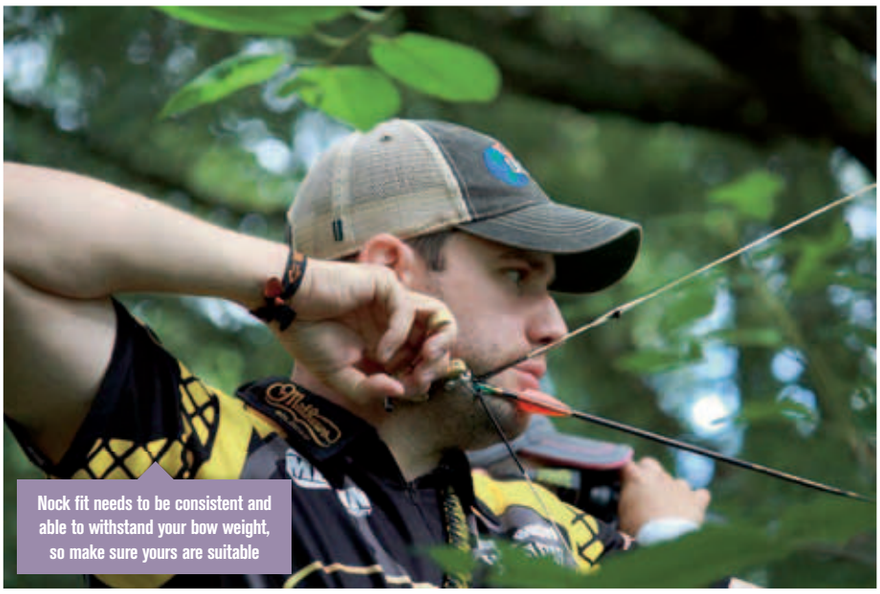
Component Choices: Part 2

Duncan Busby continues where he left off, explaining how to choose the final fit and finish of your arrows

In the last issue of *Bow International* I looked at the different point and pin options available to you when setting up your new arrows. In this issue I conclude my guide to arrow components by looking at nocks and vanes and how best to fit them.



Nock fit needs to be consistent and able to withstand your bow weight, so make sure yours are suitable

Nocks

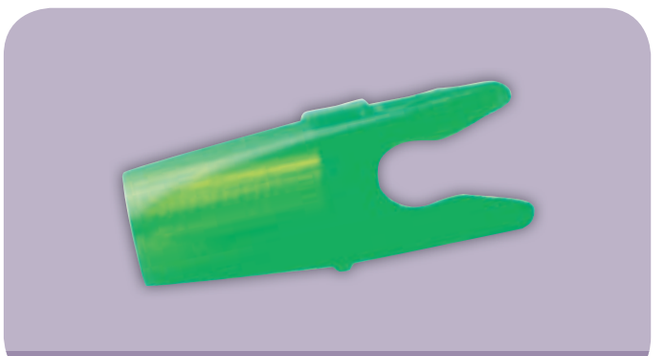
When it comes to deciding which nocks to use there are many manufacturers, designs, sizes and colour options to choose from, but your first consideration should be the style of your nock; depending on which fitment you want and which arrows you shoot, you can choose between a pin nock, an insert or push-in nock, or a fit-over nock.

A pin nock sits on top of a metal pin that has been fitted into the back of your shaft. This is arguably the most popular type of nock for target shooting; nocks of this type are relatively small, more accurately made, and better aligned to your arrow, and as a result there is less of a risk that it will distort and weaken when put under strain.

An insert nock fits directly into the arrow; its plastic shank fits snugly into either a bushing or the shaft itself. This is a cost-effective way of fitting a nock as there is no need for a pin, but for this reason the back of the arrow has less protection from impact damage. Insert nocks are normally only available for wider diameter shafts; since the plastic shank of the nock is susceptible to weakness it must be made larger and stronger to prevent nock lean.

