SHAPE it

OSG GLOBAL TOOLING MAGAZINE | WINTER 2026

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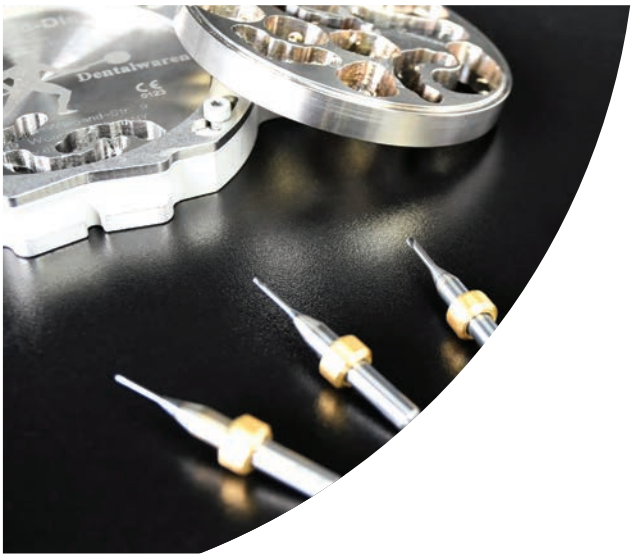
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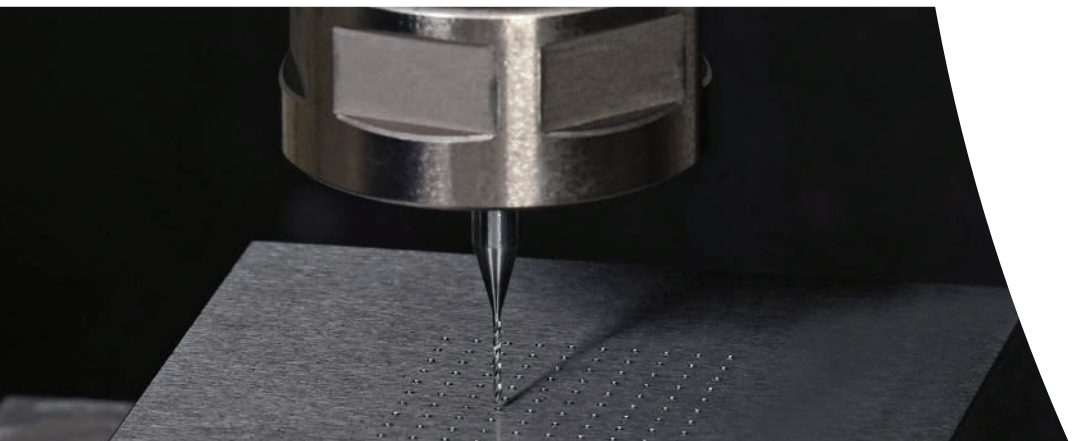

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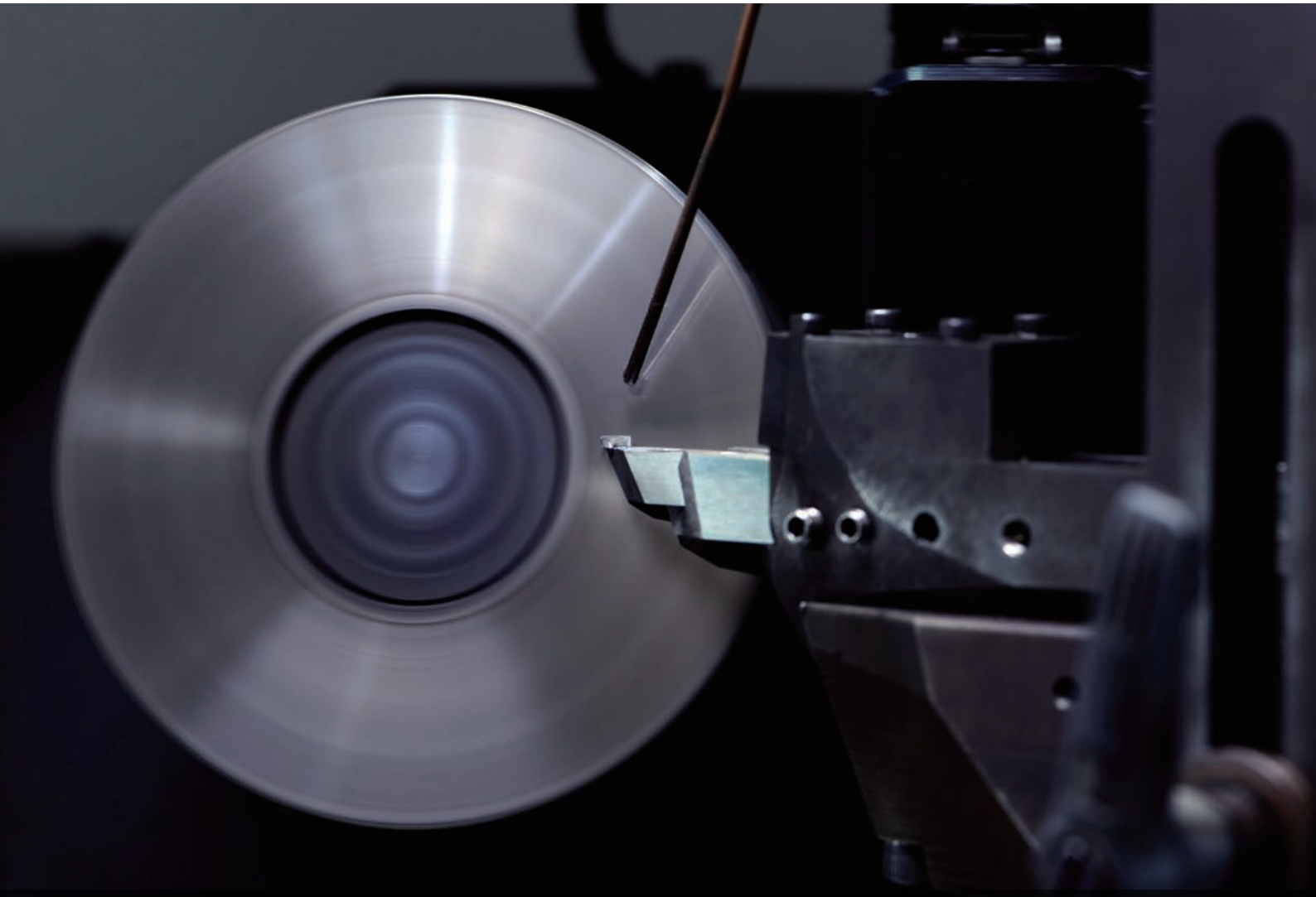


A single-crystal diamond bite being manufactured at Contour's Tokyo facility. The micro-precision machining market is rapidly expanding, driven by demand for ultra-precise components. To support this growth, OSG Diamond Tool was established in December 2024.

OSG Diamond Tool

Solutions for micro-precision machining

Nobuaki Kamiya
Managing Director of OSG Diamond Tool

The micro-precision machining market is a vital and dynamic sector fueled by the rising demand for highly accurate components with tight tolerances in diverse industries such as aerospace, automotive, electronics, energy, optics, and medical. Key factors driving this growth include the increasing need for high-precision parts for enhanced performance, safety, and reliability. The trend towards miniaturization across various sectors, requiring intricate designs for compact and high-performance components, further necessitates precision machining. Moreover, the growing integration of automation and robotics in manufacturing processes has significantly contributed to the market's recent rapid expansion by improving efficiency, minimizing errors, and enabling the handling of complex tasks.

