



# Choosing a Compound

Choice can be a good thing, but it can leave you a little confused as to which model is best for you. **Duncan Busby** clarifies some of the options

These days it seems there are more and more models of compound bow on the market with varying features and technologies, all promising to be the “best bow you will ever shoot”. A wide range to choose from can be a good thing, but it can leave you a little confused as to which model is best for you. I hope this guide to the compound world will help you to choose your next bow or simply help you understand your current model a little better.

## Bow Design

Your first choice when choosing your next compound will be to decide what length of bow you are looking for. A bow with a longer axle to axle length (38”+) will feel more stable on aim and will suit archers with a longer draw length. Because of their stability, longer axled bows are considered perfect for target archery.

A bow with a shorter axle to axle length

(36” and under) can still feel stable but can have the tendency to be difficult to aim. Shorter bows also have a much steeper string angle, meaning you may find it harder to achieve a comfortable shooting position which could lead to inconsistencies in your shot, but are usually faster and more manoeuvrable, and as such are used more in field archery.

The next consideration is brace height (distance between the resting point of the string and the throat of the grip), usually dictated by whether the riser is deflexed or reflexed in design. The more reflexed a bow the shorter the brace height. A reflexed riser is where the throat of the grip is further back than the pivot point of the limbs (this is where the limbs contact the riser), and a deflexed bow is where the throat of the grip is forward of the limbs’ pivot point. Although a deflexed bow is traditionally more forgiving and easier to shoot than a reflexed bow,

the majority of bows on the market today are reflex in their design. As with the axle length, a bigger brace height will usually suit someone with a longer draw length, and vice versa.

## Cams

Your next choice will be the type of cams you want to shoot. Their main job is to control the bow’s draw length and let off. The let off is felt once you achieve full draw, and on a compound bow the draw weight lessens by between 55-80% depending on the geometry of the cam system. The amount of let off you want is mainly down to personal preference; an 80% let-off will be easy to hold but will make the bow easier to torque (twist) and will move around more in the wind, whereas a 55% let off will take more effort to hold but will sit better in the wind and will be harder to torque. Most archers go for 65% let off as this gives you the best

## Single cam

The most basic of these systems is the single cam, which uses an asymmetric cam on the bottom limb and an idler wheel on the top limb. Here, only the cam on the bottom limb does any work, while the wheel at the top acts as a runner for the string. The main manufacturer of this type of system is Mathews. One of the main benefits of this cam system is the ease with which it can be set up; as there is only one cam there are no problems with synchronising two cams to work together. Because of this, these bows stay in tune longer and require less maintenance. Although they are easier to set up and tune, single cam bows can be a little slower than their counterparts.



## Hybrid cam (Cam and a half)

Probably one of the more common sights on the shooting line is the hybrid cam, as seen on Hoyts. This system works in a similar way to the single cam but instead of an idler wheel, the top limb also has a cam which is almost identically shaped to the bottom cam. This system was designed to give you the practicality and ease of tune of the single cam whilst being as fast as a twin cam. In reality this does require some synchronising, although once set up, this system is very easy to shoot and tune and should require only a little more maintenance than the single cam.

## Binary cam

The final system is the binary cam. This system is relatively new and comprises of two identical cams which are slaved together via the cables rather than the limbs, which makes it almost impossible for them to come out of sync. Binary cams give good arrow speed and are low maintenance but due to their design can give problems with cam lean, meaning they can be tricky to tune. Once tuned though, they should stay that way for the life span of the strings. This type of cam is growing in popularity and is currently being used on PSE, Bowtech and Merlin bows.



