



**INNOVATION  
AT WORK.**



**abrasive  
technology**

[www.abrasive-tech.com](http://www.abrasive-tech.com)



# A PASSION FOR PROBLEM-SOLVING

At Abrasive Technology, ingenuity is in our DNA. The company was founded on the belief that great ideas can revolutionize an industry. Forty years later, we're still focused on producing the best superabrasive grinding wheels and tools available. And our culture is still built around finding creative ways to solve problems for our customers and enhancing the productivity of their operations.

## THE P.B.S.<sup>®</sup> BONDING PROCESS

### AT INNOVATION

First patented in 1975, this original brazed bonding process established Abrasive Technology as a leader in engineering and innovation. The P.B.S.<sup>®</sup> braze process uses a nickel chrome alloy to chemically bond each individual crystal to the substrate. The alloy is then melted, permanently brazing the diamond layer to the substrate. This proprietary process allows for high diamond exposure with no stripping or peeling, and greatly extended usable tool life. P.B.S.<sup>®</sup> tools are well suited for tough-to-cut, non-metallic materials like fiberglass, carbon fiber composites, friction material and FRP.

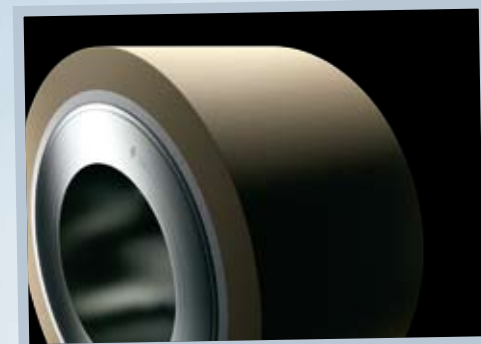


TWO STRIPER<sup>®</sup> DENTAL TOOL

# FOCUSED ON SOLUTIONS

Abrasive Technology understands that the best solution for a grinding problem isn't always a new wheel. That's why we've built one of the most respected, multi-disciplined teams of technical and business experts in the world. Their innovation has not only solved issues for our customers, but has led to groundbreaking advancements for the industry as a whole. This cross pollination of our best thinking allows Abrasive Technology to continue to pioneer the use of superabrasive technologies in more and more applications, including aerospace, textiles, oil & gas — and beyond.

## AT INNOVATION



SEAMLESS CENTERLESS VFLEX™ WHEEL

Our latest patented process is VFlex™ technology, a solution that consistently produces uniform resin bond diamond and CBN (cubic boron nitride) wheels up to 12 inches wide in one piece. The results are impressive and include an increased wheel life of up to 30 percent, decreased cost per part versus standard wheels, higher stock removal rates and increased depth-of-cut. With sizes up to 24" in diameter, VFlex™ wheels are precisely what you've been looking for to solve your latest challenge and take your operation to the next level.



### AT SOLUTION SUSTAINABLE PROCESSES

Abrasive Technology worked with the U.S. Air Force and its partners to develop new methodologies for grinding with water-soluble coolants. This reduced the use of hazardous oils, promoting more environmentally responsible and sustainable manufacturing practices.

### AT SOLUTION E4D DENTAL RECONSTRUCTION

The E4D system allows dentists to design and sculpt highly customized crowns in a single patient visit. Abrasive Technology provides the grinding components used in the computer-controlled milling station, delivering the precision needed for this delicate application.



RESIN BOND SUPERABRASIVES + RESIN BOND SUPERABRASIVES + RESIN BOND

RESIN BOND

# ENGINEERING THE FUTURE

Abrasive Technology is known around the world for its innovation in engineering and for advancing the science of superabrasive tooling. We have experience across multiple applications and technologies to improve your manufacturing process. Our engineers were the first to successfully braze diamond abrasives to a substrate, among the very first to successfully braze diamond to tungsten carbide and the first to develop a new molding technology for diamond resin wheels. We're also the first to take on a challenge, whether that involves enhancing your existing process or developing an entirely new solution.

