

TOOLS

Hands On. All Pro. Pure Tools.

FALL 2013

OF THE TRADE



18-VOLT BRUSHLESS DRILL/ DRIVERS

HIGH-TECH MOTORS
BOOST RUNTIME
AND CONTROL

PLUS

A Finish Carpenter's Bag of Tricks
Combination Safety Line/Air Hose
Flex Power Flashlight

WWW.TOOLSOFTHETRADE.NET

DETAILS MATTER

THE RIGHT BALANCE OF FEATURES
FOR A FINE FINISH



BN200C

NS150C

It's all about the details. In your finishing touches and our finishing tools. The Porter Cable BN200C 2" Brad Nailer has been updated from its previous version to be more compact, lightweight and easy to use. All at a lower price. Touting an oil-free design, rear exhaust, tool-free depth of drive, tool-free jam release and more, it's the right balance of features to add your finishing touches. The same great features also available in the NS150C Finish Stapler.

To learn more about Porter Cable Finish Nailers, visit portercable.com or stop by a retailer near you.

www.PorterCable.com

© 2013 Porter Cable, Inc.

PORTER  CABLE®



**IF ONLY EVERYTHING
AT THE JOB SITE
WORKED THIS WELL.**

THE RIDGID JOBMAX. 7 POWERFUL TOOLS IN ONE.

Only The Home Depot® has the 3 Amp RIDGID® JobMax™ multi-tool system with seven interchangeable heads run by one powerful motor. So you can do more jobs faster. Plus it comes with a Lifetime Service Agreement featuring free service for life*, free batteries, and free parts. But best of all, you get all this versatility starting at just \$99. **That's the power of The Home Depot.**



*Registration for the RIDGID Lifetime Service Agreement is required. Visit homedepot.com/RIDGID for more details.



PRO

More saving. More doing.®

A WHOLE NEW TOUGH. NOW IN MECHANICS TOOLS.



Our brand new Mechanics Tools provide the strength and durability you've come to expect from DEWALT. So when there's a tough job to get done, rely on a trusted name that's backed by a full lifetime warranty. **Rely on DEWALT.**

- 3x the lifecycle of standard ratchets, on average
- Anti-slip design delivers 400% more* gripping power, on average, and helps reduce slippage
- Oversized deep etched markings provide high visibility and easy size identification

AVAILABLE AT
sears

GUARANTEED TOUGH.®

DEWALT



© 2013 DeWALT Industrial Tool Co.
The yellow and black color scheme is a trademark for DeWALT products
*Than standard combination wrenches

dewalt.com

**Scan To
Learn More**

TOOLS

Fall 2013

OF THE TRADE

Contents

18-Volt Brushless Drill/Drivers, 24

A Finish Carpenter's Bag of Tricks, 30

9 Tools Up Close

DeWalt gyroscopic stick driver; Max X-Line air hose and lifeline; Milwaukee M12 FUEL drill and impact driver; Hilti anchoring system; Coast A25R flashlight

24 TOOL TEST: 18-Volt Brushless Drill/Drivers

| By Michael Springer |

More-efficient motors, sophisticated controls, and energy-dense batteries boost runtime across the board.

30 A Finish Carpenter's Bag of Tricks

| By Jesse Wright |

Every tradesperson has favorite hand tools. Here are some of mine.

35 Product Watch

Heated jackets; folding utility knife; carbide multi-tool blade; cordless screwgun; tool backpack; jigsaw; cord and hose holder; multimeter; rotary hammer; more

40 ToolHounds

What this shop needs is a bowling ball

39 Ad Index

On the cover: Kyle Davis of Pioneer Builders drills a hole in a piece of treated wood on a project in Port Orchard, Wash. Photo by Tim Uhler.



Tools Up Close, 9



Product Watch, 35

TOOLS OF THE TRADE (ISSN 1534-2425) is published four times per year (winter, spring, summer, and fall) by Hanley Wood, LLC, One Thomas Circle NW, Suite 600, Washington, DC 20005. Volume 20, Number 4. Copyright 2013 by Hanley Wood, LLC. Opinions expressed are those of the authors or persons quoted. Reproduction in whole or in part prohibited without written authorization. TOOLS OF THE TRADE is sent free of charge to qualified contractors, distributors, and dealers. Publisher reserves the right to determine recipient qualification. Out-of-field subscription rates: US and possessions: \$19.95; Canada, \$29.95 (US funds); all other countries \$39.95 (US funds). Single copy price: \$6.00. Canada Post Registration #40612608/G.S.T. number: R-120931738. Canadian return address: Pitney Bowes Inc., PO Box 25542, London, ON N6C 6B2. Periodicals postage paid at Washington, DC, and at additional mailing offices. POSTMASTER: Send address changes to Tools of the Trade, PO Box 3233, Northbrook, IL 60065-3233. Or call our customer service line: 888-269-6410.

[beck]
FASTENER GROUP

[FASCO]
AIR DRIVEN TOOLS

A natural balance
between quality
and innovation.

STAFDA Booths #1200-1202

Over 100 tool models
for jobs small to large.



FASCO - AIR DRIVEN TOOLS

Innovation in pneumatic tool technology is second nature to us after being in the business for generations. Experience unsurpassed quality and reliability by using Fasco-branded tools. From staplers to nailers and just about anything in between, you'll find the perfect tool that can stand up to tough professional use on almost any application.

- *The latest in pneumatic fastening technology*
- *Distinctive style, ergonomic design, superior dependability*
- *Fine-tuned Italian craftsmanship*

Get professionally connected by visiting
www.fascoamerica.com (scan the QR-Code
with smartphone) or call 800-239-8665.

Master Distributor
[FASCO]
AMERICA



BECK Fastener Group - FASCO America - Beck Group - All trademarks are the property of their respective owners.

TOOLS OF THE TRADE

EDITORIAL DIRECTOR Sal Alfano

202-736-3359 ■ salfano@hanleywood.com

EDITOR David Frane

925-256-6635 ■ dfrane@hanleywood.com

ART DIRECTOR Brian Wilson

202-729-3561 ■ bwilson@hanleywood.com

MANAGING EDITOR Laurie Elden

802-879-3335 ■ lelden@hanleywood.com

ASSISTANT MANAGING EDITOR Carey Hodges

202-736-3365 ■ chodges@hanleywood.com

CONTRIBUTING EDITORS

Michael Davis, Greg DiBernardo, Don Dunkley, Tim Uhler

PRODUCTION DIRECTOR Theresa Emerson

DIGITAL AD MANAGER Annie Clark

AD PRODUCTION COORDINATOR Bernadette Couture

GROUP DIRECTOR, AUDIENCE MARKETING & CIRCULATION

Christina Lustan

AUDIENCE MARKETING MANAGER Amy Barcomb

CUSTOMER SERVICE MANAGER Lois Landa

CIRCULATION PROMOTIONS DESIGNER Chara Anderson

GROUP PRESIDENT, RESIDENTIAL REMODELING Rick Strachan

202-736-3332 ■ rstrachan@hanleywood.com

GENERAL MANAGER ONLINE, RESIDENTIAL REMODELING

Kim Heneghan ■ 202-380-3831 ■ kheneghan@hanleywood.com

HANLEY WOOD MEDIA

PRESIDENT, CONTENT Bob Benz

EXECUTIVE VICE PRESIDENT, EXECUTIVE PROGRAMS Warren Nesbitt

EXECUTIVE VICE PRESIDENT, STRATEGIC MARKETING SERVICES

Tom Rousseau

SENIOR VICE PRESIDENT, STRATEGIC MARKETING SERVICES &

CONSUMER MEDIA Jennifer Pearce

SENIOR VICE PRESIDENT, AUDIENCE OPERATIONS Sarah Welcome

SENIOR DIRECTOR, MEDIA SERVICES & ACCOUNT COORDINATION

Mari Skelnik

SENIOR DIRECTOR, PRINT PRODUCTION Cathy Underwood

PUBLISHED BY HANLEY WOOD, LLC

CHIEF EXECUTIVE OFFICER Peter Goldstone

VICE CHAIRMAN Frank Anton

CHIEF CUSTOMER OFFICER Dave Colford

CHIEF FINANCIAL OFFICER Matthew Flynn

PRESIDENT, DIGITAL Andrew Reid

PRESIDENT, METROSTUDY Chris Veator

EXECUTIVE VICE PRESIDENT, CORPORATE SALES Paul Tourbaf

VICE PRESIDENT, GENERAL COUNSEL Mike Bender

VICE PRESIDENT, MARKETING Sheila Harris

VICE PRESIDENT, BUSINESS PLANNING & ANALYSIS Ron Kraft

VICE PRESIDENT, CORPORATE CONTROLLER Keith Rosenbloom

EDITORIAL 925-256-6635

ADVERTISING 202-736-3431

FAX 202-785-1974

One Thomas Circle, N.W., Suite 600

Washington, DC 20005

For subscription orders or inquiries:

Online: toolsofthetrade.net/subscribe (orders only)

E-mail: tott@omeda.com • Fax 847-291-4816

In U.S. call 888-269-8410 or 847-291-5221

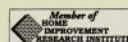
For back issues: Call 888-269-8410

Privacy of Mailing List: We rent our subscriber list to reputable companies. If you do not wish to receive promotional mail from other companies, please call us, toll-free, at 888-269-8410.

Postmaster: Please send address changes to Tools of the Trade, P.O. Box 3494, Northbrook, IL 60065-9831.

Tools of the Trade will occasionally write about companies in which its parent organization, Hanley Wood, LLC, has an investment interest. When it does, the magazine will fully disclose that relationship.

Reproduction in whole or in part prohibited without written authorization. Opinions expressed are those of the authors or persons quoted and not necessarily those of Tools of the Trade.





Cutting the fine line between perfection and obsession.

Festool's durable and versatile new Carvex is unlike any jigsaw you've ever used. A versatile quick-change system of baseplates is ready for your full range of applications, while zero-clearance splinterguards, triple-blade guidance, and stroboscopic lights combine for straight and true cuts with virtually zero tearout. With the robust Carvex, you'll cut through the heart of your most challenging tasks.

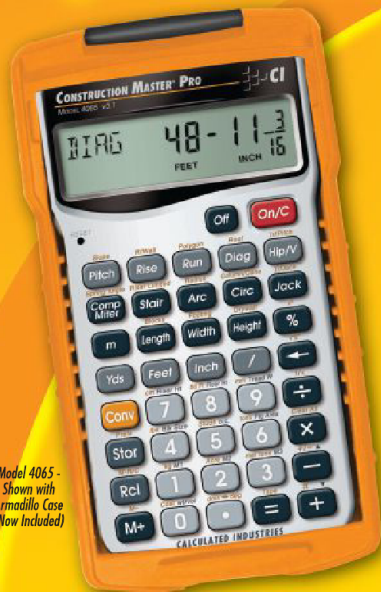


Visit www.festooljigsaws.com to learn what makes a Festool jigsaw different from all the others.

FESTOOL®

Tools for the toughest demands

Now more than ever, you need this tool!



Model 4065 -
Shown with
Armado Case
(Now Included)

From start to finish, our tools help you save time, reduce costs and win more bids.

CONSTRUCTION MASTER® PRO

- Work in and convert between building dimensions
- Complete Roof, Rafter and Framing solutions
- Automatic Stair layouts: Treads, Risers, Stringers



Learn how this product can work for you:
www.calculated.com



Available on the
App Store



See DEMOS on
YouTube



**CALCULATED
INDUSTRIES®**

FOR A DEALER NEAR YOU CALL 1-800-854-8075

Demand the Best...



