# Grip Coring

by Tom Kirkman

## Great Looks - Less Weight

Exotic Cork and Wood have much to recommend them as rod grips and handles. They can add a beautiful aesthetic aspect to a custom rod that is seldom if ever seen on commercially produced rods. They are also far more durable than regular, natural cork, and can therefore provide a level of toughness and good wear resistance needed in certain fishing applications.

Of course, there is a serious downside to both exotic cork and wood and it relates to weight. Exotic cork is manufactured from bits and pieces of regular cork combined with any number of additional pieces, such as sawdust, bark and even synthetic rubber. As a result, exotic cork can weigh as much as four times that of regular, natural cork. Almost any figured hardwood is even heavier. Generally speaking, weight is the great enemy of a fishing rod. It reduces sensitivity, slows rod speed (response and recovery time) and can increase angler fatigue.

Granted, some additional weight in the handle area is not going to adversely affect rod performance in the way that this same weight would if located further up along the rod, but it does add unnecessary weight and rarely is a heavier rod a better rod. Fortunately, it is possible to use these interesting and beautiful cork varieties without adding much if any additional weight by the process of coring.

*Left - This exotic cork full wells grip has been cored with urethane foam reel seat arbors. If you look carefully about 2/3rds of the way down from the top, you can see where shorter arbor sections were joined to create a longer core. Right 1&2 - Example of cored exotic cork cylinder before and after turning.*

**Coring Material - Cork or Wood**

Our task is to have the beauty and function of exotic cork without the weight. By coring the exotic cork and filling it with a light-weight, yet rigid core, the goal is easily achieved. You can use various types of core material. Regular, natural cork works well for this and it need not be of any pristine grade. Finally, here's a great use for those rings formally too blemished to be of any other use!

**Coring Material - Urethane Foam**

To reduce weight even further, try urethane foam. You can pour your own or simply buy and use foam reel seat arbors. Most such arbors are only 5 inches long, but you can piece more than one section together in order to obtain the length you need. Being lighter than natural cork, the use of urethane foam arbors in conjunction with an exotic cork topskin can result in a grip with a final weight no greater than regular, natural cork.

**Coring Process**

The process is simple. Bore each exotic ring as large as possible. How large you can bore the rings depends solely upon the size and shape of your desired grip. A straight taper grip for a boat rod butt or trolling rod fore-grip, can be bored larger than a highly shaped grip such as a full wells fly rod grip. The rings on the latter cannot be bored any larger than the outside diameter of the reduced diameter at the "wells" or the outer exotic cork skin will be broken and the core will show through. Plan accordingly.

In almost all cases, the maximum bore of the exotic rings should not exceed an amount that is more than 1/8th inch less than the grip's smallest outside diameter. This will place an outer sheath of exotic cork no more than 1/16th inch thick at the point of the grip's smallest OD. Enough for sure, but leaving little margin for error.

With regard to shaving time and reducing work, I recommend boring as close as possible to whatever the standard OD of your core material is. For instance, urethane arbors are available in OD's of 16mm, 17mm, 18mm, 20mm, 22mm, 24mm and 26mm. I suggest obtaining a drill bit of corresponding size and bore the rings to

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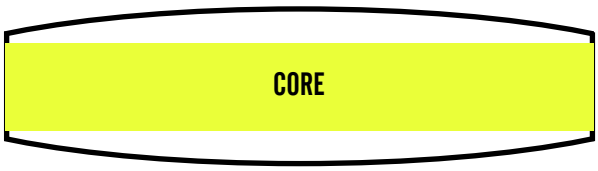


A. Boat Rod Grip


B. Split Grip


C. Reverse Half Wells Grip

## Coring Tips

• Because the blank ultimately supports both the core and the outlying cork rings, the core need not be a single piece. It's perfectly acceptable to build a core from one or more sections of urethane foam or low quality cork rings. However, you must be careful during the build-up and turning operations. so that you don't break an unsupported grip. Therefore make sure to work on a mandrel and glue the mating ends of the core sections together. The core sections should be pre-bored to closely fit the intended residing place on the rod blank so that any hand reaming is limited in scope. It helps to have access to a wide selection of mandrel diameters.

• In essence, you are building two grips - an inner, non-tapered straight cylinder, and an outer, possibly tapered or shaped grip.

• The degree of weight you can save depends upon the shape of the grip. A straight or slightly tapered grip can utilize a larger core than a steeply tapered or deeply shaped grip. However, if you wish to save the maximum amount of weight on more extremely shaped grips, it is possible to assemble the grip in such a way that the core occurs only on the larger diameter sections with the outer cork or wood, extending all the way to the rod blank. The key to such construction is good planning and careful assembly - cored grips can be built in sections so there is almost no limit to the variations possible.

whichever ID is required to use such arbors without having to ream the grip or turn the arbors to fit each other.