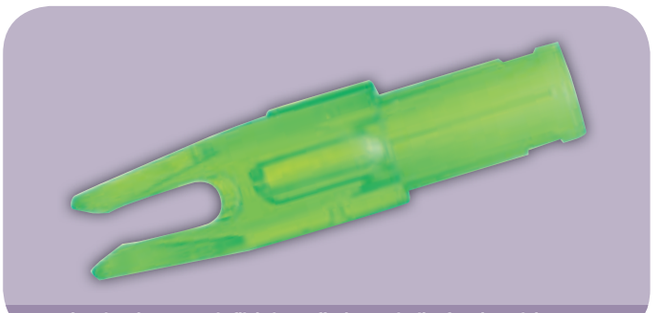
A fit-over nock fits over the back of the arrow, again without the requirement for either a pin or bushing; this keeps the costs down and as a result not only makes these nocks some of the cheapest available, but also eliminates the possibility of badly aligned pins or shanks. Unfortunately, they are quite weak and are prone to cracking, especially on high poundage bows. They can also pose a problem with clearance on most compound rests, and as a result they are mostly used by recurve archers.

Some manufacturers also make hybrid nocks which combine these fitments, which use a shank or pin together with a fit-over design to give you the best of both worlds, though extra caution should be used to ensure all parts fit correctly.

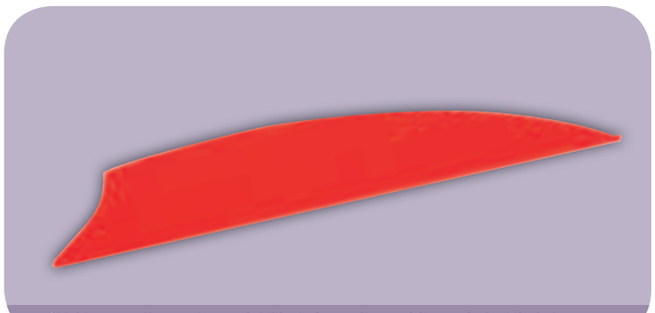


Pin nocks need a metal insert in the back of the arrow, and are popular with target shooters

Fit-Over nocks are better suited to recurves due to problems clearing some compound rests



Insert nocks are easy to fit, but can offer less protection from impact damage



Shield vanes offer maximum stability, but sometimes at the cost of a bit of clearance

Arrow cement takes longer to set but offers a good, flexible bond

Fast set glues have you up and running quickly, but can be brittle

I would recommend consulting your arrow product guide or your local pro-shop if you are unsure which nock you should be using. Whichever type you choose, it is important that it fits the shaft well; a loose fitting nock will rotate during use or may fall off altogether, where a nock that fits too tightly may crack or not correctly align to your arrow; both these issues will cause inconsistent results.

It is also important that you have the correct sized nock for your string: most nocks come in several throat sizes depending on the thickness of your string and serving, and the nock's fitment on your string is vital to your arrow's performance. Too tight or too loose and your results will be affected. To test the string fitment, attach your arrow to your nock point with the bow facing the floor, and give the string a sharp tap. The arrow should detach easily without needing too much force.

If the arrow requires a lot of force to detach you may need to go for the next nock size up. If this is not possible, you can re-serve your string with thinner serving. Alternatively if your arrow falls of easily with little or no force you may need to go down a nock size or consider thicker serving.

Finally, it is important that your nocks are well made; weak plastic and inconsistent shapes and sizes will have a negative impact on your groups. Choose a reputable manufacturer and do some research – see what other people are using and what they recommend. After all, choosing a nock is more than just about colour co-ordination.

Vanes/Fletchings

Vanes come in two different shapes, parabolic and shield. A parabolic vane has a gently curved length and side, which give maximum clearance while maintaining good stabilising and steering properties, although they can be a little on the small side and can sometimes struggle to stabilise your arrows.

> As a general rule, a shorter vane (up to two inches) is best suited to longer distance outdoor shooting

Shield vanes, as the name suggests, are shaped like a shield. They have a steep angled side and slightly wider profile than the parabolic vane; they give maximum stability at the cost of a bit of clearance, but if you have the room they can help to stabilise your arrows more quickly and effectively.

