

## Choosing a new cordless Drill/Driver

These tools finesse tiny brass screws into place, muscle hefty screws into lumber, and churn drill bits through the hardest woods.

**A** drill-driver plays an important role in completing a wide range of home-improvement and DIY projects. Whether you're building a deck or fence, running electrical wires, hanging curtain rods, or crafting a bookcase, you'll need to drill holes and drive screws. With the latest generation of powerful motors and fast chargers, today's drill/drivers put enough muscle into your hand to tame even the most ambitious jobs.

### Five key measures of a quality cordless drill/driver

**TORQUE** When most of us talk about a drill's power, we're really talking about how much rotational force, or *torque*, it can produce. Manufacturers rate their maximum torque in inch-pounds, and we found those ratings a pretty good indication of the drill's true ability.

When you're shopping for a drill, read the box or go to the manufacturer's Web site and look for the torque numbers on the specification page. If you don't discover it there, many companies allow you to download the owner's manual, and you may find it there. Still no luck? Send the company an e-mail or call their customer-service line.

**RUN TIME** If torque is like the horsepower of your car's engine, run time is like mileage—how far it will go on a tank of fuel. The "tank size" of a battery pack is measured in *amp hours*. However, efficiency comes into play too. So just as a Honda will go farther than a Hum-

mer even though it has a smaller tank, a high amp-hour rating doesn't necessarily guarantee long run time.

From a practical standpoint, the recharge time for the battery also plays a significant role. We'll talk more about batteries and chargers later in this article, but for now look at it this way. If you start a project with two fully-charged batteries, and always keep one on the charger, you'll be able to work constantly as long as the charger can "fill up" a depleted battery faster than you can drain the one on the drill. You're probably not going to have a work stoppage unless you're driving screws nonstop, *and* your battery has a low amp-hour rating *and* you have a slow charger. In our experience, the most likely reason that a project stops because of dead batteries is forgetting to always keep one in the charger.

You may discover that shifting gears will extend your drill's run time. Many drills have a high and low gear range, and some also have a third gear in the middle. If you usually run your drill in low gear at full speed, try using high gear and a slower trigger speed. This simple change could significantly boost the number of holes you can drill or the screws you can drive before needing to swap batteries.



**CHUCK GRIP** With 1/4" hex-shank drill and driver bits available practically everywhere, a drill chuck's ability to hold fast on a round-shank bit means somewhat less than it used to. In fact some drills come equipped with chucks designed specifically for quick-release hex-shank bits as well as a traditional three-jaw chuck. Still, your drill must be able to grip a round-shank drill bit well enough to keep it from slipping.

The top-performing chucks are a ratcheting style that actually increases its grip on the bit as torque increases. A second quality point to check for is a big single-sleeve chuck for easy and secure one-handed tightening. And many good-gripping chucks employ a third strategy: serrated jaws that bite into the bit better to prevent slippage.

Ideally, you'll find all three of these quality chuck features on the drill that you're considering. But if it has none and you buy it anyway, at least you'll know why your bits keep slipping.

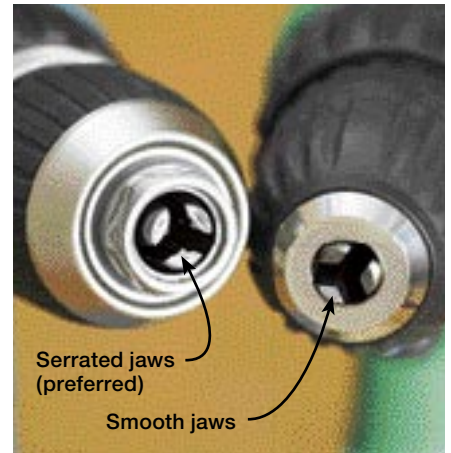
**CLUTCH CONSISTENCY** Most of the drill/drivers you'll see have an adjustable clutch between the chuck and the nose of the drill. A clutch stops the chuck from turning when it encounters a set amount of resistance, thus preventing the drill from shredding the screw head, breaking the screw, or driving it too deeply into the wood. (By the way, sinking screws too deeply actually subtracts from the strength of your project. For maximum strength, drive the head of a flathead screw just below the surface of the wood—1/32" is plenty.)



