

Milwaukee M18 Fuel Drill/Driver

by Bruce Greenlaw



2603-22 Specs

Weight (with/without side handle): 5.62/5.03 pounds

Length: 7⁷/₈ inches

Rpm: 0-550/0-1,850

Price: \$280 (includes two 4-Ah batteries, charger, side handle, plastic case)

Milwaukee
800/729-3878
milwaukeetool.com

Weigh In!

Think you're a good candidate to test a new tool? Want to share a tool-related testimonial, gripe, usage tip, or news flash? Take a minute and contact us at JLCTools@hanleywood.com or 707/951-9471.

A year and a half ago, I pitted the Milwaukee M18 model 2610-24 drill/driver kit against eight powerful competitors for *JLC* ("Heavy-Duty 18-Volt Drill/Drivers," 1/12). Right after that, Milwaukee introduced the M18 Fuel drill/driver, which is its first version with a brushless motor. Brushless motors are more compact than standard brushed ones, and they're supposed to be more durable and efficient. The brushless 2603-22 kit originally included the same 3-amp-hour batteries packed with the 2610-24, but it's now shipping with Milwaukee's new 4-amp-hour ones. You can also buy the new batteries separately to upgrade any M18 cordless tool.

Runtime. On paper, the brushless motor and 4-amp-hour battery yield dramatically better runtime. To find out if they do in real life, I tested the new combo the

same way I tested the other 18-volt models: by counting the number of holes it could drill through 2-by Douglas fir per charge in low gear with a new one-inch Irwin Speedbor solid-center auger bit. To ensure reasonable consistency, I once again avoided knots, stopped drilling when the drill bit's screw point punched through, and kept the bit clean with Blade & Bit pitch remover. The result? The M18 Fuel drilled an amazing 217 holes compared with 104 for the M18, and would have easily blown away the rest of the competition in my original test (top score at the time was 149 holes).

Power and features. There's more to like about the M18 Fuel. Like the other models, it easily powered 1¹/₂-inch spade bits, bored 2¹/₈-inch lockset holes with a hole saw, chewed through 2-by Douglas fir with a nail-eating 1³/₄-inch ship-auger bit with no apparent ill effects, and sank Simpson Strong-Tie's .22-inch by 10-inch multipurpose structural wood screws into an LVL/LSL/PSL sandwich without pilot holes.

It weighs a half-pound less, is 1³/₈ inches shorter, and is a bit faster than the M18. Its LED headlight now has a 10-second afterglow, and the new battery retains the helpful battery gauge. If I were shopping, I'd strongly consider buying the 2603-22 kit, checking to make sure it has the new 4-amp-hour batteries.

Milwaukee also offers the compact 2603-22CT kit, which originally paired the M18 Fuel drill/driver with 1.5-amp-hour batteries but is now replacing those with 2-amp-hour ones.

Bruce Greenlaw is a JLC contributing editor.



In the runtime test, the tool drilled more than 200 one-inch-diameter holes in 2-by Douglas fir.

Chappell Master Framing Square

by William Dillon



Elizabeth Cecil



The tongue on the Chappell framing square is 2 inches longer than normal.

I've cut hundreds of irregular hip and valley roofs during my 35-year carpentry career. Although I use a framing square for drawing and layout, I rarely use the rafter table imprinted on it because it only applies to regular plans and pitches and a calculator is faster. So when veteran timber-framer Steve Chappell recently introduced the Chappell Master Framing square, I was pleased to try one out to see if its unique decimal scales and patented rafter tables might change my approach.

Heirloom Build

The Chappell square (\$118 at chappell-square.com) is made in the U.S. of 304 stainless steel, with deeply etched and blackened markings. It has the usual 2-inch by 24-inch blade, but the tongue is 1½ inches by 18 inches, which is two inches longer than normal. The extra length helps on extra-steep rafters, forms a 3-4-5 triangle, and holds more information. So far I've found the longer tongue to

be useful in stick framing for bringing up layout lines between floors, but overall a standard 16-inch tongue works fine for me.

The tool is guaranteed to be square to within .003 inches, and the one I tried was perfect.

Scales and Tables

Unlike traditional framingsquares, whose edge scales are broken into 8ths, 10ths, 12ths, or 16ths of an inch, the Chappell square is laid out in 20ths of an inch and in ¼-inch increments. The decimal scales make it easier to do mental math, are compatible with common calculators, and mesh with the decimal rafter tables on the square. They also allow you to use your choice of imperial or metric units without conversions. The distinct ¼-inch graduations help you measure fractions (there's a decimal/fraction conversion chart on the square if you need it).

