

Simple Vertical “V” Block

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Drilling tap or clearance holes down the axis of a post or spacer is difficult. It is hard to hold a post on the drill press table and at the same time have it perpendicular for both axes. A drill press vice can be used to assure one axis is perpendicular to the drill table, but the other axis is not automatically aligned. I do have a combination horizontal/vertical V block, costing over \$200, which is intended for holding and drilling round stock, but it is not suitable for square, hexagonal, or rectangular stock. Not having a mill with which to machine a V block, I was forced to improvise. I was able to locate a scrap rectangular block of aluminum with mutually perpendicular faces. This main block measures approximately 1.5” by 2.5” by 3.5”. I attached a thick side plate, 0.5” by 2.5” by 3.5”, to one face of the main block as shown in Photo A. Taking advantage of existing holes, I used three screws. A minimum of two screws should be used. One edge of this side plate lies on the drill table and must be flat. The other edges are not critical. Now I had a vertical V block. To clamp the item being drilled, I fabricated a third or clamp plate measuring approximately 0.25” by 1” by 3.5”. Multiple holes drilled in the main block allow a clamping screw to be placed at different distances from the V block corner. Matching holes are drilled and tapped in the clamp plate. A clamping screw, 1/4”-20 by 3”, is used to draw the clamp plate tight against the item being drilled. The other end of the clamp plate is held parallel to the clamp surface by placing a block of the same thickness as the item to be drilled under the free end of the clamp plate. The dimensions of the various pieces are not critical, but should be thick enough to minimize flexure. In use, the item to be drilled is laid in the corner of the V block, the clamp plate is added, and a piece of metal having the same thickness as the item to be drilled is slid under the free end of the clamp plate. The clamp screw is passed through one of the holes in the main block near the item to be drilled and then tightened, see Photo B. Now, the assembly is placed on the drill table and the desired hole is drilled. Always check to make sure the drill press table is perpendicular to the drill axis before proceeding. The item to be drilled does not necessarily have to be slid down and make contact with the drill table. The vertical V block is suitable for holding square, rectangular, and hexagonal stock. While I used aluminum for the construction, suitably shaped pieces of any metal could be used. The tool has been found to be very useful and the cost was only three pieces of scrap metal and a half hour of labor. The savings in bandages and wasted metal has paid for the tool.

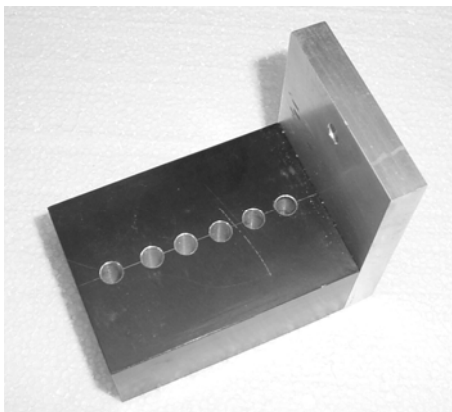


Photo A: Side Plate Attached to Block

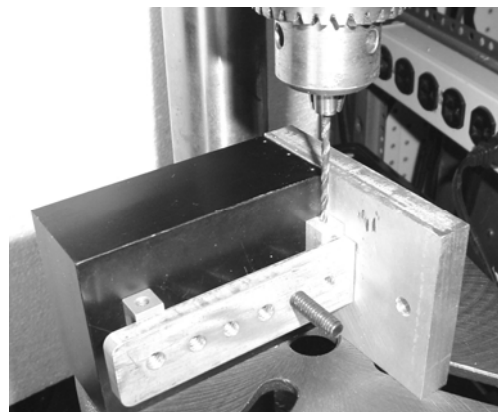


Photo B: Square Post Clamped and being Drilled

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