Try cup hinges for your next cabinets

Learn how to choose, install, and adjust these engineered marvels

By Robert J. Settich

They are known by many different names: Euro hinges, cup hinges, 32mm hinges, hidden hinges, and other aliases. Like secret agents, these fascinating bits of hardware do their work quietly and without drawing any attention to themselves. Instead, they keep the accent on your cabinet.

In addition to near-invisibility, the hinges also feature easy installation and perhaps most importantly, the ability to move each door into perfect position. This is a quantum leap beyond traditional cabinet hinges that permanently lock in the door’s alignment—or lack thereof—upon installation. The translation: by giving you the ability to perfectly straighten doors and produce consistent reveals, you’ll appear to be a much better cabinetmaker.

The beauty of hidden hardware.

Whether you’re building a single cabinet or an entire wall’s-worth, concealed cup hinges enable you to create a sleek composition of doors and drawer fronts. The hinge has a 35mm-dia. cup that mounts in the door, creating a recess for the hinge mechanism when the door is closed. The hinge arm snaps into place on a mounting plate fastened to the cabinet side or face frame.
Most cup hinges are designed so that the position of the door can be adjusted simply by turning screws on either the hinge arm or the mounting plate—a big advantage over other cabinet hinges.

Cup hinges for frameless cabinets typically provide three-way adjustment, as shown here. Cup hinges for face frames typically provide lateral (side-to-side) and vertical adjustment.

The hole story. 5mm-dia. holes, spaced 32mm apart, are compatible with shelf support pins and installation screws for cup hinges and drawer slides.

The 32 millimeter cabinet system

32 millimeter cabinetry appeared in Europe at the conclusion of World War II, when the need for massive amounts of reconstruction collided with severe shortages of materials. Eliminating face frames from cabinets saved time, expense, and lumber, while also simplifying cabinet construction. For even greater efficiency, manufacturers adopted a universal spacing of 32 millimeters for the 5mm-dia. holes in cabinet sides. In both base and wall cabinets, these holes don’t just hold shelf support pins; they also correspond to installation screw spacing for cup hinge mounting plates and drawer slides. Production-style cabinetry usually involves the insertion of plastic dowels into predrilled holes, rather than driving hardware installation screws directly into the case side.

All the advantages that got the 32 millimeter cabinet system started still apply today, with even more compatible hardware to choose from. If you haven’t given this cabinetry style a try, consider doing so on your next project.
Choosing cup hinges: You’ll get it right if you can answer 4 questions

The intricate structure of a cup hinge is a world away from the simple anatomy of a butt hinge. This can make selecting cup hinges intimidating. But there’s good news here. Major manufacturers like Salice, Blum, Grass, and Amerock have come up with cup hinges for just about any application you can imagine. To find the right hinges for your project, get the answers to the questions below, then consider any special features that may also figure in your cabinet design.

1. **Frameless or face-frame cabinets?**
   Cup hinges originated in order to streamline the manufacture and installation of frameless cabinetry, so it’s not surprising that you’ll find the widest selection of hinges suited to this cabinetry style. But competition among cabinet manufacturers created a demand for Euro hinges compatible with other cabinetry styles, including face frame cabinets. A cup hinge designed for a frameless cabinet will include a baseplate that mounts on the side of the cabinet. A face frame cup hinge usually mounts on the face frame. Some face frame cup hinges attach to a separate plate that’s screwed to the face frame. Other versions are single-piece units that include a faceplate flange.

2. **Overlay or inset doors?**
   Euro hinges popularized the look of overlay doors and drawer fronts—a sleek composition of rectangles that covers cabinetry casework and displays even gaps between each door and drawer. The adjustability of cup hinges makes it possible to get all the doors in a bank of cabinets perfectly aligned. If this is the look you’re after, you’ll need to order overlay-style cup hinges. But if your preference is for inset doors, you have two choices. You can pack out the side of the cabinet flush with the inside edge of the face frame, and use an inset-style cup hinge designed for frameless cabinets. Or you can buy a specialized inset hinge designed to mount on the face frame (see drawings).
3. What door opening angle is right?

Opening angles for most cup hinges range from 105° to 120°, which will suit many applications. However, there may be cases when you want a door to open much wider: to provide easier access, for example, into a deep corner cabinet. In that case, you can find hinges that swing up to 170° (Woodcraft 142855, $18.99/pr.). But other times, you may want to limit the opening angle so that a door swinging toward a wall won’t bang into it. In these situations, you want to find a hinge that can be paired with an optional restriction plate. This modification will solve the problem by reducing the opening angle to less than 90°. All hinges along the edge of a door should have the same opening angle.