Establishment of OSG Diamond Tool

To better support the evolving needs of micro-precision manufacturing, OSG Diamond Tool was established on December 1, 2024, through two acquisitions that occurred during the same year - Contour Fine Tooling B.V. (Contour) by OSG and Micro Diamond Corporation (Micro Diamond) by Nissin Diamond Co., Ltd. (Nissin Diamond), an OSG Group company. The strengths of these three unique companies create a complementary synergy. Specifically, Contour specializes in single-crystal diamond tools, Micro Diamond manufactures ultra-small diameter monocrystalline ball end mills using proprietary technology, and Nissin Diamond, the central entity of the three, produces a variety of cutting tools, such as natural diamond, synthetic single-crystal diamond, polycrystalline diamond (PCD) and polycrystalline cubic boron nitride (PCBN) cutting tools. Contour and Micro Diamond cutting tools are generally used for ultra-precision processing applications, whereas Nissin Diamond provides cutting tool solutions for general high-precision machining. As a comprehensive diamond tool manufacturer, OSG Diamond Tool aims to leverage synergies across its sales, manufacturing, and management divisions to deliver precision tooling solutions globally.

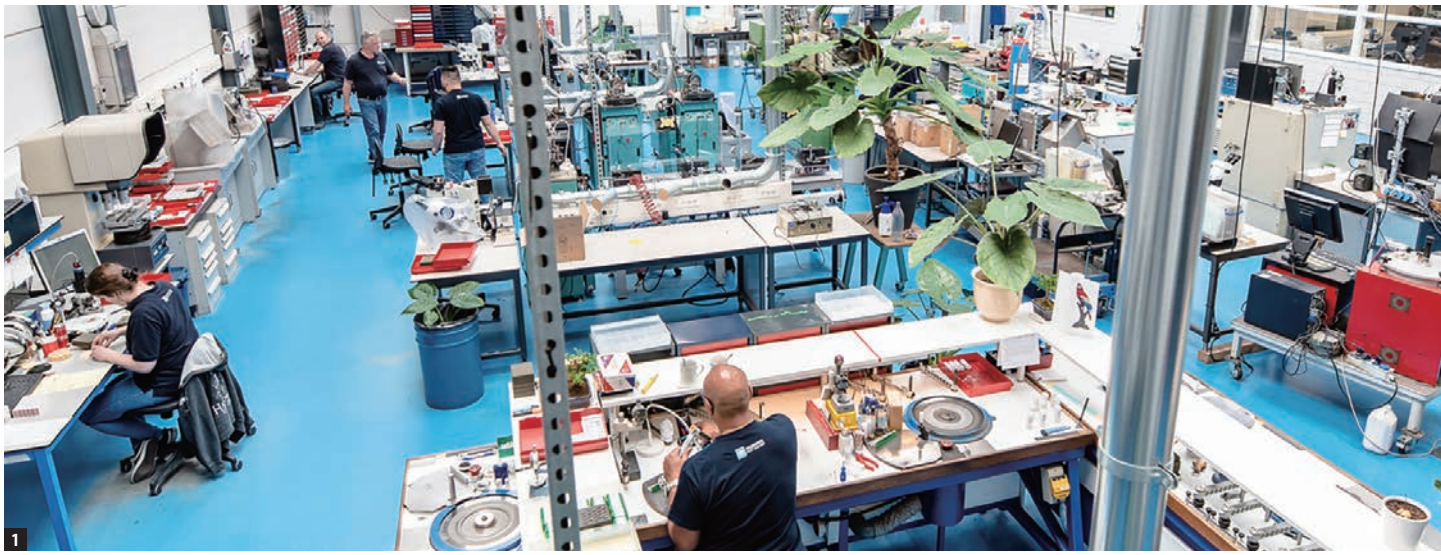
OSG Diamond Tool is a comprehensive diamond tool manufacturer, with unique specialties from three companies – Contour, Micro Diamond and Nissin Diamond, complementing each other to fulfill machining needs ranging from roughing to ultra-fine processing. Leveraging advanced design capabilities, OSG Diamond Tool efficiently manages both prototype development and high-volume manufacturing.

Contour Fine Tooling B.V.

Contour Fine Tooling B.V., a subsidiary of Precision Tools Holding B.V., is a Netherlands based world-class manufacturer specializing in ultra-precision diamond cutting tools. Established in 1982, the company has built a strong reputation for innovation, precision, quality, and value in the field of ultra-precision machining and electro-mechanical engraving.

In July 2024, the OSG Group acquired Precision Tools Holding B.V., which encompasses Contour, to expand OSG's presence in micro-precision machining and accelerate global growth by integrating new customer segments and diamond tool grinding technology.

Contour offers a wide assortment of diamond tools, including natural and synthetic single-crystal diamond tools, as well as polycrystalline diamond tools in a wide range of radius sizes and rake angles. Contour's product range includes turning inserts solid shank tools, milling tools, fly-cutting tools, styli, burr-cutters, diamond anvils, and more. Contour tools have exceptional accuracy, tool life, and create superior finishes for the end-product. In addition to standardized items, custom tools are also available for optimal fit with the client's machine tool, process, and component quality requirements. With specialized machinery for manufacturing and 110 highly skilled workforce around the globe, Contour continuously improves the performance of its diamond tools by working with customers in both industry and academia.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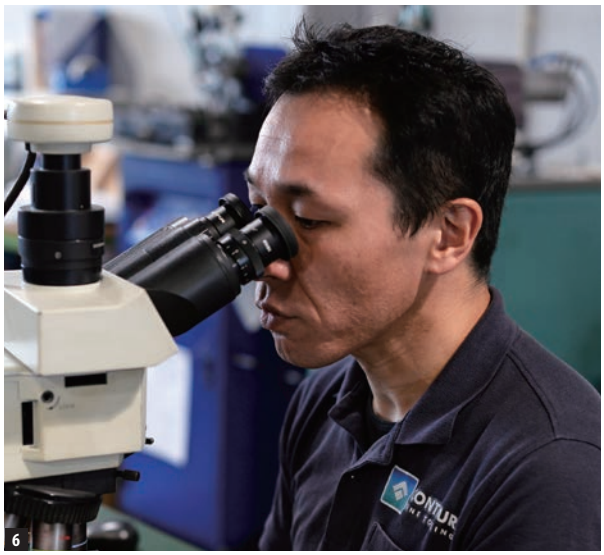
Contour tools are primarily used in the optics and printing industries, including the manufacturing of spectacle lenses, contact and intra-ocular lenses, lens molds for electronic components (e.g., mobile phone lenses), photo-receptor drums, infra-red and laser optics, mirrors, and a wide range of other optics applications.

While headquartered in Valkenswaard, Netherlands, Contour has a global reach, serving customers across EMEA, the Americas, and Asia. Technical training, product servicing and on-site support are available for customers world-wide. Addtionally, Contour has repair facilities in multiple countries, including Belgium, the United Kingdom, the Netherlands, Brazil, Japan, China, and the USA.

From left, single-crystal diamond insert, single-crystal diamond bite, single-crystal diamond fly-cutting insert and single-crystal diamond ball end mill by Contour.



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1 & 2. Contour Fine Tooling's headquarters and manufacturing facility in Valkenswaard, Netherlands.

3. Employees from Contour's Japan office pose for a photograph in Hachioji, Tokyo, Japan.

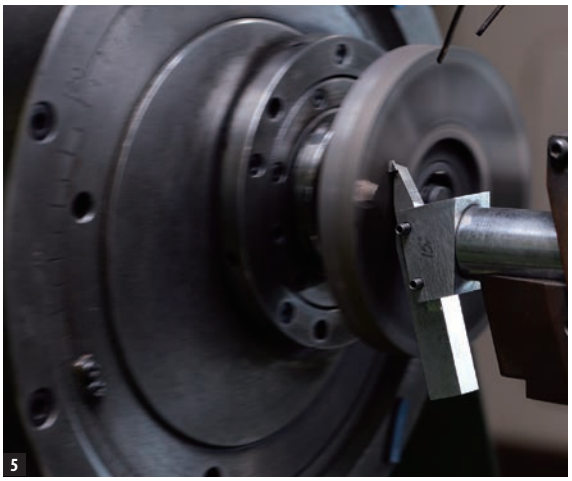
4. Ryo Akamine, Production Leader at Contour, interacts with a colleague at the company's Tokyo facility.

5. A single-crystal diamond bite in production at Contour's Tokyo facility.

6. A Contour production staff inspects the cutting edge of a single-crystal diamond insert at the company's Tokyo facility.

7. Contour tools are primarily used in the optics industries for the processing of contact lenses, lens molds, optical components, and more.

