



 **SHANNON**  
ABRASIVES

# INDUSTRIAL DIAMOND SPECIALISTS

Trusted Supply Partner to the Aerospace & Automotive Industry

# Introducing Shannon Abrasives

## Optimizing The Industrial Diamond Global Supply Chain

At Shannon Abrasives, we provide tailored diamond solutions to customers across a wide range of industry sectors. Offering a combination of commercial and production expertise, high-quality supermaterials, and a dedicated commitment to service, you can depend on us to meet your operational needs.

### Tailored Solutions

With a solid reputation in offering proven expertise to diamond tool manufacturers. All our solutions are customized and designed to meet the operational and application needs of our customers.

### Trusted Supplier

As industry veterans with more than 35 years commercial experience, you can be confident that you are working with a reliable partner, focused on delivering a consistent-quality product for your specific industry sector.

### True Innovation

We are focused on continuous innovation and product development. While we have a wide range of products to meet current needs, we are continuously listening to the market and have developed an insightful ability to manufacture and supply products to meet the changing demands of our customers.

### Total Customer Focus

By having solid supply chains in place, combined with our committed technical and support teams, we have a genuine customer-first mentality. We also understand the importance of value-for-money and can help you achieve cost efficiencies while maintaining quality in your equipment manufacturing.

### Global Supplier

As a trusted global supplier of high-quality diamond products, we take pride in delivering our products worldwide, ensuring our customers can access the finest diamond solutions no matter where they are located. Shipping your orders promptly and securely is our top priority, that's why we have partnered with all the major courier companies, including FedEx, DHL and UPS, to ensure reliable and efficient global delivery.



**Greg Carey**

CEO



## Aerospace & Automotive



### Exceptional Industrial Diamonds That Meet Rigorous Standards

Offering unmatched quality, consistency and durability. Our supermaterials are engineered to meet the specific needs of tool manufacturers in the aerospace & automotive industries.



### Industrial Diamond Solutions For A Dynamic Industry

New technologies and a rapidly developing industry demand new approaches and new thinking.



### Innovate Using The Unsurpassed Strength of Diamonds

Aircraft engineering and automotive manufacturing are some of the world's most innovative industries. To help meet the needs of both these challenging environments, we supply only the highest quality industrial diamonds for use in our products.



### PCD (Polycrystalline Diamond Disks)

PCD (Polycrystalline Diamond) disks are high-performance materials designed for precision and durability.

[LEARN MORE](#)



### PCBN (Polycrystalline Cubic Boron Nitride)

PCBN (Polycrystalline Cubic Boron Nitride) is the cutting-edge solution for machining high hardness and hard processed ferrous materials.

[LEARN MORE](#)

# PCD (Polycrystalline Diamond Disks)

PCD disks are widely used in cutting applications in many different industries including woodworking, automotive manufacturing, aerospace, metalworking and more.



## GRADES

We offer PCD disks with both uni-modal and bi-modal grain sizes, allowing you to choose the most suitable option for your specific cutting requirements. Uni-modal grain sizes provide excellent cutting efficiency and surface finish, while bi-modal grain sizes offer enhanced wear resistance and extended tool life. With our diverse range of grain sizes and grades, you can find the perfect PCD disk for your cutting needs.

- **Disk Diameter:** 63mm and 75mm  
*\*bespoke diameters available on request*
- **PCD Grain Size:** 0.5-1um, 5um, 10um, 25um & multimodal 30um & 2um
- **PCD Overall Disc Height:** 1.6mm, 2.0mm & 3.2mm
- **PCD Diamond Layer Thickness:** 0.4 – 0.6mm

Grades	Applications
SAPC0850	<ul style="list-style-type: none"> <li>• Milling of mid-high silicon (&gt;7%) aluminium &amp; titanium alloys</li> <li>• Cutting plastics &amp; wood</li> </ul>
SAPC0002	<ul style="list-style-type: none"> <li>• High precision finishing of low content silicon aluminium alloys</li> <li>• Wear parts and guide rails</li> </ul>
SAPC0005	<ul style="list-style-type: none"> <li>• Thread cutting tools</li> <li>• Profile routers</li> <li>• Wear parts and guide rails</li> </ul>
SAPC0010	<ul style="list-style-type: none"> <li>• Medium and low content aluminium alloys</li> <li>• Stone, Graphite, Copper, Glass, Wood composites, Fireboard etc</li> <li>• Wear parts and guide rails</li> </ul>
SAPC0025	<ul style="list-style-type: none"> <li>• High silicon content aluminium alloys</li> <li>• Metal matrix composite materials</li> <li>• Tungsten carbide and ceramics</li> </ul>
SAPC0230	<ul style="list-style-type: none"> <li>• Metal matrix composites including high silicon aluminium alloys</li> <li>• High Strength cast iron &amp; bi-metal machining</li> <li>• Fibreglass and other highly abrasive materials</li> </ul>

Shannon Abrasives PDC Grades



## SPECIFICATIONS

### Sizes

Our PCD disks are available in two popular diameters: 63mm and 75mm. These sizes offer versatility and compatibility with a wide range of cutting tools and machinery. Additionally, we provide three standard thicknesses for our disks: 1.6mm, 2.0mm, and 3.2mm. These thickness options allow you to select the appropriate disk for your specific cutting application, ensuring optimal performance and precision.

