

Three Milwaukee 12-Volt Cordless Plumbing Tools

by Patrick Hawkins

Earlier this year, my crew and I tested three cordless plumbing tools from Milwaukee's M12 lithium-ion line. We were already using the M12 Hackzall recip saw and found it surprisingly capable for a 12-volt tool, so we were eager to try compatible products. As luck would have it, I received all three kits — the 2470-21 PVC shear, 2471-22 copper-tubing cutter, and 2432-22 ProPEX expansion tool — just as we were repiping a local casino and several houses. It took only a few weeks of using these tools on site before we were ready to change the way we worked.

Milwaukee 2470-21 PVC Shear

We normally cut PVC, CPVC, and ABS pipe with Sioux Chief's Sawhorse handsaw, and PEX tubing with Ridgid's PC-1250 manual plastic pipe-and-tubing scissors. Milwaukee's M12 PVC shears are essentially power scissors that pivot a replaceable stainless-steel blade into a hook-shaped aluminum jaw with up to 1,900 inch-pounds of torque. They cut ABS, PEX, and Schedule 40 PVC and CPVC in nominal sizes ranging up to 2 inches, and Schedule 80 PVC and CPVC up to 1½ inches. The offset head can make a cut with just ¾ inch of side clearance.

At the casino, we used the PVC shear for cutting old and new pipe, including 1½-inch and 2-inch ABS and Schedule 40 PVC as well as ¾-inch Schedule 40 CPVC. The well-balanced tool did the job with ease, consistently making square, burr-free cuts and slicing through the 2-inch pipe in about three seconds. The long-reach offset head was especially handy for demolition, allowing us to extend the tool through a maze of conduit and other obstacles and cut near framing, which would have been grueling work with a handsaw. I also made some cuts in a residential crawlspace with just 16 inches of clearance below the joists. What would have taken forever with a handsaw took minutes with the shear.

The tool cut PEX well, too, but our lightweight manual scissors work just fine for cutting the soft tubing and occupy little space in our toolbelts.

The shear has two triggers plus a lock-off button directly above them and a thumb-operated open/close switch up top. The rear trigger delivers variable-speed



Designed to fit into tight spots, the PVC shear cuts up to 2-inch Schedule 40 PVC pipe (top). To cut, you push the lock-off button with the base of your forefinger while squeezing the rear trigger with your middle finger (above). This also lights up the LED battery gauge for about two seconds. Pulling the front trigger alone springs the blade open.

power and can only be operated while pressing the lock-off button; using either your right or left hand, you power the blade open and closed by squeezing the trigger with your middle finger while pressing the lock-off button with the base of your forefinger. I found this procedure to be a bit tricky at first, but easy enough with practice.

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The copper-tubing cutter must be open to grab or release a pipe. To open it you move the control switch in front of the trigger to the far right and then pull the trigger (top). The window makes it easy to align the cutting wheel with the cutline and can be lit by pressing the white button, which also lights the LED battery gauge (center). To make a cut, you flip the control switch to the far left and squeeze the trigger, which spins the cutting wheel around the pipe (above).

Tool Specs			
Milwaukee 800/729-3878 milwaukeetool.com	2470-21 PVC Shear	2471-22 Copper Tubing Cutter	2432-22 ProPEX Expansion Tool
Weight	4.8 lb	3.4 lb	4.6 to 4.8 lb
Nominal capacity	2" (1½" for Schedule 80)	¾" to 1"	¾" to 1"
Web price	\$200	\$200	\$350
Included in kit	1 battery; 30-minute charger; plastic case	2 batteries; 30-minute charger; plastic case	2 batteries; 30-minute charger; ½", ¾", and 1" heads; grease; plastic case
Warranty (for all three models)	5-year tool and charger; 2-year battery; 30-day satisfaction guarantee		

At full speed, the tool can crack or shatter old or cold plastic pipe, which tends to be brittle. After exploding the first old PVC pipe that I had to remove from the casino, I slowed the cutting speed and virtually eliminated the problem. Cutting at temperatures below 40°F isn't recommended.

The front trigger simply releases the blade without requiring you to press the lock-off button, and either springs the blade open or lets you close it by hand. Unlike the power trigger, this release trigger won't always open the blade in the middle of a cut or if the blade is clenched shut (which can happen if you press the power trigger an extra time after closing the blade). Otherwise it opens the blade faster than the power trigger.

According to Milwaukee, the tool cuts more than 200 times per charge. We never made that many cuts in a day, so battery runtime wasn't an issue. Still, we always checked the built-in LED battery gauge before wiggling into a crawlspace or boarding a scissor lift.

Replacement blades cost about \$30

apiece and are easy to install using the hex key that stores behind the handle. After cutting lots of old pipe, I quickly restored the cutting edge by removing the blade and touching it up with a diamond hone. There's no belt hook on this tool, probably because it wouldn't be safe to have an exposed knife blade hanging at your side. I did wish for an LED headlight, though, because we're always working in dim light.

Milwaukee 2471-22 Copper-Tubing Cutter

The M12 copper-tubing cutter is designed to cut Type K, L, and M copper pipe in nominal sizes ranging from ¾ inch to 1 inch, and is supposed to make up to 200 cuts on a single charge. The tool mimics traditional manual tubing cutters but automatically adjusts the cutting diameter, spins the cutting wheel around the pipe at 500 rpm, has a long reach, and can cut with less than 1½ inches of clearance. Replacement wheels cost about \$7 for a two-pack and are easy to install.

