



UKAM Industrial Superhard Tools

Division of LEL Diamond Tools International, Inc.

25345 Avenue Stanford, Unit 211 Valencia, CA 91355 USA

Phone: (661) 257-2288 Fax: (661) 257-3833 www.ukam.com

SMART CUT™ KOOL

SMART CUT™ is a Fully Synthetic Water Soluble Lubri-Coolant that provides superior overall diamond machining performance on a full range of advanced materials. Such as Ceramics, Optics, Quartz, Silicon, & Other Materials. Designed to reduce the friction and heat between the tool and substrate. Both Production Engineers and R & D Researchers rely on **SMART CUT™** Synthetic water soluble coolant to improve their overall diamond machining operation to its ultimate point of efficiency.

When added to cooled water **SMART CUT™** synthetic water soluble coolant will improve your overall slicing, dicing, drilling, grinding, lapping, and diamond machining operation by as much as 30%.

APPLICATION:

Precision Diamond Tool
Machining including:

- Slicing
- Dicing
- Drilling
- Grinding
- Lapping

PACKAGING:

1 Gallon bottles, 5 gallon pails, 55 gallon drums

NOTE:

Contains no nitrides, phosphates, chromates, phenols, heavy metal salts, Petroleum oils, chlorine or phosphorus. Do not add inorganic nitrates, nitrites, or organic-nitro compounds.

Stream of **SMART CUT** coolant added to deionized (DI) water reduces material thermal stress, edge damage, and internal cracking, assuring long-term integrity of material being processed. Since **SMART CUT KOOL** is a coolant and lubricant, both the diamond tools and material benefit.

SLICING



DICING



DRILLING





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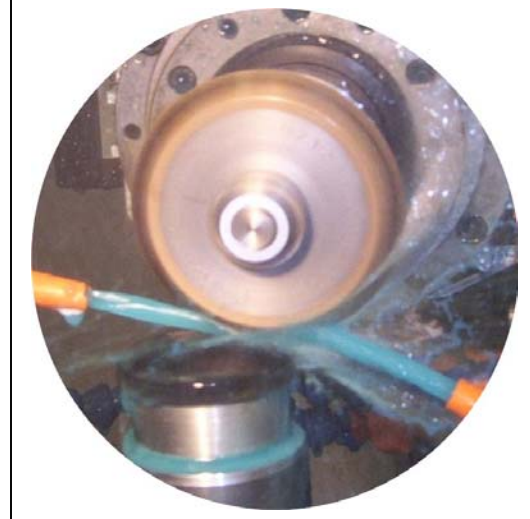
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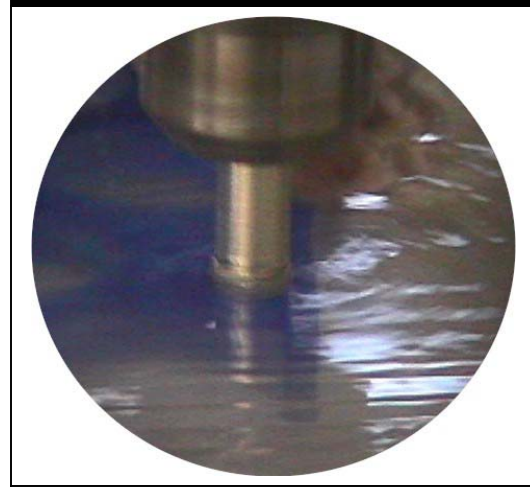


As a coolant, **SMART CUT™ KOOL** reduces heat caused by friction. As a lubricant, **SMART CUT™ KOOL** lowers friction and surface tension, which increases swarf dispersion.

GRINDING



DIAMOND MACHINING



UKAM Industrial Superhard Tools

is one of the Leading High Precision Diamond Tool manufacturers in the U.S. and Europe. We offer

- Technical Support
- Application Assistance
- Real value and savings

With over 50 years of experience in manufacturing, research, and development. Following the belief that there is always room for improvement., we continue to raise standards for the whole industry.