4. How many hinges per door?

Most average-size cabinet doors will swing very happily from a single pair of hinges. But when you upscale the door’s size or weight, those hinges may start complaining or even fail. You can easily solve the problem by installing additional hinges to share the burden. The chart represents general guidelines based on average hinges. Weigh the completed door plus any supplemental loads, such as a spice rack you plan to attach to the inside of the door. If your door’s height or weight lands in a borderline area, round up and add a hinge.

Choosing the Number of Hinges

<table>
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<th>Door weight</th>
<th>9-11 lbs.</th>
<th>12-20 lbs.</th>
<th>21-33 lbs.</th>
<th>34-48 lbs.</th>
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<tbody>
<tr>
<td>20°</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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<tr>
<td>40°</td>
<td>1</td>
<td>2</td>
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<td>4</td>
</tr>
<tr>
<td>60°</td>
<td>1</td>
<td>2</td>
<td>3</td>
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</tr>
<tr>
<td>80°</td>
<td>1</td>
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<tr>
<td>100°</td>
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- **Cover caps.** Available for some but not all cup hinges, cover caps will conceal most—or even all—of the hinge’s attachment and adjustment screws to give your project a sleek look. While this isn’t a priority in ordinary cabinet applications, it’s definitely an upgrade to consider on curio cabinets and other situations where your hardware has high visibility.

- **Plastic dowels or inserts.** Standard hinge installation screws work well in solid stock and plywood, but these fasteners lose strength in medium density fiberboard (MDF) or particleboard. If your cabinet doors or cases are made from these materials, you may want to choose hinges that include barbed plastic inserts that fit in predrilled holes. Tightening the installation screw pushes each dowel against the wall of the hole for a firm grip.

- **Soft-close hinges or pistons.** Cabinet doors that slam can rattle both your nerves and your carefully-crafted woodworking project. Avoid these problems with soft-close technology such as Blumotion from Blum. This feature can be built into the hinge cup, as with the 110° partial overlay hinge (Woodcraft #152742). If your project has small or light doors, you can easily switch off the soft close mechanism on one hinge. If you want to upgrade existing cabinets to soft close without swapping out the hinges, consider a retrofit Blumotion solution (Woodcraft #147965). You usually need only one of these piston devices per door, though large or heavy doors may require a pair.
1. **Drill the cup holes**

The metal cup in a Euro hinge needs to fit in a 35mm-dia. hole drilled in the cabinet door. Precision is important, so make sure you have a sharp, 35mm Forstner bit and an accurate technique for locating each cup hinge hole. Hole spacing is not based on a centerpoint but on the distance from the rim of the hole to the door’s edge. Unless you’re building cabinets according to the pure 32mm cabinet system, vertical hinge placement is up to you. On a typical cabinet, I usually locate hinge cup holes 3” from the top and bottom of the door.

**Jigged offset.** A jig makes quick, accurate work of laying out cup hole centerpoints the proper offset from the edge of a door. This Drill-Rite jig is designed for hinges with a 5mm offset. (You can also use it to mark the screw locations for certain hinges.) Other commercial jigs are available for different offsets, or you can make your own.

**Fence offset.** Alternatively, you can set your drill press fence to create the proper hinge offset by registering a door against the fence. As a setup spacer, use a drill bit whose diameter matches the specified hinge offset, placing it between the fence and the edge of the 35mm Forstner bit that will drill the cup holes.

**Stops add speed.** Mounted on T-track atop the drill press fence, a pair of Swing Stops eliminates the need to measure and mark. Sliding the door under the unused stop swings it out of the way. A production setup like this is smart when you have more than a few doors to hang.

**Line ‘em up.** Before drilling holes for cup attachment screws, make sure that each hinge arm is perpendicular to the door’s edge. If the rear edge of the cup is square to the arm, you can use a straightedge to align multiple hinges at once. Drill pilot holes with a self-centering Vix bit.
2. Mount the plates
Hinge arms clip onto mounting plates that are screwed to cabinet sides. Each plate has two installation screws that must be set back an exact distance from the cabinet edge and aligned vertically with hinge arms. Perfect plate position demands careful layout and accurate predrilling of screw holes.

Mask, then mark. Cover the layout area with masking tape to protect the wood and better show layout lines. Set the blade on your combination square to match centers for installation screws, then mark your lines.

Shim the door. After attaching the mounting plates to the hinge arms, place the door against the case, shimming it upward to produce the desired overlay at the case bottom. Align the mounting plate holes with the screw centerlines, then drill pilot holes with a self-centering bit. Strip away the tape, and screw the plates in place.

3. Finesse the fit
Your newly installed door is likely to be a bit askew, but here’s where cup hinges really shine. The adjustment screws on the hinge allow you to fine-tune the door’s position on the cabinet case. With some cup hinges, the mounting plate can be shifted up or down to make vertical adjustments. In other types, the plate remains fixed, and all adjustments are made by turning screws on the hinge arm assembly. If your screws have a Pozi head, use a Pozi driver to avoid damaging screw heads.
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