



IN-STOCK AND SPECIAL ORDER DIAMOND TOOLS



**abrasive
technology**

Innovations in Diamond Tooling for Non-Metallic Materials

EVERLAST® VEINED PCD DRILL

The advantages of Abrasive Technology's patented* Everlast® veined PCD drills are:

- The drill is not a 2 piece fabrication
- Improved drill hole surface finish
- Extended tolerance control
- Greater PCD depth to increase drill re-grind capabilities
- Special grade of PCD diamond material is chip resistant while giving a sharper cutting edge and improved wear

EVERLAST® VEINED PCD IS AVAILABLE IN: DRILLS, DRILL/REAMERS, COUNTERSINKS, ROUTERS, COMBINATION TOOLS



AEROSPACE / COMPOSITE ISSUES	EVERLAST® PCD DRILL SOLUTION
Surface Integrity - Thermal damage to the resin structure from heat build-up in the cutting zone	<ul style="list-style-type: none"> • Sharper cutting edge than tungsten carbide and competitor's PCD drills gives cooler running • Can run without coolant • PCD's excellent thermal conductivity maximizes heat dissipation
Exit hole delamination	<ul style="list-style-type: none"> • Sharper cutting edge minimizes delamination • Cutting edge stays sharper longer • Positive cutting rake on helical drill results in less uncut fibers
Tight tolerances mean short tool life	<ul style="list-style-type: none"> • Demonstrated capability for over 300 holes • Estimated capability of over 2000 holes • Approximately 50 times tungsten carbide
Limited machining parameters using tungsten carbide	<ul style="list-style-type: none"> • Increased machining parameters and consequent productivity (50 - 100%)
Poor surface finish from tungsten carbide drilling requires subsequent reaming	<ul style="list-style-type: none"> • PCD Everlast® drill can drill to H8 tolerance and eliminates reaming
Fabricated PCD drill failure	<ul style="list-style-type: none"> • Fully sintered PCD tip with no brazed diamond section
Fabricated PCD drills do not achieve required tolerances	<ul style="list-style-type: none"> • Everlast® concept enables variable tip geometry
Limited flexibility of tip geometry on fabricated PCD drills	<ul style="list-style-type: none"> • Everlast® concept meets current tolerance requirements

*US Patent No. 5,580,196 European Patent: EP0560951

P.B.S.[®] DIAMOND TOOLING

P.B.S.[®] is a unique, state-of-the-art diamond brazed bonding system. With this bonding system, the diamonds are individually brazed in place on the tool. This promotes high diamond exposure and virtually eliminates the loss of diamond particles through pull-

out. Additionally, the abrasive section will not strip or peel. This produces very aggressive tools that last longer, cut faster, run cooler and load less, giving you increased productivity and part consistency. From coarse 20 mesh to fine 400 mesh.

The P.B.S.[®] Advantage

Abrasive Technology's P.B.S.[®] tools are manufactured using a unique brazed process that is completely different from electroplating. This process features:

- Maximum exposure of diamond crystals, engineered exclusively for fast stock removal
- Controlled spacing of diamond particles which produces a load free, cooler running tool

- An extremely strong, wear resistant bond which significantly enhances tool life
- The elimination of diamond layer stripping and peeling for longer life and greater productivity
- Custom manufacturing of special non-standard sizes and forms for tight tolerance and custom work

P.B.S.[®] vs. Electroplating

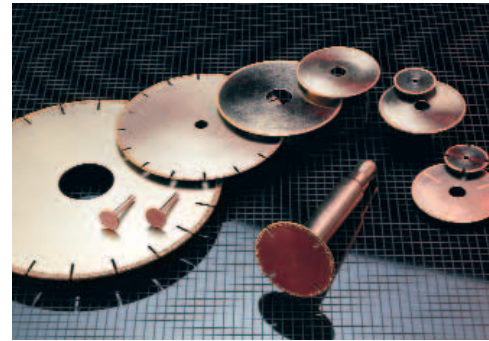
In the micro-photographs shown on the right, you can clearly see the concave bond area on the P.B.S.[®] tool as compared to the rounded bond of a typical electroplated tool.



P.B.S.[®]
Diamond particles are brazed to the substrate and cannot pull out. Diamond exposure and concentration can be controlled. This allows greater cutting edge exposure and swarf clearance for cooler running.



Electroplated
Electroplated bonds mechanically entrap diamond particles.



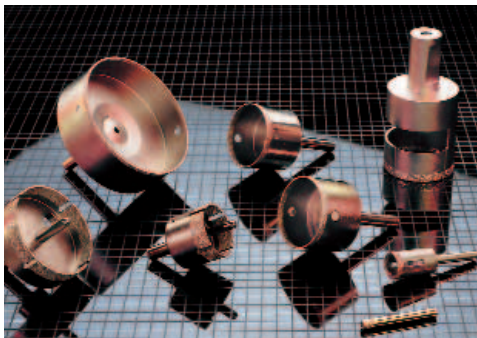
Saw Blades

Saw Blades

Ideal for cutting non-metallic materials such as: graphite epoxy, FRP, graphite, fiberglass, friction material, honeycomb, and other composite materials.