Scan for more information on Contour



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Micro Diamond Corporation

Micro Diamond Corporation, located in Odawara, Kanagawa Prefecture, Japan, was established in 2000. Micro Diamond specializes in the research, development, manufacturing, and sales of micro tools for ultra-fine, precision, and high-quality machining, utilizing single-crystal diamond and binderless cubic boron nitride (CBN).

In October 2024, the business of Micro Diamond was taken over by the OSG Group. By integrating Micro Diamond's unique technology in ultra-small diameter monocrystalline ball end mills, OSG aims to significantly advance its offerings in the micro-precision machining field within the diamond tool market.

Micro Diamond Corporation is recognized as the only manufacturer globally with proprietary technology for producing ultra-small diameter monocrystalline ball end mills. These tools are crucial for achieving high precision in micro-machining applications. In addition, Micro Diamond's binderless CBN micro tools boasted significantly longer lifespan (more than double compared to conventional tools), the ability to achieve sub-nanometer level surface roughness, and an extremely small minimum corner radius of 5 µm.

Micro Diamond tools are primarily used in industries requiring high precision and micro-level machining, such as the manufacturing of optical components (e.g., lenses for cameras, smartphones, optical disks), production of micro molds, as well as the machining of precision parts in electronics and medical devices.


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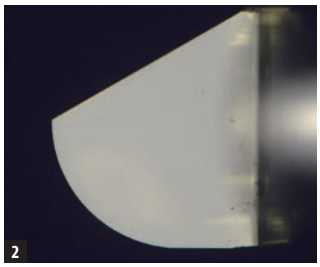
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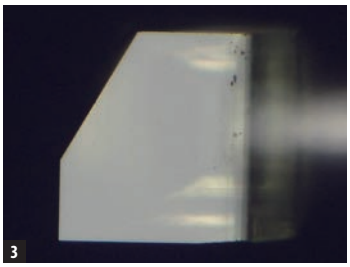
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1. Mirror-finish in aluminum achieved by the AccuSquare from the Micro Diamond brand. The Accu series under the Micro Diamond brand is a product lineup suited for ultra-precision machining and is widely used for automotive head-up display molds, PES lens molds, microlens arrays, diffraction gratings, etc.

2 & 3. From left, 1,000x magnified views of the rake faces of a R0.1 mm AccuBall and a 0.1 mm diameter AccuSquare.

4. From left, superior mirror-finish in aluminum, brass and copper by the AccuBall from the Micro Diamond brand.

5. OSG Diamond Tool's production team responsible for the Micro Diamond brand poses for a group photograph at the company's manufacturing facility in Odawara, Kanagawa, Japan.

Nissin Diamond

Nissin Diamond Co., Ltd.

Nissin Diamond Co., Ltd. is a cutting tool manufacturer based in Takashima, Shiga Prefecture, Japan.
Nissin Diamond has been active in the development, production and sales of diamond cutting tools since the company's founding in 1968. Nissin Diamond specializes in the production and sales of natural diamond cutting tools, synthetic single-crystal diamond cutting tools, polycrystalline diamond (PCD) cutting tools, and cubic boron nitride (PCBN) cutting tools.

Nissin Diamond's products are used in a wide variety of industries including IT, home appliance, construction machinery, automotive, aerospace, medical equipment and more. Many items used in daily life are machined using Nissin Diamond tools. In September 2006, Nissin Diamond became a consolidated company of OSG Corporation. In December 2024, Nissin Diamond became "OSG Diamond Tool Co., Ltd." following a change in the company name. Currently employing 59 employees, OSG Diamond Tool's headquarters and its Aiba Factory are located in Takashima in the northwestern part of Lake Biwa, Japan's largest freshwater lake.


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1 & 2. The OSG Diamond Tool headquarters and manufacturing facility in Takashima, Shiga, Japan.
3. Nobuaki Kamiya, Managing Director of OSG Diamond Tool Co., Ltd.

N-BRAND
OSG DIAMOND TOOL Co., Ltd.

N-Brand Series

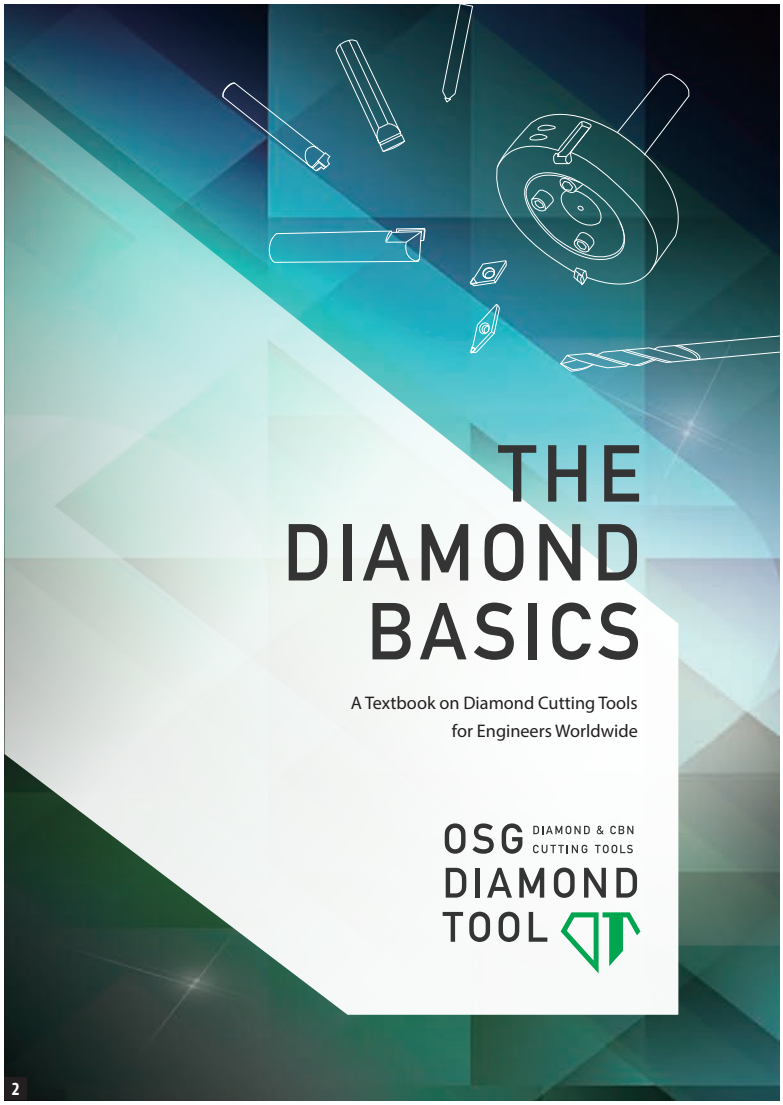
The "N-Brand" product series was a significant development for Nissin Diamond before its name changed to OSG Diamond Tool. This series represents the company's initiative to standardize niche products for specific applications, aiming to provide easily access specialized tooling that might have previously required custom orders. OSG Diamond Tool actively works on expanding the N-Brand lineup. Since its initial announcement in October 2023, the N-Brand received positive feedback from many customers. The N-Brand series highlights OSG Diamond Tool's focus on providing high-precision, mirror-finish capable tools for machining non-ferrous materials and resins, with an emphasis on standardization and addressing specific customer needs. The expansion of the series demonstrates the company's commitment to innovation and its responsiveness to the evolving demands of the manufacturing industry.

1

The Diamond Basics

OSG Diamond Tool introduced "The Diamond Basics" in summer 2025, a catalog designed for diamond cutting tool users worldwide. This resource goes beyond product information, acting as a global textbook encompassing all the necessary specialized knowledge for individuals involved in diamond cutting tools. Featuring approximately 28 products, including 17 new standard items, the 100-page catalog is available for download in Japanese, English, and Chinese on the OSG Diamond Tool website. The company envisions enriching the catalog's content to establish it as both a key product reference and the recognized standard for the diamond cutting tool community.