SMART CUT™ KOOL helps manufacturers and R & D labs:

Reduces Surface Tension - by 25-40 dynes/cm2. SMART CUT KOOL allows more water into the material kerf / pores, dissipating heat generated by friction.

Bonds Water Molecules - into the kerf and to the diamond tool, allowing better swarf dispersion and lubrication.

Prevent Swarf Accumulation - on the diamond tool and in Back and frontside edges, minimizing chipping and internal cracking.

Extend Blade / Diamond Tool Life - by up to 30%. The lubricated blade / diamond tool runs cooler, reducing metal fatigue and blade / diamond tool wear.

Improve Material Yield and Reliability - from the reduced amount of chipping, cracking and consequent edge damage.

Eliminate Additional Material Processing – Depending on the application and your objectives, SMART CUT KOOL frequently eliminates and minimizes secondary and subsequent material processing.

Improved Machining Tolerances – Many of today’s demanding advanced material applications provide challenges to advanced material manufacturers and R & D facilities. Obtaining tolerances less than a millionth’s of an inch, is not uncommon. SMART CUT KOOLANT promotes attainment of close tolerances by removing heat generated at the point of contact between the tool and work piece. Heat can cause deformations in both the tool and work piece that results in the loss of tolerance. When the generation of heat and its subsequent removal by a coolant is momentarily interrupted any coolant product will adversely affect the performance of a tool and therefore ruin a tolerance specification.



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Why use Coolants?

Coolants increase productivity and the quality of manufactured parts. Coolants increase the time interval between tooling changes. This saves the company money by reducing the number of tool or die changes needed. Tooling changes require the shut down of the production lines, therefore less tooling changes will increase productivity. Modern coolants must fulfill two primary functions: cooling and lubrication. Both of these functions are important, but their relative importance depends on the type of operation and material being processed.

Cooling

Prior to modern high-speed equipment, cooling from a lubricant was not needed. The slow cutting speeds did not generate much heat. The straight lubricants were able to transfer enough heat to avoid damage to the parts and tools. However, modern equipment operates at high speeds. This high speed movement creates tremendous amounts of heat which must be removed by the coolant.

Failure to remove the heat and chips in the contact zone, between the cutting tool and the part will shorten tool life and increase the number of tool changes as well as reduce the tolerances of tooling and part because of thermal expansion.

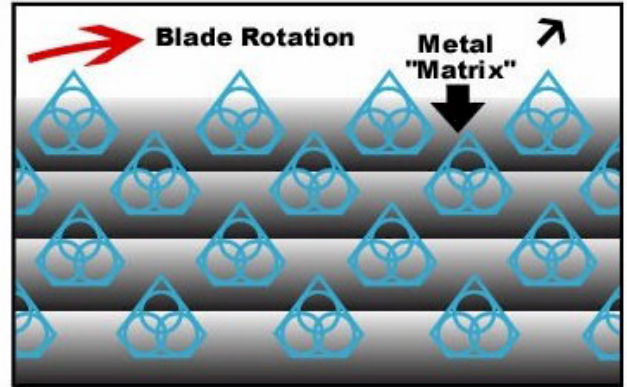
Lubrication

Lubrication provided by the coolant reduces the friction between the tool and material / substrate. The coolant prevents the substrate from sticking to the tool and will increase the surface finish. Some companies are trying to eliminate coolants, which inevitably increase the amount of money spent on tooling and lost production. But some companies feel that this is worth the cost benefit of maintaining the coolant systems and the work associated with the coolants. These companies are in the minority

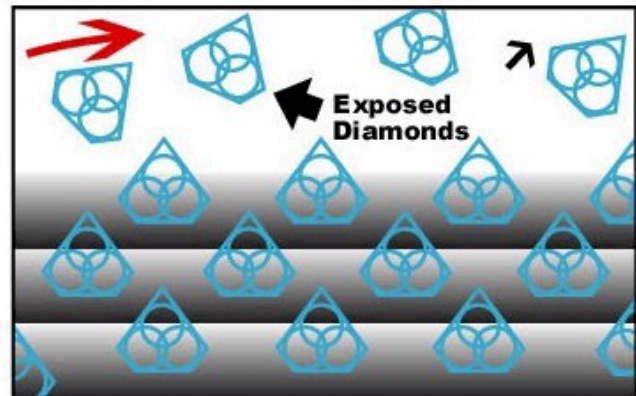
SMART CUT™ Advance technology, that Redefines the Standard.