## AT ENGINEERING EXPERTS IN LEADING BONDING TECHNOLOGY

From its beginning, AT has been a pioneer in the development of superabrasive products. We manufacture the highest quality grinding tools across virtually every bonding technology — including P.B.S.® braze, resin, electroplated, flexible and metal.

## AT ENGINEERING INTEGRATED COMPUTER DESIGN TECHNOLOGY

We pioneered the use of Integrated Computer Design Technology in the superabrasives industry, developing the first program with predictive design simulation to determine the feasibility of customers' manufacturing process parameters and promote rapid design.

## AT ENGINEERING ON-SITE INNOVATION LAB

Abrasive Technology operates a sophisticated superabrasives innovation laboratory at our North American headquarters, allowing us to quickly develop new product designs and manufacturing processes, as well as to develop bond formulas to meet exacting customer needs.

## P.B.S.® BRAZED CONDITIONING DISKS FOR CMP

# AT INNOVATION

In the mid 1990s, leading semiconductor equipment manufacturers were looking for a new solution. The abrasive products used at the time for conditioning chemical mechanical planarization (CMP) pads were prone to diamond loss, which resulted in scratched, inconsistent surfaces and, ultimately, reduced wafer yields.

To improve the reliability of this critical manufacturing process, Abrasive Technology engineered a dramatically different tooling system: P.B.S.® brazed conditioning disks. Brazing the diamonds to the disk surface allows for greater control over crystal concentration, creating a much more consistent pad surface. Plus, the chemical bonding is more durable and protects the crystals, extending the useful life of each disk. This innovation revolutionized CMP, setting a new standard for performance, consistency and efficiency.

**YEAH,  
WE INVENTED THAT**

EP FORM WHEEL

EVERLAST™ PCD DRILLS  
AND COMBINATION  
DRILL COUNTERSINKS

CMP CONDITIONING DISK

GEAR SAVER™

**AT INNOVATION  
P.B.S.®**

This revolutionary brazing process led to dramatic improvements in superabrasive tooling. P.B.S.® bonded tools cut faster, run cooler, load less and last longer. This AT innovation also increases part consistency and overall productivity.

**AT INNOVATION  
GEAR SAVER™**

This valuable invention made it possible to re-work hardened gears to correct their geometry and keep them in service longer. Gear Saver™ tools use a monolayer diamond abrasive bonded to a gear hone to correct the lead and involute profile of the gear within very tight tolerances.

**AT INNOVATION  
MONOLAYER SUPERABRASIVE TOOLS**

Our engineers developed a process of making monolayer superabrasive tools that achieved the close tolerances required in the manufacturing of jet engines. The CBN wheels also delivered substantial cost savings with fast delivery times for shorter production runs.

**AT INNOVATION  
EVERLAST™ PCD DRILLS**

PCD (polycrystalline diamond) drills are abrasion resistant with the capacity to out-produce carbide tooling by 10 to 100 times. Our patented veined diamond technology replaces brazed diamond sections, allowing for custom designed flute, rake and tip geometries.

**AT INNOVATION  
CMP DISK PROTECTIVE COATINGS**

We invented a proprietary coating used on CMP conditioning disks. For semiconductor manufacturers, the protective coating increases productivity and disk life by preventing acidic slurry compositions from compromising the bond strength of the brazed conditioning disks.

**AT INNOVATION  
VFLEX™ PROCESS**

This patented, computer-controlled compression molding system produces a consistent, identical wheel each time one is made. The VFlex™ process also increases wheel density and virtually eliminates deviation in hardness throughout the entire abrasive section for predictable wheel performance.

LET'S GET TO  
WORK

STARLAP DISK



Whatever manufacturing challenges you're currently facing, our experts are standing by, ready to develop innovative solutions. We welcome all kinds of inquiries, even if you're not exactly sure yet what it is you're asking for. Here's how to connect with us:

### WORLD HEADQUARTERS

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