Technological progress and expanding applications are propelling significant growth in the micro-precision machining market. Trends such as automation, artificial intelligence integration, and sustainable practices will continue to shape its evolution. With a consolidated system for the manufacturing and sales of single-crystal diamond tools for micro- and ultra-precision machining, OSG Diamond Tool is poised to substantial progress in the micro-precision machining sector, which is expected to play an important role in future economic development, with continuous innovation and product portfolio expansion.



1. OSG Diamond Tool's N-Brand series offers standardized, high-precision tools for a spectrum of applications, including mirror-finish machining of non-ferrous materials and resins, tailored to customer needs.

2. "The Diamond Basics" is a textbook and catalog for diamond cutting tool users worldwide, providing essential specialized knowledge beyond just product information.

Scan for more information on OSG Diamond Tool

AD-MICRO

Advanced small diameter carbide drill for stable, high-precision machining

Seiya Uchida
OSG Corporation Product Development Engineer
(Drill Division)

On July 23, 2025, OSG Corporation unveiled its latest A Brand innovation: the AD-MICRO, a small diameter solid carbide drill designed for exceptional precision, durability and versatility. Building on the legacy of the WX-MS-GDS and MRS-GDL series, the AD-MICRO introduces a significantly expanded lineup and enhanced performance across a wide range of materials and machining environments.

Expanded Product Lineup

The AD-MICRO series is available in two length variations: 4D and 10D, with diameters ranging from Φ0.5 to Φ3.0 in 0.01 mm increments. This fine gradation enables precise hole adjustments and optimized pilot hole preparation. With 502 items in total, the lineup represents a more than 1.5-fold increase over the 316 items offered in previous models, providing users with greater flexibility and control.

Precision Engineering

Engineered for high-accuracy machining, the AD-MICRO features a coated cutting diameter tolerance of 4 µm and a shank diameter tolerance of 3 µm. Combined with the 0.01 mm increment lineup, this precision ensures consistent hole quality and minimizes variation, even in complex small-diameter applications.

Versatility Across Materials

The AD-MICRO series was developed with a focus on stable, uninterrupted machining of stainless steel. While previous models could process stainless steel, challenges such as sudden chipping and tool breakage persisted, especially in external coolant environments involving small diameter and deep-hole drilling. To address this challenge, OSG completely redesigned the flute and cutting edge geometry, resulting in a new drill shape that offers superior resistance to breakage and chipping. This newly engineered geometry also improves rigidity at the cutting edge and enhances overall tool strength, making the AD-MICRO suitable for a wide range of materials, including carbon steel, hardened steels and titanium alloys that demand high wear resistance.

Advanced Cutting Edge Design

Machining stainless steel presents unique challenges due to its low thermal conductivity and tendency to work harden, which concentrates heat and stress at the cutting edge. Its ductility also increases the risk of adhesion and edge damage. To counter these effects, all sizes of the AD-MICRO series feature cutting edge honing—a chamfering process that strengthens the edge and reduces chipping (figure 1).

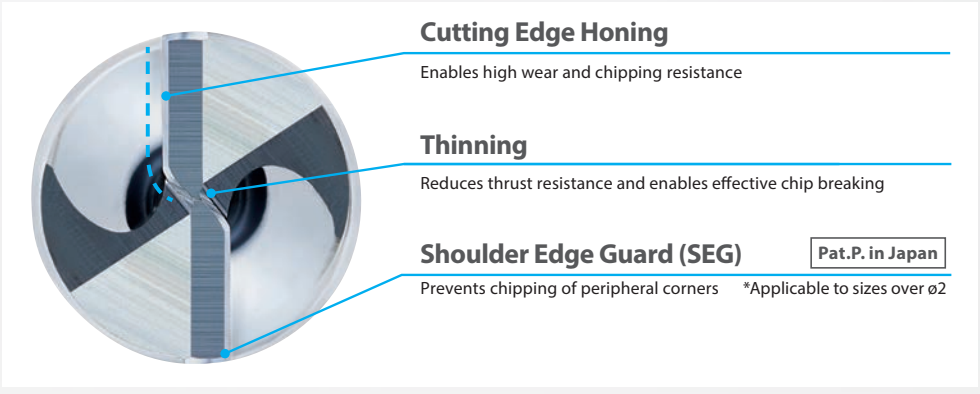


Figure 1. Front view and structural diagram of the AD-MICRO.

While honing improves durability, it can reduce sharpness and bite. To maintain cutting performance, OSG applies thinning across all sizes. Thinning shortens the chisel edge and introduces a rake angle, improving bite, reducing thrust and enhancing chip evacuation. Despite the technical difficulty of applying thinning to small-diameter tools, AD-MICRO achieves stable thinning down to Φ0.5 mm, enabling high-precision, uninterrupted machining.

Shoulder Edge Guard (SEG)

As illustrated in figure 1, the AD-MICRO drill incorporates SEG to the outermost edge of the drill tip. SEG stands for Shoulder Edge Guard, a technique designed to suppress chipping at the drill's shoulder. During machining, cutting speed (Vc) is calculated as: $Vc = (\pi \times DC \times n) / 1{,}000$, where Vc is the cutting speed in meters per minute, D is the drill diameter in millimeters, and n is the spindle speed in revolutions per minute. This formula shows that cutting speed is zero at the drill's center and highest at its outer edge—where heat and stress are most concentrated. This makes the outer edge especially vulnerable when machining tough materials like stainless steel. While honing helps, the intersection of the honed surface, margin and relief areas remains a weak point. SEG addresses this by applying a precisely controlled micro-chamfer, enhancing edge rigidity without compromising sharpness or increasing machining load.

KeptA Coating

Coating plays a critical role in enhancing a drill's wear resistance, heat resistance, and surface lubricity. The AD-MICRO features KeptA coating, a proprietary solution developed by OSG for small-diameter machining. As shown in figure 2, KeptA offers a smooth film surface and strong adhesion to the carbide substrate, promoting efficient chip evacuation and minimizing delamination. Its superior wear and heat resistance contribute to extended tool life. Uniform coating thickness is also critical for maintaining drill precision. KeptA's smoothness and consistency enable accurate diameter control, ensuring reliable performance in demanding applications.

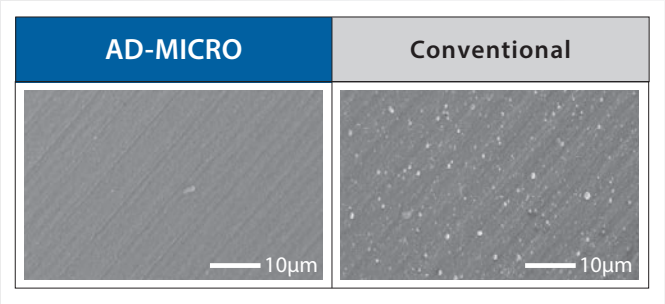


Figure 2. Surface coating comparison between the AD-MICRO and a conventional product. KeptA is a registered trademark of OSG Corporation.

Cutting Data

Figure 3 compares tool life between the AD-MICRO 4D and a conventional OSG drill during SUS304 machining on a CNC automatic lathe. The conventional tool showed early edge chipping and significant adhesion, while the AD-MICRO exhibited no notable damage and delivered stable, long-lasting performance.

Tool	AD-MICRO 4D ϕ3
Work Material	SUS304
Machining Method	Step Drilling (0.9 mm Step)
Cutting Speed	18.8 m/min (2,000 min^{-1})
Feed	120 mm/min (0.06 mm/rev)
Depth of Hole	9 mm (Blind)
Coolant	Non-Water-Soluble (External)
Machine	CNC Automatic Lathe

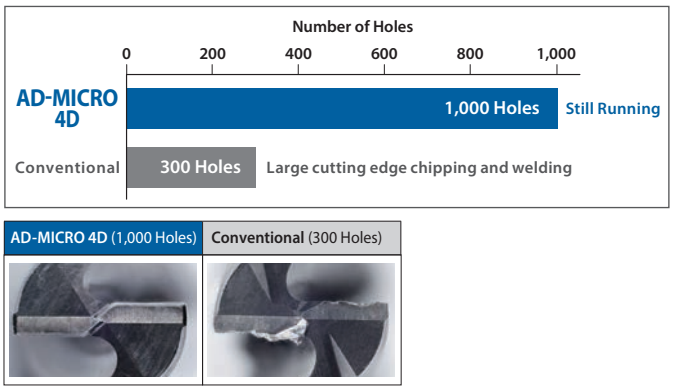


Figure 3. Machining data for SUS304.