For a quality job...choose a Muro tool & screws
for your flooring, dock or decking project!

MURO

The Professional Way to Drive Screws!



1-800-665-6876
www.muro.com



TOOLS OF THE TRADE

ADVERTISING SALES OFFICES

GROUP PRESIDENT, REMODELING

Rick Strachan

202-736-3332 • Fax: 202-785-1974

rstrachan@hanleywood.com

VICE PRESIDENT, SALES

Frederick Chandler

202-729-3544 • Fax: 202-785-1974

fchandler@hanleywood.com

EXECUTIVE SUPPORT COORDINATOR

Helene Slavin

202-736-3428 • Fax: 202-785-1974

hslavin@hanleywood.com

SENIOR STRATEGIC ACCOUNT DIRECTOR NORTHEAST/MIDATLANTIC

Jamie Volpe

203-397-1231 • Fax: 203-397-1168

jvolpe@hanleywood.com

STRATEGIC ACCOUNT MANAGER MIDWEST/SOUTH CENTRAL/SOUTHEAST

Kay Ross-Baker

773-824-2576 • Fax: 773-824-2401

krassbaker@hanleywood.com

STRATEGIC ACCOUNT MANAGER

WEST COAST

Brian Sherry

619-819-5001 • Fax: 202-452-1126

bsherry@hanleywood.com

REGIONAL SALES MANAGER, CANADA

John Magner

416-598-0101, ext. 220 • Fax: 416-598-9191

jmagner@yorkmedia.net

REGIONAL SALES MANAGER,

UNITED KINGDOM/EUROPE

Stuart Smith

+44 (0)20 8464 5577 •

Fax: +44 (0)20 8464 5588

stuart.smith@ssm.co.uk

REGIONAL SALES MANAGER, CHINA

Michael Tsui, ACT International

86-755-25988571 x 1009

michaelt@actintl.com.hk

REGIONAL SALES MANAGER, HONG KONG

Mark Mak, ACT International

852-28386298

markm@actintl.com.hk

CLASSIFIED ADVERTISING

SALES DIRECTOR, EMERGING ACCOUNTS GROUP

Phil Hernandez

202-736-3381 • Fax: 202-452-1126

phernandez@hanleywood.com

ACCOUNT EXECUTIVE

Maura Jacob

678-451-8627, mjacob@hanleywood.com

ACCOUNT EXECUTIVE, NORTH & WEST

Philip Guerra

516-586-4797, pguerra@hanleywood.com

SUBSCRIPTION ORDERS OR INQUIRIES:

Online: toolsofthetrade.net/subscribe

(orders only)

E-mail: tott@omeda.com • Fax 847-291-4816

In U.S. call 888-269-8410,

or call 847-291-5221

Back issues: Call 888-269-8410

List rental: Call Scott Perillo,

203-778-8700, ext. 132

Reprints: Contact Nick Iademarco at Wright's

Media, 877-652-5295, ext. 102 •

niademarco@wrightsmedia.com

BUILD IT TOOL BY TOOL



PORTER  CABLE®

GET *Li*NKED™

**WITH THE POWER AND PERFORMANCE OF THE
NEW PORTER-CABLE 20V MAX* SYSTEM.**



Learn more at portercable.com/20volt.

*Maximum initial battery pack voltage (measured without a workload) is 20 volts. Nominal voltage is 18.

NEW



M18 FUEL™

DRIVEN TO OUTPERFORM.™



UP TO
2X
MORE
RUN-TIME

UP TO
30%
FASTER
CUTTING

UP TO
3X
LONGER
TOOL LIFE

M18 FUEL™ is engineered for the most demanding tradesmen in the world. Delivering unrivaled performance in a compact structure, all M18 FUEL™ products feature three Milwaukee®-exclusive innovations — the POWERSTATE™ Brushless Motor, REDLITHIUM™ Battery Pack and REDLINK PLUS™ Intelligence Hardware and Software — that deliver unmatched power, run-time and durability. Simply put, the M18 FUEL™ 6-1/2" Circular Saw is the most powerful 18V cordless circular saw on the market.

www.milwaukeeeetool.com/m18fuel

PART OF THE M18™ SYSTEM OF OVER 50 TOOLS.



Tools Up Close

BY MICHAEL SPRINGER



DeWalt Gyroscopic Stick Driver

Late in the summer DeWalt released the DCF860, a new 8-volt max stick driver—with a twist. Instead of using a standard forward/reverse rocker switch, it regulates speed and direction with a gyroscopic switch that follows the user's wrist movement. The mechanism is intended to give the operator more control for greater precision. My first reaction was, "Is there any real benefit to this or is it just a novelty?"

To find out, I resolved to avoid using my subcompact drill/drivers for a month and use the DCF860 for every job it could handle. At first I struggled to get used to controlling the tool in such a nonstandard way, but before long, the tool's action became second nature. Okay, maybe third nature—it's hard to suppress the expectation that a tool will "go" when you pull the trigger.

HOW IT WORKS

Pulling the trigger of the DCF860 starts a gyroscopic sensor that marks the tool's orientation in space—the starting position. Rotating the tool from this position while holding the trigger down causes it to spin in the direction of rotation. The farther you

rotate it, the faster it spins. Turning the tool back to the starting position or releasing the trigger stops it.

SPEED, POWER, RUNTIME

Unlike stick drivers with two fixed speeds, the DCF860 has a variable-speed action. This gives it much greater speed but less torque than a tool with a fixed low gear—which turns very slowly in its power gear.

The gyroscopic driver was designed for light-duty assembly and fastening. I used it successfully on fasteners as small as the screws that hold circuit boards in place. It will also drive screws into wood; I settled on 2-inch drywall screws as the maximum size to drive into framing lumber because anything longer tended not to countersink.

The DCF680 performed respectably for its size in my drilling and driving tests in 2-by lumber. On a single battery charge, it can drill 111 holes with a $\frac{3}{16}$ -inch twist bit or drive 209 coarse-thread $1\frac{1}{4}$ -inch drywall screws.

IN USE

The gyroscopic driver does have

A small two-cell battery pack powers the gyroscopic driver. Trademarked 8V MAX, it's actually a 7.2-volt battery.

DeWalt DCF860 Stick Driver

Battery: 8-volt max (7.2-volt nom.)

Rpm: 0–430

Length: 9 $\frac{5}{8}$ inches in-line; 7 $\frac{1}{8}$ inches pistol grip

Weight: 1.1 pounds

Country of origin: China

Includes: Tool, battery, one-hour charger, bit holder, fabric duffel bag

Price: DCF680N1 single-battery kit, \$90; DCF680N2 two-battery kit, \$100

DeWalt
800.433.9258
dewalt.com

Shown here in the in-line configuration, the tool also adjusts to a pistol-grip shape. Note the built-in battery gauge and the trigger used to activate the gyroscopic sensor that controls the speed and direction of rotation.



its quirks. To avoid over-rotating your wrist and operating the tool in an uncomfortable position, you have to cock your wrist in the opposite direction before every pull of the trigger. Also, it's best to use the clutch when snugging down fasteners, because the mechanism will not allow you to feather them in with short bursts of the trigger. The moment you release the trigger,

the sensor forgets the previous starting position and you have to re-cock your wrist or twist it even farther to get going again.

A spindle lock allows you to use the tool as a manual screwdriver—to finish tightening a screw, for instance, or loosen a stuck fastener to the point where the motor can turn it. The trigger is centered, so the driver works equally well for lefties and righties.

FEATURES

The DCF680 is equipped with a dual LED headlight, an on-board fuel gauge, and a two-position handle—in-line or pistol grip. It also has a brake, a 15-stage clutch, and a 1/4-inch hex chuck with a snap-in action you can use one-handed.

THE BOTTOM LINE

Although the gyroscopic driver takes some getting used to, it is a worthy addition to the tool kit of anyone who regularly installs small screws and fasteners—low-torque applications where control is important. Likely users would include painters, electricians, service techs, HVAC mechanics, and other installers.

Michael Springer is the former executive editor of Tools of the Trade.

New Straight-Handle Electric Shears & Nibblers

KL-2040
13 Gauge
Throatless
Shear

KL-2030
18 Gauge
Long Neck
Nibbler

Need lightweight, durable electric shears and nibblers?

Our new KL line features two complete tools and eight models with interchangeable heads. The line rolls out several first-time offerings – but with the strength and quality you can expect from Kett.



Learn more at kett-tool.com

5055 Madison Road
Cincinnati, Ohio 45227
513-271-0333
kett-tool.com

Statement of Ownership

Statement of ownership, management and circulation of Tools of the Trade (publication number: 1534-2425) filed 9/30/13. Tools of the Trade is published 4 times per year in February, April, August, October. Annual subscription price: Free to qualified recipients. The mailing address is Tools of the Trade, One Thomas Circle NW, Suite 600, Washington, DC 20005. Publisher headquarters address is Hanley Wood, LLC, One Thomas Circle NW, Suite 600, Washington, DC 20005. The publisher is Rick Strachan, Hanley Wood, LLC, One Thomas Circle NW, Suite 600, Washington, DC 20005. The editor is David Frane, One Thomas Circle NW, Suite 600, Washington, DC 20005. The managing editor is Laurie Elden, 186 Allen Brook Lane, Williston, VT 05495. The owners are Hanley-Wood Holdings, LLC, HW Topco Inc; One Thomas Circle, NW, Suite 600, Washington, DC 20005. Average number of copies per issue during the preceding 12 months were—total number of copies printed: 41,361; mail subscriptions: 40,039; Sales through dealers and carriers, street vendors, counter sales, and other non-USPS paid distribution: 10; total paid and/or requested circulation: 40,048; free distribution by mail: 220; free distribution outside the mail: 487; total free distribution: 706; total distribution 40,755; copies not distributed (office use, leftover, unaccounted, spoiled after printing): 606; total: 41,360. Percent paid and/or requested circulation: 98.27%. Actual number of copies of the single issue published nearest the filing date were—total number of copies printed: 41,123; mail subscriptions: 40,043; Sales through dealers and carriers, street vendors, counter sales, and other non-USPS paid distribution: 11; total paid and/or requested circulation: 40,054; free distribution by mail: 219; free distribution outside the mail: 500; total free distribution: 719; total distribution 40,773; copies not distributed (office use, leftover, unaccounted, spoiled after printing): 350; total: 41,123. Percent paid and/or requested circulation: 98.24%.

I certify that all information furnished on this form is true and complete.

—Rich Strachan, Group President

9/30/13



Hit the gas.

The Simpson Strong-Tie® GCN-MEP gas-actuated concrete nailer is designed for mechanical, electrical and plumbing applications, such as attaching light-duty fixtures to concrete, CMU and metal deck. The GCN-MEP is simple to load and use, and features an optional 40-pin magazine, 1,200-shot fuel cell and 3,300-shot battery charge to maximize fastening time.

The GCN-MEP can shoot single pin assemblies that are 1" in length and have .300" head diameter with .125" shank diameter (or attach an optional magazine to shoot .25" head diameter strip pins $\frac{1}{2}$ "– $1\frac{1}{2}$ " in length). To learn more call (800) 999-5099 or visit www.strongtie.com/anchorsystems.

