

SHAPE IT

OSG Global Tooling Magazine

2017 Vol. 1

TOPICS

- Masatoshi Nojiri: From tap engineer to all-around application solution provider
- Maximizing Manufacturing Productivity
- Global Customer Reports
- Product Pickup
- 2017 Exhibition Schedule



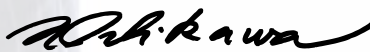


The Future of Automobiles

The automotive industry is one of the world's most important economic sectors, comprising a wide range of organizations for the development of motor vehicles. It is also OSG's largest business domain and has significantly contributed to the growth of the company over the past 78 years.

Today, the automotive industry is on the verge of a new era with discovery of advanced materials, technologies and manufacturing processes. In a not too far away future, the internal combustion engine, which has been the dominant propulsion method for motor vehicles for over 100 years, may be replaced by electric power and hydrogen. New technology such as 3D printing is enabling automakers to print car parts, accessories and to create new concepts from scratch. Self-driving cars that were once considered as science fiction have also begun to take shape. New technical advances including interactive safety systems and vehicle connectivity may be integrated in all standard vehicles in the future. In addition to new energy source and IT trends, many automakers today are revamping the way they design and manufacture cars to keep up with growth by increasing the adoption of new robotic technology for improving application quality, safety, as well as reducing costs.

Changes may bring uncertainties, but they can also present new opportunities. As the automotive sector undergoes a major transformation, OSG is poised for continued growth by responding with sophisticated cutting tool solutions that are capable of accommodating the industry's new requirements. I hope you enjoy reading through the Automotive Edition of SHAPE IT and learning more about OSG's latest innovations designed for this ever-changing industry.



Norio Ishikawa
President of OSG Corporation

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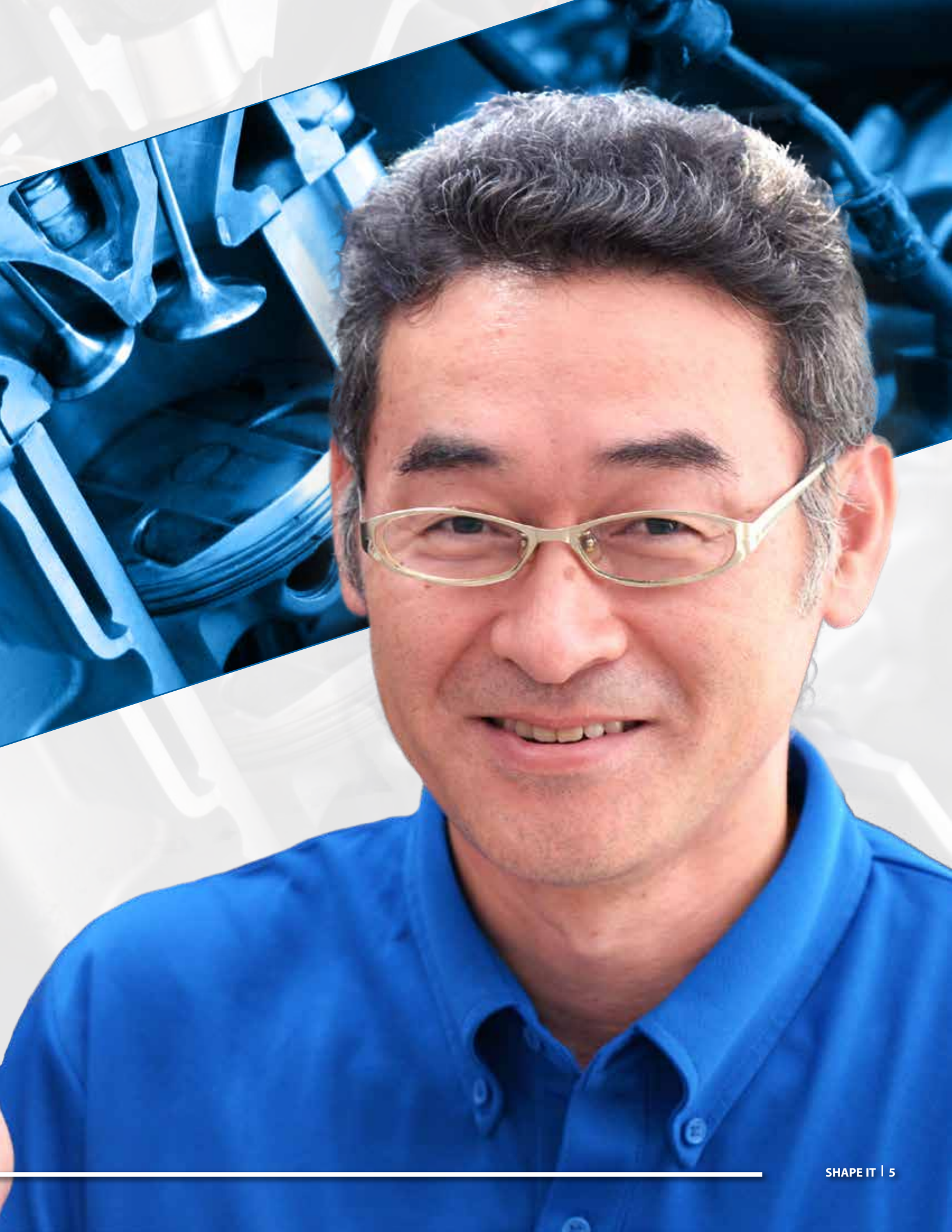
MASATOSHI NOJIRI

Masatoshi Nojiri began his career at OSG Corporation 25 years ago. The first five years was spent at OSG's Yana Factory - the largest tap manufacturing plant in the world - as a tap engineer. After mastering the ins and outs of taps, Nojiri was assigned to a major Japanese automotive manufacturer as a guest engineer to train, to oversee new production lines, and to troubleshoot various application obstacles. Upon returning from the Japanese automaker, Nojiri

was assigned with a new role - sales engineer for domestic Japanese automotive manufacturers. When the Application Engineering (AE) division was established six years ago, Nojiri once again assumed a new role - applications engineer, a.k.a. OSG's tooling expert.