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To insert or remove a pipe, you flip the tool's control switch toward the "open" icon and then press and release the trigger. That rotates the cutterhead so the opening faces forward, and unlocks the spring-loaded jaws so you can pop the pipe in or out without damaging the jaws or the cutting wheel. To make a cut, you look through a window on the tool's head to align the cutting wheel with your cut-line, flip the control switch to the "cutting" icon, and squeeze the trigger. Since there's no lock-off button, you need to be extra careful to keep your fingers out of harm's way, and you should always set the control switch to the trigger-lock position when you're done.

If you press the white button on top of the tool, an LED bulb illuminates the cut-line, which is a big help in dim light. The button also turns on the adjacent LED battery gauge for a few seconds.

Before I tried the tool, I handed it off to a plumber friend, who used it for a couple of residential repiping jobs requiring Type L and M copper. The tool jerked him sideways a couple of times when he didn't hold it square to the pipe, but otherwise he really liked it. It cut $\frac{3}{4}$ -inch Type L pipe in about 10 seconds, and he said it was much less tiring to use than his manual cutters.

My own experience, however, didn't go quite as smoothly. I brought the tool into a tight crawlspace and tried to reach up and cut an old $\frac{3}{4}$ -inch supply line with it while lying on my stomach. The tool jammed, and I had to use my manual tubing cutter to extract it. After that, it "threaded" pipe rather than cutting. We shipped it to an authorized service center in Oregon, where a broken cutting spring in the head was replaced. The people there said this was only the second time they'd repaired this model since its introduction in 2008, but both cases involved the same problem. The tool has a five-year warranty, so downtime was the only issue.



To join Uponor's AquaPEX tubing to its ProPEX fittings, you slip a ring over the end of the tubing, stretch the ring and tubing with an expansion tool, then slip them over the fitting and let them shrink to a leak-free fit. The M12 ProPEX expansion tool makes the job easy and fits into tight spaces (left). The expander heads simply thread onto the frame (top right). When you pull the tool's trigger, the jaws repeatedly open and close as the head rotates incrementally (above right).

Milwaukee 2432-22 ProPEX Expansion Tool

Uponor makes the AquaPEX tubing and ProPEX fittings that we've installed for years with leak-free results. Connections for the $\frac{1}{2}$ -inch, $\frac{3}{4}$ -inch, and 1-inch tubing we commonly use are made by sliding a ProPEX ring over the end of the tubing, using an expansion tool to stretch the diameter of the ring and the tubing, then quickly slipping the ring and tubing over the ProPEX fitting and giving them about 10 seconds to shrink to a tight fit.

We normally expand the tubing and ring manually using Uponor's ProPEX Hand Expander Tool, which comes in a kit that costs around \$400 and contains three heads for expanding $\frac{1}{2}$ -inch, $\frac{3}{4}$ -inch, and 1-inch tubing. To use the tool, you have to repeatedly open and close a pair of $14\frac{1}{2}$ -inch-long handles and rotate it in $\frac{1}{8}$ turns until the pipe and ring are fully

expanded. This requires about three to 14 repetitions per connection, depending on the size of the tubing. It's a chore, especially when working from a ladder or in tight spaces. An auto-rotation adapter is available, but it alone costs about \$165 and I haven't tried it.

Hoping to make the job much easier, I bought two of Uponor's cordless ProPEX 150 Battery Expander Tools a couple of years ago for over \$1,000 apiece. On the first day, I dropped one of them from a ladder onto concrete and it broke, which doesn't say much for the tools' durability. They're also too bulky for a toolbelt and too heavy for a belt hook. We've used them mostly for bench work.

Acknowledging the limitations of these tools, Milwaukee and Uponor teamed up to develop the new M12 cordless ProPEX expansion tool, which expands $\frac{3}{8}$ -inch to 1-inch tubing. The kit ships with the three

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All three tools come in plastic cases with sturdy metal latches. The Pro-PEX-expander case (shown here) holds the three expander heads, a tube of grease, and either Milwaukee's standard batteries or its optional XC batteries, which double the runtime.

heads we need and a tube of expander-cone grease; last time I checked, it cost \$350 at Amazon.com. To use the expander, you just thread on the proper head, insert the end of it into the tubing, and pull the paddle trigger. The tool rotates the head incrementally as its six jaws repeatedly open and close, expanding $\frac{3}{4}$ -inch tubing in about 10 seconds. It has a reversible belt hook that's handy when working from ladders and lifts, and it's slender enough to ride in a toolbelt. An LED work light below the grip stays on for about 10 seconds after you release the trigger, a blessing in basements and attics. The tool also has an LED fuel gauge, though we could work all day on a single charge.

I purposely dropped the tool on concrete, and it bounced harmlessly. Hands down, it's the best expander I've used.

Split Decision

The 2470-21 PVC shear and 2432-22 Pro-PEX expansion tool passed my trials with flying colors. I plan to buy at least one of each and expect them to pay for themselves through increased productivity in about a month.

As for the 2471-22 copper-tubing cutter, my plumber friend has decided to buy one regardless of the malfunction. But I'm going to stick with my manual ratcheting AutoCut tubing cutters, which cut just as fast and need less than an inch of clearance.

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