Assuming that you have a means of covering both ends, i.e., a reel seat at one end and a winding check, hosel or butt cap at the other, the core can and should be made full length.

As mentioned previously, when you have an item at both the fore and aft portion of a grip, it is easy to hide the core from view. A foregrip presents a momentary problem in that when cored straight-thru for the greatest weight savings, the core will be obvious at the fore end. For this reason, you'll have to employ a winding check or hosel of sufficient outside diameter to hide the core from view.

### Special Shapes

Straight or shallow taper grips can be cored straight-thru, end to end (3A). Suppose, however, that you wished to turn a set of sharply tapered split grips for a bass rod or something along the lines of a reversed half wells fly rod grip. The smallest outside diameter of such grips would be small enough that the maximum straight-thru core wouldn't be of sufficient size to really help in our weight reduction goals. In such a case we'd want to core the main part of the grip and then cap the small end with a regular cork ring or two (3B&C). This allows us to take advantage of the weight savings of using the largest core possible, while retaining the outer appearance and shape that we desire.

### Coring

I prefer to core and build my grip assembly onto the core before turning (4). However, if you wish you may certainly achieve similar results by coring your rings, mounting on an appropriately sized mandrel and inserting the core after the turning operation.

In either case, the core material is bored-reamed to fit the blank using your standard procedure. I recommend the use of Flex Coat's Pilot Bits, but any good method which you currently employ for this task will be fine.

**And What about Wood?**

The coring technique can be applied to wood grips as well. Almost all wood, especially the highly figured exotics, is far heavier than natural cork. While beautiful, it introduces an amount of weight that many fishermen and builders find unacceptable. The answer - core it!

Narrow cork rings are easy to bore individually, either on a drill press or preferably, the lathe. Longer, single piece wood handle sections are a bit more difficult. If you are working with shorter sections then the process becomes much closer to that used to bore cork rings.

There are many ways to bore long holes in wood but I'll stick to the one that I have found easiest and safest.

**Drilling Large, Long Bores in Wood**

You will need a drill press for this technique and it must have a tilting table. The concept involves tilting the table 90 degrees, clamping the wood stock to the table so that it is standing vertical to the drill press chuck (5) and boring end-on with a spade bit (6).

In practice, this is just a little bit tricky. Because you'll be turning the handle after you've bored the stock, it isn't absolutely necessary that the bore be concentric to the outside of the stock. That will be taken care of once the turning and shaping are complete. However...

The tricky part is having to swap the stock end for end in order to thru-bore longer wood pieces. Most spade bits will run out of travel after perhaps 4 inches or so, thus longer sections will require that you swap the stock, end for end, and go 4 inches into each end. Without very accurate, square clamping, this is almost impossible. How best to achieve accuracy in this regard will depend largely on the drill press you are utilizing and what features it offers.

Most all drill presses have tilting tables. Higher end presses, notably older American made models, will even offer an indexing pin with detents at prescribed intervals including 90. The common oriental made drill pressures are most often equipped with a simple, and not terribly accurate, tin plate inscribed with degree measurements. Even then, most will have some sort of stop or indexing pin at the 0 and 90 degree posi-

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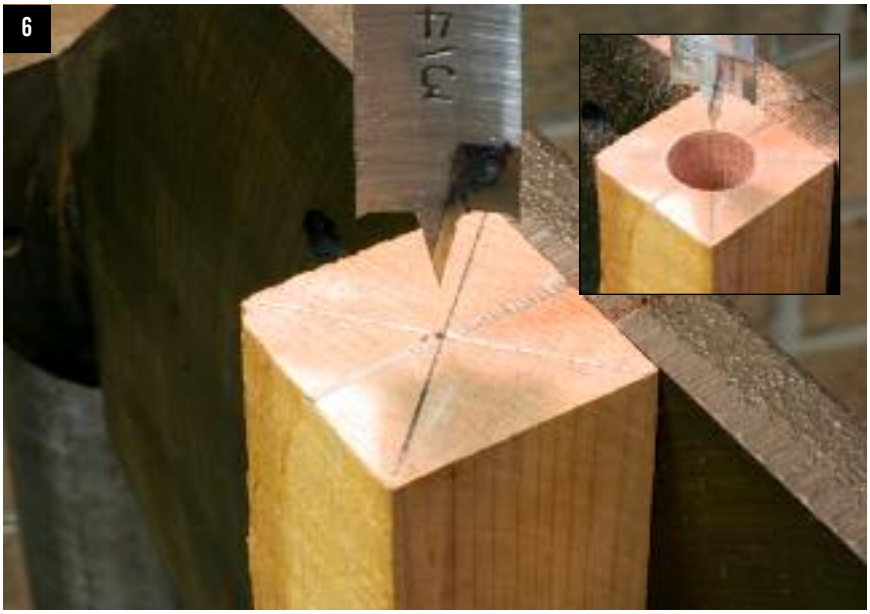

tions. Using a 0 to 180 flip of the table (7), it is possible to quickly and accurately ensure the bit will enter each end of the stock along the same vertical plane. Having to unclamp and then re-clamp the stock end for end generally results in far less end to end boring accuracy. So try to leave the stock clamped and adjust for center only by adjustment of the table to the bit.