From tap engineer to all-around application solution provider.







Members of OSG's AE division are experts of every kind. The team provides tailored solutions not only for the automotive industry, but also for every application need.

Experts have to work hard to become experts too.

With a formal training specialized in taps, it was not easy for Nojiri to leave his comfort zone in the beginning. Unlike the die/mold industry, which typically involves only milling tools, it is said that there are approximately 20,000 to 30,000 parts per motor vehicle in automotive manufacturing, which are produced by a variety of machining processes and require a wide spectrum of cutting tools.

"Our customers in the automotive sector have many application experts," Nojiri explained. "Unless you are an all-around tooling master, it can be intimidating and you may have a hard time answering some of their questions."

To fill the knowledge gaps, Nojiri relies on his teammates and other divisions for support. Members of the AE division are experts of every kind. The team is composed of engineers with various tooling and profession background. Like Nojiri, many have also served as guest engineers and have worked in various departments ranging from product development, engineering, production and sales.

"Experience and knowledge are the keys to understanding our end users' pain points," said Nojiri. "For instance, having worked at a production facility enables me to better comprehend the manufacturing process and delivery time, which are critical pieces to the total solution we provide to our clients," said Nojiri.

Have an application problem? We have the solution.

In comparison to other engineering divisions, the AE team requires even greater direct interactions with the end users because all of AE's solutions are customized solutions. OSG not only supply powerful standard cutting tools for manufacturing, but also provide tailored application solutions to help clients facilitate better processing with higher efficiency and longer durability based on their specific needs.

When an application trouble arises, the AE team will almost always visit the end user instead of making a decision based solely on other representatives' feedback.

"If a tool breaks, we must find out how and why," said Nojiri. "Most operators

will only tell you it broke but not specifying how and why. Factors such as regrinding, changes in work material and cutting conditions can easily influence performance. It is our job to find out exactly what factors had led to the unsatisfactory result," said Nojiri.

Manufacturers are always in search for better technologies, shorter processing time and longer tool life. OSG not only responds to user requests but also has the capability to propose new solutions with its AE division.

OSG's engineering, manufacturing and sales divisions work in unity globally to offer processing methods optimized for each customer's cutting environment. If you have an application problem, we will have a solution. ✖







The OSG Academy

Established in 1938, OSG has a long-standing reputation as a total solution cutting tool provider throughout the manufacturing industry.

Facilities Dedicated to Product Development

The so-called “OSG’s brains,” where design, testing, production, and evaluation of the latest cutting tool technology takes place, are located at the OSG Academy. Housing over 40 of the latest CNC machining centers, along with OSG rapid prototype grinding machines, the OSG Academy provides OSG engineers the necessary resources to develop and verify the performance of concept products efficiently and effectively. The close proximity of the facilities further enables engineers with different specialties to collaborate and develop the best possible solution for our clients.

OSG is a Group of Experts

OSG maintains absolute control over every aspect of its manufacturing capabilities. OSG products are produced in-house - from the production of tool material, creation of tool geometry, to the development of its own proprietary coatings - the 3 vital elements in the manufacturing of superior cutting tools.

Far Left: OSG’s Design Center accommodates over 100 engineers, including product specialists and application specialists.

Left: Located directly across from the Design Center is OSG’s Global Technology Center, which houses over 40 of the latest CNC machining centers, all dedicated to product development. The second floor of the building also provides workspace to over 50 product development engineers.

Maximizing Manufacturing Productivity

A Case Study on Process Improvement of Automotive Components

Masatoshi Nojiri, OSG Corporation Applications Engineer

The automotive industry is one of the world's most important economic sectors, comprising a wide range of organizations in the development of motor vehicles utilizing the latest technologies. In the past couple of decades, automotive manufacturing has evolved significantly. Consumer appetite for greater performance, fuel-efficient and environmental friendly vehicles has become larger than ever before. A visible shift of energy source, materials and design prompts even more intricate processing of automobile components.

The trend in today's automotive manufacturing requires short production time yet a high degree of flexibility. To accommodate more complex machining, custom tooling can offer an additional solution to manufactures seeking maximum result.

Productivity Improvement in Drilling

To accelerate productivity, an increase in cutting speed and feed rate is often required. However, by simply increasing the speeds and feeds, greater cutting force is generated, which in turn creates more vibrations that put higher stress on the tool cutting edge. With excessive vibrations and stress, poor hole quality and short tool life become the common unfavorable end results. Moreover, for countries such as Japan where space is limited, machines are trending to become more compact along with a more simplified jig setup. With a less powerful machine and a less rigid setup, speeds and feeds cannot be easily raised.

Thrust Force

There is a clear correlation between the cutting velocity and feed rate with thrust force and drilling torque. When the drilling thrust exceeds the material bond strength, damages can be caused around the hole. To increase productivity in drilling by cutting speed and feed rate acceleration, low thrust is an absolute prerequisite. As shown in figure 1, thrust force is the highest point in the center of the drill. To suppress thrust force, drills are designed with wider chip pockets to improve chip evacuation as shown in figure 2. In this case study we will examine two applications where the wider chip pocket geometry was able to facilitate greater performance in terms of efficiency and quality.