SIMPSON
Strong-Tie



IN THE SPECS
ON THE JOB
AT YOUR SERVICE™

Max X-Line Air Hose and Lifeline

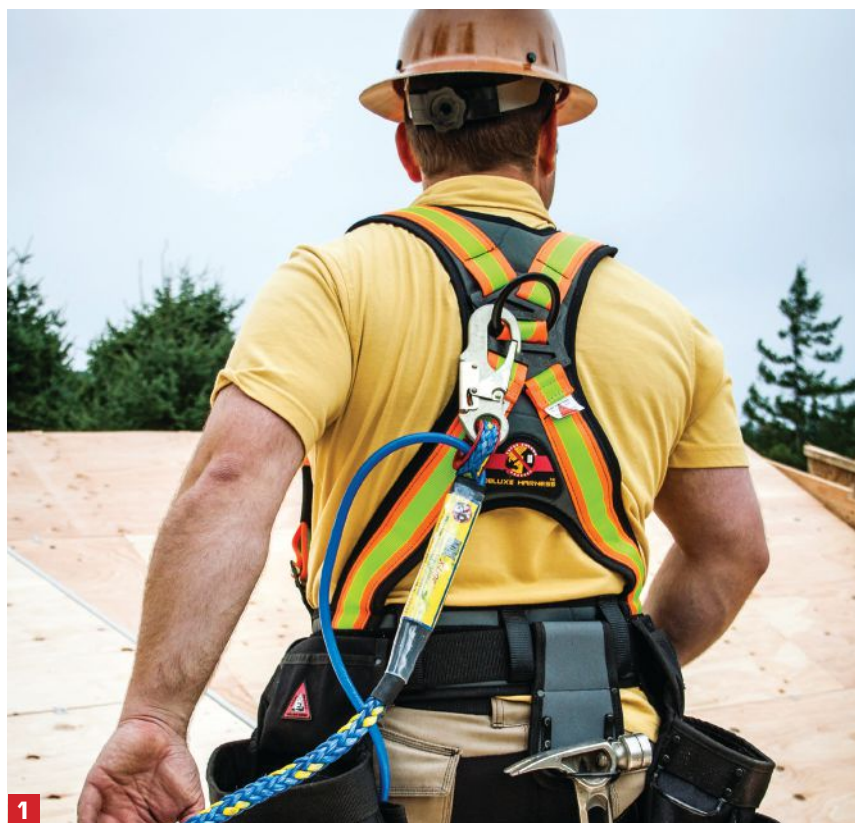
BY TIM UHLER

One of the problems we have to watch out for when wearing fall-arrest harnesses while sheathing roofs is tripping over the lifelines and air hoses. The air hose comes up from below the fascia line and the lifeline comes down from where it's anchored to the peak. Dealing with lifelines while keeping an eye out for tripping hazards like hoses is a tremendous irritation.

Enter Super Anchor Safety's Max X-Line air hose and lifeline in one—which we recently tried out. This piece of equipment is the company's 12-strand lifeline with a lightweight air hose run through the middle of it. You use it as you would any lifeline, but because it contains the hose, there's one less thing to worry about tripping over.

The only downside to this line is that your gun is with you at all times, because it's attached to the lifeline. We like to sheathe in sections and then nail off. Our guns have hangers, so normally we would disconnect them and hang them somewhere when we're not nailing off. That way, we can pack sheathing without having a gun hanging from our bags.

There are multiple ways to rig the line. With the standard method, the Super Grab (an eye thimble attached to a self-tightening climbing knot) clips onto your harness, and the snap hook attaches to a connection point on the building. As a result, the excess slack line trails behind you. We prefer the reverse method—where the snap hook connects to your harness and the Super Grab connects to the building—because



1

Max X-Line Specs

Length: 30 feet or 50 feet

Hose: 1/4-inch polyurethane braided

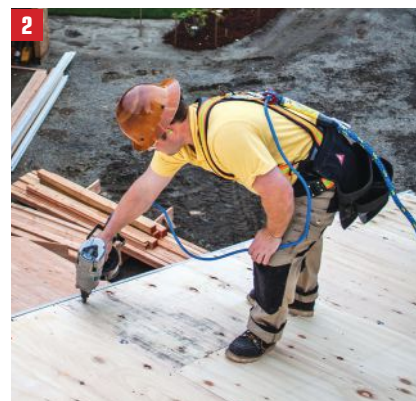
Line: 1/2-inch 12-strand polyester

Maximum user weight: 310 pounds with tools and equipment

Country of origin: hose USA; line India

Web price: \$240

Super Anchor Safety
855.301.4575
superanchor.com



2

1 A 1/4-inch hose runs through the center of a braided line and comes out at a snap clip that can be attached to the tradesman's harness (as shown here) or to the building.

2 The Max X-Line eliminates a tripping hazard by functioning as both an air hose and a safety line.

it allows the excess slack to be stored at the connection point. When you change directions, you must swap the hose fittings so the female one is at the end that clips to the operator.

Roofers and framers who see our X-Line are blown away by the cleverness of the design. Every crew

should have one. It's not cheap, but it performs the function of two tools and eliminates a tripping hazard on the roof.

Tim Uhler is a lead framer for Pioneer Builders in Port Orchard, Wash., and a Tools of the Trade contributing editor.



BREAK-THROUGH INNOVATION

FOR 10x CUTTING LIFE

IN NAIL-EMBEDDED WOOD

Diablo's Demo Demon™ Carbide-Tipped Reciprocating Blades are the first carbide reciprocating blades designed specifically for nail-embedded wood applications.

In addition to carbide-tipped teeth, these blades feature an aggressive plunge tip, Perma-SHIELD® non-stick coating and 1" oversized demolition blade body; allowing them to deliver break-through performance of up to 10 times the cutting life versus standard blades.

**WATCH
DEMO NOW!**
SCAN WITH A SMART PHONE



Carbide recip blades available in three lengths:
6"(DS0606CW), 9"(DS0906CW), & 12"(DS1206CW)

**DIABLO OFFERS A FULL RANGE OF RECIP BLADES TO
MAXIMIZE YOUR PERFORMANCE IN ALL MATERIALS**



NAIL-EMBEDDED WOOD



STAINLESS STEEL



FIBER CEMENT & CAST IRON



METAL



www.facebook.com/diablotools



www.DiabloTools.com/Recip

Diablo powered by Freud America, Inc. | 1.800.334.4107 | Red saw blades are a registered trademark of Freud America, Inc.



www.youtube.com/diablotools

M12 FUEL Drill/Driver and Impact Driver

BY SCOTT DORNBUSCH

During the recent downturn in the economy, I switched from new construction and remodeling to maintenance, repairs, and remodeling. As a result, I began to rely less on full-size (18-volt) tools and more on subcompact (12-volt max) models. When *Tools of the Trade* asked me to test some of Milwaukee's new brushless M12 tools, I readily agreed.

These tools are labeled M12 FUEL to distinguish them from brushed M12 models. Except for a few small changes, the new and old tools look pretty much alike on the outside. The internal components are different, though, as is the grade of battery supplied in the kits—the previous standard was 1.5 Ah for compact packs and 3.0 Ah for XC packs; now it's 2.0 Ah and 4.0 Ah. So even without the changes to the tools, one would expect better runtime. And of course, brushless motors have better runtime than brushed motors.

TESTING

The FUEL drill/driver and impact driver arrived in late March and I immediately put them to work. Since then, my crew and I have used them on residential and commercial remodels and for ongoing repairs at medical clinics and hotels. Just before writing this I performed formal runtime and timed speed tests to put numbers to what we sensed about the tools from using them. I own several brushed M12 tools, so I compared the brushless ones with them.

DRILL/DRIVER

I received a kit version of the drill/driver (2403-22) that included a

charger, a case, and two different batteries—one 2.0-Ah compact pack and one 4.0-Ah XC pack.

The first thing I noticed about the tool was that the handle was much more comfortable to grip. The old handle was about the same diameter all the way up and always felt fat, whereas the new handle tapers in above the battery where your thumb wraps. It's an improvement that has been incorporated into all of the M12 FUEL drilling and driving tools.

Another big change is the chuck—the old one was $\frac{3}{8}$ inch; the new one is $\frac{1}{2}$ inch. You wouldn't think that it would make much of a difference, but it does. Now, when I need to run $\frac{1}{2}$ -inch shank bits, I can stick with a small, light tool and not have to go to an 18-volt model. Like the chuck on the previous M12 drill, this one ratchets, is all metal, and has a single sleeve.

The addition of a small belt clip to the drill/driver (and other M12 tools) is a welcome improvement. It's good for hanging the tool from a belt or pocket; it was a little tight, but I bent it open and it fit on the pocket of my tool belt. Something that didn't change is the handy battery gauge built into the side of the drill.

We used this tool for a wide variety of drilling and driving tasks: replacing door hardware, driving drywall screws, and making 1-inch and smaller holes. On a recent commercial job, we used it to install hangers for a suspended ceiling. The hangers weren't large— $\frac{3}{16}$ -inch diameter at the lag ends—but there were a lot of them and the FUEL drill/driver drove them (unpiloted) for an entire day on



2403-22 Drill/Driver

Speed: 0–450/0–1,700 rpm

Rated torque: 350 inch-pounds

Weight: 2.9 pounds (with compact pack)

Notable features: Brushless motor, $\frac{1}{2}$ -inch chuck, fuel gauge, LED light

Country of origin: China

Kit includes: Tool, 2.0-Ah pack; 4.0-Ah pack, charger, belt hook, case

Web price: \$180 (also available bare)



2453-22 Impact Driver

Speed: 0–1,200/0–2,650 rpm

Rated Torque: 1,400 inch-pounds

Impacting: 0–3,550 IPM

Weight: 2.2 pounds (with compact pack)

Notable features: Brushless motor, dual speed ranges, single-handed loading

Country of origin: China

Kit includes: Tool, two 2.0-Ah battery packs, charger, belt clip, case

Web price: \$170

Milwaukee Electric Tool

800.729.3878

milwaukeetools.com

a single 2.0-Ah battery. Being lighter than an 18-volt tool, it was easy to use overhead. The guys on my crew don't look at this drill as a subcompact tool; to them it's just a 1/2-inch cordless drill.

IMPACT DRIVER

I received a kit version of the impact driver (2453-22), which included a charger, a case, and two 2.0-Ah compact packs.

Improvements over the previous, brushed model include a more comfortable grip (tapered at the top like the drill/driver's), a belt clip, and a higher maximum speed. The previous M12 impact driver topped out at 2,000 rpm; this one tops out at 2,650 rpm. A mode switch allows the operator to reduce maximum speed to 1,200 rpm for greater control during delicate operations. It's akin to changing from high to low on a drill/driver, but instead of relying on gears, it relies on electronic control of the motor.

BRUSHLESS PERFORMANCE

With no brushes to wear out, brushless models are said to be more durable. And they're more efficient, so they should have more runtime. Our runtime testing (see table, right) bears the second point out. We found some differences in drilling and driving speed, but they can't be attributed entirely to the lack of brushes because gearing and other design features factor in.

Brushes are a means of mechanical control and when you do away with them, they must be replaced with a different form of control, in this case, sophisticated electronics. This adds cost but makes certain things possible that weren't before—for example, the dual speed range on the impact driver. It was clear when I used these tools that the electronics made for more precise speed control. If I squeezed the trigger so the motor spun at a certain speed, varying

the load did not cause the speed to increase or decrease, as it would with brushed models.

BOTTOM LINE

After my crew used the M12 FUEL drill/driver and impact driver for several months, the consensus was that they'll do 90% of what we need

to do with tools of their type. We'll still use 18-volt tools, but not as much as before. If my cordless drill/drivers and impact drivers were stolen today, I'd replace them tomorrow with M12 FUEL models.

Scott Dornbusch is a contractor in North Branch, Minn.

