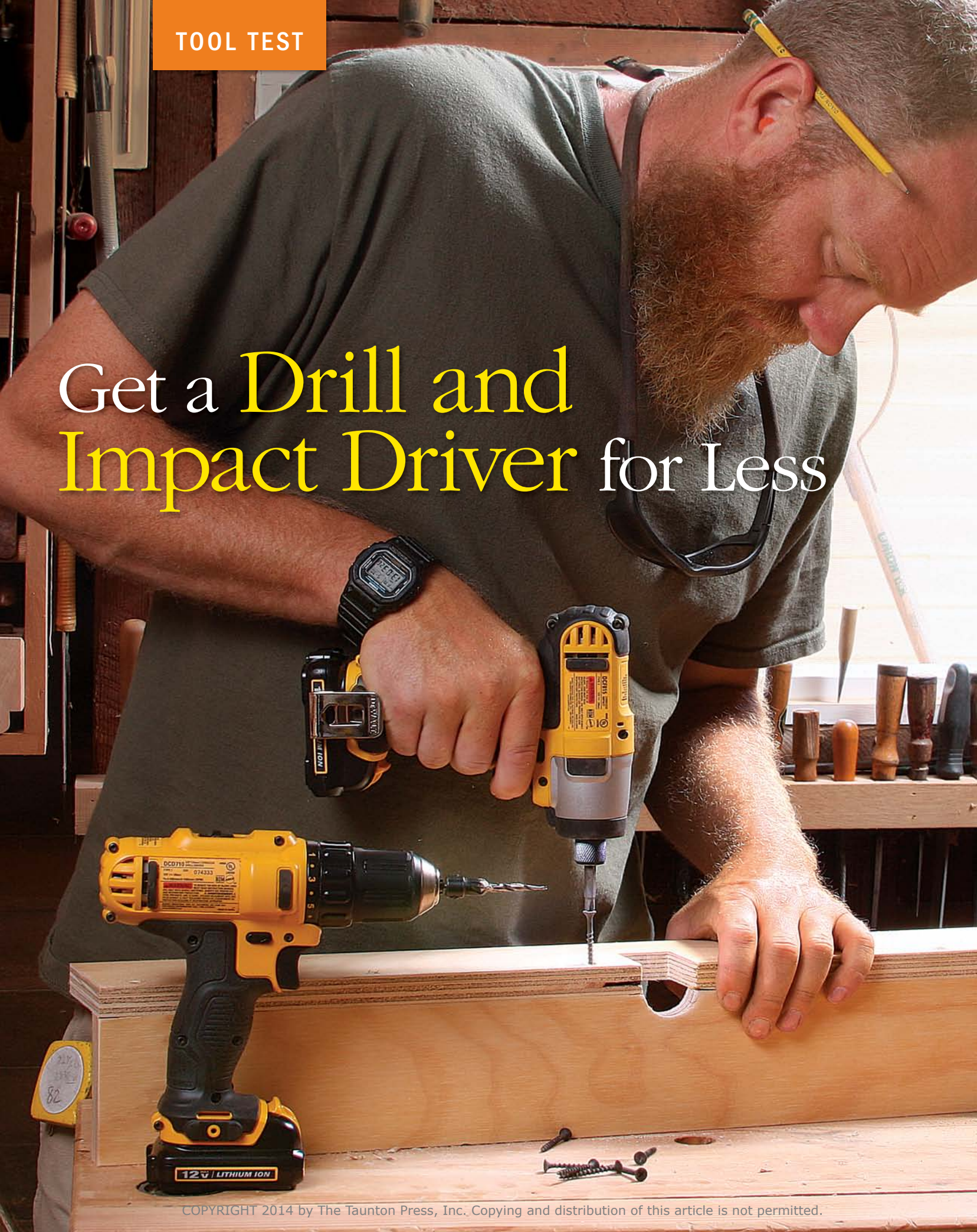
TOOL TEST

Get a Drill and Impact Driver for Less



These compact 12-volt tools boast big power

BY KIT CAMP

In case you missed it, cordless technology has changed significantly in the past few years. With the combination of lithium-ion batteries and impact action, smaller 12-volt cordless tools are capable of performing tasks that required 14.4- or even 18-volt models 10 years ago.