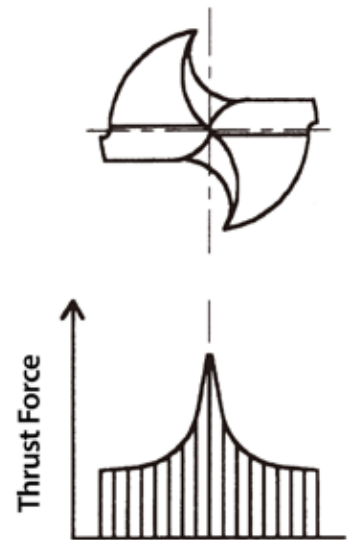


Figure 1. Thrust force direction.

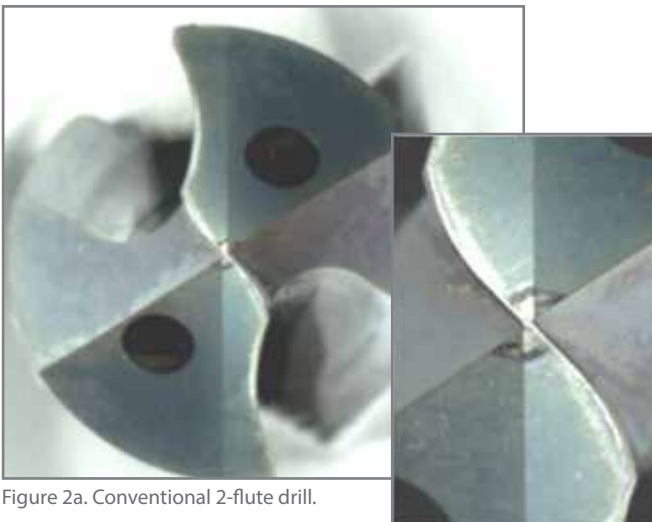


Figure 2a. Conventional 2-flute drill.

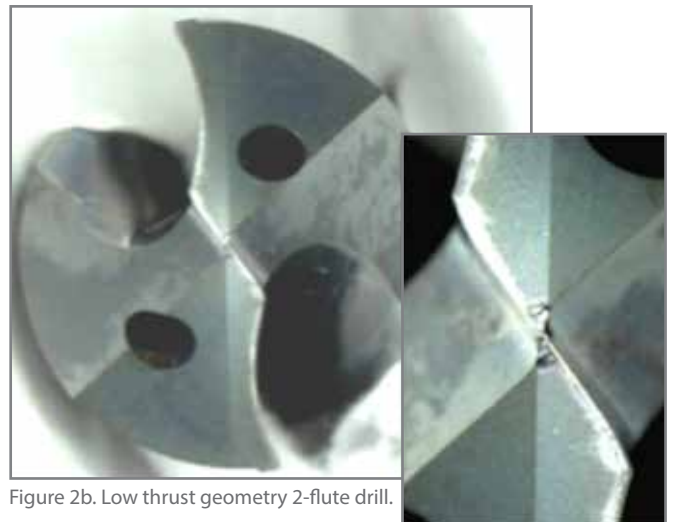


Figure 2b. Low thrust geometry 2-flute drill.



Application 1: Crankshaft

Manufacturer Challenge: To further improve cycle time in S40C

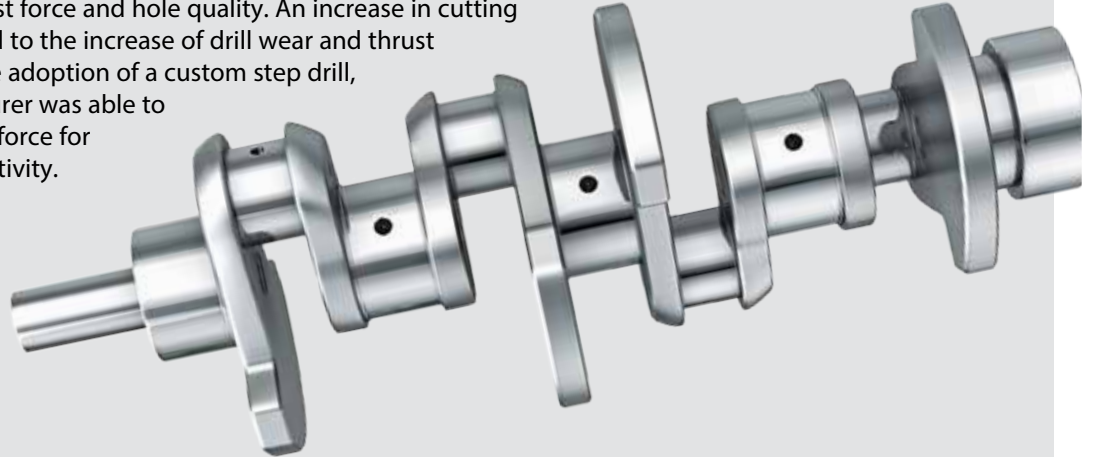
Solution: The adoption of a custom 10mm dia. TRS 3-flute carbide step drill with low thrust geometry

Cutting speed and feed rate (before): $V=80\text{m/min}$, 509mm/min ($f=0.2\text{mm/rev}$)

Cutting speed and feed rate (after): $V=100\text{m/min}$, $1,273\text{mm/min}$ ($f=0.4\text{mm/rev}$)

Result: Cutting speed and feed improved by 2.5 times

Cutting speed and feed rate are the main parameters that influence thrust force and hole quality. An increase in cutting speed will lead to the increase of drill wear and thrust force. With the adoption of a custom step drill, the manufacturer was able to control thrust force for higher productivity.



OSG custom carbide burnishing drill. Ideal for machining complex holes and countersink. Simplifies tool management with its high rigidity design and excellent hole accuracy.