RUNTIME AND SPEED OF APPLICATION TESTING

DRILL/DRIVER*	Brushless (2403)	Brushed (2453)
3/4-inch holes per charge	36	30
Time per hole (in seconds)	9.1	10.9

*holes drilled through a double layer of framing lumber with Irwin auger bits; tools were equipped with 2.0-Ah compact battery packs

IMPACT DRIVER**	Brushless (2403)	Brushed (2453)
Lags per charge	64	46
Time per hole (in seconds)	5.9	9.5

**3/8"x3" Simpson SDS lags were driven unpiloted into a double layer of framing lumber; tools were equipped with 2.0-Ah compact battery packs

To determine runtime for the drills, the author counted the number of holes drilled per charge; and for the impact drivers, lags driven per charge. He measured speed by timing how long it took to drill holes and fasteners (10 each tool) and averaging the results.



1 The drill/driver on the left has the old-style "fat" handle. The FUEL model on the right has the new tapered-style handle, which is much more comfortable to hold.



2 When sold in kits, FUEL models will come with upgraded 2.0- and 4.0-Ah battery packs. The manufacturer will continue to produce 1.5- and 3.0-Ah packs but will not package them with these tools.

**HOW TOUGH
IS YOUR METER?**



✓ **IP67: DUST AND WATERPROOF**

✓ **3m / 10 ft DROP PROTECTION**

✓ **CAT IV 600V SAFETY RATING**

Klein® Meters are
#TOUGHER THAN
Join the conversation online:
facebook.com/kleintools
@Klein_Tools

**KLEIN
TOOLS®**



www.kleintools.com

— Tools Up Close —



Hilti Anchoring System

BY BRUCE GREENLAW

Hilti just launched the innovative HIT-HY 200 adhesive anchoring system for anchor rods and rebar dowels, which is approved by ICC-ES for use in uncracked or cracked concrete in all seismic zones. The system offers two options that can eliminate the need to clean out your holes with compressed air and a wire brush before injecting the HIT-HY 200 adhesive: You can hook Hilti's unique hollow SDS-max or SDS-plus drill bits to a Hilti vacuum to suck up the dust as you drill, or you can use Hilti's new HIT-Z anchor rods and eliminate hole cleaning altogether. Both methods are supposed to be up to 60% faster than the traditional installation method.

Sim Ayers, owner of SBE Builders in Discovery Bay, Calif., installs lots of adhesive anchors, so we asked him for a quick opinion. After watching the video at us.hilti.com/HY200,

he said the vacuum option really piqued his interest, not only because it promises to be much faster than the usual cleaning procedure, but because it doesn't blow clouds of dust everywhere or drop it by the holes—a huge consideration when working in occupied buildings. Ayers recently bid on a seismic retrofit in an occupied multistory building and said if he gets the job, he just might submit Hilti's ICC-ES report to the structural engineer and buy into the system.

You can buy the components separately, but at the moment Hilti is also offering four deluxe starter kits that cost \$2,600 or \$3,000 and include everything from a rotary hammer to a cordless dispenser, plus some adhesive.

Bruce Greenlaw is a contributing editor at The Journal of Light Construction, where this article originally appeared.



Extra Energy When You Need It.

All you power-hungry types are in luck because Honda EB4000, EB5000 and EB6500 Industrial Generators offer exclusive, industry-leading iAVR advanced technology that boosts power when you most need it — to start high-amp load applications.

And with 17 generators in our lineup to choose from, Honda has a model that'll be just right for your needs. Of course, world famous Honda reliability is built into every generator we make, and they're all backed by our Honda 3-Year Warranty*.

That's just one more powerful reason to put Honda to work for you.



HONDA
GENERATORS

gen.honda.com



 facebook.com/HondaGenerators

*Warranty applies to all Honda GX Series Engines and GX Series-powered Honda Power Equipment, 100cc or larger, purchased or put into rental service since January 1, 2009. Exceptions apply. See full warranty details at honda.com. Does not apply to EU1000 models. Please read the owner's manual before operating your Honda Power Equipment and never use in a closed or partly enclosed area where you could be exposed to poisonous carbon monoxide. Connection of a generator to house power requires a transfer device to avoid possible injury to power company personnel. Consult a qualified electrician. ©2013 American Honda Motor Co., Inc.



Content Licensing for Every Marketing Strategy

Marketing solutions fit for:

- Outdoor
- Direct Mail
- Print Advertising
- Tradeshow/POP Displays
- Social Media
- Radio & Television

Logo Licensing | Reprints Eprints | Plaques

Leverage branded content from *Tools of the Trade* to create a more powerful and sophisticated statement about your product, service, or company in your next marketing campaign. Contact Wright's Media to find out more about how we can customize your acknowledgements and recognitions to enhance your marketing strategies.

For more information, call
Wright's Media at 877.652.5295
or visit our website at www.wrightsmmedia.com

Coast A25R Flashlight

BY MICHAEL DAVIS

I recently acquired one of the coolest flashlights I have ever seen, the Coast A25R Rechargeable, which packs a blindingly bright 466-lumen LED light. The housing is milled from thick stainless steel and has a solid tool-like feel. There are high and low settings, and the beam can be zoomed to a wide or narrow angle by sliding the lens holder forward or back. According to the manufacturer, it will project a tightly focused beam up to 560 feet. I didn't measure, but it certainly goes very far.

The flashlight includes an amazing number of accessories: a nylon holster, two rechargeable lithium-ion battery packs, an adapter pack, a USB cable, belt and wall clips, and adapters for AC and DC power. The only thing missing was a solar panel.

At the rear of the housing is a



1 The lithium-ion battery can be charged without being removed from the flashlight by retracting the end cap and using a USB cord to connect the tool to a 120-volt AC adapter, 12-volt car adapter, or computer's USB port. **2** Power options include a rechargeable lithium-ion battery pack and an adapter pack containing four AAA batteries.

A25R Specs

Lumens (high; low): 466; 68

Runtime with lithium-ion pack (high; low): 7.5 hours; 25.75 hours

Power source: lithium-ion packs or four AAA batteries in an adapter pack

Charging device: 120-volt AC adapter, 12-volt DC car adapter, DC USB

Length: 5½ inches

Weight: 10.4 ounces

Country of origin: China

Web price: \$110

Coast Products

877.704.4545

coastportland.com

cleverly concealed USB input that can be exposed by pulling back the end cap. When connected by a cord to a charging device (120-volt AC adapter, 12-volt auto adapter, or USB power source), the input can be used to charge the lithium-ion pack without removing it from the flashlight. A rubberized O-ring prevents dust and moisture from entering the input when the cap is closed. It's also possible to remove the pack and connect it directly to the charging device. If all else fails, you can power the unit by putting four AAA batteries into the adapter pack and installing it in the flashlight.

The flashlight can be stored in the holster or clipped into one of two swivel mounts—one slips over your belt and the other screws to the wall.

The A25R is too pricey to buy and leave in the glove compartment; it's best suited to power users, such as technicians, mechanics, and inspectors—people who need a good flashlight to make a living.

Contributing editor Michael Davis owns Framing Square in Conifer, Colo.

A CUT ABOVE THE REST



INTRODUCING A NEW LINE OF POWER TOOLS, INCLUDING A POWERFUL 15A 7-1/4 IN. CIRCULAR SAW

The new 15A Circular Saw delivers 5600 RPM for tough applications and is outfitted with a cast magnesium shoe to enhance its lightweight design at only 9.5 lbs. A tool-free bevel adjustment provides a bevel capacity of up to 55 degrees allowing for fast and accurate bevel adjustments.

The new line of professional power tools includes both corded and 18V cordless products specially engineered for contractors and tradesman.

Mechanics Tools, Air Tools, Hand Tools, and Power Tool Accessories complete this new range of professional tools.

See for yourself by visiting BOSTITCH.com.



Available at
Walmart 



DESIGNED FOR THE PROFESSIONAL.
BUILT TO LAST.™

BOSTITCH®

Ridgid Tri-Stack Compressor

BY SIM AYERS

I've been a hands-on contractor since 1989, building everything from custom homes to 32,000-square-foot commercial buildings. At the moment, I'm running a four-man crew and doing fire-insurance work. Regardless of the job, we normally use hand-carry, twin-stack compressors for everything from framing to finish. Over the years, I've owned a bunch of them, and all have been bulky and heavy—weighing up to almost 80 pounds—making them a chore to carry.

When I was at Home Depot several months ago and saw Ridgid's new oil-free Mobil Air Tri-Stack 5-gallon compressor (model OF50150TS)—which separates into two parts for carrying and delivers more air than my twin-stacks—I couldn't resist buying it to see if it would be a significant step up.

SPLIT PERSONALITY

As the name indicates, the Tri-Stack has three tanks: a pair of 2-gallon tanks on the bottom and a 1-gallon tank up



Tri-Stack Specs

Weight: 77 pounds
Amps: 14.5
Rpm: 3,450
Tank capacity: 5 gallons
Maximum pressure: 150 psi
SCFM: 4.9 at 90 psi
Price: \$300
Warranty: 3 years, 90-day money-back guarantee

Ridgid
800.474.3443
ridgid.com



**Make those
hard-earned
callouses shine.**

**Tough on oil, grease and grime.
Easy on the hands.**

Visit LavaSoap.com



top that bolts to the motor. The bottom has a regulator with two outlets, and the top has a regulator with one outlet.

If you search “tri-stack” at ridgid.com and click on the link, you can view a video that demonstrates the compressor’s versatility. For starters, you can separate the top and bottom units by simply pulling and twisting a knob and releasing the connecting hose. This allows you to carry the 43-pound top section with one hand and the 34-pound bottom section with the other. You can also use the regulated top section solo for powering a finish nailer and other small loads. Used this way, the compressor kicks on after almost every shot because of the small top tank, but for some interior trim jobs, we’ve found the self-contained unit to be a convenient substitute for a



pancake. Meanwhile, the bottom unit can serve as a regulated air-carry tank, but according to Ridgid you can only drive about 20 two-inch, 15-gauge finish nails into pine before you have to reconnect the top unit to refill the tanks. For small jobs, why not just use the top unit instead?

Yet another option is to separate the two units and connect them with

The compressor quickly separates into two parts for carrying.

an extension hose so you can plug the compressor directly into a receptacle (as recommended) but move the main tanks closer to the work. We’ve done this, and although it allows us to use shorter hoses, we haven’t noticed any change in line pressure.

PRECISION

6"

THE REDESIGNED POWER OF PRECISION™ The 3-IN-ONE® Telescoping Marksman Spout™ extends a full 6 inches to pinpoint hard-to-reach targets, every time. Its compact size fits easily in pockets and toolboxes, the ergonomic shape makes it easy to grip, and the new product-fill indicator lets you know when it's time for a new bottle. Now that's reliability. 3inONE.com

Most of the time, though, we use the compressor conventionally and only break it down for easier carrying.

PERFORMANCE

The Tri-Stack has other premium features, including quarter-turn ball valves for draining the tanks and quick-connect hose couplers. I also like its oil-free convenience.

As a general guideline, Ridgid says the compressor will power two framing nailers. Plugging directly into 20-amp circuits and using a splitter, we've simultaneously run up to two framing nailers, a palm nailer, and a metal-connector nailer, which is more than we can do with our other twin-stacks. However, we normally use just one nailer at a time when nailing off shear walls with the Tri-Stack. It has a duty-cycle rating of 50%, which means



The top unit can be used solo to power a finish nailer or for other small jobs.

it can pump about half the time you use it without causing excessive wear. I didn't time it, but I'm pretty sure we generally stayed within that limit. That's a conservative rating, though; Ridgid actually pushed the compressor to 67.7% in its durability tests.

