Fast Hit Fastening Tools

by Sanford Wilk

How many times have you spent the better part of a day drilling into a foundation to set lead anchors; or pounding cut nails through strapping to finish the interior of a basement; or bracing off rigid insulation on a foundation wall, waiting for the adhesive to set? These jobs can all be accomplished more easily with a powder-actuated fastening tool. Powder-actuated tools use a small-caliber, blank load to drive pins or threaded studs into concrete and steel. They are fast, permanent, and safe, provided you play by the rules.

Both Hilti and Ramset/Redhead make a variety of powder-actuated fastening tools. I tested the Hilti DX-36M and Ramset D-60, two all-purpose tools that fall in the middle of each company's line. They each fire a wide variety of fasteners ranging from smooth-shank pins and threaded studs, to conduit clips and eye pins for suspended ceilings. They are suitable all-purpose tools for residential and light commercial construction.

For this evaluation, I asked a number of qualified builders to test each tool on the job site—firing into 3000 psi concrete, cement block, and structural steel. OSHA explicitly requires that powder-actuated tool users must be licensed. Hilti and Ramset will not sell a tool to an unlicensed user. I had to renew my license for each tool and provide proof that the other testers were also qualified.

Essential Features

Both the Hilti DX-36M and Ramset/Redhead D-60 have three features that I think are essential for any general purpose powder-actuated tool: *low-velocity drive*, *semi-automatic loading*, and *power ranging*.

A low-velocity tool pushes a piston which actually drives the pin. These are much safer than high-velocity tools which don't have a piston and fire the pin like a bullet down the full length of the barrel.

Semi-automatic means that the loads are put into the gun in a clip of ten. Hilti collates the loads on a strip that feeds up through the center of the handle; Ramset/Redhead uses a disk that fits in a slot at the back of the gun. These not only save a lot of time in setting up for each shot, but fewer loads end up going home in a helper's nail bag.

Power ranging allows you to adjust the intensity of each load by lengthening the firing chamber inside the gun. For example, Hilti recommends you only need to carry red loads. By turning a dial on the butt of the tool, you can "range down" to a yellow and a green load. Similarly you can range down with the Ramset tool by loosening a knob and twisting the muzzle end. With power ranging tools, you don't have to keep as many load sizes on hand to be able to fire into different materials.

Two powder-actuated tools—the Hilti DX-36M (top) and Ramset D-60 (bottom)—each fire a wide variety of fasteners ranging from smooth-shank pins and threaded studs to conduit clips and eye pins for suspended ceilings.

Powder-actuated tools must always be fired straight on (at a 90-degree angle to the work surface). Both Hilti and Ramset have a safety control feature that keeps the tool from firing if it is tilted at an extreme angle. On the Hilti, the angle control kicks in at 55 degrees (35 degrees off perpendicular). The Ramset limits is at 45 degrees. However, there is still a very real danger of a fastener bouncing off the work surface and flying across the room. While both the Hilti and the Ramset are low-velocity tools and relatively safe, they are still dangerous, especially if you're reaching into a tight space.

Both tools offer a few accessories that are worth knowing about in problem situations. A spall stop can be fitted to the nose of each gun to keep the surface of concrete from blowing out when the fastener is driven. It's just a big weight that supports a wide area of concrete. This is a must in high-strength concrete and concrete with especially big aggregate.

In addition there are a variety of shields, guides, and special fixtures that fit on the muzzles of a powder-actuated tool guns to simplify fastening on irregular surfaces such as corrugated steel or pipes, and to speed up the installation of steel channel. The two models I tested could not use every special fixture available, but knowing they exist for other models can help you choose the gun best suited to your work.

Performance

My lead tester is a union carpenter who is licensed to operate both tools. He uses them extensively, sometimes all day, to drive in eye pins for suspended ceilings, to strap out concrete interiors for drywall, and to lay down plates on large structures. His testing put these tools through their paces in a few months time. Both tools performed well in the three main areas of testing—into poured concrete, cement block, and steel.

He was only able to drive 2½-inch or larger pins with the Ramset/Redhead when using an additional muzzle attachment. This was not much of an inconvenience, however, since it is extremely rare to need pins that long. The rule of thumb for sizing the length of a fastener in concrete is to use a pin that equals one-third the thickness of the base material. For a 3-inch pin, you need a minimum of 9 inches of concrete. And, according to Don Van Allman, an engineer at Ramset, the holding strengths of pins longer than 1½ inches are not exceptionally greater. For most applications it just doesn't pay to use a long pin. In steel, the pin should completely penetrate the steel, but beyond this is overkill.

Both the Hilti DX-36M (P.O. Box 21148, 5400 S. 122nd E. Avenue, Tulsa, OK 74121; 918/252-6000) and the Ramset/Redhead (1300 N. Michael Drive, Wood Dale, IL 60191; 708/350-0370) sell for about $500. I'd be hard pressed to choose between the Hilti or Ramset/Redhead. I like the fact that Hilti includes a spare parts kit in the box with the tool. However, I like even more that the Ramset/Redhead box is big enough to hold a pair of ear muffs. Hilti's does not and claims to have a noise suppression device built into the gun, but it doesn't seem to make much difference. You should use hearing protection with both these tools. ■

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TOOLBITS

For more information on powder-actuated tools, contact the Powder-Actuated Tool Manufacturers Association (PATMI, 100 S. 3rd Street, St. Charles, MO, 63301; 314/947-6610). PATMI publishes a *Basic Training Manual* that outlines the safe and effective use of these tools. The manual includes information on the types of powder-actuated tools, fasteners, loads, and fixtures. In addition, it will help you determine when the base material is appropriate for a powder-actuated fastener. It also covers fastener spacing, length, and the distances you can fire safely from the edge of a certain base materials. All this information is on the license test. Regardless, it is information worth brushing up on and passing on to the crew.

Peashooters are handy for driving nails in out-of-the-way places. These are long, sliding hammers developed by production framers in the West. A peashooter has a long tube which allows you to hold a nail in place well out of arm's length. By pulling back on the hammer, you can drive a nail straight in. They work well for cleaning up your framing from the deck, driving extra nails between joist bays, and removing the "shiners" (nails that missed a joint or rafter) left by a speedy crew with a pneumatic nailer. In tight remodeling situations where you can't swing a hammer, these tools might solve a few problems, too. I know of two companies who make these—Pairis Enterprises (P.O. Box 436, Walnut, CA 91789; 714/595-9312) and Benda Industries (4870 Alro Ave., Concord, CA 94521; 415/685-9189). Pairis offers three sizes—24, 36, and 48 inches long that range in price from $20 to $24 —and Benda offers two—28 and 38 inches at $20 and $22 respectively. I looked at a 36- and a 38-inch model from each company. These sizes seem like the most useful all-around sizes. I liked the one from Benda the most because it has a heavier handle; the extra mass helps drive the nail home. But both are sturdy tools that will do that occasional job where no ordinary hammer will fit.

—Clayton DeKorne