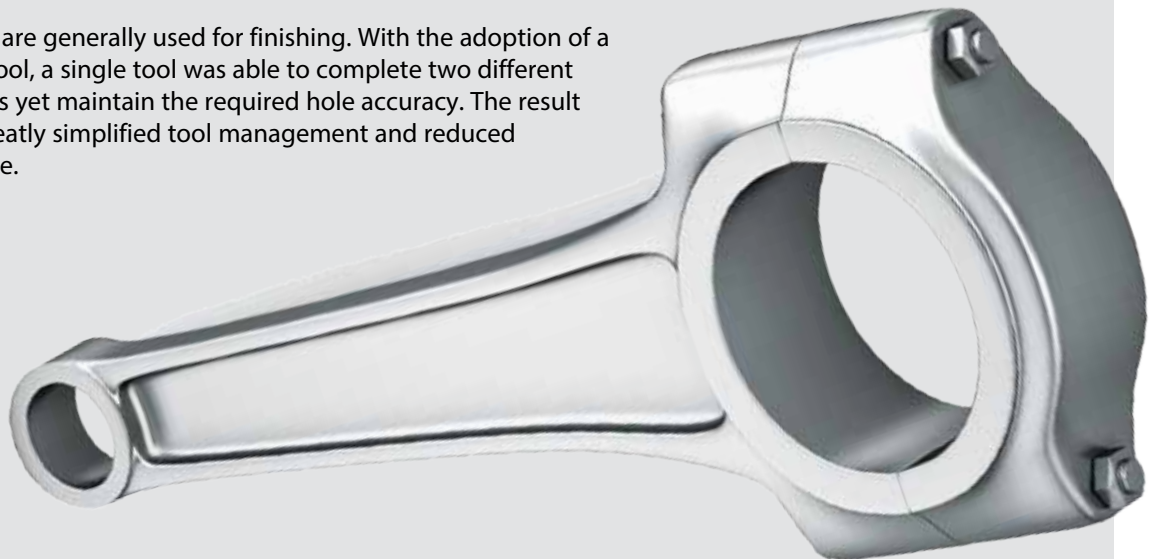


Application 2: Connecting Rod

Manufacturer Challenge: To minimize tool exchange frequency and to eliminate reamer processing time

Solution: The adoption of a custom drill with low thrust geometry to reduce stress on workpiece, maintain high hole precision and eliminate the need of a reaming tool

Reamers are generally used for finishing. With the adoption of a combo tool, a single tool was able to complete two different processes yet maintain the required hole accuracy. The result was a greatly simplified tool management and reduced cycle time.



OSG custom carbide reamer. Designed for finishing. Special geometry permits excellent accuracy, tool life and stable machining in various drilling applications.

Note: Drilling products introduced in applications 1 and 2 are customized tooling based on standard OSG catalog items.

Productivity Improvement in Tapping

In addition to custom drilling solutions, this case study will also examine a threading application featuring OSG's EXOPRO® XPF form tap series, which is engineered to generate up to 50 percent less torque versus other forming taps in the market, making it feasible for longer life at faster speeds in materials up to 35 HRC.



The EXOPRO® XPF is a superior thread-forming tap that stably makes threads without creating cutting chips.

Application 3: Ring Gear (SCM material)

Manufacturer Challenge: Unstable chip evacuation

Solution: The adoption of the EXOPRO® XPF forming tap

Result: The conventional spiral cut tap had a tool life of 300 holes. The XPF, on the other hand, was able to complete 2,000 holes stable. As a forming tap forms screw threads through plastic deformation of work material, no cutting chips are created. With no cutting chips, chip evacuation troubles can be completely avoided.

In this application, although the processing only required a short tapping length, the work material was difficult to machine. Its properties have a tendency to generate inconsistent cutting chips, which would result in tool damage and breakage. When the manufacturer shifted focus on creating better chip separation by reducing the speed rate, gouging of the threads occurred. The slowing of tapping speed generates less heat. However, it would also cause greater cutting resistance and tool wear.

The XPF has significantly reduced friction resistance by adopting a special threading design and surface treatment. This results in a reduction in torque versus traditional products and a considerable suppression of heat generation.



Standard & Custom Tooling Solutions

The automotive industry has been evolving rapidly in recent years through the new discovery of materials and technologies, prompting the need of sophisticated cutting tools capable of accommodating these new requirements. OSG is continuing to evolve and responding to changing needs through new innovations. OSG not only supplies powerful standard cutting tools for the automotive industry, but also provides tailored application solutions to help give manufacturers an extra boost to their production floor.





New Generation Stability

EXOPRO® XPF form tap eliminates frequent tool breakage in differential housing

Marco Túlio Bianchi Furtado, OSG Sulamericana



Above: From left to right, OSG Applications Specialist Marco Túlio Bianchi Furtado, Scania Tool Analyst Daniel Felipe Prado, Scania Machine Operators João Paulo dos Santos and Márcio Barbosa.

Left: Scania's Sao Paulo plant has been producing differential housings for the past 10 years with an estimated 2,736 units per year.



SCANIA

Company Profile

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Truck manufacturing may be a small segment within the automotive industry, but it is still one of the most economical methods for transporting raw materials and finished goods. Similar to passenger vehicles, heavy-duty trucks have greatly evolved over the past century, with an increased emphasis on the total cost of ownership, fuel efficiency, cleaner emissions, and safety. To comply with these requirements, OEMs and manufacturers of heavy-duty truck components are constantly in search of new innovative solutions to further

improve efficiencies, quality and stability of their manufacturing process.

Founded in 1891, Scania AB is a leading Swedish manufacturer of commercial vehicles, specifically heavy trucks, buses and coaches. It also manufactures diesel engines and provides transport solutions for industrial and marine applications as well as power generation. The company's headquarters is located in Södertälje, Sweden, employing approximately 5,600 staff. As of 2015 Scania has a sales and service



organization spanning more than 100 countries, with a total of 45,000 employees, accordingly to the company's official statement.