Between the typical high and low gears, this drill adds a middle gear with enough torque to drive screws, yet at a faster rate, drastically increasing run time.



A single-sleeve chuck tightens with only one hand. A double-sleeve chuck requires two hands in close proximity, resulting in a chuck that's "finger tight" rather than "hand tight."



Serrated jaws sport a ridge or ridges along the length of each jaw to apply a more secure grip on round-shank bits. In our tests, smooth jaws tended to slip easier.

Although manufacturers like to boast of how many clutch settings their drills have, we've found little difference in drive depth between the top, middle, and bottom of the clutch range from drill to drill, regardless of the actual number of settings.

**BATTERIES AND CHARGERS** A few years ago, environmentally friendly nickel-metal hydride (NiMH) batteries began replacing the popular nickel-cadmium (NiCd) cells that powered most cordless tools. The newest batteries—lithium-ion (LiIon)—promise equal or better run time, lighter weight, and the ability to hold a full charge for more than a year while sitting on the shelf. Expect prices to drop as more manufacturers introduce more LiIon battery packs to all cordless tools.

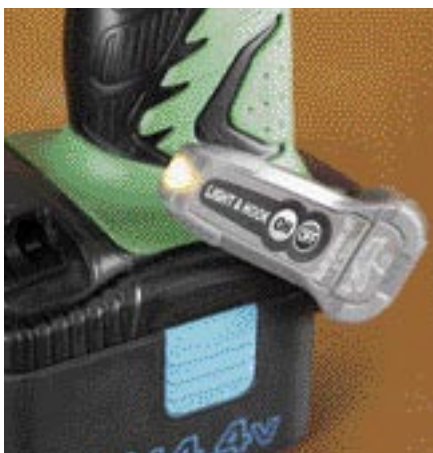
Also consider how the battery pack attaches to the drill. We prefer packs that slide onto the bottom of the drill

to those with a post that inserts into the drill handle because the release buttons for slide-mount packs are typically easier to reach—even for small hands. If you can get your hands on a number of drills at a store, try several test runs of sliding the batteries in and out. If you can easily install the battery cockeyed, shift your attention to another drill.

Most battery chargers fully charge a drained pack in about one hour, give or take. (Faster chargers are available for some drills as an accessory.) Some speedy chargers can fill 'em up in about 30 minutes. There's at least one dual charger on the market that can charge both of its batteries simultaneously in that same 30 minutes. So in the same amount of time that you take for a quick lunch, your batteries will gobble up enough energy to also get back to work. Some chargers require 90 minutes to two hours for a full recharge. 🌲



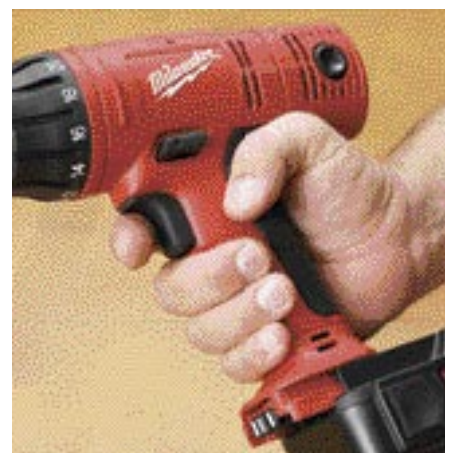
Four different add-on chucks—two standard equipment and two optional—make this drill/driver a versatile switch-hitter in your shop. With none of the chucks mounted, the 1/4" hex drive accepts standard quick-release bits and makes the drill barely longer than its battery pack.



The integrated LED work light on the belt hook of this drill helps you work in low-light situations. The hook rotates to five different positions to direct the light.



This drill features a switch that disables the clutch in "drill" mode (above) for full-on power. Flipping to "drive" mode (inset), re-engages the clutch.



Some battery packs slide in from the front of the tool for optimum balance, or from the back, as shown above, to provide extra clearance in tight quarters.