Drill Bit Cabinet

Customizable tilt-out trays, extra shelves, and an optional drawer help you store and organize all your drill bits and accessories in one convenient place. And it’s small enough to fit anywhere in your shop.

Sometimes it just seems like there’s a black hole in my shop where the one drill bit I need always disappears. Although the right bit eventually turns up, it’s usually only after a frustrating search of all the different places I use to store them. It’s a waste of time and effort, so I decided to do something about it.

To organize all of my drill bits and accessories in one convenient place (and keep them from getting nicked or damaged), I built this simple cabinet. It’s designed with one thing in mind — lots of storage in a compact space.

STORAGE. In spite of its small size, this cabinet provides all the storage space I need.

The back part of the cabinet houses two tilt-out trays that provide easy access to my bits. And there are two shelves inside the door with holes drilled to fit your small accessories.

OPTIONAL DRAWER. There’s even a drawer that can be added underneath the cabinet if you need additional storage. This drawer is optional, but I’ve found it comes in pretty handy for extra bits, accessories, or odds and ends.

CUSTOM TRAYS. Not every drill bit will fit into the same type of storage tray. But with these plans, you can customize your trays to hold Forstner bits, brad point bits, and spade bits. For more on this, see the Designer’s Notebook on page 6.

MATERIALS AND HARDWARE. For a small shop project like this, you can use just about any type of wood. You may even have enough leftovers lying around your shop to make most of the parts of the cabinet.

This cabinet was made entirely from 3/4" and 1/2" hardwood stock, 1/8" plywood, and 1/8" hardboard.

Aside from the common wood screws, all you’ll need is a 1 1/2" x 19 1/2" piano hinge for the case, and two 1"-dia. wood knobs (for the door and drawer).
EXPLoded VIEW

OVERALL DIMENSIONS:
10W x 7D x 23 5/8H

MATERIALS LIST

CABINET
A Top/Bottom (2) 3/4 x 6 1/2 - 9 1/2
B Sides (2) 3/4 x 6 1/2 - 19 1/2
C Front/Back (2) 1/2 ply - 9 1/2 x 19
D Tray Cores (4) 3/4 x 4 1/2 - 8 7/16
E Tray Bottoms (4) 1/4 x 3/4 - 8 7/16
F Tray Covers (4) 1/8 bdbd. - 4 3/4 x 8 7/16
G Shelves (2) 3/4 x 2 1/8 - 8 1/2

DRAWER
H Box Sides (2) 3/4 x 6 - 4
I Box Top/Bottom (2) 3/4 x 6 - 9 1/2
J Box Back (1) 1/8 bdbd. - 3 1/2 x 9 1/2
K Drawer Fr./Bk. (2) 1/2 x 2 1/8 - 8 7/16
L Drawer Sides (2) 1/2 x 2 1/8 - 5 1/2
M Drawer Bottom (1) 1/8 bdbd. - 5 1/2 x 7 15/16
N Spacer (1) 1/8 bdbd. - 3 x 9 1/2

HARDWARE SUPPLIES
(20) No. 5 x 5/8" Fh woodscrews
(6) No. 8 x 1 1/2" Fh woodscrews
(4) No. 8 x 2 1/4" Fh woodscrews
(1) 1 1/2" x 19 1/2" piano hinge
(1) 9/16"-dia. magnetic catch
(2) 1"-dia. wood knobs w/ screws

CUTTING DIAGRAM

1/4 x 7 1/4 - 48 (2.5 Bd. Ft.)

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1/4" HARDBOARD - 24 x 24

1/2" PLYWOOD - 24 x 24

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CASE

There's nothing complicated about building the case for the Drill Bit Cabinet. It starts off as a simple wood box. Then it’s cut apart to form two identical halves. So rather than a simple flat door whose only purpose is to keep the cabinet closed, this design provides storage inside the door as well as within the cabinet itself.

The case consists of a top and bottom (A) that are held together by two side pieces (B) (Fig. 1).

**Note:** I used 3/4"-thick maple for the top, bottom, and sides of my drill bit cabinet, although any 3/4"-thick hard-wood will work.