There are many tools that fit this 12-volt category—right-angle drills, jigsaws, multi-tools, flashlights, radios, and so on—more than we could test in a year. For this test we focused on the two that are most valuable in a woodshop, an impact driver and a standard drill, available as a kit with two batteries and a charger. Having both tools close at hand, one set up to drill holes and the other to drive fasteners, is a real advantage.

The batteries in this test are marketed as 12-volt, which is what they produce with a fresh charge and the drill spinning freely, but all produce 10.8 volts in actual use. Don't worry. As you'll see, these compact workhorses are more than capable of handling everything a woodworker will throw at them. And at prices ranging between $110 and $190 (with one big exception), these two-tool kits are the best buy in cordless.

You'll notice one apple among the oranges. With high-tech brushless motors, bigger batteries, and a price tag significantly higher than the others, Milwaukee's "Fuel" system doesn't quite fit the mix. But because those batteries are still rated at 10.8 volts, we kept the Fuel tools in our test group.

Impact driver is the star

The impact driver is an amazing invention. When the going gets tough, it applies a series of rotational blows to the drive shaft, creating a vibrating action that makes screws almost melt into the wood. The change in efficiency and control is almost as

User-friendly features

As with any tools, performance is about more than power. Conveniences make a big difference.

Easy bit changes. *The chucks on Camp's favorite impact drivers allow bits to simply slip in (left) without a sleeve being pulled out. The chucks on his favorite drills lock when the trigger is released, letting you tighten them with one hand (below).*

Light in the darkness. *The Bosch and DeWalt drivers have three LED work lights on the extreme end of the tool. The others have single LEDs, which can be blocked by the user's hand.*

Technology that packs a punch

Lithium-ion batteries spell serious power for both drills and drivers, and the impact drivers' performance was amazing. Batteries were freshly charged for each test.

DRILL TESTS

How many holes? *Using a ⅜-in. brad-point bit in hard maple, Camp drilled as many holes as he could on a single charge. Milwaukee's Fuel drill did almost four times as many as its competitors.*

Even bigger bit. *Using a ¾-in. Irwin Speedbor bit, Camp bored as many holes as he could through a 5½-in.-thick, old-growth fir beam. The DeWalt did well here.*

dramatic as the change from a hand screwdriver to a cordless drill. Whether driving tiny brass hinge screws or 3½-in. cabinet-hanging screws, these impact drivers almost never cam out (the bit rotates out of the screw head), which is reason enough to buy one. In fact, they require almost no pressure to stay engaged, and consequently are very easy on the hands and wrists. The only disadvantage of an impact driver is the noise: Ear protection is a must.

While the drills all have a standard chuck and will use any type of bit you own, the impact drivers accept only ¼-in. hex-shanked bits. You probably already have some drill and driver bits like this, but if not, they are affordable enough.

The impact-driver chucks vary a little. One type requires you to slide a sleeve forward to remove or insert a bit. The second type, which I prefer, allows you to slip in the bit with one hand without needing the other to pull on the sleeve.

By the way, all of the drivers feature at least one LED light, which illuminates the bit when working.

A few notes on the drills—The standard drills in these kits have a ⅜-in. chuck, except the Fuel, which will take shanks up to ½ in. dia.

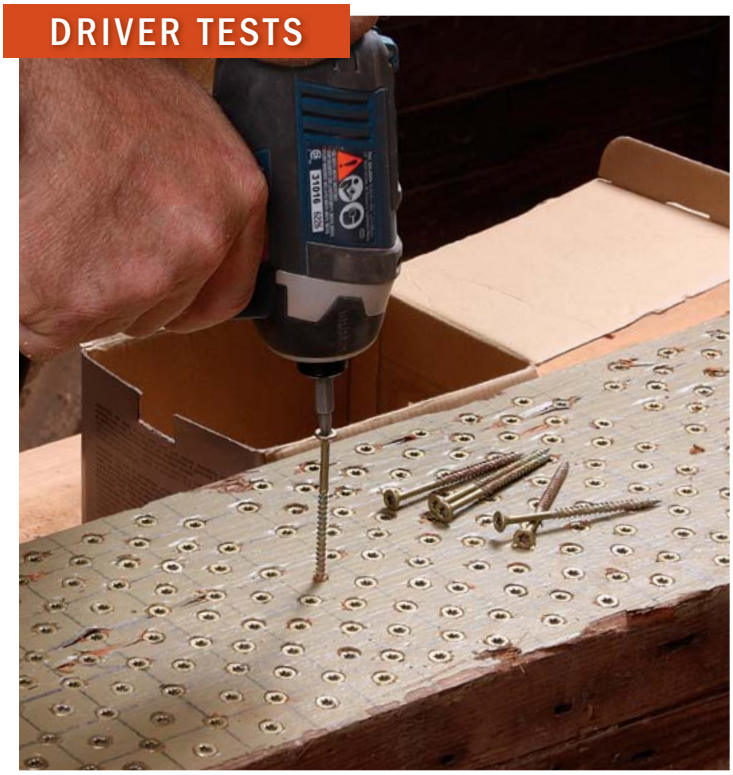
My favorite drills have a chuck that locks when you release the trigger, letting you ratchet the chuck closed with one hand. All of the drills have a clutch, handy when you do happen to use them as a driver, and all have a variable speed trigger controlled with a switch on top that determines the maximum rpm. For example, the DeWalt drill will run from 0 to 400 rpm on low, and 0 to 1,500 on high.