THE BAD NEWS

I had to return my first Tri-Stack after a week because it suddenly only pressurized to 30 psi and kept running. I simply swapped it for a new one. The second one ran great for about six months, then the same thing happened. Call me crazy, but we like the compressor's easy carry, ample power, and versatility so much that I'm not only having it repaired (luckily there's an authorized service center about 20 miles away), but I just bought another one. I'm hoping I initially bought into a defective batch or tapped into damaging low voltage on a jobsite, but we'll see.

Sim Ayers owns SBE Builders in Discovery Bay, Calif. This article originally appeared in The Journal of Light Construction.



GO WIDER

www.DEWALT.com / TABLESAWS

DEWALT
GUARANTEED TOUGH.®

JOBSITE TABLE SAW
Workshop Capacity, Jobsite Power



DWE7491RS

© 2013 DEWALT. The following are trademarks for one or more DEWALT power tools and accessories. The yellow and black color scheme, the "D" shaped air intake grille, the array pyramids on the handgrip, the kit box configuration, and the array of lozenge-shaped humps on the surface of the tool.

OUR severe weather solution.

MIAMI-DADE COUNTY
APPROVED



MAZE ring shank HDG roofing nails are Miami-Dade County Approved.



MAZE roofing nails are available in bulk for hand driving and coils for pneumatic tools.



MAZE roofing nails are 100% MADE IN THE USA.

MAZE roofing nails are available in double hot-dipped galvanized, stainless steel, copper and aluminum.

MAZE ring shank roofing nails provide more than twice the holding power of smooth shank nails.



NAIL IT *ONCE*. NAIL IT *RIGHT*.®

1.800.435.5949 • mazenails.com
Celebrating 165 Years • 1848–2013

A Division of W.H. Maze Company
Helping to Build America Since 1848

Manufacturing 100% Made in the USA nails with pride, honor and tradition.

TOOL TEST

18-VOLT BRUSHLESS DRILL/DRIVERS

More-efficient motors, sophisticated controls, and energy-dense batteries boost runtime across the board

BY MICHAEL SPRINGER

A drill/driver is to a tradesman what a six-shooter is to a gunslinger: a constant companion and everyday tool. So we tested the latest premium drill/drivers—18-volt models, because that's the most common battery platform; and brushless, because that type of motor represents the state of the art. For this article, I got ahold of the six brushless models available at the time of testing (the summer of 2013).

SIZE WISE

Brushless drill/drivers are relatively new and there is no standard size class. Different brands followed different paths to their latest models,

so this test includes compact, mid-size, and full-size tools.

The DeWalt is the only compact; the Metabo and Milwaukee are full-sized brutes; and the Makita, Festool, and Hitachi (listed in increasing size order) fall somewhere in between. Makita's tool is a hammer drill/driver, so it is slightly outside of the test criteria, but we included it because it's the only brushless drill/driver that Makita sells in the U.S.

The capabilities of the tools are scaled to the size of their motors, gearboxes, and batteries, so this is not an apples-to-apples comparison. For that reason I decided to forgo torque testing and concentrate on finding out what the tools could and could not do.

WHY BRUSHLESS?

Brushless motors offer several advantages over standard (brushed) motors. They are more compact, they have no brushes to wear out, and they are more efficient, so they can do more work per charge. And because they are electronically commutated, it's easy to integrate advanced control features. (For a more detailed look at brushless technology, see "Brushing Up on Brushless," Winter 2013.)

POWER

To test the limits of these tools' power, I used them to perform progressively more difficult drilling and driving tasks in both high and low gear (see table, facing page). The tougher tasks

Power Testing

Model	DeWalt DCD790	Festool T18+3	Hitachi DS18DBL	Makita LXPH06	Metabo BS18BL LTX	Milwaukee Fuel 2603-22
1/4" x 1 1/2" lags into 4x4	low & high gear	low & high gear	low & high gear	low & high gear	low & high gear	low & high gear
1/4" x 3 1/2" lags into 4x4	low gear only	low & high gear	low gear only	low gear only (slowest)	low & high gear (fastest)	low & high gear
Bore 1" hole w. triple flute bit through 4x4	low gear only	low & high gear	low gear only (slowest)	low & high gear (struggled in high)	low & high gear (fastest)	low & high gear
Bore 1 1/2" self-feed plumber bit through 4x4	low gear only	low & high gear	low gear only	low gear only	low gear only	low & high gear
Bore 2 1/8" self-feed plumber bit through 2x4	No	low gear	low gear	low gear	low gear	low gear
Bore 2 9/16" self-feed plumber bit through 2x4	No	low gear (slowed but steady)	low gear (stalled before finishing)	low gear (stalled before finishing)	low gear (fast and steady)	low gear (fast and steady)

were more challenging than what you would normally expect an 18-volt cordless drill/driver to be able to do.

RUNTIME

I tested runtime by drilling 1-inch holes through 2-by Douglas fir framing lumber with single-flute auger bits until the batteries were depleted. To avoid overheating the drills, I rested them after each set of eight holes. This is the same protocol used in *Tools of the Trade's* last 18-volt drill/driver test (Spring 2012), but the numbers are not directly comparable because while the bits were the same, the wood was not. For example, the same Festool model was included in both tests, but it drilled 21 fewer holes in mine—which I attribute to the wood. The earlier test was performed in California with relatively green lumber; my test was performed in Colorado, where extreme low humidity causes wood to get dry and hard very fast.

Each tool was tested with its supplied battery, which varied in power from a 2.0-amp-hour (Ah) compact pack to a full-size 5.2-Ah pack (that has yet to be released in this country). The tools in between were

tested with 3.0-Ah or 4.0-Ah packs. Therefore, the results do not provide a straight comparison; instead they give a sense of what to expect with the supplied battery. Where an upgrade is available, you can increase runtime by purchasing a higher-Ah pack. The results from the runtime test (with the specified battery) are as follows:

DeWalt (2.0 Ah), 44 holes/charge
Hitachi (3.0 Ah), 66 holes/charge
Makita (3.0 Ah), 66 holes/charge
Festool (3.0 Ah), 73 holes/charge
Milwaukee (4.0 Ah), 111 holes/charge
Metabo (5.2 Ah), 133 holes/charge

CONTROLS

Like other drill/drivers, the tools in this test have variable-speed triggers, two speed ranges, drill or drive modes, and a clutch to regulate the driving force. However, the internal electronics make for some differences.

Optical trigger. Hitachi uses an optical trigger that is said to be more durable and provide smoother speed transition than traditional mechanical ones.

Speed control. As with other models, high and low gear are controlled by a mechanical slide switch, but Hitachi

added an electronic control that limits max rpm to four steps within each gear. This feature makes more sense on its brushless impact driver; with a drill, it's simpler to reduce speed by feathering the trigger or using low gear.

Electronic clutch. Most drill/drivers have friction clutches, which give way at a certain level of resistance. The Festool and Metabo tools, however, have electronic clutches that are coupled to the trigger. Instead of disengaging the chuck from the still-spinning motor, they immediately stop the motor. These electronic clutches are very precise—a little too precise for driving in wood. A friction clutch will still drive fasteners the last little bit while slipping, but electronic clutches are more abrupt; they stop and start at a particular torque and there's no outsmarting them. As a result, when working in wood, I tend to leave them at the highest setting or in drill mode.

Mode switch. The usual arrangement for a drill/driver is for it to have a drill-mode setting at the high end of the clutch ring. Makita and Milwaukee equipped their tools with separate mechanical mode-changing

18-VOLT BRUSHLESS DRILL/DRIVERS

rings. Besides being quicker, this allows you to switch between drilling and driving without changing clutch settings. Festool and Metabo rely on electronics to bypass the clutch—a switch on the former and a push-button on the latter.

For years, Metabo has offered what it calls the “impuls” pulse mode. When you hold the trigger down in this mode, the tool rapidly cycles on and off like a slow impact driver. I don’t find much use for this feature in my work, but the action is supposed to help when you’re starting drill bits in metal or backing out screws with stripped heads.

ENERGY-DENSE BATTERIES

Although not particular to brushless models, higher amp-hour batteries are often associated with them. When used together they make for incredible runtime; in fact, it’s difficult to tell how much of the increased runtime of these tools is attributable to the higher efficiency of their brushless motors versus the larger fuel tank of higher amp-hour batteries.

As recently as last year, the average cordless system topped out at 3.0 Ah for full-size packs and 1.5 Ah for compact ones. For most tools, the current maximum for these sizes is 4.0 Ah and 2.0 Ah respectively. Metabo

is premiering a full-size pack with a 5.2 Ah rating—an astounding number and the highest we have seen to date in an 18-volt tool.

BATTERY FUEL GAUGES

It was a long time coming, but this is the first test I have done where every model had a fuel gauge. As with cellphones, more bars mean better service. I prefer the distinct accuracy of battery gauges with four bars (Metabo, Milwaukee) over those with three bars (DeWalt, Festool, Makita) and especially over the uncertainty of a two-bar gauge (Hitachi).

It’s nice to have a little bit of juice left when the battery shuts down at the end of the charge. That way, you can restart the tool and finish removing a fastener or reverse an auger bit out of a hole without changing batteries. This is not the case with the Milwaukee, which drains every allowable milliwatt out of its battery and then leaves you instantly immobilized. The Makita also occasionally does this.

LED HEADLIGHTS

Festool, Makita, and Milwaukee put their lights in the usual place—just above the trigger. On the DeWalt and Metabo, the light’s on top of the tool base where it will not be eclipsed by the chuck. Because of its low angle, the DeWalt’s LED does the best job lighting the head of a screw or tip of a drill bit. The twin lights on the base of the Metabo are a good idea but they’re aimed so far out that unless you’re using a really long bit, they’re worthless except as a flashlight.

There are spaces molded into the base of the Hitachi for a switch and light. Its brushless hammer drill/driver contains those items, but for some reason this drill/driver does not.

BELT HOOK

Belt hooks are standard issue with most drill/drivers. Of the tools tested, only the Milwaukee does not come with a belt hook. You can get one as



1 Instead of mechanically slipping like friction clutches, the electronic clutches on the Festool and the Metabo (shown here) shut off the motor at a set level of resistance. Motor speed is modulated so rpm falls as the clutch setting is lowered—making it easier for the tool to deliver the exact amount of torque. **2** With the DeWalt and Hitachi, changing from driver to drill mode involves turning the clutch ring past its highest setting. **3** Makita and Milwaukee provide a separate switching ring that allows the operator to switch between drill and drive without altering clutch settings. **4** The advanced controls of the Metabo and Festool switch the tools electronically between driver and drill mode—with the push of a lighted button and the slide of a switch, respectively.



5 DeWalt, Metabo, and Milwaukee batteries have a built-in gauge. **6** Makita, Hitachi, and Festool put the gauge on the tool. It's less convenient there but does allow you to check the charge of any generation of battery you put on the tool.

7 The LED headlights are just above the trigger on the Milwaukee, Makita, and Festool. **8** On the DeWalt and Metabo, the headlights are on the base. Bright and well-aimed, DeWalt's LED provides the best illumination.

9 The full kit version of the Festool includes a standard chuck and a series of accessories: a 90-degree-angle attachment that holds the chuck or driver bits directly, an offset bit holder, and a "Centrotec" bit holder that fits special Festool bits.

10 The Metabo tool accepts a 90-degree-angle drive attachment and a novel torque-multiplying attachment that triples torque output. The multiplier (shown here) accepts 1/4-inch hex bits and 1/2-inch sockets.

an accessory but it requires a troublesome special order.

Most belt hooks consist of a large steel hoop that can attach to either side of the base alongside the battery. Festool attaches a double-sided hook to each battery, but the hook's small size and plastic attachment tab make me question its long-term durability.