Scania has production facilities and assembly plants globally, including one in Brazil that dedicates to assembly, bodywork and fitting locally adapted

vehicles. Scania first began its activities in Brazil in 1957. Nearly 60 years later, the Brazilian division has established itself as one of the main subsidiaries of the Scania group worldwide. Scania's production facility in Brazil is located in São Bernardo do Campo, a region also known as the Greater São Paulo, and has been attended by OSG's South American division - OSG Sulamericana, for over 20 years. Scania's Brazil production plant produces drive assemblies, differential housings, and assembles several models of trucks, as well as chassis production for buses. Altogether, the plant has an annual production between 30,000 and 50,000 products per year.

Differential housings, which is the cover unit of the differential gear train that controls the speeds of driving wheels, have been produced at Scania's Brazil

production plant for the past 10 years. The differential housing is made of forged steel with low carbon and high manganese. There are eight holes per housing that require internal threading. Each hole has a diameter of 16.8 mm,

thread length of 35 mm, tolerances of 6H and hole types of both through and blind holes. Scania's Brazil production plant manufactures

approximately 2,736 pieces of the differential housings annually, requiring the threading of over 20,000 holes in total.

The threading used to be processed by cut taps in the size of M18x2.5 using soluble oil (5%-10%) in Scania's GROB BZ1000 CNC machine. With the spiral cut tap, Scania was experiencing frequent tool breakage, low yield, and consequently low productivity. Hoping to increase tool life and avoid tool breakage, Daniel Prado, Tool Analyst responsible for the application, consulted with OSG Sulamericana's Applications Specialist Marco Túlio Bianchi Furtado on the possibility of processing the internal threads by rolling. Upon a detail evaluation of the application, Furtado recommended OSG's XPF forming tap (OIL-S-XPF

M18x1.25 DIN376) and also a special step-drill 16.75x20 mm for pre-drilling. OSG's XPF represents a new evolution in forming tap technology. This series is engineered to generate up to 50 percent less torque versus other forming taps, making it feasible to tap materials up to 35 HRC and sizes up to M45 in diameter. Its low-torque design allows for longer tool life at faster speeds. With the addition of OSG's proprietary V coating, wear resistance can be further enhanced. The XPF is available with or without coolant holes, and in standard or long shank style.

With some experience in forming tap, Prado took the recommendation and put the XPF up for trial. Immediately after the first parts, the better finishing of the threads was evident. After the completion of the first batch of parts, the wear on the XPF had proven to be negligible. The parameters used hitherto been very low in an attempt to minimize the problem of frequent tap breakage. With no apparent cutting wear troubles, Furtado proposed to increase the rotation of the threading of 210 rpm to 390 rpm to further enhance productivity.

At the end of the trial, the XPF presents a gain of 43 percent in the cost per part, and 46 percent in tapping time. Although the initial tooling cost is more expensive than the previous competitor cutting tap, the XPF is

“At the end of the trial, the XPF presents a gain of 43 percent in the cost per part, and 46 percent in tapping time.”



Tap breakage was a headache for Scania before switching to the EXOPRO® XPF forming tap.



The EXOPRO® XPF is OSG's high performance form tap that produces no chips and is optimized for machining materials up to 35 HRC.

able to demonstrate benefits in all directions, especially in process stability, significantly minimizing the occurrences of tool breakage. The reduction of tool breakage is critical in this application. The previous cut tap averaged 45 parts per tool and was reground up to five times, but the yield of the reconditioned tool was greatly reduced, capable of only completing 10 pieces of differential housing, requiring frequent tool change due to cutting wear and breakage. The XPF, on the other hand, averages 360 parts per tool and is removed from the machine only by natural wear. The XPF clearly outperforms the previous competitor cut tap in the categories of cost efficiency and productivity. More importantly, it is able to provide complete confidence to the operators at Scania, knowing that the XPF they put into their spindle will always provide satisfactory results equivalent to their quality standard. ✖



The EXOPRO® XPF form tap is used for machining the threads of the differential housing.



Scania R 480 6x4 Streamline, Highline cab with B-double combination and Scania R 440 6x4 Streamline with general cargo. Photo courtesy: Scania.



Fast & Furious Tooling Performance

EXOTAP® VC-10 Ni spiral tap achieves stable tool life in heat-resistant alloys

Vis Huang, OSG Shanghai



OSG's EXOTAP® VC-10 Ni provides high performance for tapping heat resistant alloys, such as nickel alloy or Inconel 718 with a hardness of 40~45 HRC.

Furious 7 (also known as Fast & Furious 7) is a 2015 American action film and the seventh installment in the Fast and the Furious franchise. The previous installment, Fast & Furious 6, grossed over \$780 million worldwide after its release in 2013. Furious 7 has nearly doubled its previous record, earning over \$1.5 billion worldwide, making it the highest-grossing film in the franchise, according to IMDb, an Amazon.com owned online database. In China, Furious 7 has also made 2.6 billion RMB (approximately 400 million USD), and has created the highest box office record in the history of Chinese film market.

What we have learned from this phenomenon is that the Chinese population has a growing interest towards the automobile industry, and their choice of vehicle is also evolving based on popular culture and western influences. Ten years ago, what the Chinese had considered first when purchasing a car is its aesthetic attractiveness. Today, however, people have turned to pursue vehicles with high performance and state-of-the-art technologies - such as the turbocharger.

A turbocharger is a turbine-driven forced induction device used to boost

efficiency of an engine by forcing more air into the engine's combustion chamber, which in turn creates more power. This technology allows smaller turbocharged engines to achieve the same performance as larger non-turbocharged engines in one acceleration and on demand. For instance, the performance of a 1.8T turbocharger can reach the same energy output of a 2.4L engine with similar fuel consumption. Moreover, a turbocharger can boost an engine's horsepower without significantly increasing its weight, making it more efficient, compact, environmentally friendly, and a new attractive option for automotive manufacturers and motorists alike.

