

Template Routing for Trays Instructions

Woodline USA

Woodline USA bowl and tray bits and pattern templates allow woodworkers to make a large variety of attractive wooden trays that are both decorative and functional. The heart shaped tray featured in these instructions is part of the Woodline “Poker” series and is easy to make for even a novice wood worker. These instructions apply to most types of template routing.

Safety Note

Read and follow all safety instructions for all your tools. If you are unsure of how to perform any operation safely, STOP and learn before you proceed. Practice safety in all shop operations. Routing, drilling, sawing and many shop operations involve the potential for serious injury if proper safety procedures are not observed. Wear proper safety equipment and apparel at all times. Secure the material with clamps of proper design and strength to hold the project securely.



The Woodline Poker Tray Template series includes Heart, Diamond, Spade and Club Templates. The completed trays are approximately 12” in size and they can be used with a variety of bowl and tray bits. Bowl and tray bits are specialty bits designed to plunge cut with a radius edge resulting in a smooth cut with rounded corners. Bowl and tray bits are normally used with either a guide bushing or a shaft mounted bearing to guide against the template. If a sharp inside edge is desired, a straight bit can be used instead of a bowl and tray bit. The bit shown in this instruction is a Woodline USA part number WL-1386B

Additional items needed:

Router. Almost any variable speed router will work but we recommend a variable speed router with a minimum of 1 ½ hp and a ½” shank capacity. The router should be in good condition, bowl and tray bits with collet extenders should not be used on routers with worn bearings or collets. Excessive vibration could lead to serious injury.

Bowl and Tray Bit Several bits are available. Some areas in trays (the stem in the poker club tray for example) may require a smaller bit. Not all bits will have bearings. Guide bearings can be added or a guide bushing can be used. Either method is acceptable and will produce identical results however a deeper tray can be created with a bearing guided bit than is normally possible with a bushing guided bit due to shank length limitations.

Collet Extender (Woodline item WL-COLEXT) A collet extender allows the bit to reach the deeper areas of a tray or bowl. Make sure the collet extender selected has a diameter smaller than the router bit being used to cut the project or damage to the project could occur caused by it hitting the wood.

Router Base Plate. For Freehand routing an oversized base plate is required to span the template. Base plate can be made from a variety of materials from clear acrylic to wood and is a simple item for most woodworkers to create. The oversized base plate must be wide enough to extend beyond the template sides when all areas of the project are routed. It must also be stiff enough not to bend under the weight of the router and the cutting forces. Routing can also be done on a router table without using an oversized base plate. In these instructions we have used the router table method.

Template. Templates can be made from either plastic or wood. Woodline carries a variety of templates with themes such as Christmas, poker, Valentines Day, winter and others.

Forstner Bit. Forstner bits drill a flat bottomed hole and quickly remove the majority of the material prior to routing. Woodline recommends a bit size of 1 3/8" to 2". It is convenient to have smaller bits for corner areas.

Band Saw, Jig saw or Scroll saw. Used to cut the outside of crafted items after routing.

Sander, Sandpaper, pencil, compass, tape measure, finishing supplies, glue and other miscellaneous shop supply items.

Preparing stock

Trays can be made from a variety of woods. Select wood that is clear and straight with few knots or difficult grain areas. Narrow boards can be glued to make wider trays if desired. Different species of wood can be laminated to create beautiful effects by mixing lighter woods with darker varieties.

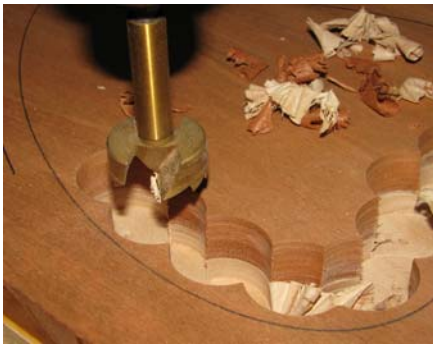
Marking and Drilling



Many Woodline templates feature alignment slots at center locations of the template. These openings allow the template to be aligned precisely. Lay the template on the material and mark the area to be cut with a pencil. Mark the center alignment marks so the template can be replaced in the same position later. When aligning the templates be sure to allow enough space outside the template cut out area for the side of

the tray. Tray walls are typically 1/2" thick but may be more or less if desired. Most tray templates include a slot outside the main template area. These slots allow for positioning of the material to assure adequate wall thickness.