## FEATURES

### Laser or EDM Cut Segments

To further meet your specific requirements, we offer a full suite of laser or EDM cut segments for our PCD disks. These segments can be customized and supplied to your specifications, allowing for precise and efficient cutting performance. Whether you need specific shapes or sizes our team can assist you in creating tailor-made segments that fit seamlessly with your cutting tools.

### Bespoke Disk Sizes and Features

At our company, we understand that certain projects call for unique disk sizes and features. Therefore, we offer the option for customers to request bespoke disk sizes and additional features. Whether you need a specific diameter, thickness, or special features such as chamfers or holes in the disk, our team is committed to delivering customized solutions that meet your exact requirements.

## APPLICATIONS

Polycrystalline Diamond (PCD) disks are a revolutionary cutting tool designed to cater to a wide range of industries and tasks. With their exceptional hardness, abrasion resistance, and thermal conductivity, PCD diamond disks excel in cutting and machining applications where traditional tools fall short.

Whether it's precision machining of non-ferrous metals like aluminum, copper, and brass, or cutting abrasive materials like wood, composites, and plastics, PCD diamond disks deliver unparalleled performance and extended tool life. These disks are also widely employed in the construction and mining sectors for concrete cutting, drilling, and grinding operations.

By harnessing the outstanding durability and efficiency of PCD diamond disks, businesses can achieve superior productivity and cost-effectiveness, making them an indispensable asset for various cutting-edge industries.

## QUALITY

Each of our PCD disks is accompanied by a quality assurance report verifying that it has passed our stringent quality assurance tests. These tests include a size & appearance check and a vickers hardness test. We also measure the thickness of the diamond layer across the disk using SEM as well as checking the micro sintering morphology to ensure it is uniform with no impurities or particle aggregations.

# PCBN (Polycrystalline Cubic Boron Nitride)

PCBN (Polycrystalline Cubic Boron Nitride) is the cutting-edge solution for machining high hardness and hard processed ferrous materials. PCBN finds extensive use in a range of industries, including the metallurgical industry, automotive sector, aerospace field, bearing and gear manufacturing, die and mould production, mining, and construction machinery. Its versatility and superior performance make it a preferred choice across diverse applications.



## GRADES

Our PCBN blanks are available in several grades, including SABN95S, SABN95J, SABN90, SABN85, and SABN60, offering a wide range of options to suit your specific machining needs.

### SABN95S

- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li>• 90~95% vol cBN</li> <li>• 2µm avg. grain size</li> <li>• Al binder</li> <li>• Precision machining of gray cast iron and high temperature alloy, such as aero engine</li> </ul> | <ul style="list-style-type: none"> <li>• Light machining of nodular cast iron and powder metal alloys</li> <li>• Continuous cuts</li> <li>• High smooth finish</li> <li>• High chip resistance</li> </ul> |
|---|---|

### SABN95J

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>• 90~95% vol cBN</li> <li>• -35µm avg. grain size</li> <li>• Al binder</li> <li>• Rough machining of wearable alloy cast steel, such as brake disc and brake drum</li> </ul> | <ul style="list-style-type: none"> <li>• Continuous to light interrupted cuts</li> <li>• High speed</li> <li>• Long tool life</li> </ul> |
|---|--|

### SABN90

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|--|--|
| <ul style="list-style-type: none"> <li>• 90% vol cBN</li> <li>• 10µm avg. grain size</li> <li>• Al binder</li> <li>• High toughness</li> </ul> | <ul style="list-style-type: none"> <li>• A good general purpose grade</li> <li>• Machining general gray cast iron at high speed</li> <li>• Engine cylinder and engine cover</li> <li>• Continuous to heavy interrupted cuts</li> </ul> |
|--|--|

### SABN85

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>• 85% vol cBN</li> <li>• 25µm avg. grain size</li> <li>• Al binder</li> <li>• High toughness</li> <li>• Rough machining of alloy cast iron and alloy cast steel</li> </ul> | <ul style="list-style-type: none"> <li>• Gray cast iron, chilled cast iron and cast iron with high Chromium content</li> <li>• Slurry pump, roller and mine machines</li> <li>• Medium to heavy interrupted cuts with demanding environment</li> <li>• Long tool life</li> </ul> |
|---|--|

### SABN60

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>• 60% vol cBN</li> <li>• 3µm avg. grain size</li> <li>• TiN binder</li> </ul> | <ul style="list-style-type: none"> <li>• Fine machining of hardened steels, such as bearing steel and die steel</li> <li>• Medium interrupted cuts</li> <li>• Medium to high speed</li> </ul> |
|--|---|

## SPECIFICATIONS

Our PCBN blanks are available in various standard shapes to accommodate different machining needs. Choose from hexagonal, diamond, triangle, round, and square shapes, ensuring versatility and compatibility with your specific machining operations. We also offer full disks of solid and carbide backed PCBN.