Although turbocharged engines can be very efficient, they also run at immense speeds, operating under huge pressures and temperatures, which can influence the working life of the auto-engine. To prevent overheating, turbochargers require dedicated supply of oil and water for proper cooling. Moreover, parts of the turbocharger are generally made of heat-resistant alloys, with characteristics such as high thermal stability and resistance to fatigue and erosion. Machining heat-resistant alloys, however, is not an easy ordeal.

Heat-resistant alloys typically contain elements such as iron, titanium, chromium, nickel, vanadium, tungsten and molybdenum, all of which contribute to the materials' high hardness, high toughness, low specific gravity and high melting point properties. These alloys are

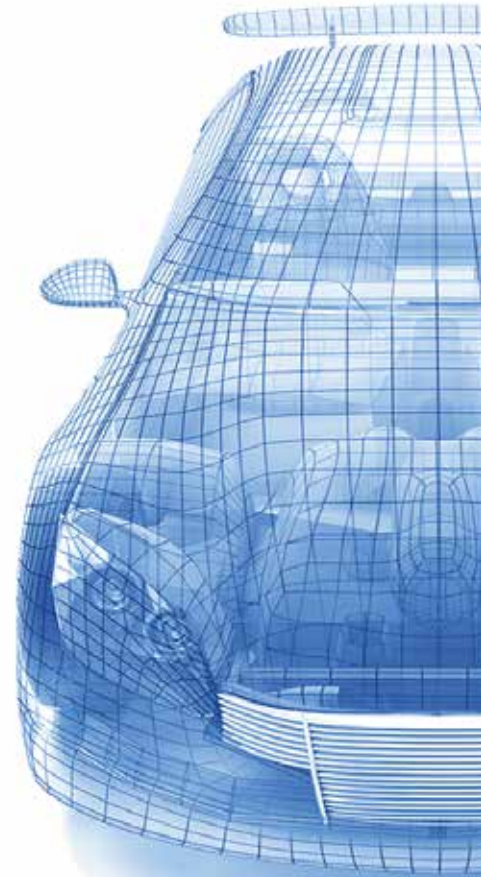
approximately 5-20 percent the machinability of S45C carbon steel. Most exhaust gas turbochargers today can reach 600 degrees centigrade or even higher during machining.

Short tool life is a common obstacle when machining these durable materials. When machining the shell of the turbocharger, tapping is necessary. Taps can be

abraded severely during machining. Under extreme cutting conditions, conventional taps may only produce several holes per tool.

In Tianjin, China, OSG has a customer who manufactures turbochargers. This Chinese manufacturer is one of the top leaders in the turbocharger industry. Their turbocharged engine is manufactured with a special material that contributes to superior performance and long engine life.

“OSG was able to demonstrate superior reliability, with the NI-SFT being able to consistently produce approximately 1,000 holes in every trial.”



Right: An image of a general turbocharger, which is a turbine-driven forced induction device used to boost efficiency of an engine by forcing extra air into the combustion chamber.



For confidentiality reasons, the name of the customer and details of their turbocharger material cannot be disclosed. However, what can be shared openly regarding this material is that it has the same property as heat-resistant alloys with hardness above 35 HRC.

The turbocharger shell requires tapping holes that are 12mm in diameter and 20mm in depth. Including OSG, four cutting tool manufacturers have initially competed for this application.

After a careful evaluation, OSG recommended the EXOTAP® VC-10 Ni spiral tap to the customer. The non-coated VC-10 Ni is a tap series engineered specifically for heat-resistant alloys. The VC-10 Ni employed powered metal HSS to enhance wear resistance and avoid chipping in heat-resistant alloys. Moreover, the VC-10 Ni has adopted a 10° low spiral geometry, which encourages high rigidity and effective chip removal.

The trial lasted for a week with repetitive testing. The turbocharger is a very complex piece of machinery. All components within the turbocharger must be precisely coordinated in order to achieve optimal performance. Reliability is a key determinant in this particular trial as heat resistant alloys can be costly, so is scrapping a part. Under identical cutting condition, the competitor manufacturers averaged

380 holes. OSG, on the other hand, was able to produce 1,000 holes. More importantly, OSG was able to demonstrate superior reliability, with the VC-10 Ni being able to consistently produce approximately 1,000 holes in every trial. With heat-resistant alloys being materials with extremely poor machinability, OSG's consistent performance was beyond the customer's expectation. In fact,

“Put our tools into the spindle and you will experience the fast and furious performance of OSG tooling!”