The size you choose will depend on the distance you shoot, but as a general rule a shorter vane (up to two inches) is best suited to longer distance outdoor shooting; its lower profile will create less drag and won't affect the arrow's speed too much. Longer vanes (over two inches) are better suited to shorter distance shooting; their larger profile helps to stabilise the arrow quickly and slow it down, which is especially helpful to indoor shooters.

Vanes come in two different designs: straight, and spin or curly. Straight vanes follow the line of the shaft – they are instantly recognisable as the most popular choice for compound archers and have many advantages; they are easy to attach, give good arrow rest clearance, and have the ability to withstand tough targets and fast bows.

Spin or curly vanes are crescent shaped and curve either to the left or right (depending on whether you are right or left handed). This helps to spin the arrow and maintain its stability in flight. Spin vanes are parabolic in shape, and tend to be more suited to recurve archers as a slower arrow will benefit more from their stabilising effects. Few compounders will use this vane design because they offer very little arrow rest clearance or durability.

You will also need to consider the material of your vanes; most modern vanes are made from a moulded plastic, although some indoor shooters still favour feathers as they can help to achieve better clearance on wider shafts. If you choose to use feathers you can successfully shoot either wing; a right wing feather will rotate your arrow clockwise and a left wing feather will spin the arrow counter clockwise, just remember to use the correct clamp on your jig if you

plan to use a helical fletch. Unlike feathers, plastic vanes are accurate outdoors and are entirely weatherproof, they also come in different levels of rigidness. The amount of flexibility you choose will depend on your personal preference, though a stiffer vane will help to stabilise your arrow better, especially when used with a fast bow, they are also tougher and are better able to withstand tight grouping in the target.

Attaching your vanes to your arrows can be a painstaking process; I would recommend investing in a good-quality jig if you choose to fletch your own arrows, since a cheaper, less-accurate jig may have a larger margin of error that can impact on your results.

The angle you put on your vanes is something of a trial and error process; if you put them on straight they will not spin in flight and will therefore be less stable and more affected by the weather. For increased accuracy I would recommend using offset fletchings, an angle of around one degree seems to work the best, although this can be hard to measure so getting it roughly correct by eye is often close enough.

Some fletching jigs offer a helical option, and this is most popular with indoor shooters using large fletchings. It puts a twist into the vane, making the arrow spin earlier and faster upon release, maximising the stabilising effect. If you do choose this option, be careful not to use a helical at too strong an angle; it will have a damaging effect on your arrow flight and it will be almost impossible to achieve proper arrow rest clearance. You will also have problems adhering the whole length of the vane to the surface of your arrow, which will cause them to come loose and potentially fall off.

When it comes to attaching your vanes, the glue you choose to use will depend on personal experience and the amount of time you're willing to spend fletching; fast set glue, rather like super glue, will dry in seconds, and is more suited to vanes that have a pre-applied activator on the base, but this can always be applied separately if needed. Fast set glue can be a little brittle and, over time, the edges of your vanes may lift slightly which will create poor arrow flight. It can also leave a white residue on your arrows which, although harmless, may bother the more fastidious archer.


The size and angle of your vanes will depend on the arrows you use and the distances you shoot

Be careful not to use a helical at too strong an angle; it will have a damaging effect on your arrow flight

Slow set cement should give a solid and long-lasting bond to any vane; this will make the fletching process a little longer but it should ensure your arrows will withstand the tough punishment you will be putting them through. Just remember to clean off any activator on your vanes with acetone before you use cement or they may not adhere properly. Cement can also work especially well with shaft wraps; this further protects your carbon shafts from any potential damage caused during re-fletching.

Whatever vanes or glue you decide to use, I would recommend cleaning your shafts with acetone before you begin fletching, this will remove any grease or dust and provide a clean surface for your vanes to stick to.

Choosing your shafts is only the beginning when setting up your arrows – the components you use can make a huge difference to your arrow's performance. Fitting sub-standard or badly matched parts can create a tuning nightmare, so before you decide to use any of the left-over vanes at the bottom of your tool box or you order the same old nocks you've been using for years, take a look at what is available. You may find a few new components come with a few more points too.

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A good make of fletching jig will usually have tighter tolerances – and therefore less margin for error – than cheaper models