How SMART CUT™ Works?

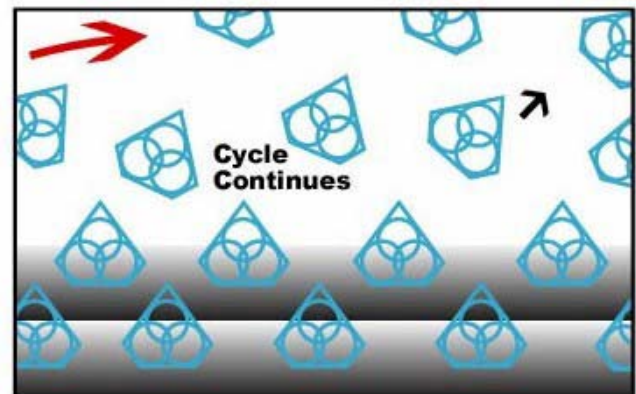
The sharpest and finest quality DeBeers diamonds that go into a Smart Cut Diamond Bond, immediately penetrate into the material, grinding and polishing as they cut.



Diamonds are activated only at the exposed layer. As diamonds layer begin to wear out, diamonds in a new diamond layer are immediately activated, substituting the already used up diamond layer. The Smart Cut Diamond Bond makes sure every diamond is in the right place and at the right time, working where you need it most.



The newly exposed diamonds don't effect diamonds already working on the material. Unlike many other diamond bonds, diamonds in a Smart Cut remain sharp and grow sharper with each cut. Prolonging product life and consistent performance.



This advanced formulated open diamond bond design insures minimal chipping, fast cut, constant speed of cut, minimal cutting noise, and most important of all minimal loss of precious material.



SMART CUT Synthetic Water Soluble coolant vs. conventional diamond tool coolants:

TOP 10 REASONS Why SMART CUT™ KOOL is **SUPERIOR**

1. **Operator Sensitivity** - SMART CUT KOOL is formulated with operator friendly additives that will not irritate skin (dermatitis), nasal passages, or eyes.
2. **Bio-resistance** – SMART CUT KOOL is formulated with biocides and fungicides to biologically control the growth of bacteria, fungi, and mold in the coolant system. The bio-resistance will determine its suitability for recycling in large central systems.
3. **Corrosion Protection** - SMART CUT KOOL is formulated with corrosion inhibitors, which provide protection to machinery and the substrate. The protection needed will be determined by the customers requirements. With proper concentration, no corrosion should occur on the machinery.
4. **Hard Water Stability** - SMART CUT KOOL should be stable in all water conditions. Hard water ions react with coolant additives and reduce the effectiveness of the coolant solution.
5. **Mixability** – Concentrate SMART CUT KOOL should mix easily or “bloom” into the water. Any difficulty in mixing will not be tolerated by the customer.
6. **Foam** - All water based coolants can potentially foam. SMART CUT KOOL is formulated with defoamers to prevent foaming under most conditions.
7. **Residue** - SMART CUT KOOL will not leave a “hard-to-remove” residue on the surface of the machine or substrates. As the water in the coolant evaporates organic residue will be left on the machines. This residue should not be sticky and should be easily re-dissolved in water.
8. **Oxidative Stability** -High temperatures and pressures will cause changes in the composition of the coolant, such as fragmentation or polymerization of the additives in the coolant formulation. This can decrease the performance of the coolant and create difficult to remove deposits.
9. **Emulsion Stability** – Concentrate SMART CUT KOOL mixes easily with water and should not separate or create an invert on the surface of the coolant mixture. Customers currently using soluble oils may be experiencing particular difficulties with this problem.
10. **Tramp Oil Rejection** - SMART CUT KOOL should reject the tramp oils and way lubricants, which may contaminate the sump. Other coolants which do not reject tramp oils are prone to attack by bacteria and fungal organisms.