With either method, it is imperative that your stock is as true to the vertical drilling plane as possible. Again, with a 0 to 180 flip of the table, and assuming your table stops are accurate, you will get a true, straight bore (8) even if the outside of the stock is off a tiny bit. That's okay - as soon as you start turning everything will become concentric to the bore.

Here's the bored and cored stock ready to be turned (9).

### Longer Stock Boring

It may happen that your stock is longer than what the common 4 to 5 inch spade bits can achieve even boring from both ends. And some drill presses do not have sufficient travel to even use what length the bit offers. But all is not lost - Here's a simple workaround. Once you have bored a few inches deep on both ends, you can chuck a spade bit, using a drill bit extension if required, into a common hand-held drill and proceed to drill the bore in that manner (10). You will find that once the bore has been established with the drill press, the bit will tend to follow that same path with just a bit of care on your end.

### Mandrel Required

You'll want to turn the resulting cored stock on a mandrel to ensure concentricity with the bore. A mandrel that allows for a very snug installation of the turning stock is a necessity. In a pinch, threaded rod fitted with washers and nuts at each end of the stock will suffice.

If you plan carefully, measure precisely and utilize a bit of patience, you should have no trouble incorporating exotic cork or wood on your next rod project without incurring the usual weight penalty. ✍


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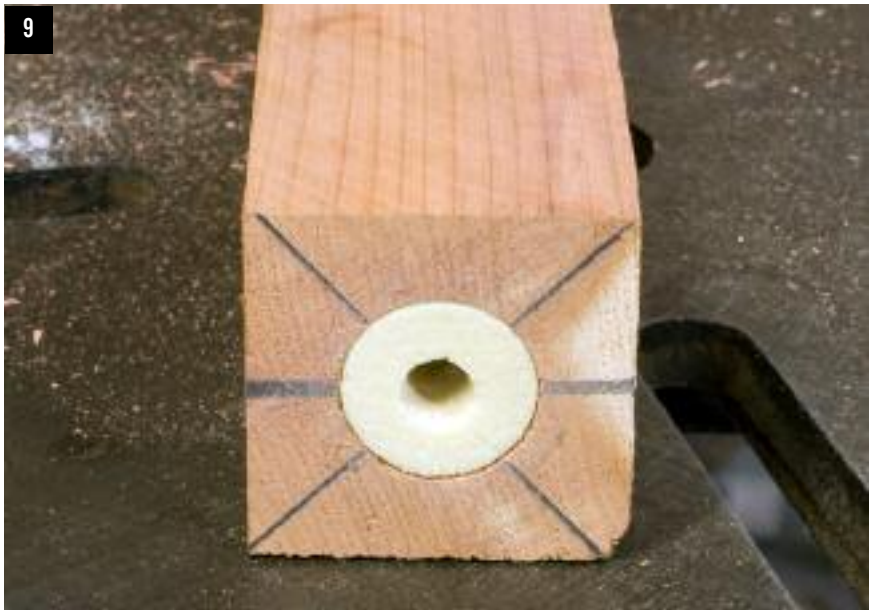
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### Weight Savings

I prepared two identical sized and shaped full wells fly rod grips for this article. Both were constructed of the same exotic cork rings. The full exotic cork version weighed 2.60 ounces. The cored version weighed 1.35 ounces. That's a weight savings of nearly 50% over the uncored exotic cork version.

While still heavier than the same size and shape grip in regular, natural cork (about .7 ounces) the coring process reduced the weight of the exotic grip from what many would find objectionable, into something not too far off from that of the natural product, and thus, became practical for use on the intended rod.

Wood receives the same benefit. Two wood (cedar) 9-inch butt grips, one full wood and the other cored, compared to each other at 3.7-ounces and 1.6-ounces respectively. That's no small weight savings!

The actual amount of weight saved on any particular grip is going to vary due to differences in the core sizes possible for various grip shapes, but in most cases coring will allow you to shave away roughly 50% of the weight of the non-cored version.

### Additional Weight Savings

Over-boring the turning stock so the bore is much larger than the rod blank is essentially what we have done here. The over-bore is then filled with a urethane (or similar) core for weight reduction. It is also possible to use the foam core in short sections (arbors or bushings) rather than in a single, full length piece, to shim a rigid wood handle to the blank. This reduces weight yet further. Given the extreme light weight of the core material, any additional weight savings would be slight at best but there would indeed be some further weight reduction if you choose to pursue it.