

Router Bit Basics

Regardless of the quality of your router, the bits you choose determine the success of the tool. This is why bit selection should involve shopping for innovations that matter, not just the lowest possible price.



While it's true that many small router bits perform just fine with 1/4" diameter shanks, once you move up to intermediate-sized bits -- the kind used to create decorative edges or rabbet and dado grooves -- you'll find bits with 1/2" shanks offer noticeably smoother results.

Router bits slice wood 350 to 500 times each second, and this means that thin shafts sometimes flex enough under the strain to compromise the surface being milled. It's not a safety issue, but flexing can create small ripples on the profile that are difficult or impossible to sand out. Whenever you have a choice, choose bits with 1/2" diameter shanks. They flex less (or not at all), leading to noticeably smoother results.

Advances in cutter geometry and metallurgy are another issue that's easy to miss as you're buying. When primitive carbide router bits first hit the market during the 1980s, cutter angle was always parallel to the router bit shaft. And while this arrangement is easy to manufacture, and a step up from high-speed steel bits, it's never been ideal. That's because straight cutters offer no slicing action as they encounter wood. Many of these old-style, angle-free router bit designs are still manufactured and on the market today, so beware.

You'll enjoy the smoothest possible results at the lowest long-term cost with bits that have beefy carbide cutters (the best are about 0.100" thick). Only thick carbide is designed to be resharpened multiple times. You should also ask questions about the carbide formulations used in the bits you're buying. Not all are the same.

Titanium cobalt carbide is currently the most advanced formulation for woodworking applications and there are two reasons why. First, it's a finer-



grained alloy than less sophisticated forms of carbide. This allows the metal to accept and hold a keener cutting edge than ordinary carbides. At least as important as edge holding capacity is the fact that titanium cobalt carbide is also impervious to corrosion and pitting caused by wood acids. Few people understand that these chemicals regularly attack and dull the edge of less sophisticated carbides, even as the bits sit in storage. And once the cutting edge is pitted -- even a little -- it's no longer able to slice wood cleanly.

There are also safety issues to consider.

This is where bits with an anti-kickback design are important. They include a full metal body that extends almost all the way around the perimeter of the bit, from cutter-to-cutter. This feature greatly reduces the chance that wood will be caught and flung backwards -- a hazard still posed by older style, economy bits with open-body designs. Although non-kickback bits have been outlawed in Europe for years, they're still sold in Canada. Look closely before you buy.

Invest in router bits with a stout shank, angled cutters, leading-edge carbide and an anti-kickback design and you'll be a better -- and safer -- woodworker for it.

To learn more and see additional content such as articles, plans and instructional videos visit www.freudlearninglibrary.com