Figure 4 presents a comparison between the AD-MICRO 10D and a competitor's product during SCM440 machining on a vertical machining center. The AD-MICRO demonstrated excellent stability and performance not only in stainless steel but also in materials requiring high wear resistance.

Tool	AD-MICRO 10D ϕ1.6
Work Material	SCM440 (Raw Material)
Machining Method	Step Drilling (0.56 mm Step)
Cutting Speed	40.2 m/min (8,000 min^{-1})
Feed	384 mm/min (0.048 mm/rev)
Depth of Hole	16 mm (Blind)
Coolant	Water-Soluble (External)
Machine	Vertical Machining Center (BT30)

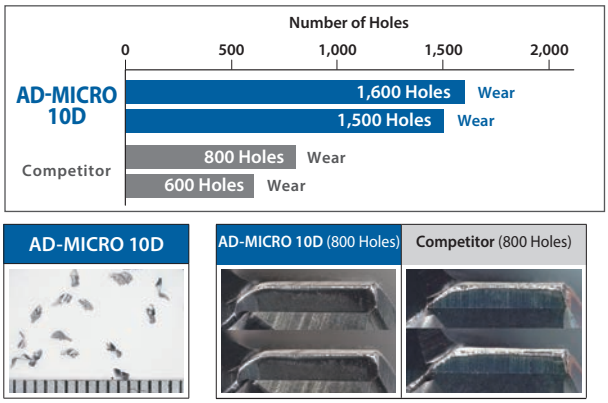
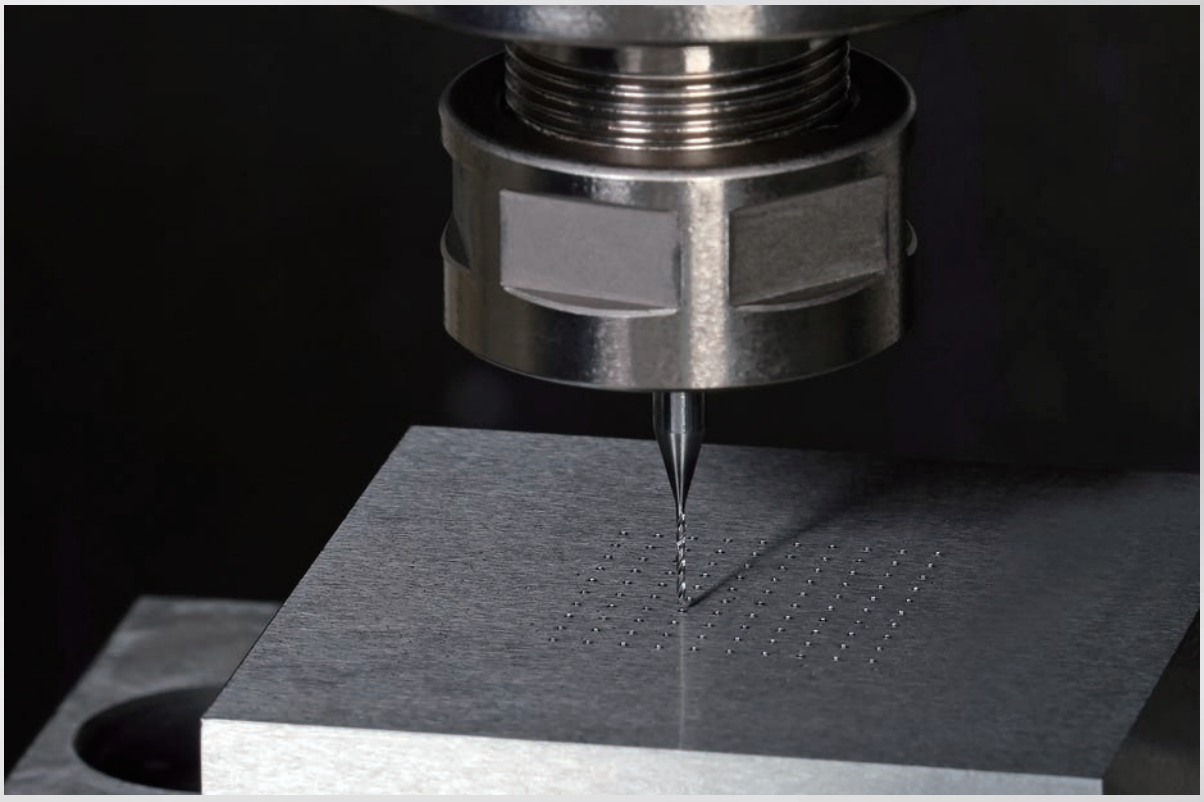


Figure 4. Machining data for SCM440.

Conclusion

The AD-MICRO series expands machining possibilities through its comprehensive lineup, broad material compatibility and high tool precision. Its stable chip formation and durability support unmanned operations, such as those on automatic lathes. As OSG's latest A Brand small diameter carbide drill, the AD-MICRO is engineered to deliver optimal performance across demanding applications.



Scan for details

OSG's WXS-CRE milling cutters for roughing and WXL-LN-EBD for semi-finishing and finishing are already well-established in ZM Solutions AG's production processes.

Micro Milling Solutions for High-Precision Dental Applications

Navigating the future of Swiss dental laboratories through advanced workflows, strategic partnerships, and expert support

Magnus Hoyer
OSG GmbH

ZM Solutions AG, headquartered in Bern, Switzerland, is a specialized provider committed to advancing digital dental technology. Founded in 2017, its comprehensive portfolio includes the sale of dental products tailored for digital workflows, as well as advanced 3D printing and precision milling of dentures and dental prostheses. Milling operations are performed using high-precision micro tools from OSG.

Navigating Transformation in Swiss Dental Laboratories

Dental laboratories across Switzerland are undergoing significant transformation. Faced with emerging technologies, increased competition, and a shortage of skilled professionals, many dental labs are seeking ways to enhance profitability and ensure long-term viability. Industry analyses indicate that adopting service-oriented approaches and digital technologies is key to success. As digitalization progresses, personalized support and expert guidance are becoming increasingly critical, alongside traditional values such as quality, timeliness, flexibility, and reliability. This shift often involves evolving from a product-centric model to a service-oriented business with an expanded range of offerings.

1. ZM Solutions AG offers 3D printing services and sells printers as part of a comprehensive end-to-end workflow solution. Photo courtesy of ZM Solutions AG.

2. 3D printing and milling of prostheses and dentures are central to ZM Solutions AG's core business. Photo courtesy of ZM Solutions AG.

3. Partners for the right tools and machining strategies for every application. From left, Magnus Hoyer, head of the OSG Academy in Göppingen, Jens Schöngarth, team leader of OSG's Dental & Medical Business Unit, and Georg Orosz, managing director of ZM Solutions AG pose for a photo at the ZM Solution AG headquarters in Bern, Switzerland.

Bridging the Gap for Smaller Laboratories

"The digitalization of daily operations is not only accelerating — it's becoming more complex," said Georg Orosz, managing director of ZM Solutions AG. "While software systems are becoming more user-friendly, they also encompass broader functionalities. Users require proper training to navigate these systems effectively."

Hardware advancements further compound this complexity. Despite the core task of dental technicians — creating customized dentures — remaining unchanged, new challenges have emerged due to an aging population and evolving material technologies. For instance, zirconium oxide is now engineered to be softer from the basal area to the incisal edge, with aesthetics playing a more prominent role.

These developments demand frequent updates to milling strategies and ongoing training. While large milling centers in Switzerland typically employ dedicated staff to manage these strategies, smaller laboratories often lag behind — not necessarily in equipment, but in access to expert support and strategic partnerships.

Delivering Immediate, Practical Solutions

ZM Solutions AG has positioned itself as a specialist in digital workflows for dental laboratories. Its services span the entire digital process — from data transfer and handling to design and production of dental workpieces.