SIDE HANDLES

It helps to have a removable side handle when you're drilling large holes or driving lags, because you want a good two-handed grip. This will not only protect your wrist; it may also prevent you from getting hit in the

jaw with the butt end of a drill. The Hitachi, Metabo, and Milwaukee include side handles; the others do not.

THE BOTTOM LINE

The drill/drivers tested represent different size subclasses within the growing category of 18-volt brushless tools, so the best choice depends on the work you need it to do.

The DeWalt is currently the only compact, and I found myself reaching for it constantly for my everyday pilot-hole drilling and screw-driving tasks. At the other end of the scale are the Metabo and Milwaukee, the only

models capable of driving a 2 9/16-inch self-feeding plumber's bit through framing lumber without slowing down. I give the nod to the Milwaukee because it's currently available in the U.S. The Metabo was just released in Germany and is scheduled for U.S. release in early 2014. If I didn't want to go compact or large, the mid-size Makita is a practical choice for most tasks.

Michael Springer is the former executive editor of Tools of the Trade.

Special thanks to Greenlee for providing the auger bits used during testing.

18-VOLT BRUSHLESS DRILL/DRIVERS



DeWalt 20V MAX DCD 790

Battery: 18 volts; 2.0 Ah
Battery gauge: 3 bars; on battery
Weight (by ToTT): 3.55 pounds
Length: 7¹/₈ inches
Rpm: 0–600; 0–2,000
LED headlight: On base; 20-second delay
Belt hook: Included
Country of origin: China
Web price: \$235

Includes: Two batteries; charger; plastic case

Comments: Lighter-duty tool with comfortable compact size and weight

Pro: Lightest and smallest in the test—both benefits that make a compact tool the preferred type for average tasks. Able to easily upgrade performance by using a full-size battery—a 4.0 Ah battery in this tool provides a bit more power and a lot more runtime. Most effective LED headlight.

Con: Less powerful than other brushless models. Compact battery had the shortest runtime.



Festool T18+3

Battery: 18 volts; 3.0 Ah
Battery gauge: 3 bars; on tool
Weight (by ToTT): 4.21 pounds
Length: 8 inches
Rpm: 0–450; 0–1,500
LED headlight: Above trigger; 1.5-second delay
Belt hook: Two-sided hook included on batteries
Country of origin: Germany
Web price: \$635

Includes: Two batteries; charger; Centrotec bit holder, offset bit holder, right-angle bit holder/chuck mount, Systainer case. Less expensive drill kit available without accessory attachments.

Comments: Surprisingly strong tool with versatile attachments, but at quite a price

Pro: A mid-size tool that performed in the stronger half of the testing despite brand's reputation for refined woodworking shop tools. Even displayed great power in high gear. Chuck detaches easily without tools to allow the drill/driver to fit other attachments. The accessory ends in the kit tested provide a lot of versatility. Forward-thinking battery compatibility with all 18-, 15.6-, 14.4-, and 12-volt batteries from the brand.

Con: Very expensive compared to the competition. Exacting electronic clutch fussy to use. Belt hook not large and robust enough.



Hitachi DS18DBL

Battery: 18 volts; 3.0 Ah
Battery gauge: 2 bars; on tool
Weight (by ToTT): 4.44 pounds
Length: 8¹/₄ inches
Rpm: 0–400; 0–1,800
LED headlight: None
Belt hook: Included
Country of origin: China
Web price: \$300

Includes: Two batteries; charger; side handle; plastic case

Comments: A medium-capacity tool with a few hidden frills

Pro: High-tech optical trigger that handles no electric current, said to last longer than mechanical trigger. Side handle comes in handy for high-torque work.

Con: The only tool lacking a headlight—the space used for the headlight on the brand's similar impact driver is just a blank on this tool. You constantly have to check if the electronic control is set to full power, because it's easy to bump the adjustment button inadvertently and set the tool to a lower power mode. The clutch ring suffered from a stiff action and an indistinct feel while setting at a detent. Imprecise two-bar battery fuel gauge.



Makita LXP06

Battery: 18 volts; 3.0 Ah
Battery gauge: 3 bars; on tool
Weight (by ToTT): 4.06 pounds
Length: 7¹³/₁₆ inches
Rpm: 0–400; 0–1,550
LED headlight: Above trigger; 10-second delay
Belt hook: Included
Country of origin: Japan
MSRP: \$329 (stand-alone kit); \$129 (bare)

Includes: This tool is being released first in a combo kit (XT248) along with an impact driver but will be available by the end of the year in a stand-alone kit with two batteries, charger, and plastic case or as a bare tool.

Comments: Mid-size, medium-duty, and lightweight—includes “bonus” hammer-drill function without a weight penalty

Pro: The lightest intermediate-size tool. Solid performance, useful features, and comfortable form factor make it a practical choice among the mid-size tools.

Con: Has noticeable play in the chuck/clutch/mode selection ring assembly that became apparent during heavier use. Weak clutch settings—won’t drive medium to large screws unless set to drill mode. Shows one bar out of three on battery gauge when run completely down, making it difficult to judge the end of the charge.



Metabo BS18LTXBL Quick

Battery: 18 volts; 5.2 Ah
Battery gauge: 4 bars; on battery
Weight (by ToTT): 4.60 pounds
Length: 8¹/₈ inches (7⁹/₁₆ head only)
Rpm: 0–600; 0–2,050
LED headlight: Two on base; 10-second delay
Belt hook: Included
Country of origin: Germany
Web price: N/A; \$399 MSRP when released in US in early 2014

Includes: Two batteries; charger; side handle, plastic case

Comments: Powerful, fast, exotic, and expensive, but with a few perplexing features

Pro: Very high power, the fastest in most of the trials, and the highest amp-hour cells we’ve ever tested provide the longest runtime. The unique pulse mode can aid in metal drilling and powering out stuck or stripped screws. Changing the electronic clutch setting automatically switches the tool to driver mode. Cool, high-tech innovations, like a motion-activated headlight that stays on as long as the tool is moving and a motor brake that returns electrical energy back into the battery. Chuck detaches easily without tools to allow unit to fit optional attachments. Side handle comes in handy for high-torque work.

Con: Exacting electronic clutch fussy to use. The center of the headlight is set to align with the tip of an 8-inch bit so it misses the mark for most common uses. The headlight’s motion sensor is too sensitive—goes on with the slightest bump near the unit, which is distracting.



Milwaukee Fuel 2603-22

Battery: 18 volts; 4.0 Ah
Battery gauge: 4 bars; on battery
Weight (by ToTT): 5.00 pounds
Length: 8 inches
Rpm: 0–550; 0–1,850
LED headlight: Above trigger; 11-second delay
Belt hook: Sold separately
Country of origin: China
Web price: \$238

Includes: Two batteries; charger; side handle, plastic case

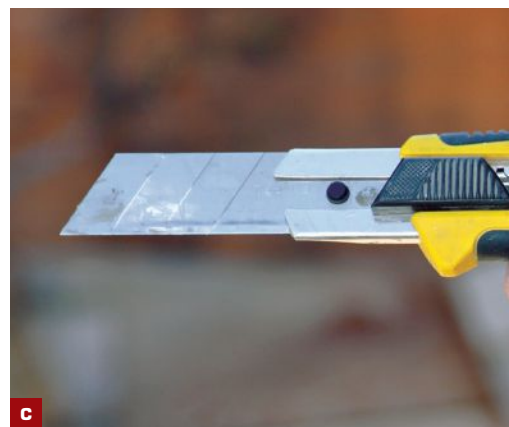
Comments: Heavy-duty, full-size tool—a strong performer

Pro: Very high power and long runtime (and a decent price) are an attractive combination. Arguably the strongest in the test with great power even in high gear. Side handle comes in handy for high-torque work.

Con: Heaviest in test. Only one without belt hook. Sudden battery cutoff can leave you stuck halfway through a task.



A



C

A Finish Carpenter's Bag of Tricks

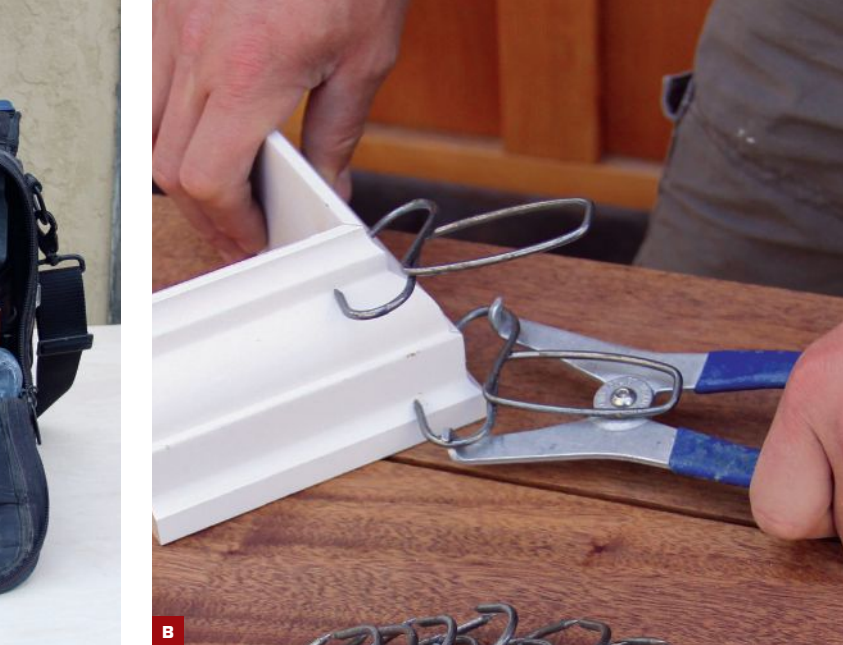
Every tradesperson has favorite hand tools. Here are some of mine

BY JESSE WRIGHT

Like most finish carpenters, I have a lot of tools. Many of the larger ones stay in the shop or truck till I need them, but my small tools—hand tools mostly—live in a bag I bring to the jobsite every day. Below I've selected some of the handier ones that I would not want to be without.

A. VETO PRO PAC XL BAG

I keep my everyday tools in a Veto Pro Pac bag. I like it because it's heavily constructed and has internal compartments that make it possible to stow everything in a particular spot. The bag's small size forces me to be better organized, and its slim profile fits well in my vehicle. The heavy-duty shoulder strap allows me to sling it and free up a hand—which means fewer trips when loading and unloading. Web price: \$200. 877.847.1443. vetopropac.com.



B. COLLINS MITER CLAMPS AND PLIERS

These small but powerful clamps make it faster and easier to glue miter joints in solid moldings. They aid in pre-assembly and hold joints tight while the glue sets. I still use nails, but with the clamps I can use fewer of them—a definite plus in high-end work. Though the clamps can be installed and removed by hand, I use Collins Miter Clamp Pliers because they can open the clamps farther for a stronger grip. Be careful using them; the spring-action is stiff and the tips are sharp, so you don't want to accidentally close them on a finger. Web price: \$35 for 12 clamps; \$16 for pliers. 888.838.8988. collinstool.com.

C. SNAP-BLADE KNIFE

I've never liked standard utility knives; no one makes a really good sheath for fixed-blade models and the blades of

retractables have too much play. It can be a pain to change blades with either type, and if the replacement blades spill into your pouch, the pouch will bite you when you reach into it. I prefer snap-blade knives: The blades have less play, they can be extended far out from the handle for cutting insulation and other thick material, and replacements stow where you can see them. The blades are great for scraping, and I sometimes use one as a marking knife too. This particular knife is an older model from Tajima. Price: varies by brand. 888.482.5462. tajimatool.com.

