High-tech innovations are commonplace in the office of the 1990s. Computers, faxes, voice mail and e-mail are staples in many companies; to stay competitive, utilizing equipment with the latest features is a must.

Contractors also should demand the highest quality from their “office equipment”—power tools. Because of ground-breaking advances in design and engineering, the latest class of tools deliver superior performance, thanks to features that make them easier to use than ever before.

Knowing what to look for is important; sometimes these innovations are little more than alphabet soup to contractors. To select the best tool for the job, it’s worthwhile to examine some of the newest developments in power tool technology.

**battery technology**

One of the greatest strides has been in the area of battery technology for cordless tools, such as drill/drivers, screwdrivers and small circular saws. Cordless tools give contractors the freedom to move around the work site without worrying about finding an outlet. Pros also can reach tight work spaces without getting twisted around yards of extension cords. In the past, however, many contractors shied away from using these tools, fearing the battery would lose its charge long before the job was complete, and then it took far too long for the batteries to recharge. Another common problem was that the chargers overcharged the battery and shortened its life.

The most recent charging systems are capable of fully powering batteries in as little as 15 minutes without overcharging. For example, the Bosch Fuzzy Logic Charger senses battery conditions, battery voltage and surrounding air temperature to select the best charge to fully and safely charge the battery as fast as possible.

There’s no chance of overcharge, even if the battery is kept in the charger longer than 15 minutes. That’s important because overcharging or charging at the wrong rate creates heat, which reduces the battery’s life.

By monitoring the various charging conditions, technologically advanced chargers can increase battery life to an incredible 3,000 charge/discharge cycles. That’s up to three times longer than batteries used with less advanced chargers. Now professionals can “cut the cord” without the worry of being stranded with a burned-out battery.

**electronic feedback circuitry**

Another innovation causing quite a stir in the industry is electronic systems that minimize vibration, produce less noise, allow the tool to work under greater load without slowing down and provide soft, easy starts.

Electronic Feedback Circuitry allows a tool to maintain constant speed under
load by “telling” the unit via an intricate network of electronic pathways to increase power when it encounters resistance. With the increased power, the tool won’t get bogged down and stall in the middle of a job. Tools featuring EFC deliver maximum performance, even when the contractor bears down and applies pressure during an application.

This system can be found in a variety of power tools, such as rotary hammers, Sanders/polishers, angle grinders, routers and random orbit sanders.

**electro pneumatic impact systems**

Electro pneumatic impact systems are another feature that contractors should look for. Commonly found in rotary hammers, this innovation maximizes impact force yet minimizes vibration.

Electro pneumatic impact systems basically consist of a piston and striker that use air to cushion movement. The piston rides back and forth on a rail inside the unit, and the striker is a small, free-flowing piece at the nose of the tool.

On the backside of the movement, the piston hits a cushion of air that pushes it forward into the striker, which hits the butt of the tool’s bit.

Although this creates a hammering motion strong enough to break concrete, the smooth back-and-forth flow of this pneumatic system drastically reduces vibration. And less reverberation means less wear and tear on users’ joints as well as better handling and operation.

**operational modes**

The latest hammers also provide different operational modes for more versatility:

Bosch SDS Rotary Hammers, for instance, offer three different operational modes, creating a versatile tool that can be used for a variety of applications. This allows contractors to use the same tool for different jobs. With this “jack of all trades,” pros are no longer forced to use a drill for soft steel and wood, switch to a rotary hammer for hard surfaces like concrete and stone, and then switch again to a hammer for chipping.

Most hammers with these different application modes offer a hammer-only mode for light chipping applications using optional chisels; a rotation-only mode for drilling in wood, steel and other building materials with an
optional chuck; and a hammer and rotation mode for drilling in concrete, brick, stone and masonry.

Hammers aren’t the only tools with advanced features. Many drills now have electronic clutch circuitry—instead of mechanical clutches—which provides many benefits. With electronic “clutches” there are no mechanical parts to wear out because the clutch is actually a network of circuits.

These advanced clutches can stop the bit from turning before a screw is overdriven and stripped. A contractor simply selects the proper torque setting for the job. The tool senses when the torque setting has been achieved and shuts off the power to the motor. This eliminates run on, saves motor current and eliminates the ratcheting noise caused by driving the screw too far into the work piece.

Another system to look for is spring-loaded clutches, such as the Bosch Quiet Clutch™ system. Here’s how it works.

As force is applied to the screw, the system becomes engaged. When the tool senses that the nose piece is flush against the work piece’s surface, the spring overrides the force on the clutches and they disengage.

This spring-activated clutch system also helps contractors avoid stripping the screw and overdriving it into the surface.

Perhaps one of the advanced features most appreciated by contractors is the automatic service reminders—such as a light that goes on to warn the user that service is needed before the tool shuts off. This is a lifesaver when working on a remote site. By looking at the reminder light, pros will know how much time is left before the tool will shut down, so there are no surprises. Contractors should check manufacturer specifications for how many hours of warning the service-reminder light gives for a specific tool.

Service reminder brush systems can be
found on tools like cutoff saws and breaker hammers. These systems shut off the tool when brush replacement, lubrication and preventive maintenance are needed, eliminating undue wear and reducing potentially serious damage to the tool. With other systems, the tool senses when it is running out of bristles in its carbon brushes, and a pin pops out within the brush to tell the contractor it’s time for replacement.

These reminder systems are a great benefit for contractors because they really take the guesswork out of preventive tool maintenance and, therefore, extend the tool’s life.

Today's power tools deliver superior performance thanks to advancements in high-tech technology. The Bosch I I3 I I EVS Demolition Hammer features a service-reminder light, electronic feedback circuitry for constant speed under load and an electro pneumatic impact system to minimize vibration.

Contractors need to really examine and compare power tools to ensure they get the best one for their money. They should look for tools with features that offer measurable benefits and ask questions about all of the “bells and whistles.”

Having tools that deliver maximum performance consistently can only improve a contractor’s bottom line. Making the initial investment in a state-of-the-art power tool will pay off in the long run.

About the Author
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