## Twin cam

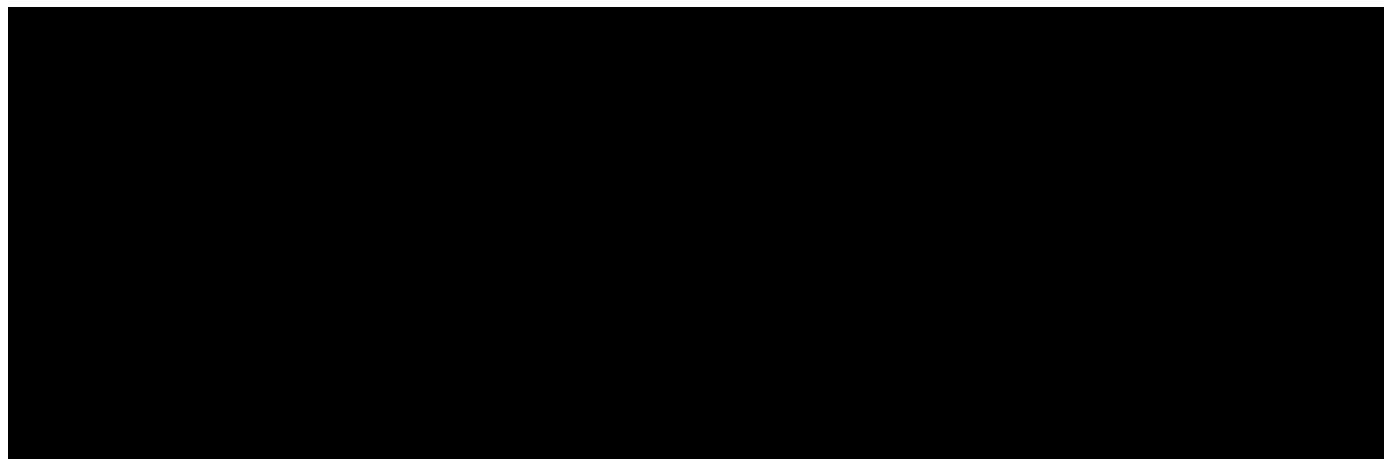
One of the older cam systems is the twin cam. This uses an identical cam on the top and the bottom limbs, and the cable and string system is much simpler than the single or hybrid cams. The McPherson Series Monsters from Mathews is one of the most popular twin cam bows available. Twin cams are the fastest type of cams, and once set up can give the best nock travel of all the cam systems. However, they do require some work in order to get the cams rotating at the same time and once set are prone to coming out of sync; thus changing the tune of your bow, making them harder to maintain.



of both worlds. As well as the let off and draw length the cams also play a part in the overall speed of the bow and its shootability. They are responsible for making the bow harder or easier to draw, and they also give you the feeling of the wall at full draw; this is the point where the bow cannot be drawn any further, and some cams give this wall a hard feel, whereas others will give it a more "spongy" feel. The boxes opposite explain the four main types on the market today.

## Limbs

The type of limb is usually the easiest choice, as each bow comes with only one set of limb options, or at the most, a long or short option. The main difficulty is in deciding whether you want parallel or non-







give you a lot more shot feedback; they can cause a little more vibration, but despite this they do not make the shot uncomfortable. This type of limb is favoured by many target archers and features on Hoyt's Contender Elite.

There are a few other variations of limb; split limbs were designed to help to reduce the overall weight of the bow, and are also said to be stronger than the more traditional solid limb but with today's materials this is less of an issue. There are also companies who offer a past parallel set of limbs, these are usually also split limbs and are pre loaded to make them look almost as if they are bending in on themselves. Past parallel limbs are used on the faster bow models, particularly the McPherson Series Monsters from Mathews, and offer super speed and power with minimal vibration. They are the latest development in limb technology and will probably increase in popularity over the coming years.

### Speed

Arrow speed can be a deciding factor in many people's bow choice, but high speeds can come at a cost. Traditionally, a bow that delivers high arrow speeds will have a smaller brace height, be more reflexed, and have a more aggressive cam system than a slower model, which can make the bow harder to shoot and more unforgiving to any mistakes by the archer. A slower bow, while easier to draw and more forgiving, will be more affected by wind drift and may struggle

parallel limbs. Parallel limbs look like they are sitting at right angles to the riser, and they feature on the Mathews Triumph and Helim. This type of limb is quieter and gives less vibration in the shot, but as a result this can deaden the feedback of the bow and make it tricky to recognise a bad shot. Non-parallel limbs are a much older design and



### Tip

I would also recommend getting advice from the archery pros you meet – they have a wealth of information and insight into the bows that are being marketed, and can impart a lot of useful but lesser-known information on setting up and shooting your equipment.

to reach the longer distances. Arrow speed is also dependent on draw length; the longer the draw the bigger the power stroke (the distance the string travels from full draw to brace height), so if you have a shorter draw, say around 26", you might benefit from shooting a slightly faster bow. If you have a longer draw, around 29", you will be able to shoot a slower bow and still deliver adequate arrow speeds for most disciplines.

It can be a daunting prospect, but remember that most of your choices will be down to personal preference and your archery discipline. However, if you find yourself stuck, a safe bet is to go down the middle. A 37"-38" axle to axle length, 7" brace height with a speed of around 310 feet per second should serve you well – there are lots of bows around this specification, just remember to choose a good quality, reliable make, and get it fitted to you correctly by a competent shop. Another tip is to make sure your bow has a good amount of adjustability, this way it will last you a while.

You don't need to spend a fortune in order to get a great bow; many manufacturers offer a "budget" range of bows, which have all the technology and build quality you would expect from a leading company but at an affordable price. Check out Mission by Mathews (opposite) for a great range of quality bows without the high price tag.

Good luck and enjoy your bow!

Please see [www.duncanbusbyarchery.com](http://www.duncanbusbyarchery.com) for further coaching and archery advice. ☺