"We also engage in design and manufacturing," said Orosz, "but our primary focus is support."

Client assistance at ZM Solutions AG is streamlined and responsive. All operations are managed online, and when a support ticket is submitted, a team member responds within 30 minutes — either with a solution or guidance on next steps. Most inquiries are resolved within half a day.

This rapid support, combined with software distribution, forms a major part of the company's service offering. Additional services include milling, 3D printing, and the sale of materials such as zirconium oxide.

"We also sell 3D printers and provide complete workflow integration," Orosz said.

Each printer undergoes extensive testing — up to four months — to ensure comprehensive post-sale support.

Efficient Networking and Tool Integration

Additive manufacturing is conducted in Bern using six 3D printers, while three machines are dedicated to milling. For milling operations, tool life and software compatibility are critical.

"It's not just about placing the tool in the holder and starting the process," Orosz said. "Our customers shouldn't have to worry about these technicalities."

To address these needs, ZM Solutions AG collaborates within a network of machine, software and tool manufacturers. A recent project in digital implantology, developed in partnership with OSG, illustrates this approach.

"We began with the design phase, followed by milling root posts," Orosz said. "Precision is essential — over-milling can cause vibration in the pin. It must be accurate from the first step."

From left: Jens Schöngarth, team leader of OSG's Dental & Medical Business Unit, Magnus Hoyer, head of the OSG Academy in Göppingen, and Georg Orosz, managing director of ZM Solutions AG, examine a milling cutter.

OSG provided precision tooling and teamed up with a CAM manufacturer to refine the machining strategy.

"Once the strategy was finalized, we tested it and presented it to ZM Solutions AG alongside the CAM partner," said Jens Schöngarth, team leader of OSG's Dental & Medical Business Unit.

Precision Tools for Demanding Applications

The success of this collaboration is largely attributed to the precision of OSG's tools.

"Our milling cutters are ground to an exceptionally tight tolerance of ±3 to 5 µm," said Schöngarth. "This ensures high contour accuracy, which is vital for producing precise fits."

For example, telescopic prostheses require the secondary component to fit perfectly onto the primary crown. ZM Solutions AG pre-mills these workpieces and then performs re-milling in 2-µm increments to achieve the required fit.

"The tools perform exceptionally well," said Orosz.

Magnus Hoyer, head of the OSG Academy in Göppingen, highlighted another key feature.

"OSG continues to rely on 2-flute, coated tools for machining PMMA," Hoyer said. "Our highly polished DLC coating is extremely thin, maintaining sharp edges while ensuring long tool life."

He also noted the development of a single-flute geometry for a major materials specialist in Germany, designed to prevent clogging during high-speed plastic milling — a common issue due to heat buildup and melting.

To address varying radial forces during milling, OSG has engineered micro milling cutters with a teardrop shape and a large taper, eliminating flat contact points on the outer diameter. Additionally, for larger micro tools, OSG adjusts the rake angle from the center to the outer diameter to reduce cutting pressure — a technique borrowed from mold and tool making, now successfully applied in dental technology.

Precision, Durability, Performance: Key Requirements in Dental Tooling

"The most critical requirements for tools in the dental industry are precision, durability and performance," said Hoyer.

In addition to tool quality, collaboration with specialists in process design, programming and machining strategy plays a vital role in achieving optimal results across various materials.

For example, ZM Solutions AG utilizes 5-flute solid carbide torus cutters from OSG's WXS-CRE series for roughing titanium, capable of machining materials up to 65 HRC.

"We use these tools for roughing root pins, where close-contour milling provides significant advantages," said Orosz. "They also deliver excellent surface quality in titanium, which is essential for dental applications, particularly for subsequent processing."

These cutters are also well-suited for manufacturing retainers — orthodontic devices designed to maintain tooth alignment post-treatment.

"They're milled as very thin square wires, and we've experienced no stability issues. The fit accuracy is also outstanding," Orosz added.

For semi-finishing and finishing in titanium, ZM Solutions AG employs OSG's WXL-LN-EBD ball nose tools. These 2-flute cutters feature a long neck specification, complemented by OSG's proprietary WXL coating, making them ideal for titanium machining.

Driving Dental Innovation: Pioneer Next-Gen Milling for Zirconium Oxide and PMMA

Orosz is currently in the testing phase for processing zirconium oxide and PMMA.

"I've already developed several designs and evaluated various milling strategies," he said.

For zirconium oxide, diamond-coated solid carbide milling cutters from OSG's DG-LN-EBD series were employed.

"The surface quality post-milling was so exceptional that it appeared polished even before sintering," Orosz said.

Next in line is PMMA, which will soon be processed using specialized OSG LN-EBD tools.

"I'm very optimistic about the results," he added.

Milling is performed using micro tools from OSG. To achieve the high precision required for components such as cores or prostheses, re-milling is conducted in 2-micron increments. Photo courtesy of ZM Solutions AG.

Orosz acknowledged the complexity of digitalization in dental laboratories and welcomed support.

"With OSG, we have a partner that consolidates resources and expertise in tooling, enabling us to deliver targeted information and effective solutions directly to our customers," he said.

From left, Michael Dougan, Metalworking Specialist at MSC Industrial Supply Co., Wayne Schwarze, Manufacturing Engineer at Gulfco Manufacturing, and Steve Lauman, Northwest Territory Sales Manager at OSG USA pose for a photo at Gulfco Manufacturing's production facility in Pueblo, Colorado, USA.

Zero Scrap and Performance Upgrade

AT-2 thread mill delivers exceptional tool life, consistent machining performance, and consolidated tooling in 17-4PH stainless steel food equipment production

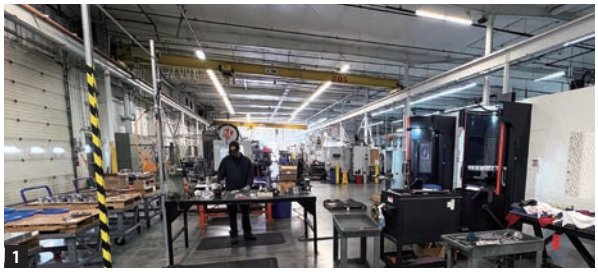
Steve Lauman
OSG USA

Gulfco Manufacturing, based in Pueblo, Colorado, USA, is a family-owned company with a legacy spanning more than 70 years. Its origins trace back to 1946 in Emeryville, California, where it operated under the name Atlas Pacific Engineering Co. In 1986, the company relocated to Pueblo, Colorado, focusing on the production of food processing equipment. Over the next three decades, Atlas Pacific experienced steady growth and success, culminating in the acquisition of Magnuson CCM, Luthi Machinery, and Brown International. In 2018, the Engineering, Sales, and Service divisions moved to Centennial, Colorado, while the Pueblo facility remained active. This transition led to the creation of Gulfco Manufacturing, which assumed responsibility for all acquired product lines and expanded its offerings to include third-party manufacturing services.

Today, Gulfco Manufacturing stands as a vital contributor to the global food supply chain, specializing in the production of components, equipment, and industrial solutions for the food processing and packaging sectors. The company offers a comprehensive suite of manufacturing services, including precision machining, fabrication, welding, and assembly. Headquartered in Pueblo, Colorado, Gulfco Manufacturing employs 120 staff and operates out of a state-of-the-art facility spanning over 160,000 square feet.

Gulfco Manufacturing recently faced challenges with tap breakage and inconsistent tool life during the production of stainless steel 17-4PH (38 HRC) inserts used in food processing equipment. This component has been in production for over four years, with an estimated annual volume of 2,000 pieces. Each workpiece requires two blind holes, 0.1336 inch in diameter and 0.406 inch deep, to be drilled and threaded to an 8-32 2B UNC specification. Machining is performed on a Mazak HCN-6000 4-axis horizontal machining center equipped with a CAT50 taper.

Gulfco Manufacturing is an established, technologically advanced manufacturer based in Pueblo, Colorado, USA, playing a vital role in providing essential equipment and solutions to the global food processing and packaging industry, backed by decades of experience and a strong family-oriented culture.



1. Headquartered in Pueblo, Colorado, Gulfco Manufacturing employs 120 staff and operates out of a state-of-the-art facility spanning over 160,000 square feet.