Tough tests

To test these kits, the *FWW* editors and I developed a range of tasks that would push the tools as far as a typical user would, and beyond. All the tests were performed with freshly charged batteries. To get an overall feel for each tool, I also took them to job sites and used them to bore hundreds of pilot holes, drive boxes of screws, and perform any other tasks

Photos: Asa Christiana

DRIVER TESTS



How many screws? *Working with another section of that hard fir beam, Camp drove as many 3-in.-long screws as he could, with no pilot hole.*

One for fun. *To find the top-end torque of the drivers, Camp attempted to drive 4-in.-long screws into a very dense tropical hardwood, with an undersize pilot hole.*

	DRILL TESTS		DRIVER TESTS	
BRAND	3/8-IN. HOLES	3/4-IN. HOLES	3-IN. SCREWS	4-IN. SCREWS (INCHES DRIVEN)
AUTHOR'S BEST VALUE CHOICE Bosch CLPK22-120	34	13	67	2½ in.
Craftsman	18	5	47	1 15/16 in.
AUTHOR'S BEST VALUE CHOICE DeWalt DCK211S2	36	12	62	3 in.
Hitachi KC10DFL	19	9	48	2 in.
Makita LCT209W	17	7	53	2 9/16 in.
Milwaukee M12	38	13	60	2 15/16 in.
AUTHOR'S BEST OVERALL CHOICE Milwaukee Fuel	144	50*	235	3 9/16 in.
Porter-Cable PCL212IDC-2	22	5	43	1⅝ in.

*Tested with larger battery; drilled 20 holes with smaller battery.

How the kits stacked up

MILWAUKEE FUEL 2594-22
Street price: $260

Batteries: (1) 2 amp-hours, (1) 4 amp-hours

It's hard to compare this pair with the others. These have brushless motors, which adds to the cost. The larger of the two batteries adds power and run-time. The drill has a larger-capacity, metal chuck (which locks for tightening) and a selector ring to switch between drilling and driving modes. The impact driver is the only one with two modes, one with slower rpm and less power, nice for smaller or more brittle fasteners. It also has a handy, push-in chuck. Both tools have belt hooks and battery indicators.

BOSCH CLPK22-120
Street price: $175

Batteries: 2 amp-hours

As a cabinetmaker and carpenter, I preferred the Bosch tools. They performed with the best of the more affordable kits yet are the smallest of the lot. The impact driver is especially tiny, allowing it to fit easily in a tool belt or shop apron. The driver also has three LEDs and a battery indicator. The drill sports a locking chuck. The only drawbacks to the Bosch tools are the fatter handles that come with stick-style batteries, and a chuck on the driver that requires you to slide a sleeve forward to change bits.

DEWALT DCK211S2
Street price: $190

Batteries: 1.1 amp-hours

The DeWalt tools also tested at or near the top (behind the Fuel), and I enjoyed using them around the shop and on the job. The pod-style batteries allow thinner handles, which I find more comfortable. This comes at the cost of being bulkier overall than the Bosch, though not by much. The drill has a locking chuck, and the impact driver is quite compact, features three LED lights, and has a slip-in chuck. The DeWalt tools also have the most user-friendly belt hooks.

that came along in my work as a finish carpenter and cabinet maker.