Install a forstner bit and set for the proper speed. Forstner bits are typically run at less than 600 RPM. Set the depth stop and confirm on a scrap piece of wood. Be sure to allow for the point on the pilot of the forstner bit. The exact depth for drilling should be less than the desired final depth by about 1/16" to 1/8" so the router is able to remove all drilling marks from the project.



Drill out the area of the template that will form the center area of the tray. Overlap the drilled holes taking care to clamp and hold the material securely to prevent the bit from grabbing the stock



and possibly causing injury. Drill to within about 1/4" but be careful not to drill too close to the edge of the area to be removed. Clean out chips from the drilled out area and inspect. Additional cleanup can be performed with smaller drill bits or a wood chisel if necessary.



Install the template carefully by lining up the marks made previously. Mount the template securely using drywall type wood screws. Screw holes are provided but additional screws may be used if needed. Templates should be secure and screw heads countersunk in to the template. Be careful to place screws into the material in areas that will be cut off later.

Routing can be done two ways;

Depending on the depth of the desired project, each method may require the use of a collet extender (WL-COLEXT) to allow the appropriate depth of cut. Collet extenders must only be used with routers equipped with a variable speed control. Resist the temptation to run your router at full speed. Running router bits with collet extenders at high-speed can result in excessive vibration and serious injury. Excess vibration can cause the bit to come out of the collet and at a minimum can destroy the project.

The collet extender must not “bottom out” in the router collet. Raise the extender about 1/16” and securely tighten the router collet. Turn the router with the collet extender on and run at the slowest speed setting to check for excessive vibration. Routers with worn bearings or excessive run out should not use a collet extender due to excessive vibration. If your router vibrates when using a collet extender, cease use of the extender immediately and either repair or replace the router. Excessive vibration can damage the router and lead to serious injury or worse. If collet extender performance is acceptable, install the router bit and securely tighten the router bit. Repeat the low speed vibration check and then set to the desired operating speed and cutting depth. Woodline USA offers a speed chart on our website www.woodline.com which shows the proper operating speed for any size router bit. Do not over extend the bit or the collet extender. Both the router collet and the collet extender must be securely tightened and have adequate amount of the shaft inside the collet to hold properly.

Router Table method:



Template with stock attached is inverted over a router table (with the fence removed) and routing accomplished by carefully moving the material until the cutter guide bearing or bushing follows the template and removes all the excess material. Routing is best done with multiple height passes being careful to run the router at the proper speed. If desired, A bar clamp can be used across the material blank to make holding it easier. Always hold the material securely and do not release while the router is engaged with the wood. Stop frequently and clear away chips. Make a final pass with a light cut and inspect to assure all tooling marks are removed from drilling operations.

Routing with a hand held router:

Mount an oversized base plate on the router and set the depth of cut. Make sure the material is secure to a work bench or work table. Check for cord interference and make sure area is clear for the oversize base plate to travel. Carefully place the router above the template and turn it on. Route the material by moving the oversized base plate and router from side to side in multiple depth passes.

Templates may be repositioned to make multiple designs in a tray. Templates such as oval trays require the template to be relocated to complete the design. Once all areas are routed, remove the template.

Mark the outside area to be cut using a pencil and a marking gauge, compass or other layout method. Make sure the outside edge is uniform in thickness and has the proper design in corner areas of the tray. In templates with sharp corners you may have to sketch the outside line to complete the design.



Saw the excess material using a band saw, jig saw or scroll saw.



Carefully making these cuts as smooth and as uniform as possible will reduce sanding later.

Sand the outside and inside to a uniform and smooth surface removing all tool marks and using increasing grits until at least 220 grit surface quality is achieved.



Once the outside is sanded, return to the router table and install a bearing guided round over bit. Select a bit that is no larger than one half the width of the wall thickness for the tray side. Route the inside edge, outside edge and base of the project to create a finished edge. Sand the inside area to remove any tool marks.

Trays and bowls should be coated with a food safe finish. Shellac, mineral oil, or other similar finish will complete the project.