2. Wayne Schwarze, Manufacturing Engineer at Gulfco Manufacturing, prepares the machining of components using a Mazak HCN-6000 4-axis horizontal machining center.

Gulfco Manufacturing initially utilized 8-32 spiral flute bottom taps and 8-32 thread mills from three different brands but was dissatisfied with their performance. To address the issue, Michael Dougan, Metalworking Specialist at MSC Industrial Supply Co., introduced Steve Lauman, Northwest Territory Sales Manager at OSG USA, to Gulfco Manufacturing's facility. After a thorough evaluation of the application, Lauman recommended OSG's A Brand 8-32 4-flute AT-2 thread mill (EDP# 1664500011) as a solution to improve tool performance and reliability.

OSG's AT-2 is a high-performance carbide thread mill designed with an end-cutting edge, enabling it to combine pilot hole drilling and threading into a single operation—even in challenging materials like high-hardness steel. Engineered for durability and precision, the AT-2 features a uniquely reinforced cutting edge geometry that minimizes tool bending. Its left-hand cut configuration supports climb milling, which helps extend tool life by reducing deflection and heat generation. Additionally, roughing teeth are incorporated to evenly distribute cutting loads.

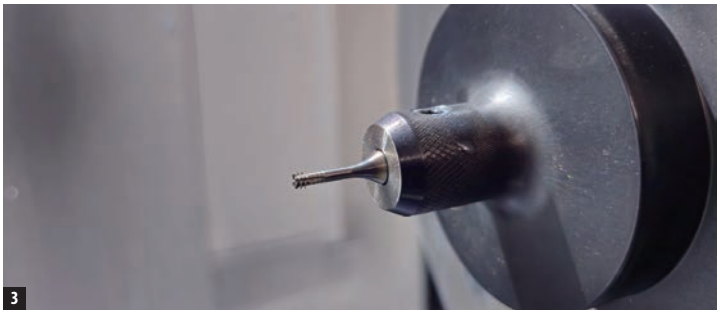
To further enhance performance, the AT-2 is coated with OSG's proprietary DUROREY coating, which effectively suppresses chipping in high-hardness applications. This design eliminates sudden tool breakage caused by poor chip evacuation, allowing operators to machine with confidence. By streamlining drilling and threading into a single step, the AT-2 boosts processing efficiency and lowers tooling costs. It is suitable for a wide range of materials, including high-hardness steel, stainless steel, non-ferrous metals, and heat-resistant alloys.

The competitor's TiCN coated 4-flute thread mill was operated at a spindle speed of 10,000 rpm, a cutting speed of 320 sfm, and a feed rate of 9.5 ipm, achieving an average tool life of 24 workpieces. In contrast, OSG's AT-2 thread mill was run at a spindle speed of 4,621 rpm, a cutting speed of 148 sfm, and a feed rate of 1.75 ipm—delivering an impressive average tool life of 500 workpieces.

At first glance, the competitor's thread mill may appear to offer faster cutting parameters. However, it requires a separate drilling operation prior to threading, necessitating an additional tool and setup. In contrast, OSG's AT-2 thread mill integrates pilot hole drilling and threading into a single operation, streamlining the process. When accounting for total tooling requirements, tool life, machine downtime, tool changeover, machine utilization, and overall tooling costs, the AT-2 delivered a cost savings of $2,687 USD for this specific part and size. Following the success of this cutting trial, the AT-2 has been adopted for five additional sizes, with projected savings of $13,000 to $15,000 USD—excluding further reductions in downtime and rework.

Any machinist knows that breaking a tool during one of the final machining operations can be extremely costly, with serious implications for production efficiency and delivery timelines. Gulfco Manufacturing is committed to innovation and continuous improvement, while honoring the legacy and contributions that have shaped its success. By adopting OSG's AT-2 thread mill, Gulfco Manufacturing has achieved stable threading performance and significantly reduced costs in its stainless steel insert production.

"The AT-2 is the total solution," said Wayne Schwarze, Manufacturing Engineer at Gulfco Manufacturing. "It eliminated scrap entirely and delivered substantial process improvements and cost savings."



3. OSG's AT-2 is a high-performance carbide thread mill designed with an end-cutting edge, enabling it to combine pilot hole drilling and threading into a single operation—even in challenging materials like high-hardness steel.

4. Stainless steel 17-4PH (38 HRC) inserts used in food processing equipment.

AD-MICRO

Small Diameter Carbide Drill

Engineered for exceptional stability and precision, the AD-MICRO is designed to overcome the challenges of small diameter hole machining, particularly those caused by unstable chip evacuation. The AD-MICRO features cutting-edge specifications and flute geometry optimized for small diameter applications. These enhancements enable the formation of stable chip shapes—even when using external coolant—ensuring reliable, uninterrupted machining performance. For drills over 2 mm in diameter, the AD-MICRO incorporates a Shoulder Edge Guard (SEG) to prevent chipping at peripheral corners, further improving tool durability and machining consistency.

Equipped with OSG's proprietary KeptA coating, the AD-MICRO delivers superior surface smoothness and uniform film thickness. This advanced coating technology enhances chip evacuation, maintains high-precision diameter tolerances, and supports stable machining across a wide range of materials.

AE-VMSX

Carbide End Mill with Reinforced Cutting Edge

Designed to improve chipping resistance, the AE-VMSX integrates a reinforced cutting edge with microrelief and cutting edge honing. Its unequal spacing of teeth and variable-lead geometry effectively suppress chatter, ensuring stable and smooth machining. Additionally, the web taper geometry, which gradually increases core thickness from the cutting edge to the shank, significantly enhances tool rigidity. The AE-VMSX is coated with OSG's original DUROREY coating, engineered specifically for high-hardness steels. This advanced coating delivers excellent chipping resistance, enabling extended tool life and high-speed machining.

A-LT-XPF and A-LT-DH-XPF

Long Shank Forming Taps

Unlike conventional cutting taps, the A-XPF series forms threads through plastic deformation, eliminating chip generation and reducing tool change time and machine downtime. Its low-thrust chamfer design and reinforced thread geometry enhance rigidity and minimize chipping. Made from CPM high-speed steel and coated with OSG's VI coating, the A-XPF offers excellent wear resistance and long tool life across a wide range of materials.

The newly added A-LT-XPF and A-LT-DH-XPF long shank taps are optimized for small-diameter and deep hole threading, delivering high thread accuracy in demanding applications. These additions further boost the versatility and efficiency of the A-XPF series.

Phoenix PMEN

Indexable Chamfering Cutter

The OSG Phoenix PMEN indexable chamfering cutter is engineered for both front and back chamfering. Chamfering of 30°, 45°, and 60° is possible with a common insert and two types of cutter bodies. Two types of chamfer angles can be set with one cutter body by simply matching the insert and cutter body constraint surfaces. The PMEN features a cutter body configuration that allows the user to visually confirm the set chamfer angle by the value engraved on the body to prevent machining errors.

Three insert grades, XP3015, XP2040 and CK010 are available for the PMEN indexable chamfering cutter to accommodate a wide range of work materials, including steel, cast iron, stainless steel, heat-resistant alloy, and aluminum alloy.

OSG India Celebrates 20th Anniversary

OSG's management team from Japan and OSG India employees pose for a group photograph at the Orana Conventions in Gurgaon, India.

OSG (India) Pvt, Ltd., OSG Corporation's subsidiary in India, celebrated its 20th anniversary in 2025. To mark this significant milestone, a celebration was held at the Orana Conventions in Gurgaon, India on March 1, 2025. The commemoration was attended by OSG's management team from Japan, OSG India employees, as well as major distributors and end users from all over the country, making it a grand gathering with a total of 165 guests. The ceremony incorporated Indian culture in abundance, fusing OSG with the local community, making it a lively event.

OSG entered India in 2005 with the hiring of its first employee in Chennai, the southernmost state of India. Since its debut in Chennai, OSG has been dedicated to offering high-quality and high-performance tooling solutions to Indian consumers. Over the past 20 years, the Indian business has continued to expand. Under the leadership of Managing Director Kenny Yoshikawa, OSG India now employs 100 staff. Its headquarters and factory have relocated from Chennai to Gurgaon in northern India; a second factory was established in Pune, western Indian; a third factory in Chennai is scheduled for full operation later in 2025.

