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Tutorials

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Segmented Bowls Using Dados and Splines: “V” Grooves and Fillers

Steve Reznek

Intermediate

In the last article I wrote for *More Woodturning Magazine*, October 2015 ([click here to read the article](#)), I showed various approaches using a table saw to cut dados in a board and splines to fill them. As that article said, the reason for using this approach to segment rather than the usual one on n-sided rings, is to display the beauty of the grain in a single piece of wood. As such, the technique favors working on horizontal shapes, rather than vertical.

I guess the word dado implies a rectangular cut and the word spline a rectangular slat. At least that is what my somewhat ancient Webster's seems to say. However, nothing says the techniques of that article are only applicable to right angle geometries. This art treats making the cut in the board in the shape of a "V" and with inserts having a triangular cross section.

Photos 1, 2 and 3 show the kinds of effects the technique can achieve. In Photo 1 each of the inserts is a single piece. "V" notches cut parallel and perpendicular to the grain. This was done twice in exactly the same way on each, to two square blocks. The three were cut so as to fit together in the intersecting "V"s. After flattening, the two square blocks were glued together, being sure to match the edges.



Photo 1 - Two Layer "V" Pattern

In Photo 2 the cross "V" pattern is used on a single block. However, first one set of inserts is glued and flattened and then the second set of "V"s are cut into the first set.



Photo 2 - Crossing "V's" Done Twice

While in Photo 3, the single insert is itself a segmented piece. The insert is made with the tilted blade geometry of the October art.



Photo 3 - Segmented "V" Insert

Of course, neither the techniques of the October article nor those of the "V" grooves is restricted to the horizontal. Photo 4 shows modeled after those of the Southwest Native Americans.

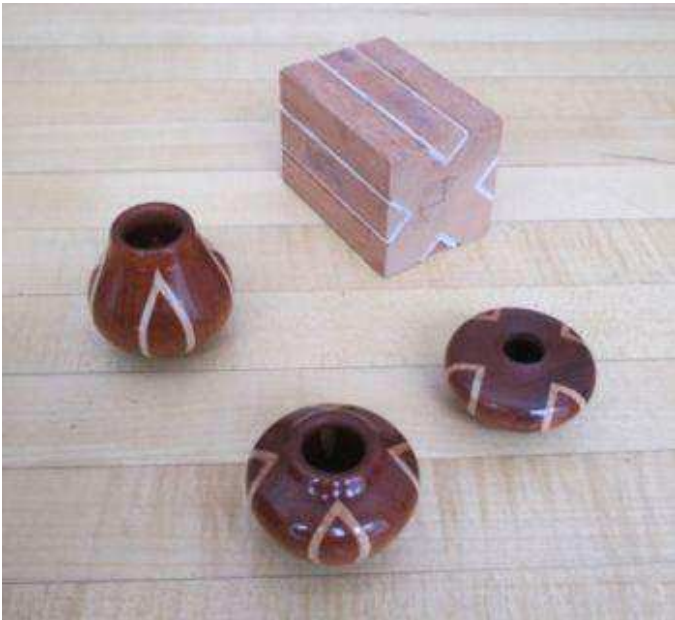


Photo 4 - Southwest Indian Pots

You can achieve interesting patterns by using more than one technique. Photo 5 combines the patterns of Photos 1 and 2.



Photo 5 - Combining the techniques of Photo 1 and 2

Cutting the "V"

The "V" notch in a board can be cut with a table saw, if the angle is 90° . Photo 6 shows the end of a board. The center line is marked with a dashed line as is the "V" to be cut out. Tilt the table saw blade to 45° and set the fence so the blade is aligned with one side of the "V". Be sure the blade is not raised very high. The first cut should be well short of cutting to the center line. Switch the board end for end and make the second cut. Now repeat the two cuts, slowly raising the blade until the two cuts meet at a sharp "V". I find that it takes multiple repetitions of the two cuts to assure a nice sharp "V" without going beyond the center line. It is important to assure that the blade angle is 45° . I use a "Wixey" gauge. Alternatively you can stop just short of a complete "V" and use a single edge razor blade or "Exacto" knife to sharpen the tip of the "V".

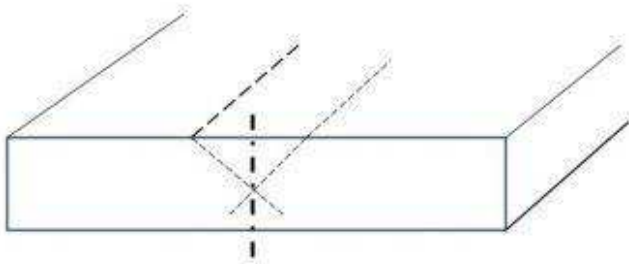


Photo 6 - Marks to Determine the Depth of the "V" Cut

It is vital that the board be flat and squared before you start. Any wobble in the board will result in the sides of the "V" not being straight and straight.

Safety

The board should be long enough so that your cuts can be made safely. Unless you are very experienced with the table saw, have the board considerably longer than the length of the blade above the table. Cutting small pieces on a table saw can be very dangerous. If the piece you want will have a small diameter, using a longer board will allow you to make several pieces. Alternatively, you can glue matching waste pieces to the ends of your piece.

Using a Router

The table saw can only be used for a 90° "V". If the tilt angle is less than 45° , the "V" will not have a sharp point. The table saws used do not tilt beyond 45° .

So how do you cut a “V” which is not 90°? One possible approach is to use two boards with each side cut with a half of the “V”. Another approach is to use a router instead of the table saw. I often use a 60° bit. The cutting speed at the tip of the bit is zero and the tip of the “V” will not be sharp. I use an Exacto blade or single-edge razor to sharpen the tip of the “V”. Of course you could use a 90° router bit instead of the table saw.

Cutting the insert

Cutting the insert is straight forward. Set the angle of the table saw blade with a Wixey gauge. The tilt angle is half the angle of the groove. e.g., tilt at 30° for a 60° “V” and tilt at 45° for a 90° “V”. The insert should fit snugly in the “V” groove without wobble.

Generally the insert will set up proud of the “V”. If you want the pattern to be in the bottom of the bowl or plate, you have to flatten the board to mount it and turn it with the “V” down. You can use a planer or a drum sander. Alternatively, cut your board into a square, mount the square “V” up on a face plate with double sided tape, and flatten. Then remove the square and remount it “V” down. Because the piece is firmly pressed into the double-sided tape and use gentle cuts.

The bowl in Photo 2 has two layers of inserts in each of two directions. I started with a square and cut 90° “V”s parallel and perpendicular to the grain. The first set of inserts is made just short of the edges of the square. You need those edges intact to assure the second set of “V”s are exactly aligned with the first.

Making segmented bowls using dados and splines becomes even more interesting when going beyond right-angle geometries. I hope you'll give it a try!

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