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HOW TO ORDER



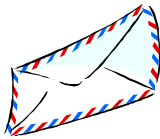
Order by Phone:

Call: (661) 257-2288 Monday through Friday 8:00 a.m. to 5:30 p.m.



Order by Fax:

Fax: (661) 257-3833, available 24 hours a day.



Order by Mail:

send your orders to: 25345 Avenue Stanford, Unit 211 Valencia, CA 91355 U.S.A.

please include product item number, description, and payment.

Accepted forms of payment



We accept Visa, Mastercard, and American Express. California Residents add 8.25% sales tax.

Guarantee: The quality of our products are 100% guaranteed.

International Orders



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Mail, fax, or e-mail orders to UKAM Industrial Superhard Tools. A confirmation of receipt will be forwarded to buyer immediately. If a confirmation of receipt is not received, buyer should resubmit the purchase order to

UKAM Industrial Superhard Tools in order to insure processing of the order. UKAM Industrial Superhard Tools will calculate and fax or e-mail the subtotal of the merchandise and comparison shipping charges when the order is prepared to be shipped. Buyer should then choose the preferred means of shipping, add shipping costs to the subtotal of estimate and notify UKAM Industrial Superhard Tools by phone, fax, or e-mail, regarding preferred shipping and chosen method of payment.

Whatever your goal or objective

UKAM Industrial can help you get there faster.

Largest Inventory & Selection

with over 2,000 different types & specifications of precision diamond products available from inventory. You are sure to find what you are looking for in stock and ready for same day delivery.

- Over 4,000 Precision Diamond Blades in stock
- Over 1,000 Diamond Drills & Drilling Accessories in stock
- Hundreds of Diamond Dicing Blades in stock

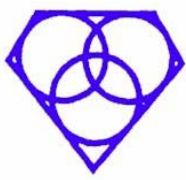
If we don't have it in stock. Chances are no body will. Call: (6 6 1) 2 5 7 - 2 2 8 8

Manufacturers Direct Prices

SMART CUT precision diamond products offer the best value & performance. In most cases UKAM Industrial Superhard Tools can meet and beat a competitors price on products of same quality & performance. If you are not using one of our products, chances are you are paying too much.

Research and Development

UKAM Industrial Superhard Tools has over 50 years of experience in manufacturing, research, and development of new and advanced technologies to keep up with your increasing challenges.



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Technical Support

We are committed to helping you improve and optimize your cutting and drilling operation to the outmost level of efficiency. If you have a special application, that requires a custom solution. Send us a piece of your material, and we will analyze it in our laboratory and design a bond formulation for your particular requirement.

You can rely on us and our group of authorized application engineers to assist you in your cutting requirements, answer any questions, and provide you with the personal attention you deserve. Please, feel free to contact our Technical Support Team at Phone: (661) 257-2288 from Monday to Friday 8:00 to 6:00 p.m. PST.

Incredible Value

UKAM Industrial Superhard Tools offers you real value and savings. Our Precision Diamond Products manufactured utilizing **SMART CUT** technology will

- save you money
- save you time
- save you material
- improve overall performance

Try a precision Diamond Product with SMART CUT technology TODAY!!!

Custom Manufacturing

Can't find what you are looking for? Let us know. We can manufacture it for you or redesign our products to better fit your needs, standards, specifications, and requests.

New Generation & Technology

UKAM Industrial Superhard Tools is a LEADER in developing new products. We are constantly engaged in Research & Development to better meet your needs and expectations. And continue to raise standards for the whole industry. With UKAM you can rest assured you're getting the latest, cutting edge products you deserve.