

Calculated Tool Buying

QUALITY VS. PRICE

The Choice Is Yours

By Rock Rutherford

A fabrication company will spend thousands of dollars each year on consumable diamond tools. At the same time, there are more and more options to consider that can make this necessary task an unnecessarily confusing one. Faced with all of the choices, selecting the best tool for the job can be difficult. If this is your story, you are not alone.

There are dozens, if not hundreds of different tool brands. Like any other product, there are inexpensive ones that may not last as long and there are the products that are more expensive, but may be of a higher quality and have a longer life. In reference to just about any product, there is an old adage of "you get what you pay for," and it's a pretty safe bet that the diamond tool business is no exception.



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Tooling Makeup

In today's economy, the decision to purchase very inexpensive, low-quality tools may seem to be best for a company's bottom line. However, before jumping to that conclusion, fabricators should review the available information. To understand the differences between high-end tooling and low-priced products, a basic understanding of the manufacturing methods may help.

Without getting into too much detail about the manufacturing process, diamond tools, such as diamond "blades," don't cut like knives would, but rather they grind material. And throughout the fabrication process, diamond crystals are exposed on the surface of

a blade or other tooling. These crystals do all of the grinding and as a tool wears down, new crystals are exposed. These crystals in the tooling are held by a "matrix" or bond of materials, such as powdered metals.

Several variables influence the longevity of a diamond tool. The factors that are directly related to the tool's quality itself include the hardness of the matrix, the formulation of the bond, the quality and concentration of diamonds in the bond, the thickness of the tool and the overall quality of the metallurgy. In addition to increasing the life of tooling, improving any of these factors generally increases the cost also.

Outside factors that influence the longevity of a blade are such things as the abrasiveness and hardness of the material being cut, the cutting depth, the horsepower and rpm of the equipment the tooling is being used on and how the operator is handling the machinery.

All of these things should be reviewed when making a decision about what tool is best for a given shop.

Cost-benefit Analysis

When deciding what tooling to purchase for a particular operation, a less expensive tool looks like a great bargain, but making a decision on purchase price alone is probably not the best method to use. If, for example, the choice is between a \$10 blade and a \$20 blade, on purchase price alone, the \$10 blade sounds like the best choice. However, if the \$20 blade lasts four times longer, then that \$10 bargain blade just cost twice as much for the same work. That is why a cost-benefit analysis (CBA) should be performed.

A CBA is simply looking at the overall cost of a product by examining the purchase price in light of the benefits received. The cost of the blade and blade life are only two factors among many that should be examined. The diligent fabricator should also factor in the speed at which the blade cuts and the quality of the cut being made. A blade that allows for faster cutting speeds may make a big difference in shop flow and throughput. Fabricators want to keep production lines moving quickly, so they may be tempted to choose the fastest cutting blade. However, if running a machine at a higher speed takes 10 percent more energy and the quality of the cut is poor and more edge finishing work must go into putting out a quality product, it may not be worth the time savings.

Putting together a simple spreadsheet that takes all of these factors into account in the form of capital and labor costs can help you determine the actual cost of using one particular blade over another. This should help make your decision much easier.

Where To Buy

In addition to determining the best type of tooling for your shop, you will also want to examine the sources of tooling at your disposal. Most fabricators have three choices when it comes to the question of where to buy: catalog houses/distributors, retail outlets and direct from the manufacturer.

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Currently, many of the major manufacturers are distributing their tools through large catalog houses. These catalogs have a lot to offer. They often contain products from dozens of different tool manufacturers, giving the fabricator plenty of choices. However, it is practically impossible to know the difference between a low-quality diamond tool and a high-quality tool just by looking at a picture in a catalog. Additionally, because you may be choosing a number of different diamond tools from different manufacturers, the consistency and wear rates will be different, which affects the cost and quality of your work, especially with CNC tooling. However, independent distributors and catalog companies typically offer a number of other products in addition to tooling; so many needs can often be met at one point-of-sale. But, because these companies do not specialize only in tooling, fabricators may face a slow reaction time to problems. These companies don't design new tools to solve specific problems because they are not the manufacturer and do not have the resources to come up with customized solutions.

Local retail supply stores are another option. They are often great places to find solid customer service and local support, but they too are not set up to solve a fabricator's specific problems. Another plus is that you may be able to drive to a convenient retail outlet and pick up something you need right away, if they stock it. Supply stores are great for emergencies but have a limited supply, and usually low-quality tools, which are not designed for high-production professional fabricators.

The third choice is to purchase directly from a manufacturer. However, this means you are limited to only what a manufacturer makes, and you must feel confident those products have the quality you expect. But, when buying from a single manufacturer you can expect consistency and the same wear rates for your tools. By purchasing directly from a high quality manufacturer that also has local manufacturer representatives, you can also get the support and quick action to your fabricating problems. Another advantage to using a manufacturer is that you are now buying directly from one source. That means potential volume discounts and factory reps with local inventory. Perhaps the biggest advantage to purchasing your diamond tools from a quality manufacturer is its ability to manufacture special one-of-a-kind tools that specifically solve a problem.

The good news is fabricators have more options now than ever before for their diamond tool needs; the bad news is fabricators have more options now than ever before for their diamond tool needs. Ultimately, this means fabricators should be taking a good look at their operations and all of the options available before thoughtfully calculating out which choices fit their businesses the best and are the most cost-effective. ■

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