoot with such mechanical consistency. We bobble; we flinch. We punch our triggers, or torque our grips. Even for the world's most talented shooters, accuracy is often limited to the occurrence of human error. And what makes a particular bow more or less "forgiving" is the bow's tendency to accentuate or attenuate these unavoidable human errors.

Forgiveness Perspective

Of course, we should keep the "forgiveness" issue in some perspective. Good technique and a solid practice regimen are critical to success in the field, regardless of which bow you ultimately choose. But the less forgiving your bow is, the more exacting your technique will need to be. But don't make more of this issue than need be. Within a typical 30 yard bowhunting range, virtually any properly-tuned compound bow can be shot with acceptable accuracy. And with a little practice, even a novice shooter can easily bring down big game within this range. So if you hunt in dense woods where 20 and 30 yards shots are common, your bow's "forgiveness" just isn't such a critical consideration. But if you shoot target archery, where you must be able to reach out to 50, 60, even 70+ yards, where the smallest glitch means a wound or a miss, you should be more selective with the bow design you choose.

The Cause of Unwanted Vibration and Noise.

There is no denying that some bows tend to be quieter than others. But you might be surprised to learn that bow noise is sometimes not from the bow at all.
Before we can pick this issue apart, you should know a little about why bows tend to make noise.
The sight flexes and distorts after the shot, the entire riser flexes, the string flops forward. If that happens to a state of the art parallel limb bow, one of the best bows money can buy; imagine what it would look like for a bow that is not built so well.

It should obvious why bows make noise. Noise is caused by vibrations in the air. And firing a bow causes dramatic vibrations. When you fire your bow, everything on your rig momentarily dances and blubbers around violently: your limbs, your string, your sight, your quiver, the arrows in your quiver, etc. The whole rig! Of course, this all happens in a flash - so you don't see it. But you can sure hear it and feel it. And the more energy your bow has, the more vibration is tends to create.
But...if the vibrations can be stopped quickly, before they have a chance to create sound, the result is a quiet bow. If the vibrations are allowed to continue and die-out naturally, the string will continue to "twang" and vibrations will transfer into the bow's riser and accessories. Not only does this create a 'buzzing" feeling in your hand (not recoil), the vibrations also cause any loose parts on the bow to make noise. Incidentally, in many cases shooters blame their bows for being noisy when in fact the accessories - particularly the accessory fasteners (screws) - are the true noisemakers. A tube-aligned peep-sight is also a common culprit for noise, as is a dirty cable slide.

Whisper Quiet Bows.

With so many possible ways for noise to be created, it's really quite misleading to advertise a bow as "whisper quiet". Yet, every bow manufacturer tries desperately to convince you that THEIR bows are the quietest. The fact is, no bow is whisper quiet.
Even the quietest bows make a solid 70+ dB bark when they fire. But you can help minimize noise by using only quality accessories, installing good string silencers, carefully maintaining your fastener torques, and keeping your bow in good overall condition.
And even with that, should your new bow be a bit noisier than you like, this is where the rubber stick-ons, jiggly stabilizers, and hydraulic whatchamacallits may come to the rescue.

We strongly recommend you consider noise a function of your entire "bow system", rather than just the bow, and prepare to tackle it accordingly. Noise reduction begins with quality. Thoughtful construction, tight tolerances, quality parts, good maintenance, a professional setup, and strategic incorporation of dampening technologies all combine to create the *quiet* bow. It doesn't usually come straight out of the box.

Attributes to consider.

While weighing the different bow attributes boils down to a personal choice, we you suggest you give some attributes more consideration than others.

	Not Important	Minor Consideration	Somewhat Important	Very Important	Critical Consideration
Brand Name		X			
Axle to Axle Length				X	
Brace Height					X
Cam Aggression				X	
Cam Type			X		
Let-Off Choices				X	
Limb Type (Split/Solid)		X			
Power/Speed			X		
Proper Fit					X
Recoil (Parallel Limbs)				X	