Core Drills

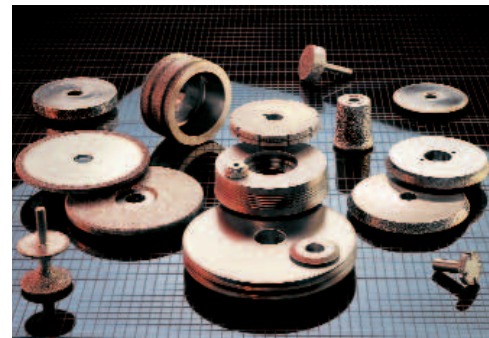
P.B.S.[®] brand core drills offer exceptional speed and efficiency for composite applications. Custom orders are welcomed and many standard sizes are in stock, with or without the pilot.



Core Drills

Form Wheels

We excel in manufacturing standard or custom form wheels with short lead times. For custom orders, specify the material to be machined as well as your finish requirements.



Form Wheels

Super-Rok[™]

These P.B.S.[®] diamond discs excel at rapid material removal and are available in 4" and 7" diameters.



Super-Rok[™]

Form Routers

P.B.S.[®] routers are excellent for machining tough to cut materials where you require fast stock removal and need to take deep cuts. Many standard sizes are in stock. We also specialize in building custom routers with special profiles.



Form Routers

Standard sizes of saws, core drills and routers are in stock in our online **Express Line[®]** catalog and are ready for immediate ordering and same day shipment. Fast delivery is also available for custom sizes and styles.

Go to www.abrasive-tech.com to order online or find a distributor near you.

FLEXIBLE DIAMOND TOOLING

Ideal for grinding, polishing and shaping, the construction of our flexible diamond products permits applications such as contouring and shaping as well as feathering honeycomb material or making delicate adjustments to a formed surface. There is little heat

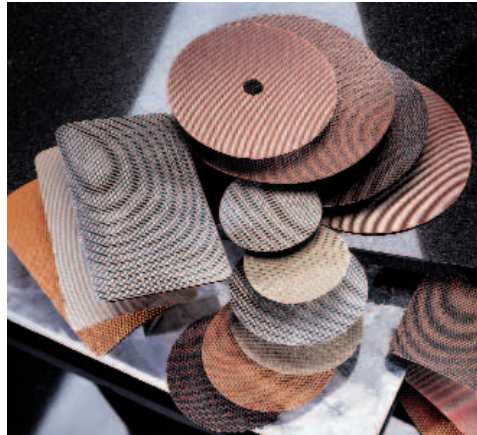
build-up with these products and very little pressure is required. The cool, rapid, even cutting ability of these products eliminates surface distortion, increases productivity and reduces costs.

Genesis™ Diamond Discs, Belts and Orbital Pads

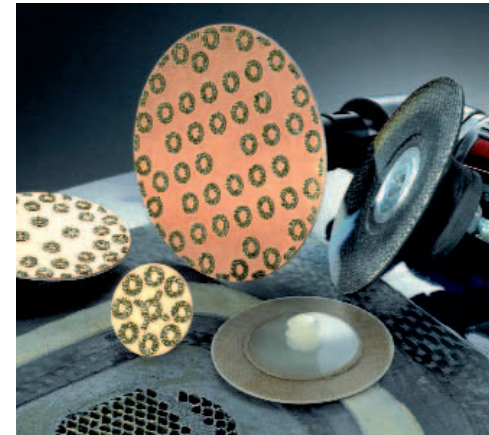
Genesis™ flexible diamond discs, belts and orbital pads are designed to grind, hone and polish composite surfaces to a smooth finish.

Tech-Lok™ Diamond Discs

Tech-Lok™ diamond discs attach quickly to your existing grinding equipment with twist lock adapters and are ideal for scarfing, shaping, deburring, feathering & finishing nearly all composite materials.



Genesis™



Tech-Lok™

Baby-Rok™ Diamond Discs

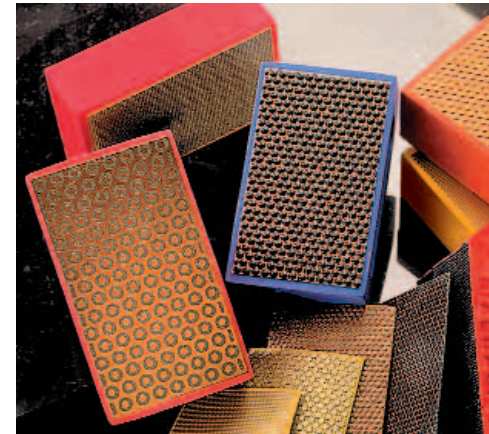
Baby-Rok™ electroplated diamond discs will grind almost any edge at incredible stock removal rates, leaving a smooth finish. These semi-rigid discs are ideal for removing deep scratches in composites left during the cutting process.

Diamond Handpads

We offer a variety of diamond handpads for many different applications. They excel at abrading composites, ceramics, glass, plastics and stone. Available in both firm or flexible bases, their ideal hand size allows the finishing of surface shapes and areas that are hard to reach with power tools.



Baby-Rok™



Diamond Handpads

Autoclave Mold Cleaning

Using specific Genesis™ products, autoclave molds can be cleaned in as little as half the normal time. By using these discs, the surface of the mold becomes so polished that the casting can be removed with minimal force. In addition, during testing one composite manufacturer found that they could fire a polished mold 8 to 17 times before cleaning was required again. For more information, see our technical paper at <http://www.abrasive-tech.com/pdf/tmoldpol.pdf>.

Standard sizes and grits are in stock in our online Flexible Diamond Tooling (Stone) catalog and are ready for immediate ordering and same day shipment.



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Go to www.abrasive-tech.com to order online or find a distributor near you.