To accept the top and bottom, 1/2"-deep rabbets are cut on each end of the side pieces (Fig. 1a). Then two grooves are cut in each of the case pieces to accept a pair of plywood panels that are added next (Fig. 1b).

**PANELS.** The front and back panels (C) are made from 1/2"-thick plywood. Normally, 1/4" plywood might suffice for the front and back of a cabinet like this. But I needed enough “thickness” to screw into when attaching the storage shelves (and also for mounting the cabinet to a wall, if you decide you want a hanging version).

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**SHOP TIP**

Like a lot of wood-working tasks, cutting a box into two parts looks more complicated than it is. All it takes is the right cutting sequence and a simple trick.

First, cut two opposite sides of the box (Step 1). The problem is when you cut the next two sides, the saw kerfs can pinch the blade and cause kickback.

To prevent the kerfs from closing, slip a pair of spacers through the box (Step 2).

After making the final two cuts, remove the tape and separate the two halves.

1. **To cut a box into two halves,** first you need to adjust the height of the table saw blade to cut through the thickness of the box sides. After the blade is set up, make a pass on opposite sides (or ends) of the box. Just be sure to run the same side against the fence for each pass. This way, if the cuts end up a little off-center, they will still be aligned with each other.

2. **Once the initial cuts have been made,** you need to take the proper precautions to avoid a kickback accident. To prevent the saw kerfs from closing up and pinching the blade, cut a pair of spacers from 1/8" hardboard and slip them through the box. I use strips of masking tape to hold the spacers in place (you don’t want them falling into the blade during a cut).
Note: Unfortunately, 1/2" maple plywood isn’t always easy to come by. If you can’t find any locally, you can glue up two pieces of 1/4"-thick birch plywood as a substitute to make the front and back panels.

RABBETS. With the front and back panels both cut to size, the next step is to cut rabbets around all their edges. This forms tongues to fit in the grooves you already cut in the top, bottom, and sides (Fig. 1c).

The main idea here is to cut the rabbets deep enough so the tongue fits the groove. But it should also be wide enough to produce a slight “shadow line” between the sides and the panels. (I cut 9/16"-wide rabbets on my panels, which produced a 1/16" gap all the way around each one.)

GLUE-UP. After dry-assembling all the pieces, you’re ready to glue and clamp the case together. Then, after the glue is dry, it’s just a matter of separating the case into two equal parts. (For instructions on cutting a box into two halves, see the Shop Tip on the previous page.)

HINGE. The next step is to hinge the two halves of the cabinet together. To make it easy to install, I screwed a piano hinge into a shallow rabbet that’s cut in one edge of each of the side pieces (Figs. 2 and 2a).

CATCH. After installing the hinge, a magnetic catch and strike plate are added to keep the door of the cabinet closed tight (Fig. 2).

The catch fits in a hole that’s drilled in the side piece on the back part of the cabinet (Fig. 2b). And the strike plate is screwed to the edge of the door. (For more on installing magnetic catches, see the Shop Tip below.)

KNOB. All that’s left to complete the case is to add a 1"-diameter wood knob. It’s simply screwed in place on the door of the cabinet (Fig. 2).

**Shop Tip**

Installing Magnetic Catches

Magnetic catches are generally fairly simple to install. But especially on a project with a narrow wood surface (like the 3/4" on the Drill Bit Cabinet), you need to be able to install one accurately.

The one I used, like most, consists of two parts: a magnet and a catch plate (or screw). To install one properly, two things must be done. First, the magnet has to be seated straight in the hole and flush with the work surface. To do this, I guide the magnet in the hole with a square, flat block of wood (Fig. 1).

Second, in order for the door to stay closed, the catch must align with the magnet. To ensure it does, I place the screw on the magnet, close the door, and tap the door with a no-mar hammer (Fig. 2). Then when you open the door, the mark left behind will indicate where to mount the catch.
TRAYS

The back of the cabinet holds two trays for storing drill bits. To make it easy to remove a bit, these trays tilt forward.

STAIRSTEP. Each tray organizes the bits in two “stairstep” sections. After building each section (I made four altogether) as a separate unit, they’re glued together in pairs to form the trays.

CORE. Each section starts off as a core piece (D) made from 3/4”-thick hardwood (Fig. 4). To allow the tray to tip out of the cabinet without binding, I cut each core piece 1/16” narrower (shorter) than the cabinet opening.