We developed different tests for the drills and impact drivers. First, I compared the power and endurance of the drills. I chucked a ⅜-in.-dia. brad-point bit into each drill and bored as many holes as I could through a piece of 8/4 hard maple. Milwaukee's Fuel drill blew everyone away here, with the DeWalt coming in second.

Next, I drilled as many holes as I could all the way through a hard, massive, old-growth fir beam, using a ¾-in. Irwin Speedbor auger bit. I like this test because the lead screw on the bit pulls it into the work, helping to ensure that all the drills are pushed in the same way. Again the Milwaukee Fuel was the winner by far, with the DeWalt, the Bosch, and the other Milwaukee drill leading the rest of the pack.

Finally, I drove some #4 brass wood screws into a piece of hardwood (with pilot holes) to test the range and sensitivity of each drill's clutch settings. All of the drills performed well here: It was easy to find a "just-right" number to countersink my screws correctly without stripping them.

Then I moved on to the impact drivers, using the same old-growth fir beams. I drove as many 3-in.-long, Torx-head screws as I could on a single charge, with no pilot hole. This should be a brutal test for a 10.8-volt tool, but all of the impact drivers were great here. I repeated this test a second time and averaged the results. The Milwaukee Fuel impact driver was an arm-wrecking beast again, driving almost four times as many screws as the Bosch, which came in second.

Last, I attempted to drive 4-in.-long screws into undersize pilot holes in very dense, tropical hardwood. This was too much to ask of these drivers (except the Milwaukee Fuel, which drove at least one screw all the way), but all managed to drive the screws at least partially. To account for small differences in the screws or the wood grain, I ran the test three times, eliminated the most inconsistent result for each driver, and averaged the other two.

Plenty of winners

Milwaukee's Fuel kit ran away with the Best Overall award. Even using the smaller, 2-amp-hour battery, both the drill and impact driver were the top performers by far.

CRAFTSMAN
Street price: $110

Battery: 1.3 amp-hours

Strangely, the Craftsman kit comes with two tools but only one stick-style battery. The driver did well on raw power, but both drill and driver performed more poorly in the other tests. When you add the price of a second battery, you'll find better tools for the money.

HITACHI KC10DFL
Street price: $125

Batteries: 1.5 amp-hours

The Hitachi tools were middle-of-the-road performers. I found the chuck on the drill to be rough on my hands, and it was the only one that required two hands to tighten. The tools have the same slim, comfortable handle as the DeWalts, but the batteries are bulkier.

MAKITA LCT209W
Street price: $130

Batteries: 1.3 amp-hours

The Makita tools' appeal lies in their compact design, second only to the Bosch. They slip easily into a tool belt, and the drill has a locking chuck. The tools also have a battery-level indicator.

However, this huge advantage in power and stamina comes with a big increase in bulk and price compared to the other tools.

At a much lower price than the Fuel, our Best Value picks are the best choice for most woodworkers. For me it's a tie between the DeWalt and Bosch kits. All four of these tools performed near the top in my tests and are similar in price. But each has features that make it stand out from the pack, such as multiple LEDs on the impact drivers. Each pair also has its own ergonomic advantages. The DeWalt's pod-style batteries allow a slim, comfortable grip. But if you wear a shop apron (or a tool belt, as I do), you might prefer the tiny overall size of the Bosch impact driver, accepting the slightly fatter grip that comes with its stick-style batteries.

Just behind the Bosch and DeWalt was the other Milwaukee, just as powerful in all of the tests, but edged out for being larger and heavier. □

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MILWAUKEE M12 2494-22
Street price: $170

Batteries: 1.5 amp-hours

Identical to the Bosch and DeWalt in performance and features, the Milwaukee M12 tools missed out on a Best Value pick because of their added size and weight, and the single LED on the driver. Like its big brother (Fuel), the M12 drill has a metal chuck, an industrial feature that promises more durability.

PORTER-CABLE PCL212IDC-2
Street price: $130

Batteries: 1.3 amp-hours

The Porter-Cable tools are compact and fully featured: The drill has a locking chuck, and both tools have a belt hook and a small magnet to hold a spare driver bit. Unfortunately, they tested near the bottom and the driver vibrated excessively, making it hard to keep the bit engaged.