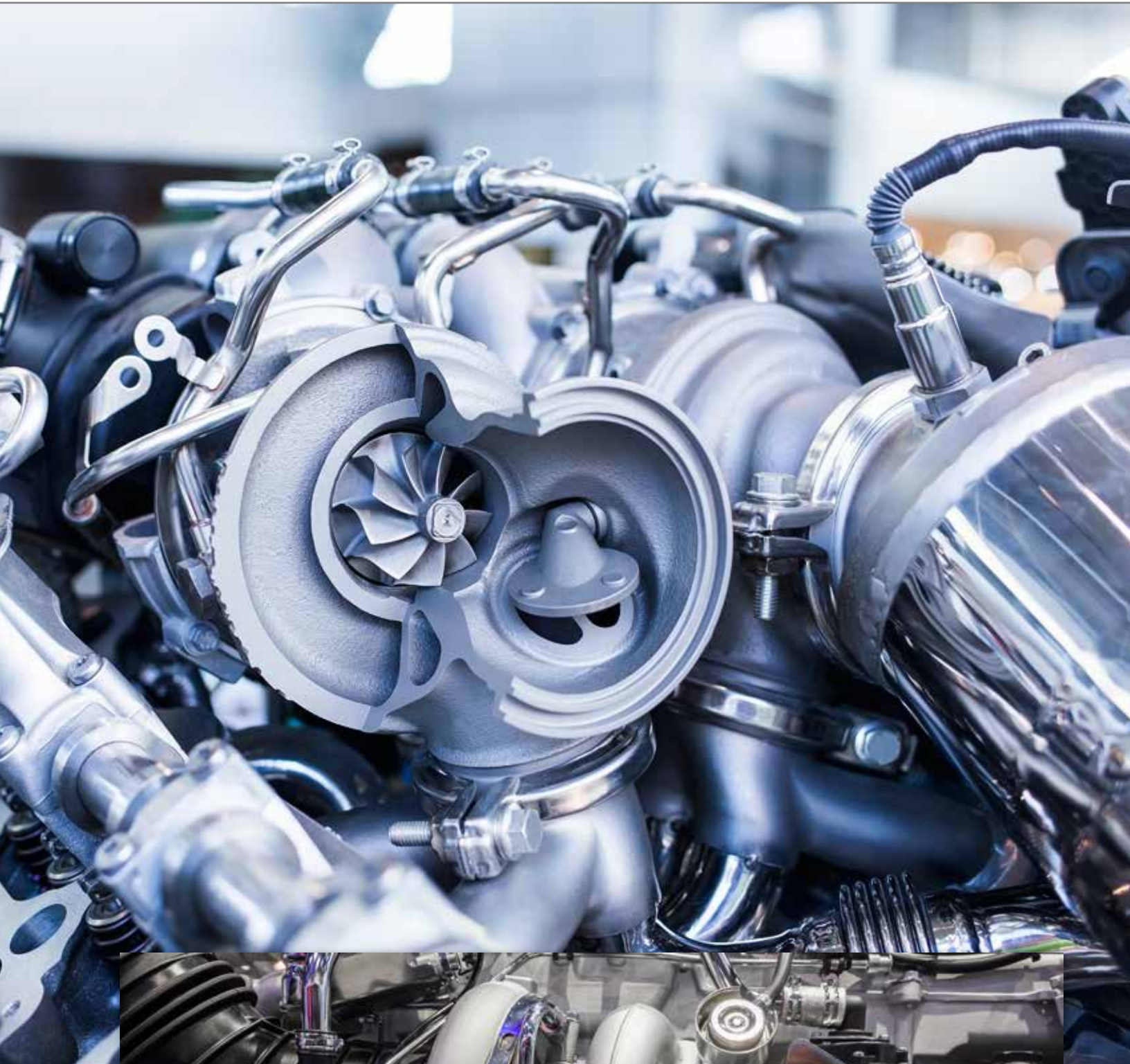
they were so surprised by the result that it made them shake in excitement. Performance reliability can allow manufacturers

to better control and monitor production cost. Choosing the VC-10 Ni was a no-brainer. After all, who wouldn't want a tool that can provide satisfactory predictable results every time?

As heat-resistant alloys have become increasingly widespread in industrial manufacturing, OSG has dedicated a tremendous amount of resources in research and development over the years to offer manufactures with innovative cutting tool solutions suitable for their applications with complete confidence. Put our tools into the spindle and you will experience the fast and furious performance of OSG tooling! ✨



Above: Turbocharger cutaway on a sports vehicle motor.
Right: Turbo on a diesel engine.



EXOCARB® ADO-SUS

Coolant-through carbide drill
for stainless steel and titanium
alloy

The EXOCARB® ADO-SUS is one of OSG's latest innovations for drilling stainless steel and titanium alloy with predictable and consistent tool life. This coolant-through carbide drill series has adopted a tool geometry that emphasizes sharpness to reduce work hardening, thereby prolonging tool life for post-processing including reaming and tapping. Its new flute form encourages the creation of small cutting chips, which is essential for trouble-free chip evacuation. Furthermore, the ADO-SUS has employed a unique oil hole design - Mega Cooler - for diameter sizes above 6mm to suppress heat generation and to facilitate smooth chip evacuation in difficult-to-machine materials. ✦



EXOCARB® AD/ADO

The next generation high performance carbide drill series designed for every drilling application

The EXOCARB® AD / ADO is OSG's next generation high performance carbide drill series. The AD series is OSG's premium line of solid carbide drills. The ADO is a coolant-fed version of the AD drill series and is available in sizes up to 30x diameter. The AD / ADO series' special point design allows it to dramatically inhibit margin wear when machining carbon steel and cast iron. Smooth chip evacuation capability further allows low thrust and disturbance-free machining torque, making this series highly adaptable to a variety of machining environments. ✦



EXOPRO® XPF

High performance forming tap
for materials up to 35 HRC

The EXOPRO® XPF represents a new evolution in forming tap technology. This series is engineered to generate up to 50 percent less torque versus other forming taps, making it feasible to tap materials up to 35 HRC and sizes up to M45 in diameter. Its low-torque design allows for longer tool life at faster speeds. With the addition of OSG's proprietary V coating, wear resistance can be further enhanced. The XPF is available with or without coolant holes, and in standard or long shank style. ✦

Carbide Burnishing Drill

Custom tool for machining
complex holes and countersink

In addition to standard catalog items, OSG also offers custom tooling solutions designed to fulfill specific needs. This carbide burnishing drill was customized specifically for an automotive application, and excels in the machining of complex holes and countersink. Tool customization can often help simplify tool management by combining machining process, saving both tooling and labor cost while maintaining the required accuracy. ✖