In addition to our standard offerings, we are proud to offer bespoke shapes and sizes of PCBN blanks to meet specific customer requirements. Whether you need custom shapes, dimensions, or hole patterns, our experienced team can work closely with you to create tailored solutions that perfectly align with your machining needs.

## FEATURES

Our PCBN blanks possess a host of exceptional characteristics that ensure superior performance and reliability in demanding machining applications:

- High hardness and fracture resistance enable effective machining of hardened steels and high hardness metallic materials.
- High wear resistance and thermal stability ensure long tool life and consistent performance, even in high-speed machining.
- Good chemical stability makes PCBN inert to iron family elements, reducing the risk of chemical reactions during machining.
- Good weldability allows for easy tool reconditioning and extended tool life.
- Excellent dimensional control and consistent surface finish deliver precision and accuracy in machining operations.
- Higher material removal rate and increased efficiency result in improved productivity and reduced machining time.

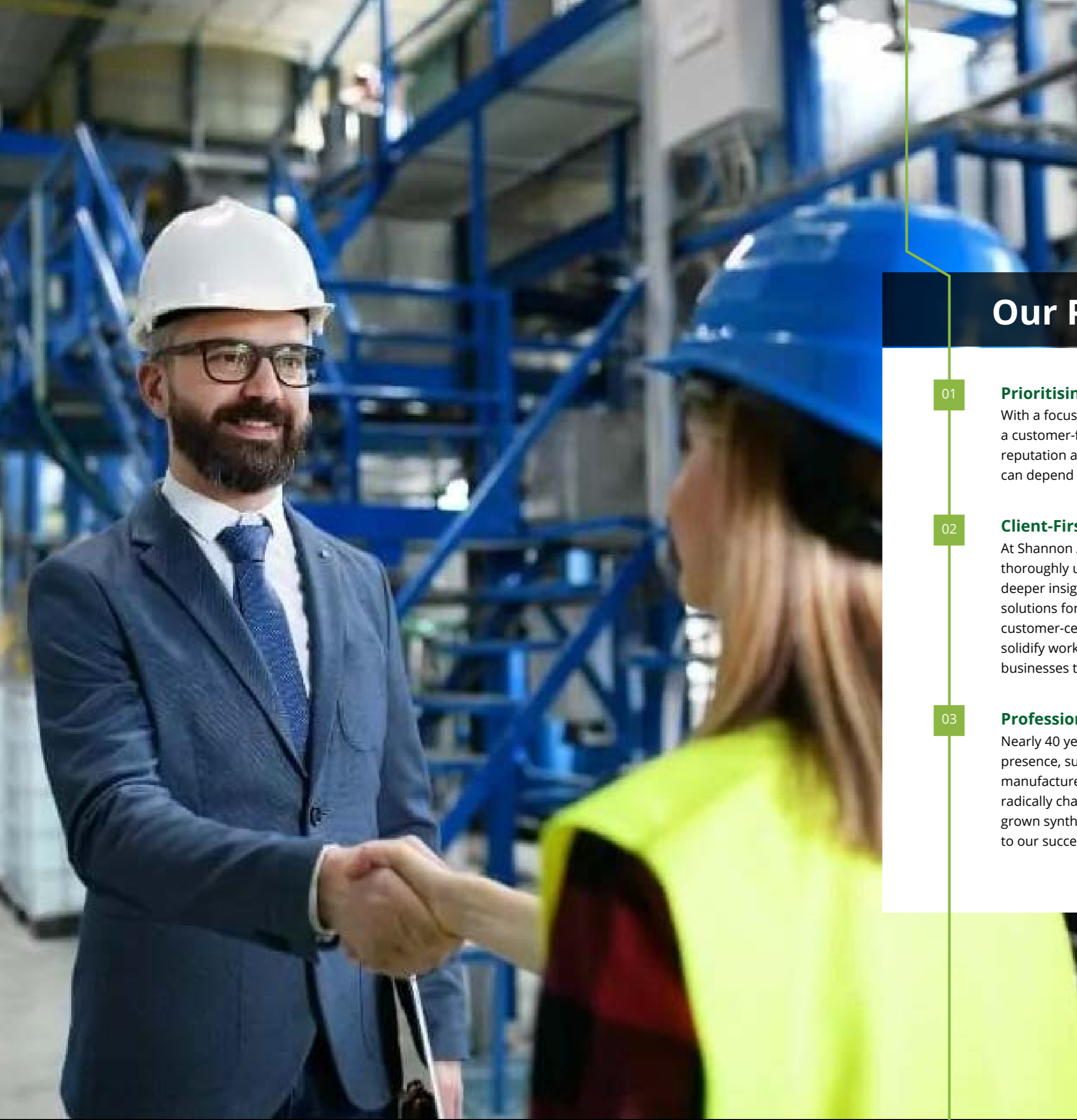
## APPLICATIONS

PCBN is widely used in various industries for machining high hardness and hard processed ferrous materials. PCBN is suitable for machining various workpieces, including brake discs, brake drums, engine blocks, engine cylinder liners, engine covers, flywheels, gears, and mould and die parts. No matter the complexity or hardness of the workpiece, PCBN tools provide precise cutting solutions, ensuring optimal results. Some of the key applications include:

- Machining of hardened steels and high hardness metallic materials, providing excellent cutting performance and precision.
- High-speed machining of grey and hard cast iron, high-strength cast iron, cold and hot-work tool steels for efficient and productive operations.
- Machining of powder metal alloys, such as heat-resistant sintered alloy and Iron-based materials, ensuring superior results in challenging machining scenarios.
- Machining of nickel and cobalt-based super alloys commonly used in aerospace and other high-performance applications, delivering exceptional performance and tool life.

## QUALITY

Our commitment to excellence is evident in every stage of our production process. Before our PCBN inserts are approved for use, they undergo a series of stringent tests to ensure their performance and durability. Our dedicated quality control team meticulously inspects each insert, conducting tests such as hardness assessment, dimensional accuracy verification, edge integrity analysis, and surface finish evaluation. These tests enable us to maintain the highest standards and guarantee that our PCBN inserts meet the demanding requirements of precision machining. With our unwavering focus on quality, you can trust that our PCBN inserts will consistently deliver exceptional results, maximizing your productivity and minimizing downtime.



## Our Promise

01

### **Prioritising Partnership**

With a focus on tailored solutions and serving client needs through a customer-first philosophy, Shannon Abrasives has carved out a reputation as an industrial diamond supplier that tool manufacturers can depend on.

