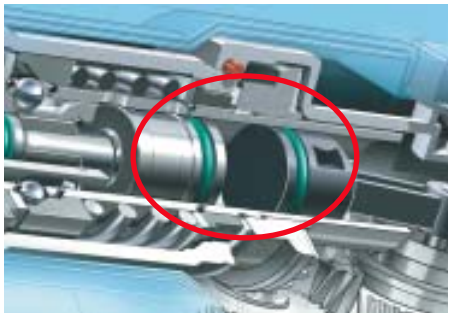
Hammer Drill or Rotary Hammer?

by Bryan Sanchez

As the marketing manager for a power tool company, I'm often asked about the difference between hammer drills and rotary hammers. Buyers want to know why there's such a price difference between the two, and which tool is best suited for specific applications.

I advise users to answer four questions before making the choice: What material will you usually be drilling? How large will the holes be? Will you be drilling an occasional hole or for extended periods? Finally, will you only be drilling, or would it also be useful to be able to use the tool in chipping, or hammer-only, mode?

In a hammer drill, the hammering action is provided by spinning disks. The toothed disks rotate against each other, causing the bit to move in and out at more than 40,000 blows per minute.



Although rotary hammers deliver fewer blows per minute, they provide about five times the impact force of a hammer drill. A pneumatic piston powers the striker that transfers impact to the bit. This design reduces operator fatigue and makes drilling more efficient. Unlike the more versatile hammer drill, though, a rotary hammer can't be used for drilling wood or metal.

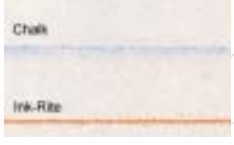
What Material?

Hammer drills are best thought of as conventional electric drills with added internal gearing that provides a percussive action. This rapid in-and-out movement of the bit, combined with the usual rotation, greatly increases the tool's efficiency in drilling concrete or other masonry. The hammer action can be switched off to allow general purpose drilling in materials like wood or metal.

In addition to allowing the user to choose between hammer-drill and drill-only modes, most hammer drills feature two-speed gearing. The higher speed, typically around 2,500 rpm, is best for

TOOLBITS

Snapped in Ink



Snapping chalk lines in wet or damp weather is typically an exercise in frustration. Chalk sticks to the line without leaving a mark, and the wet string inevitably tangles inside the case. Another problem with chalk is fat, fuzzy lines that smudge easily or simply wash away. Promising better performance in wet weather and crisp, distinct lines, Tajima's new Ink-Rite, an ink-based snap line, uses a waterproof, quick-drying ink to produce permanent, smudge-free lines that won't wash away. Although it sounds messy, the manufacturer claims otherwise and says that after a couple of trials, users will be pleased with its performance. The 65-foot line automatically retracts when extended up to 25 feet, and a flush-mounted reel brings it back when it's extended farther. Normal quick-drying inks are available in red, white, blue, and black. The wet-weather formulation is available in white, blue, and black. The Ink-Rite has a list price of $22.

Tajima, 888/482-5462, www.tajimatool.com.

Site Office in a Box

Finding a secure space for tool storage and a convenient place to review plans is the unfulfilled dream of most builders. With an angled desk and 9 cubic feet of storage underneath, the 119 Portable Field Station from Knaack provides both in a 16-gauge steel cabinet, proving dreams can come true. Featuring a 17- by 12-inch pegboard for hanging accessories, a hard-hat bracket, and a 19-inch full-width shelf for small tools, the Knaack 119 lists for $1,543.

Knaack, 800/456-7865, www.knaack.com.

fast drilling with small-diameter bits; the lower speed offers better performance with larger bits and high-torque applications. This flexibility makes the tool a favorite of mechanical installers and remodelers.

Rotary hammers, on the other hand, are primarily used for drilling masonry. They typically deliver far fewer blows per minute (bpm) than hammer drills, but thanks to an internal pneumatic piston that delivers the impact energy directly to the bit, each blow is several times as powerful. A hammer drill is better at making holes in masonry than a conventional drill, but a rotary hammer is much more efficient than either.

Size of Holes?

Hole size is another important consideration, and this is reflected in the size and type of chuck provided with each type of tool. Hammer drills are equipped with standard three-jaw chucks. As with a conventional drill, the size indicates the largest shank it will accept. Half-inch hammer drills are most common.

The nominal size of a rotary hammer, on the other hand, refers not to the capacity of the chuck, but to the largest hole that the manufacturer recommends drilling with it. There are three classes of rotary hammers on the market, each of which uses a different — and noninterchangeable — chuck design.

SDS-plus rotary hammers are designed for drilling holes from 5/32 inch to 3/4 inch. Because most masonry drilling falls into that size range, this is the most popular class of tool. SDS-plus rotary hammers are also available in cordless versions.

SDS-max hammers are designed for larger holes, in the 3/8- to 2-inch range.

Spline hammers are similar to SDS-max hammers in capacity but use a different chuck. (Because they're similar in function, SDS-max and spline hammers are often referred to collectively as "combination hammers.")