D. FASTCAP ACCUSCRIBE PRO

As we regularly scribe baseboard, moldings, cabinets, and the like, reliable scribes are a must for us. Accuscribes are not only reliable; they have many cool features that make them easy to use. For one, they're more adjustable

than most because they have two pivot points, one in the usual location and another just above the pencil. Also, the side across from the pencil is flat so the tool remains stable as it runs across the surface you are scribing to. The built-in pencil sharpener is handy as well. Web price: \$18. 888.443.3748. fastcap.com.

E. TITE-MARK MARKING GAUGE

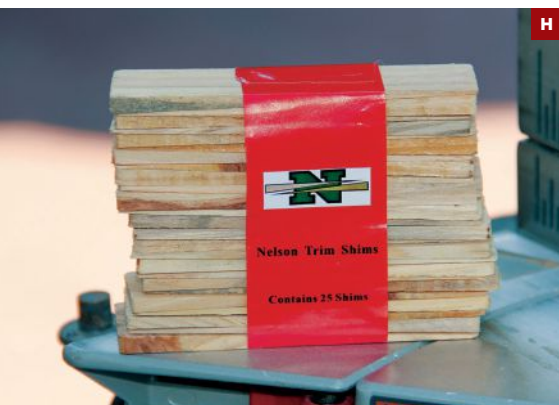
This gauge from Glen-Drake Toolworks is my go-to tool for making precise repetitive marks while fabricating millwork. The micro-adjust feature allows me to dial in settings so they are dead-on, and the circular tip scores the wood with a micro-fine line that can be used to start a chisel or handsaw cut. I bought this gauge while building mortise-and-tenon doors for my garage and fell in love with it. Now it lives in my everyday bag. Web price: \$90. 800.961.1569. glen-drake.com.



F



G



H



I



J

F. FESTOOL POCKET STICK FIX SANDING PAD

I retired my traditional sanding block and replaced it with this Festool sanding pad—probably the only non-dustless sander the company makes. I like the quick-change Velcro abrasive as well as the lipped design that allows it to fit into small fillets and profiles in molding. It can also be used like a shoulder plane by running it inside a rabbet. The proprietary replacement paper is expensive, but it's very high quality and lasts a long time. Web price: \$15. 800.365.6677. festoolusa.com.

G. PLAYING CARDS

Need to make a fine adjustment? Playing cards are the perfect shim—so it's worth keeping a few of them up your sleeve. They work great behind hinges and hardware. Use them whole or cut into pieces.

H. NELSON TRIM SHIMS

You can make small shims on a table saw but it's not worth the time or the risk to your fingers. It's much better to buy them. These tiny shims from Nelson are phenomenal. I use them to make fine adjustments to trim at inside corners and other areas where standard shims won't fit or would be wasteful. When I need to make those little— $\frac{1}{8}$ inch or less—adjustments, these guys are perfect. The $\frac{3}{2}$ -inch shims are hard to find; we buy them from a nearby molding supplier. Price: varies. 800.441.7390. shims.com.

I. STAPLE REMOVER

We don't use a lot of staples, but when we do, we usually need to remove some of them. The pinching action of this tool clamps the crown of the staple as the lever pulls it so

both legs of the staple come out. It's much better than using a flat-head screwdriver and pliers. A number of companies make staple removers; this one happens to be from Crain Tools. They're normally used to remove carpet staples, so you can find them wherever flooring tools are sold. Web price: \$8. 408.946.6100. craintools.com.

J. SIX-INCH MACHINIST'S RULE

Tape measures are fine, but for setting up machines or making extremely precise measurements nothing beats a stainless steel rule. The lack of a hook makes it easier to measure small pieces and allows you to stick the rule where a tape won't go (like into a slot or mortise). And instead of going to $\frac{1}{16}$ inch, as tape measures do, most steel rules go to $\frac{1}{8}$ and $\frac{1}{16}$ inch on one side and $\frac{1}{32}$ and $\frac{1}{64}$ inch on the other.



This rule happens to be from iGaging, but any brand will do. Web price: \$6. 949.366.5708. igaging.com.

K. TWO-WAY RADIOS

I often work with my father, and on many jobs I'll be on scaffolding while he's at a cut station in another room. In the past when I needed another piece or discovered I had given him the wrong dimension, I had to yell and hope he would hear. That was just silly. Now we carry two-way radios on our belts (they happen to be Blackbox radios from Klein Electronics—but they could be any brand). My dad turns his up really loud so he can hear my requests while he's cutting. The only problem is getting both parties to use proper radio protocol, because these are not cellphones: "10-4." Web price: \$200 apiece. 800.959.2899. headsetusa.com.



L. TAJIMA GP 16 TAPE

I normally use a 16-foot tape; it's long enough for most trim (when I need to measure large rooms, I can use a laser distance measurer). What I like about this particular tape is that it's light and small and has a comfortable grip. The numbers are very readable and it's easy to get the thing in and out of a pocket or pouch. The hook recesses slightly into the case, which protects it from damage—though that does mean you have to pull it out by hand to hook it onto something. Web price: \$19. 888.482.5462. tajimatool.com.

M. TITE-HAMMER

I use this 9-ounce brass hammer when the chisels come out. It packs a punch but fits in the palm of my hand and in my pocket. It's handy for installing locksets and hardware, when a regular hammer would be too much. And I



like the way it looks and feels. The Tite-Hammer is made by Glen-Drake Toolworks and is available in 6-, 9-, 11-, and 14-ounce models in brass and steel. Web price: \$52. 800.961.1569. glen-drake.com.

N. FASTCAP POCKET CHISEL

I used to avoid putting sharp chisels into my bag or workwear pockets for fear they would cut up my gear or rub up against something and get dull. That won't happen with Pocket Chisels because the handles fold to cover the blade and unfold to reveal it. They're inexpensive and can be used for fine work or as general-purpose beaters. They're available in 1/4-inch increments between 1/4 and 1 inch wide. Web price: \$18. 888.443.3748. fastcap.com.



Jesse Wright is a finish carpenter for Architectural Molding in Concord, Calif.



**IT'S NOT ANY
ONE TOOL,
IT'S ALL OF THEM**

www.DEWALT.com / **MULTITOOL**



DEWALT
GUARANTEED TOUGH.

OSCILLATING MULTI-TOOL

With DEWALT UNIVERSAL FITMENT™ Multi-Tool Accessories

DWE315K

© 2013 DeWalt. The following are trademarks for one or more DEWALT power tools and accessories. The yellow and black color scheme, the "D" shaped air intake grille, the array pyramids on the handgrip, the kit box configuration, and the array of lozenge-shaped humps on the surface of the tool.



**“I HAVE \$3 TRILLION
TO SPEND ANNUALLY”**

Nothing compares to Baby Boomer spending power. Take the online tour at homeforlife2013.com to learn about aging-in-place projects and how to market to Baby Boomers.



SPONSORED BY



Panasonic

ProVia
THE PROFESSIONAL WAY

STERLING
HOMES



Waypoint
LIVING SPACES

hanleywood

Product Watch

BY DOUG MAHONEY

DEWALT HEATED JACKETS

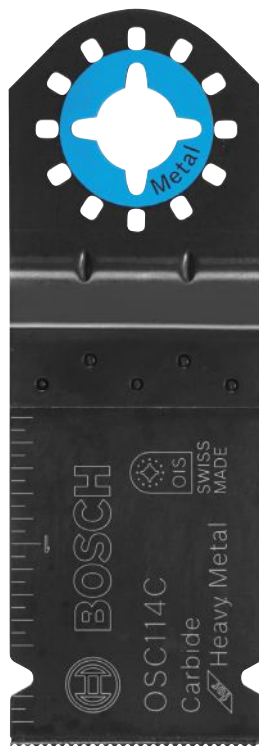
DeWalt's new line of heated jackets warms the core of the body through three zones—two at the chest and one at the back. They are powered by the company's 12V and 20V Max batteries, which connect to the jacket through a Power Source adapter. The adapter has two USB ports and can also charge electronic devices. Four styles are available: soft-shell work jacket, hooded work jacket, camouflage, and orange camouflage. The jacket can be purchased as a kit with a 20-volt battery and charger or as a stand-alone. ■ Price: \$150 to \$230, depending on style and kit. COO: China. 800.433.9258. dewalt.com.



IRWIN FOLDING UTILITY KNIFE

The new FK250 Folding Knife was designed with safety and functionality in mind. It uses the company's "BladeLock" technology so the blade won't come out during use and can be removed only when the tool is folded to the 45-degree position. Features include a belt clip, an on-board wire stripper, storage space for two extra blades, and—at the end of the handle—a small fold-out screwdriver that accepts 1-inch bits. The FK series also has two more-basic models: The FK150 has blade storage but no screwdriver, and the FK100 has no blade storage or screwdriver.

■ Price: \$16, other models starting at \$11. COO: China. 800.464.7946. irwin.com.



BOSCH CARBIDE MULTI-TOOL BLADE

One of the biggest complaints with oscillating tools is that the cutting blades wear out too quickly. Bosch is looking to change that with its new OSC114C Carbide Multi-Tool Blade, which is designed to last 30 times longer than standard bi-metal blades. The durable carbide teeth can cut through fiberboard, cement board, sheet metal, and pipe. They can also handle nail-riddled wood, so you won't have to toss blades every time you brush up against hidden fasteners. ■ Price: \$22. COO: Switzerland. 877.267.2499. boschtools.com.



SENCO 18V CORDLESS AUTOFEED SCREWGUN

Senco's new DS215-18V Autofeed Screwgun is designed for installing drywall, subfloor, and sheathing, and for other tasks requiring a lot of screws. The 5,000-rpm tool can drive 1- to 2-inch fasteners and has adjustable depth-of-drive, a cushioned grip, and tool-free screw-length setting. According to Senco, the tool can drive 500 to 700 fasteners per charge—depending on the screw size and substrate. Available in a corded version as well, the kit includes two driver bits, drywall and wood nosepieces, two batteries, a charger, and a nylon bag. A 2,500-rpm model (DS212) provides additional torque for hardwoods and structural steel decking. ■ Price: \$260. COO: China. 800.543.4596. senco.com.



VETO TECH PAC BACKPACK

Veto Pro Pac's new Tech Pac allows you to haul tools and keep your hands free for climbing ladders or carrying other items. The backpack has large zippered openings in the front and back, nine D-rings of varying sizes, an 8-inch fabric loop to hold tapes, and most important, more than 50 vertical tool pockets—interior and exterior. Made of denier nylon, the pack comes with a waterproof base, as well as an aluminum hook so you can easily hang it. For comfort, the shoulder straps are padded and the back has a layer of EVA foam padding. There is even a zippered pouch for a tablet. ■ Price: \$230. COO: China. 877.847.1443. vetopropac.com.



FESTOOL CARVEX JIGSAW

The Festool Carvex 420 brings a number of innovative features to the jigsaw. The tool's brushless motor makes for lighter weight and less maintenance. For increased accuracy, four LEDs illuminate the blade and are strobed to the timing of the stroke, so the moving blade looks like it's standing still. A triple-point guidance system stabilizes the blade and, according to the saw's maker, allows for wander-free cutting in material up to 4³/₄ inches thick. The rear-mounted cord can hinge to the vertical position, making it easier to work in tight quarters. Several footplates are available, including one hinged at the center that can be adjusted to cut a miter along inside and outside corners. Compatible with Festool's dust-collection system, the Carvex comes in corded and cordless D-handle and barrel-grip models. ■ Price: \$350 corded, \$550 cordless. COO: Germany. 888.337.8600. festoolusa.com.