02

### **Client-First Model**

At Shannon Abrasives we recognise that investing our efforts in thoroughly understanding our clients' requirements and gaining deeper insights into their product usage helps us to craft tailored solutions for their precise operational needs. Since 1987, our customer-centric approach has helped us foster greater trust and solidify working relationships with all our clients, from smaller businesses to larger enterprises.

03

### **Professionalism, Honesty And Reliability**

Nearly 40 years on and Shannon Abrasives has established a global presence, supplying industrial diamond products to industrial tool manufacturers worldwide. While the industrial diamond world has radically changed with the arrival of digitization and the rise of lab-grown synthetic diamonds, the same core qualities remain important to our success – professionalism, honesty, and reliability.



## Our Quality Control Commitment

**Quality testing** procedures for Synthetic and Natural industrial diamonds are vital to ensure their reliability and performance in industrial applications. These procedures focus on assessing the physical and chemical properties of the diamonds to meet specific application requirements. At Shannon Abrasives all orders are checked by a qualified quality control engineer prior to shipping and an appropriate certificate of quality will accompany each shipment.

Adhering to **FEPA standard** sizing, the diamonds are scrutinized for size, shape, and surface integrity, as these factors directly impact their effectiveness in cutting, grinding, or drilling applications. Advanced techniques like SEM and Ultrasonic Detection are employed to ensure the morphology of sintered products such as PCD is uniform with no particle aggregation or impurities. Ultrasonic detection is also employed to measure the diamond layer thickness across the full scope of the disk or segment and ensure that it is within required tolerances.

Additionally, thermal conductivity measurements, abrasion resistance and Vickers hardness tests are conducted to evaluate the diamonds' suitability for use in high-heat and abrasive environments. Eye tests are employed by quality assurance under 10x microscope to look for defects or contaminants.

Through these **rigorous quality testing procedures**, we deliver industrial diamond products that deliver consistent and superior performance, meeting the demands of a wide range of industrial processes.

## Global Suppliers

Shannon Abrasives are global full-line suppliers of supermaterials. We partner with each of our customers to develop industrial diamonds solutions for their specific requirements. Producing tailored product solutions for a variety of technical applications and industries, our customers range from large multinationals and SME's, to artisan tool manufacturers.



# SHANNON

ABRASIVES



### Visit us

Unit 10b, Knockbeg Point,  
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Rep. of Ireland.



### Call us

Discuss your specific  
requirements with our  
expert team.

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### Message us

Get in touch, we're here to  
help.

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