In all cases, the recommended maximum hole sizes are for spiral bits. Going instead to a core bit — essentially, a hole saw for concrete — will let you make a substantially larger hole, but don't get carried away. Consistently using a rotary hammer at or near its maximum capacity will shorten its life. The relatively high failure rates of both SDS-plus rotary hammers and hammer drills can be traced to the tendency of users to overwork them.

Long- or Short-Term Use?

Choosing the wrong tool can also overwork the user. For a given bit size and material, it takes more effort and strength to make a hole with a hammer drill than with a rotary hammer. This is a matter of weight distribution

Size matters. It's easy to see why an SDS-max rotary hammer (the red Milwaukee) is the best tool for big holes and frequent use. The ample size reduces vibration, and stout motors can turn 2-inch spiral bits. The blue cordless Makita SDS-plus rotary hammer (bottom) is handy, but its smaller chuck and motor are meant only for bits up to 3/4 inch. The 1/2-inch DeWalt hammer drill (right) is versatile, but drilling in hard concrete is slow and the conventional chuck isn't made for heavy pounding.

and leverage: With a rotary hammer, the heft of the tool itself provides much of the drilling force; hammer drills are much more dependent on pressure applied by the operator. This isn't necessarily a problem for drilling an occasional hole or two, but for heavy repetitive use, a rotary hammer is the clear winner.

Do You Need Chipping?

Unlike hammer drills, which offer a choice between rotation-only and hammer-drill modes only, SDS-plus rotary hammers offer a third option: a hammer-only mode that permits the use of chisels, pointing tools, and other general purpose bits. Spline and SDS-max tools drop the rotation-only mode but allow the user to choose between hammer-drill and hammer-only. Hammer-only mode is great for tasks like removing tile, cleaning up concrete forms, and removing brick or stucco. Even though the rotary hammer won't replace a demolition hammer, this mode is handy for light demo and greatly increases the tool's versatility.

Bryan Sanchez *is the marketing manager of industrial accounts for Bosch Power Tools.*

Laser Guidance System

by Jeremy Hess

Manufacturers have installed lasers on miter saws for years now with little professional acceptance. Even carpenters who are comfortable with technology tend to see lasers only as cool gadgets; others see them as fragile and gimmicky. I've seen laser guide systems that promise more than they deliver, but I also see the potential benefit. Despite previous less-than-positive experience with laser saw guides, when I saw an ad for the BladePoint laser (BladePoint, 617/770-4575, www.bladepoint.com), I decided to give the technology another chance.

The first aftermarket laser I ever saw was mounted to the safety guard of a miter saw. It was easy to install and fairly inexpensive, but also pretty unreliable. Once the blade started spinning, vibration created a lot of line movement. The laser also required frequent adjustment because the mounting location was prone to impact. Even ordinary handling threw it out of adjustment. Another version, mounted to the back of the saw table, made lining up the blade on anything other than flat stock nearly impossible; any profile proud of the surface obstructed the beam. The BladePoint Laser Guide claims to eliminate many of these problems.

Installation

The 3/8-inch-thick round stainless-steel disk takes the place of the outer blade washer. Unlike other lasers, this guide can be used on nearly all 12-inch or smaller circular, miter, sliding miter, or radial arm saws with a 5/8-inch arbor and a blade arbor hole smaller than 1 inch. Installation takes less than a minute. No adjustments are needed because the lens is recessed into the housing, protecting it from scratches, breakage, and misalignment.

Operation

Once the guide has been installed, the manufacturer recommends making at least 50 test cuts into various sizes of wood at different angles. This is necessary because the laser reference line doesn't exactly coincide with the cut line. The small fraction of an inch between the laser line and the actual cut will vary with the saw blade and with whether you're cutting to the left or right of the pencil mark. Even though eyeballing the difference between the laser line and the pencil mark sounds dubious, I found that

Three watch batteries power the laser.

Installing a BladePoint laser takes about a minute. The 3/8-inch stainless disk replaces the blade washer and is held in position by the blade bolt.

The BladePoint's red line is easy to see indoors, but visibility outside is a problem. The laser line falls a fraction of an inch away from the cut line, so it takes about 25 practice cuts to get a feel for placing the stock on the saw.

after about 25 cuts, I had a pretty good feel for how the laser needed to be lined up with my pencil marks.

The BladePoint has no effect on saw operation. The only difference is that the user can now see a reference line where the blade is going to pass through the stock. A centrifugal switch turns the laser on at about 700 rpm, creating a continuous line across the work piece. The line extends wide enough to reach across the entire table. The beam makes it easy for the user to see where the blade will enter, eliminating the need for "nibble" cuts.

Three watch cells provide power, and the manufacturer claims 8 to 10 hours of operation before battery replacement is necessary. To prolong battery life, the laser is activated only when the blade is turning.

The Verdict

The BladePoint laser's biggest limitation is its poor outdoor visibility. It's hard to see even in partial shade, and in direct sunlight it's practically invisible. I didn't have a problem indoors, but if you do a lot of cutting outside, keep this in mind. Even so, and despite the $150 price tag, I'm quite happy with the BladePoint. Now that I've had it on my saw for a few weeks, I wouldn't want to be without it, especially for interior trim work.

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