"India is experiencing rapid economic growth and employee turnover is high, but the average length of service for our managers is 13 years, and 24 employees have been with us for over 10 years in our 20-year history, which are key to the expansion of OSG India," said Kenny Yoshikawa, Managing Director of OSG India.

The recent expansions are part of the company's broader development strategy, reflecting OSG's continued commitment to India as it strives to bring its innovative products to a growing customer base and strengthen its position as the world's leading cutting tool manufacturer. In terms of sales network, OSG currently has five sales offices and nine residential sales offices across India, ensuring that OSG is located close to its clients.

"With record-high sales every year, this 20th anniversary commemoration is a meaningful event in building a new future, and we feel that we have been able to fully demonstrate the power of OSG India," said Yoshikawa.

As OSG India marks its 20th anniversary, the company reaffirms its commitment to the Indian market, pledging to continue driving innovation and providing superior products to an expanding customer base.

"This momentum is unstoppable," said Yoshikawa. "Please look forward to the future of India."

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1. Right, OSG India Managing Director Kenny Yoshikawa poses for a photograph with Anup Kumar Das, Deputy Managing Director of OSG India and the very first hire of the company in 2005.

2. OSG India celebrates its 20th anniversary with a crowd of approximately 165 guests at the Orana Conventions in Gurgaon, India on March 1, 2025.

3. The 20th anniversary celebration incorporated Indian culture in abundance, fusing OSG with the local community, making it a lively event.

OSG Participates at CIMT 2025

1. At CIMT 2025, OSG collaborated with machine builders, CAD/CAM software developers, tool holder manufacturers, cutting oil suppliers, and end users to affirm the company's extensive industry network and strong credibility in China.
2. OSG staff pose for a group photograph at CIMT 2025 in Beijing.
3. At CIMT 2025, OSG showcased collaborative application solutions for various industries.
4. OSG showcased the Green Tap GRT high performance and low-carbon forming tap along with other new tooling innovations at CIMT 2025.

OSG (Shanghai) Co., Ltd. (OSG China), OSG Corporation's subsidiary in China, participated at the 19th China International Machine Tool Show (CIMT) from April 21 to 26, 2025 in Beijing. Held every odd year, CIMT is the largest and most influential machine tool exhibition in China. It is also one of the four largest international trade fairs for machine tools in the world, with similar popularity as EMO of Europe, IMTS of the United States, and JIMTOF of Japan.

CIMT 2025, for the first time, offered a total exhibition area of 310,000 gross square meters, utilizing both the Capital International Convention and Exhibition Center (Phases II of CIEC New Venue) and the China International Exhibition Center (Shunyi Hall), making it the largest exhibition in CIMT history. With the increase in exhibition halls, the number of visitors also surged significantly. The manufacturing industry's dynamism was evident at CIMT 2025, which drew 211,993 visitors according to official data, representing an increase of nearly 37 percent over the preceding exhibition.

At CIMT 2025, in addition to showcasing the latest cutting tool innovations, OSG collaborated with machine builders, CAD/CAM software developers, tool holder manufacturers, cutting oil suppliers, and end users to affirm the company's extensive industry network and strong credibility in China. The exhibition content drew significant interest, a direct result of the strong support from each collaborating company. Through this intensive collaborative exhibition, OSG solidified visitor trust and left a profound impression on collaborating companies regarding its innovative power and advanced technological capabilities.

OSG Around the World

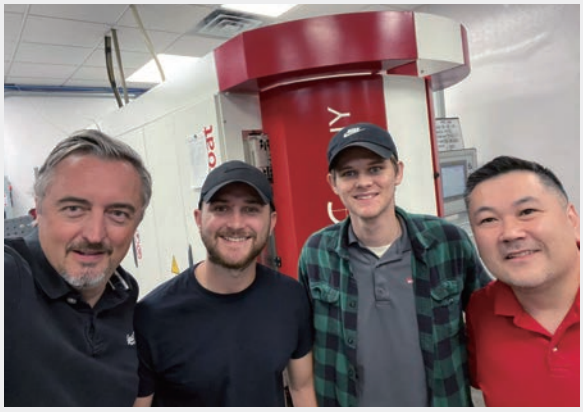
Employee Interview with
Rodrigo Katsuda

Tell us about your background and experience at OSG.
For my undergraduate studies, I majored in communication, with specialization in editorial production at Anhembi Morumbi University. For my graduate degree, I studied communication and marketing at ESPM Business School in Brazil.

I have been working for the OSG Group since November 2000, where I started as a member of the internal sales team at OSG Sulamericana in Brazil. In 2005, I was given with an opportunity to establish a Brazilian marketing department. In 2013, I was promoted to sales and marketing supervisor, where I oversaw internal sales and marketing. In 2014, I was assigned to manage a new business segment related to PVD coating. The coating business at OSG Sulamericana started out as OSG Tech Coating. In 2018, the name was changed to PrimusCoating Brazil. Until 2023, my role at OSG involved managing marketing, distributors, as well as job coating for South America. In June 2023, after accumulating more than 10 years of experience in PVD coating, I was invited to join PrimusCoating USA, a group company of OSG, and a new journey begins.

Profile
Location: USA
Position: General Manager at PrimusCoating USA
Joined OSG Group: 2000
Motto: "If you have a dream, chase it, because a dream won't chase you back."

Tell us about your daily routine.
Working as general manager at PrimusCoating USA, my daily routine is dynamic and rarely the same two days in a row. Typically, I start by aligning with the team, setting priorities, providing guidance, and making sure everyone is clear on their goals. I am also heavily involved in customer outreach, whether through CRM, direct communication, or in-person visits.



From left, Philip Read, Managing Director of PrimusCoating Germany, Curtis Bramble, Production Leader of PrimusCoating USA, Casey Bramble, Coating Technician of PrimusCoating USA, and Katsuda pose for a photograph in La Vergne, Tennessee, USA.

1. PrimusCoating's facility in La Vergne, Tennessee, USA.
2. The Katsuda family poses for a holiday photograph. From left, Andrea, Yuki, Nino and Rodrigo.
3. Katsuda at the PrimusCoating booth at the Advanced Manufacturing Expo (AME), held from August 7 to 8, 2024 at DeVos Place, Grand Rapids, Michigan, USA.
4. Third from left, Katsuda enjoys a meal with his PrimusCoating USA team.
5. Rodrigo and his wife Andrea pose for a photograph at the I Believe In Nashville mural created by Adrien Saporiti in Nashville, Tennessee, USA.

What is most challenging about your work?

One of the biggest challenges is balancing the wide scope of responsibilities while maintaining focus on long-term goals. As general manager, I am involved in nearly every aspect of the business, from sales and operations to marketing and customer engagement. It requires constant switching between strategic thinking and hands-on execution. On top of that, being new to the U.S. has added another layer of complexity. Adapting to a different culture, learning the nuances of a new market, and navigating a landscape with more competitors have all been real learning experiences.

What is unique about PrimusCoating?

What makes PrimusCoating truly unique is our ability to deliver consistent, high-quality PVD coating services on a global scale. But behind that consistency is our greatest asset: our people. It is the dedication, expertise, and passion of our teams that make it all happen.

How do you spend time on your day off?

I enjoy spending time with my wife Andrea and our Yorkshire Terriers Yuki and Nino. We love hanging out with friends and discovering new restaurants as well as culinary experiences. We also take any opportunity to explore Tennessee and other parts of the U.S.

About PrimusCoating

PrimusCoating is a global leader in high-quality PVD coating services, dedicated to exceeding customer expectations. The company's first job coating center was established in 2010 in Battle Creek, Michigan, United States. Since then, PrimusCoating's global network has grown steadily to more than 20 service centers in North America, South America, Europe, Asia, and Africa, providing high performance coatings to the manufacturing industry.

PrimusCoating

Scan to learn more

shaping your dreams

GREEN TAP

GRT

High-performance &
Low-carbon
Forming Tap

scan for details