The rafter table has enough information in it to build a timber-frame roof complete



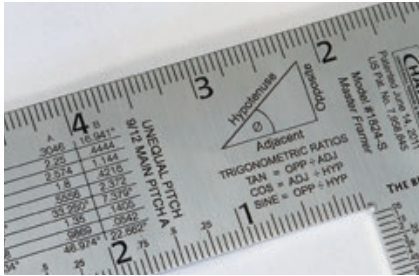
Tool Tune-Up and Maintenance App

The new Power Tool Tune-Up iPad app from *Woodworker's Journal* (woodworkersjournal.com) costs \$4.99 and offers step-by-step coaching by Sandor Nagyszalanczy and Chris Marshall on how to tune and maintain table saws, compressors, pneumatic nailers, moisture meters, band saws, jointers, planers, drill presses, and sawdust-collection systems.

Werner Ladder Tech Support

As of last February, you can post a technical question about any of Werner's ladders, fall-protection equipment, or other products at wernerco.com or at certain retail websites such as homedepot.com. Werner says it will post the answer within 48 hours. Besides getting your own question answered, you can view any of the other posted questions and answers, which can be far more useful than the typical FAQ. To date, Werner says it has already answered more than 1,000 questions with an average response time of less than 24 hours.

Toolbox | Chappell Master Framing Square



Unique features include unequal-pitch rafter tables (left) and miter and bevel angles for applying fascias to square-cut rafter tails on hip and valley roofs (right). Edge scales are laid out in 20ths of an inch and in $\frac{1}{4}$ -inch increments for ease of use.

with purlins and other components. It also gives the miter and bevel angles to use when applying fascias to square-cut rafter tails on hip and valley roofs. Plus, this is the first square to add tables for irregular-pitch hip and valley roofs, and a table for octagonal and hexagonal roofs.

A Game-Changer?

The square comes with a manual that thoroughly explains the tables, has clear illustrations, and gives a nice history of framing squares. But the fact is, I can solve a complex roof much faster using geometry, drawings, a calculator with trig functions, and Hawkindale Angles. I've talked with several other timber and stick fram-

ers who feel the same way. Even so, some of them are buying the square because it's a precise, American-made, stainless-steel layout instrument that will probably last for generations. Also, the information is there if you need it in a pinch or want to use it as a teaching tool, as one California framing contractor I know is doing. The square comes with a 90-day guarantee; you can send it back for a complete refund, no questions asked.

William Dillon is a job supervisor, co-owner, and member of the Management Committee with South Mountain Co., an employee-owned design-build firm on Martha's Vineyard, Mass.

Copemaster Update

On April 6, 2013, in the *JLC Tools & Equipment* forum, a regular contributor asked if the Copemaster production coping machine was still available after he searched for it and drew a blank. The machine he's referring to was introduced about 10 years ago by former Connecticut millwork manufacturer Bill Shaw, and it was an instant classic. It weighed 65 pounds (so you could carry it around a job site), could cope crown up to $7\frac{5}{8}$ inches wide at least twice as fast as coping by hand, and cost \$2,295. I talked with a finish-carpentry contractor in 2007 who bought three of the machines to cope baseboards and crown moldings for the new Trump International Hotel in Las Vegas. After running them hard for more than a year, he said the machines were his company's most durable power tools by far. Well, I just called Bill Shaw for a heads-up. The bad news? He stopped making the tool when the economy crashed. The good news? He still sells parts for it, and late this year he hopes to introduce a new model that weighs 10 pounds less, copes wider crown, and costs about the same. You can reach him at 800/630-1104. — B.G.



Second Look

Hilti Autofeed Drywall Screw Magazine

With the help of his teammates, Josh Overlin — who owns Chetco Drywall in Brookings, Ore. — field-tested two Hilti SD 4500-A18 18-volt drywall screw guns with Hilti SMD 50 autofeed magazines for six months before writing about them in our April 2012 issue. He reported that the cordless freedom was “wonderful” and the tools were trouble-free. Although complete kits cost a hefty \$380 or \$500 depending on battery size, the tools were so efficient he figured they would pay for themselves in labor savings in less than two months.

The tools have now been out there for another year, and the crew has had only one problem — a broken spring in one of the magazines. Unfortunately, Hilti charges \$12 for a new spring, plus a minimum shipping charge of \$18, so the guys at Chetco improvised by coupling part of the broken spring with a spring out of an old Senco autofeed attachment. Works great so far.

(Photo 7, optional. No cap, embed in text) With the help of his teammates, Josh Overlin, owner of Chetco Drywall in Brookings, Ore., field-tested two Hilti SD 4500-A18 18-volt drywall screw guns with Hilti SMD 50 autofeed magazines for six months before writing about them in our April 2012 issue. He reported that the cordless freedom was “wonderful” and the tools were trouble-free. Although the complete kits cost a hefty \$380 or \$500 depending on the battery size, the tools were so efficient that he figured they would pay for themselves in labor savings in less than two months. Well, the tools have now been out there for another year, and the crew has had only one problem — a broken spring in one of the magazines. Unfortunately, Hilti charges \$12.02 plus its minimum shipping charge of \$18 for a new spring, so they cobbled their own by coupling part of the broken spring with a spring out of an old Senco autofeed attachment. Works great so far...

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