



# Tech Talk

## With Bob Dolph

point for easy centering, requires a powerful drill and can be easily field sharpened. A variation of this bit is the Spear-Zit™ from LSD.

**Step Bit** — This has the appearance of a child's top with ridges. It allows an installer to size a hole in a metal box or other thin material such as plastic and wood. A distinctive “pop” sound can be heard as the bit steps from one size to the next. This is a very handy bit for every installer's toolbox.

**Hole Saw**—This is technically a saw that acts like a bit. It has a centering pilot bit and comes in bimetal versions from companies such as Milwaukee Electric Tool ([www.mil-electric-tool.com](http://www.mil-electric-tool.com)). Hardened carbide bit versions of the hole saw are available for masonry and are referred to as *core bits* and *rebar cutters*.

**Saw Drill** — A special drill used as a high-speed router-type saw. The cutting action is achieved by pressing the saw drill against the material and using the flute and land action. This allows for very smooth and fast cutting of irregular openings in material such as wallboard. One brand-name system is the Rotozip® (*see photo*) zip bit from the Rotozip Corp. ([www.rotozip.com](http://www.rotozip.com)). Various jigs are available for cutting large, perfectly round openings, like those used for mounting recessed speakers.

**Masonry Bit** — This is a hardened steel drill bit with bonded tungsten

carbide cutting tips. It is specifically designed for drilling in concrete, brick, block and stone. This bit comes in three flavors: rotary only, rotary/percussion and rotary/hammer. Percussion bits (1/8 inch to 1 inch) are designed for light-duty, mechanical hammer drills; hammer bits 3/8 inch to 1 1/2 inches) are designed for heavier, piston-driven rotary hammer drills. SDS shank types are typically up to 5/8 inch in diameter, while spline and SDS-max are used for holes 3/4 inch or larger. Rotary hammer drills can drill up to 10 times faster than lighter hammer drills.

**TiN-Coated Bit** — This type of bit has its surfaces treated with a titanium-nitride compound, which improves drill life by reducing wear and increasing heat resistance.

### Putting the Bits Together

Following is some basic advice for working with drills and drill bits:

- The larger the drill bit size, the slower the speed
- Stop using a dull drill bit when feed-through appears to go down
- Never use a bent drill bit.
- Oven cleaner can be used to remove residue buildup on wood drill bits.
- Don't drill a hole past the flute length.
- Drill a pilot hole first for large holes in metal
- When using masonry bits in concrete, make sure to stop as soon as

you hit metal as the heat will destroy the bit. Then use a rebar (steel rod) cutter bit to cut through the metal rebar. Use metal detectors, such as the MetalliScanner® 6.0 from Zircon ([www.zircon.com](http://www.zircon.com)), to detect metal in masonry. Avoid drilling blind in masonry.

- Minimize heat buildup by making sure hammer drill shanks are lubricated per the manufacturer's instructions. Hot bit shafts may break.

### Be a Sharp Sharpener

It is important to remember that a drill bit begins to wear as soon as it is placed in operation, with the maximum drill wear taking place at the corners of the cutting lip. One of the worst enemies of bit wear is excessive heat from underfeeding or over-speeding.

Even with proper pressure and speed, drill bits will suffer wear. Then the installer is faced with the choice of replacing or sharpening the worn drill bits. A good sharpening program can save a dealer money in replacement drill bits. Learning to sharpen drill bits can be accomplished at different skill levels.

Drill sharpening machines, such as the Drill Doctor® ([www.drilldr.com](http://www.drilldr.com)), are economical, easy to use, and can consistently return both HSS and masonry drills to a manufacturer's specifications.

Care should be taken when sharpening long flexible-shaft bits in a machine. You have two choices; either use the long shaft adapters where the bit can be temporarily removed or have another person assist in holding the long shaft bit as it is being sharpened in order to maintain the correct drilling angle. Freehand filing sharpening techniques on bits such as the auger, spade and multispur can be learned with a little practice.



Photo courtesy of Rotozip Corp.

**Saw drills are excellent for very fast and smooth cutting of irregular openings in material such as wallboard.**