2017 Exhibition Schedule

Global Events



Feb 7-9 Expo Manufactura
Cintermex
Monterrey, Mexico

Feb 28 - Mar 3 VTM
Odense, Denmark

Mar 7-8 AeroDef Manufacturing
Fort Worth, Texas, USA

Mar 7-10 Intec
Leipzig, Germany

Mar 7-11 INTERMOLD KOREA
Goyang, South Korea

Mar 12-17 Grainger Show
Orlando, Florida, USA

Apr 4-7 Industrie Lyon
Lyon, France

Apr 12-15 INTERMOLD
Tokyo, Japan

Apr 17-22 CIMT
Beijing, China

Apr 18-20 Fastenal Customer Expo
Nashville, Tennessee, USA

Apr 22-24 ISA Convention
Denver, Colorado, USA

May 9-13 EXPOMAFE
São Paulo, Brazil

May 12-14 EASTEC
West Springfield, Massachusetts, USA

May 30-Jun 2 Moulding Expo
Stuttgart, Germany

Jun 14-15 Amerimold
Rosemont, Illinois, USA

OSG participated at the INTERMOLD 2016 from April 20-23 at the Intex Osaka in Osaka, Japan. As its name suggests, the exhibition showcased products used in die / mold and metal stamping related industries. According to the INTERMOLD Development Association, approximately 47,756 visitors participated at the 4-day event. At the exhibition OSG introduced a number of new milling solutions, such as the Phoenix indexable series PSTW and PXMC, as well as expanded offering from its thread mill series.

- Jun 19-25** **International Paris Air Show**
Le Bourget, Paris, France
- Sep 18-23** **EMO**
Hannover, Germany
- Sep 25-28** **CMTS**
Ontario, Canada
- Oct 9-13** **MSV**
Brno, Czech Republic
- Oct 17-19** **National Industrial Fastener & Mill Supply Expo**
Las Vegas, Nevada, USA
- Oct 18-21** **MECT**
Nagoya, Japan
- Oct 24-27** **Tool Tech**
Goyang, South Korea
- Nov 22-25** **DAMEX**
Daegu, South Korea
- Dec 8-9** **Fastenal Employee Expo**
Orlando, Florida, USA



The 9th CCMT (China CNC Machine Tool) fair took place from April 11-15, 2016 at the Shanghai New International Expo Centre (SNIEC). CCMT's exhibition space measures approximately 120,000 square meters & has an estimate attendee total of 140,000. At CCMT OSG introduced its A Brand offering along with other industry specific tooling solutions.

Facility Expansion

OSG opens new U.S. headquarters in Texas

OSG is continuing to expand its presence throughout the United States by opening a new headquarters at 1945 West Walnut Hill Lane in Irving, Texas.

Opened on September 1, 2016, the 58,337 square-foot facility does not only serve as the company's U.S. corporate headquarters, but it is also a regional distribution center servicing customers in the south central region.

OSG plans to initially stock 10,000 SKU's with plans to expand to over 30,000 SKU's. Mid-range goals are to add an OSG training academy and provide regrinding/recoating services.

Through this Texas facility, OSG continues to improve service levels to customers in the south central region by reducing delivery times and the need for urgent shipping. In addition to this new facility, OSG now has stocking locations with customer support available in four locations nationally including Placentia, California, Forest Park, Georgia, and Glendale Heights, Illinois. 🌟



OSG opens new U.S. corporate headquarters in Irving, Texas.

OSG Around the World

Employee Interview with Dieter Prinz

OSG Corporation was founded in 1938, more than 78 years ago. Today OSG holds the No. 1 position in the Japanese cutting tool market as well as a top-ranking position globally, with a production, sales and technical network spanning 33 countries. Our commitment to innovation, services, total solutions and out-of-the-box thinking has contributed to our immense success today. However, without our employees, none of it would be possible. We truly believe that our employees are one of the greatest assets of the company. In this section, we will introduce our team members from around the world.



Photographs of Dieter and his motorcycle.



Dieter (left) and OSG Germany President Yasushi Suzuki at groundbreaking ceremony in Germany.

Tell us about your work & experience in the automotive industry:

I started at OSG in May 2003 when the Germany division was first established and began promoting "schrumpftechnik" (shrinking technology) for quick and accurate tool clamping in Europe, particularly in the Germany region. Shrink fit tooling is especially beneficial for high speed and high precision production in automotive manufacturing. By minimizing vibration, greater productivity and quality can be achieved.

Fast delivery and strong cost-performance are the basic requirements

to conduct business in Germany. As a cutting tool provider, we must demonstrate quality assurance so that our clients may have complete confidence with our products, knowing that the tool they put into their spindle will give them a predictable result every time. Everyday at OSG, we are always looking for new solutions to help our clients facilitate better manufacturing.

What is unique about the Germany division at OSG?

When OSG Germany was first established, we only had four staff including myself. It is incredible to be able to witness the growth and

transformation that OSG Germany has gone through over the past decade. What is unique about OSG Germany is our work spirit. We believe that as long as we have good ideas and motivation, there will be a way to succeed.

How do you spend time on your day off?

When I am not working I enjoy riding my motorcycle and watching sports. Handball is very popular in Germany.

What is your favorite automotive tool?

My favorite OSG tool is the EXOCARB® WDO coolant-through carbide drill. Its unique point geometry creates sharp cutting action for reduced thrust forces. With the addition of OSG's proprietary coating high drilling speeds can be achieved with long tool life. The WDO series is the safeguard for quality and features a comprehensive lineup with sizes available up to 30x diameter to provide a solution for every drilling application in automotive manufacturing.



The EXOCARB® WDO is OSG's flagship coolant-through carbide drill series designed to excel in a wide range of work materials. The series features a comprehensive lineup with sizes available up to 30x diameter.



Dieter and his colleagues in preparation for a major manufacturing exhibition in Europe.



Flags outside of the OSG Germany office in Göppingen, Germany.

Dieter Prinz

Company Location: Germany

Position: General Manager AT (Austria)

Joined OSG: 2003

Motto: "Doesn't work does not exist"





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