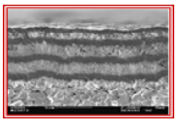
Diamond Coated Tools in Ceramics

Diamond Coated Tools (DCT's) offer new machining options and cost savings. Daimond tools are increasingly being used to successfully machine a growing range of materials. Initally targeted for abrasive materials in the electronics industry, these tools are now being used to machine GRAPHITE, **ALUMINUM OXIDE, GLASS, QUARTS, SOLID SILCON, CARBON/GLASS FIBER, ALUMINUM SILICON ALLOYS, METAL MATRIX COMPOSITES and GREEN CERAMIS.**

DCT 's offer longer life, improved dimensional accuracy and process capability due to reduced wear rates. To take advantage of these attributes , and the potential for cost savings, many previously accepted processing methods are being re-evaluated. Likewise, products that were previously determined to be un-manufacturable with current equipment and capabilities are being reevaluated. It's been found that diamond coated products increase the capabilities of existing equipment and materials that can be machined.

GCT GmbH, (www.gctool.com), has been delivering their diamond coated carbide tools for more than ten years. Annual volume exceeded 1 million pieces starting in 2011 and it continues to grow. Smaller tools, less than 1/8" in diameter, are their specialty with stock diameters for drilling as small as .010" and end mills as small as .012". Tools as large as 6.00mm are available for special applications.

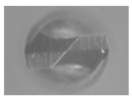
GCT's Standard Tools



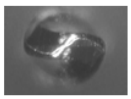
GCT's Multilayer Diamond Coating

A very successful application for DCT's was the drilling of a thermally conductive ceramic laminate; 045" thick. The initial process used conventional uncoated .30mm/.0118" drills. The drills were checked at 20 hits and the wear was already extreme. When a similarly designed diamond coated drill was used the resulting wear was exceptionally better. The pictures below are from the very shocked customer. The difference, as you can see, was dramatic.

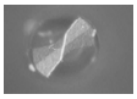
Standard Drill before use



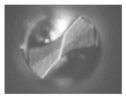
Standard drill after drilling 20 holes



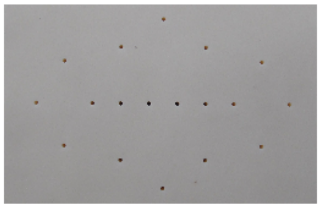
Diamond Coated before use



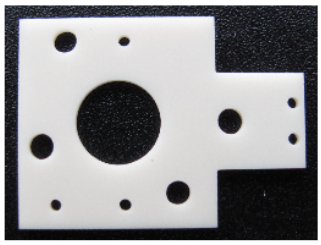
Diamond Coated after drilling 2200 holes



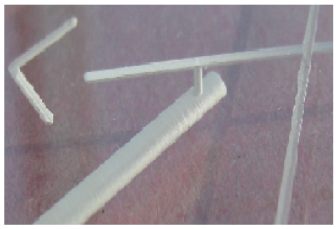
Carbide Related Technologies, Inc. is GCT 's North American stocking distributor. Since 1987, CRT has been providing customers with standard and made-to-order carbide tools as well as regrinding services. Located in North Haven, CT, we welcome your inquiries. Please feel free to contact us with any questions!



Aluminum Oxide
.0197" Holes .1988" thick



Aluminum Oxide
.0143" & .0787" Holes
.048" thick



Fused Quartz
.0197" Through hole
90 degree C-score

Recommended Series:

1625 : An undercut drill featuring a specific design as well as MicroSpeed X Coating

1835 : A straight drill design featuring MircoSpeed Coating

1640 : An optimized undercut drill featuring MicroSpeed Coating

1322/28 : Two flute end mills featuring MicroSpeed Coating