DALLUGE HAMMER

Dalluge's new DDT 16-ounce hammer features a magnetic nail starter that can hold standard and duplex nails, making the tool ideal for formwork. The titanium head absorbs shock and extends down over the front and back of the hickory handle, protecting it from overstrikes. The hammer pulls nails with the short rear claw or the side pullers if extra leverage is needed. Available with a smooth or serrated striking face. ■ Price: \$120. COO: USA. 815.648.2446. dallugetools.com.



RIDGID 2.0 AND 4.0 AH BATTERIES

Ridgid just updated its 18-volt X4 Hyper Lithium batteries with new internal technology designed to improve performance and extend overall lifetime. Available in both 2.0- and 4.0-Ah sizes, the batteries can operate in extreme temperatures, from 29 F (-20 C) to 158 F (70 C). In addition, they now have short-circuit, over-discharge, and over-current protection. The company also released a new charger that it claims fills these batteries 50% faster than earlier models. ■ Price: \$80 for 2.0 Ah and \$120 for 4.0 Ah. COO: China. 800.474.3443. ridgid.com.



ROCKLER CORD AND HOSE HOLDER

It's important to keep cords clear when you're sanding or routing at a bench. Rockler's Dust Right Cord and Hose Holder does just that, plus it can position a vacuum hose. The adjustable unit clamps to any workbench up to 3½ inches thick. The 2¼-inch hose holder is held in place by a threaded knob and can be moved up and down the 40-inch stem. A pigtail loop at the top holds your power cord but allows it to move freely, giving your tools mobility while keeping the cord up and out of the way. ■ Price: \$30. COO: Taiwan. 800.279.4441. rockler.com.



KLEIN MM5000 MULTIMETER

The new MM5000 is a True RMS Cat IV 600-volt multimeter with a large backlit display and a flip-out stand for hands-free use. Capable of measuring AC/DC voltage and resistance, it has low impedance to eliminate ghost voltages. The double-insulated protective boot around the tool sits proud of the front, protecting the screen and, according to the manufacturer, giving the tool a 10-foot drop rating. The unit takes two AA batteries and alerts you if the leads are not fully in the jacks.

■ Price: \$160 (\$250 for NIST-certified MM5000N). COO: USA. 847.821.5500. kleintools.com.



KNIPEX COBRA QUICK SET WATER PUMP PLIERS

Knipex's new Cobra Quick Set Water Pump Pliers can be tightened around a nut using only one hand, making it a good tool for tight spaces. The top handle, which controls the lower jaw, can slide forward without any push-button unlock—so you can keep your hands at the ends of the handles and still adjust the tool. The hex jaw can easily grip round, square, flat, or hex materials, and the handles have a non-slip plastic coating. The jaw of the 10-inch-long tool has a capacity of 2 inches. ■ Price: \$36. COO: Germany. 847.398.8520. knipex-tools.com.



FREUD TRACK SAW BLADES

The popularity of track saws has resulted in a growing demand for readily available replacement blades. Freud offers four thin-kerf models that fit all major brands of track saws. Designs include a 48-tooth plywood, melamine, and finish blade; a 28-tooth general-purpose blade; a 48-tooth laminate-flooring blade; and a 14-tooth rip blade. All have Freud's Perma-Shield coating to protect against residue buildup. Anti-vibration technology cuts down on the sideways movement of the blade, ensuring clean cuts.

■ Price: Starting at \$33. COO: Italy. 800.334.4107. freudtools.com.





HITACHI ROTARY HAMMER WITH DUST COLLECTION

With its compact size, powerful motor, and dust-collection system, the Hitachi DH28PD Rotary Hammer looks to be ideal for smaller jobs or service work. The tool accepts SDS-Plus bits and offers three modes of operation: drill, hammer, and hammer drill. With its 6.3-amp motor it can produce up to 4,000 impacts per minute. The body of the Hitachi is just over 12 inches long, not including the dust-collection system. A model without dust collection (DH28PC) is also available. ■ Price: \$480. COO: China. 800.706.7337. hitachipowertools.com.



STARRETT EXACT PLUS TAPE MEASURES

Starrett, a company known for precision measuring tools, has recently released a new line of tape measures. The Exact Plus Tapes are made of impact-resistant ABS plastic with an over-mold for added durability and ergonomics. The 1-inch blade has a nylon coating to protect it from the wear and tear of the jobsite. Tapes are available in lengths from 16 to 35 feet and also in metric.

■ Price: \$16 for 25-foot tape. COO: China. 978.249.3551. starrett.com.



MILWAUKEE DEMO DRIVERS

Screwdrivers were never intended to function as pry bars and chisels—and yet sometimes they do. Milwaukee's new Demo Drivers are designed to handle those brutal tasks plus the normal things screwdrivers do. At the end of the 6-inch shank is a hardened tip that can take a beating one minute and turn a screw the next. The butt-end of the handle has a heat-treated steel cap to protect it from hammer blows. It's a small thing, but the handles are shaped so that they won't roll when you put them down. The drivers are available as a two-piece set with one Phillips (#2) and a slotted ($\frac{5}{16}$ inch). ■ Price: \$20. COO: Taiwan. 800.729.3878. milwaukeetool.com.



STANLEY TLM330 DISTANCE MEASURER

The TLM330 packs a lot of function into a small package. According to its maker, the unit is capable of measurements of up to 330 feet to an accuracy of $\frac{1}{32}$ inch. It can calculate volume and area, and indicate incline and level. Indirect measurements can be taken using three-point triangulation if linear ones aren't possible. The last 20 measurements are stored for reference, and the unit has a backlit LCD display. ■ Price: \$250. COO: Hungary. 800.262.2161. stanleytools.com.

Tool Showcase

FOR INFORMATION

on how to be a
part of the next

TOOLS OF THE TRADE

special advertising section,
contact Maura Jacobs at
678.451.8627



**CONQUER
COLD CAULK**

866-927-6757 caulkwarmer.com

ADVERTISER	PAGE	WEBSITE
American Honda Motor Co., Inc.	17	gen.honda.com
Bostitch	19	bostitch.com
Calculated Industries	6	calculated.com
DEWALT	2	dewalt.com
DEWALT	22	dewalt.com/tablesaws
DEWALT	34	dewalt.com/multitool
Diablo	13	DiabloTools.com/Recip
Fasco America	4	fascoamerica.com
FESTOOL USA	5	festooljigsaws.com
Grip-Rite/PrimeSource	IBC	grip-rite.com
Home Depot, The	1	homedepot.com/RIDGID
Home for Life	34	homeforlife2013.com
Kett Tool Company	10	kett-tool.com
Klein Tools	16	kleintools.com
Maze Nails	23	mazenails.com
Milwaukee	8	milwaukeeetool.com/m18fuel
Muro North America, Inc.	6	muro.com
Porter-Cable	7	portercable.com/20volt
Porter-Cable	IFC	PorterCable.com
Reasor Products	39	caulkwarmer.com
Ridgid	OBC	ridgid.com
Simpson Strong-Tie	11	strongtie.com/anchorsystems
WD-40 Company	20&21	3inONE.com & LavaSoap.com
Wright's Media	18	wrightsmedia.com

Toolhounds

BY DAVID FRANE

What This Shop Needs Is a Bowling Ball

It would never occur to me to make a woodworking fixture out of a bowling ball. But then I'm not Marc Kunkel.

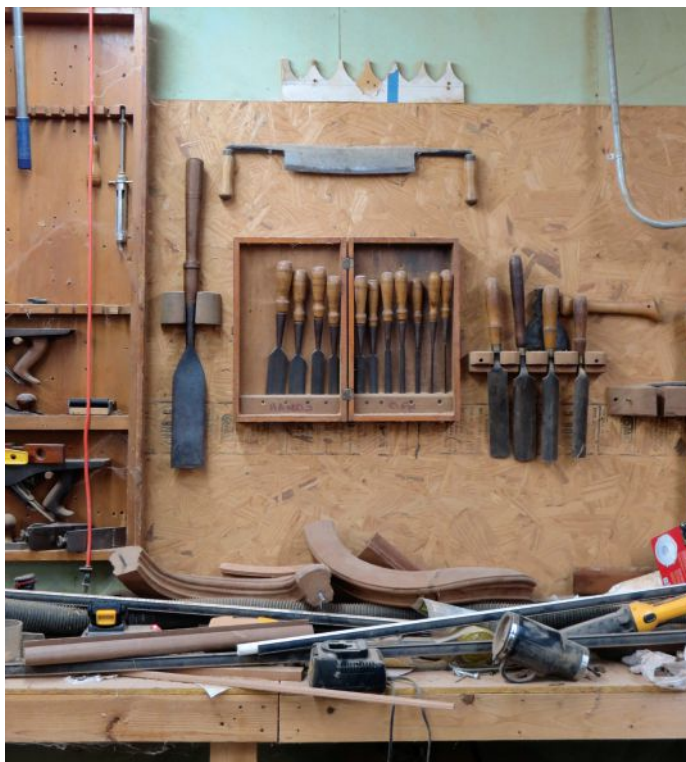
During a tour of Fort Houston in Nashville, Tenn., where a community of craftspeople share shop space, I wandered away from the group and entered the shop of Kunkel & Son Fine Woodworking. I was admiring the old hand tools—a draw knife, chisels, and a beautifully preserved slick—hanging above a workbench when Marc Kunkel walked over and asked if he could help. It was then I realized I'd left Fort Houston and gone into a private work space.

I apologized for entering uninvited and asked if it would be okay to photograph the slick, an oversize chisel used by timber framers and boat builders. Kunkel said it would be fine to take photos and explained that the slick had originally belonged to his great-grandfather, a barn builder.

Next to the bench was an adjustable workstand made from the base of an old dentist's chair. Kunkel saw me admiring it and said, "If you like that, then let me show you something really interesting"—at which point he placed a thick block of wood on the bench and plopped a bowling ball into a hole in the top of it. One of the ball's finger holes had been drilled the rest of the way through, and a plumbing pipe capped by a flat piece of wood was screwed into it.

Kunkel showed me how a pair of ball valves could be screwed into holes in the side of the block and connected by hose to a vacuum pump. Applying a vacuum turns the bowling ball into a clamp for hard-to-clamp pieces—like the curved stair rail parts he often carves. The suction holds the work tight to the flat piece of wood on the pipe and keeps the ball from moving around. By releasing the vacuum, Kunkel can remove the workpiece or shift the ball to a different position.

David Frane is the editor of Tools of the Trade.



BUILT RIGHT



More Than Any Other Brand

From framing to finish, roofing to flooring, Grip-Rite® has more collated fasteners than any other brand. And they fit every tool on the market, so you can use the best fasteners with any brand tool.

Grip-Rite collated fasteners also are now available in 1M belt clips and tubs — convenient for jobsites and the right size for smaller jobs.

- Portable to carry only what you need for the job at hand
- Recloseable lids that keep fasteners contained, minimizing waste
- Durable to handle hauling and storage between jobs



BUILT RIGHT. GRIP-RITE.

To learn more, or to become a stocking dealer,
call 800-676-7777 or visit grip-rite.com.

PRIMESOURCE
BUILDING PRODUCTS, INC.

RIDGID[®]

JobMax[™]



THE INDUSTRY'S **MOST VERSATILE** TOOL SYSTEM



Available at
www.homedepot.com



* Available FREE OF CHARGE on all RIDGID[®] products displaying the Lifetime Service Agreement logo. Registration is required. Details about the Lifetime Service Agreement can be found on the RIDGID.com website, the registration form, or by calling 1-866-539-1710. Copyright 2012. RIDGID, Inc. All rights reserved.