DADOES. To provide a separate compartment for each bit, there’s a series of dadoes cut in each core piece. The size and spacing of these dadoes will vary, depending on the bits you plan on storing (see the Designer’s Notebook on the next page).

BOTTOM AND COVER. Next, to keep the drill bits from falling out of the tray, glue on a 1/4”-thick hardwood bottom (E), and a cover (F) cut from a piece of 1/8”-thick hardboard (Fig. 4).

ASSEMBLY. With each of the sections complete, you’re ready to assemble them in pairs (Fig. 4a).

Note: To provide plenty of finger room when removing a bit, the sections are glued together back to back.

INSTALL TRAYS. Now you can install the trays. A screw on each side holds the tray in place and acts as a pivot point to allow it to tip out (Figs. 3a and 4a). To keep the bits upright when the trays are pushed back in, a wood block is glued onto the back of each tray.

SHELVES

To take advantage of the space inside the door, I added a pair of hardwood shelves for my accessories. Along with the shelves, I installed the index for my twist bits in the bottom of the door (refer to the photo on page 1).

CUSTOMIZE SHELVES. As with the storage trays, you’ll need to customize the shelves (G) for your accessories (Fig. 5). All I did was drill holes to accommodate my countersinks, plug cutters, and special drill bits.

ATTACH SHELVES. After locating the shelves so there’s plenty of clearance to lift everything out, drill countersunk shank holes through the edges and screw the shelves to the front panel.

DRAWER

As an option, you can add a drawer to store small accessories. The drawer fits inside a wood box that’s attached to the bottom of the cabinet (see photo on next page).

BOX. Like the cabinet, the box has two sides (H) that are rabbeted at each end to accept a top and bottom (I) (Figs. 6 and 1a). Before gluing the box together, you’ll need to cut a shallow rabbet along the back edges of these four pieces for a 1/8”-thick hardboard back (J) (Fig. 6a).

DRAWER. The next step is to build a drawer to fit inside the box. The drawer shown opposite is designed to fit flush with the front of the cabinet with a 1/16”...
gap on the top and a $\frac{1}{32}''$ gap on each side of the opening in the box.

The drawer consists of a front and back piece (K) that are $\frac{1}{2}''$ thick and rabbeted at the ends for the two sides (L) (Fig. 6). Grooves cut in each piece accept a bottom (M) made from $\frac{1}{8}''$-thick hardboard (Fig. 6b). After gluing up the drawer, I screwed on a wood knob to match the one on the door.

**SPACER.** Before attaching the drawer box, I added a spacer (N) to keep the door from dragging across the box. This is a piece of $\frac{1}{8}''$-thick hardboard that’s cut to fit the bottom (A) of the back of the cabinet and glued in place.

**ATTACH BOX.** Now attach the box to the bottom of the cabinet. After locating the box flush with the back and sides of the cabinet, it’s glued and screwed through the bottom of the cabinet.

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**DESIGNER’S NOTEBOOK**

*Taking extra time now to customize your drill bit trays will save you some headaches later.*

**CUSTOMIZED TRAYS**

- Not every drill bit fits in the same type of storage tray. So while you’re building trays for the cabinet, it’s worth it to take time to customize them for your bits.
- To do this, it’s just adjust the size and spacing of the dadoes in the core pieces (D) (see drawings below).

**Note:** In some cases, you may also need to adjust the length of the dadoes by adding wood “stops.”

- See below to adapt your storage trays for Forstner, brad point, and spade bits.
- Also see the tip at right to help keep your spade bits aligned.

**Forstner Bits.** To separate your Forstner bits, space them $\frac{1}{4}''$ apart. Then to get the bits to stick up an equal amount, glue a wood “stop” in each dado.

**Brad Point Bits.** To keep brad point bits from rattling around, cut the dadoes $\frac{1}{16}''$ deeper and wider than the bit diameters. Again, “stops” align the tips.

**Spade Bits.** To prevent the “paddles” of your spade bits from hitting each other, space them $\frac{1}{4}''$ apart. Then cut dadoes $\frac{1}{16}''$ deeper and wider than the shanks.

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