GEMEGON The Tool Coating

CUSTOMER MAGAZINE
FOR COATING TECHNOLOGY

FACTS

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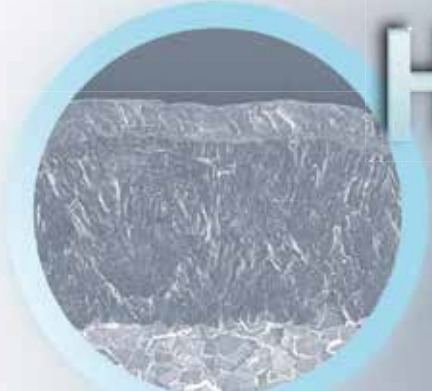
FUTURE-ORIENTED

Pages 4-7



HiPIMS MEETS Diamond

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FUTURE-ORIENTED TECHNOLOGY

Dr. Oliver Lemmer (left) and
Dr. Toni Leyendecker,
executive board of CemeCon AG

The conversion from an internal combustion engine to alternative drives creates challenges for tool manufacturers. These include finding new markets and fields of application – solutions for the economic machining of modern high-performance materials. Premium coatings play a key role here. With the new CC800® HiPIMS, Paul Horn GmbH, a trendsetter and pioneer in innovative tool concepts, has created the starting point for flexible responses to current and future requirements. Read more on page 4.

We presented the first pure HiPIMS coating materials at AMB 2016: FerroCon® and InoCon®. They have already proven themselves in multiple applications and provided competitive advantages to customers. One example of this success is Grieshaber (see pages 8 and 9). During the upcoming EMO 2017 we are going to introduce the new HiPIMS coating material AluCon® with a hardness of up to 5.000 $HV_{0,05}$, which is perfectly suited for processing titanium-aluminum-alloys as well as other non-ferrous metals, typical for aircraft construction. Find out more on page 12.

Even our diamond technology continues to conquer the world: In the US CemeCon Inc. expands its diamond coating center (pages 16 and 17) and in India we implemented the first CC800®/9 DIA into a production site – incredible India. More about our turnkey solution at IND-SPHINX on pages 14 and 15.

We intend to provide answers to questions that have not even been asked yet with our new CCDia®HiSpeed coating material. This coating category combines the advantages of two leading CemeCon technologies. Curious? Learn more on pages 10 and 11.

PREPARE TO BE INSPIRED!

Yours sincerely,

Dr. Toni Leyendecker

Dr. Oliver Lemmer

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Impulses

FOR TRENDSETTERS AND VISIONARIES

Paul Horn GmbH has frequently proved that it has a good sense for the changing requirements of the market. The pioneering company, a trendsetter and visionary in precision tools, is quick and flexible, able to deliver customized solutions in tight tolerances. Increasingly smaller batch sizes are precisely adapted to the machining case. This is not really possible with "off the shelf" coatings. Therefore, its own coating center, featuring the latest technology such as the CC800® HiPIMS from CemeCon, is the core building block for the success of the tool manufacturer. With its open technology the system represents a very good tool for product developers and, with their outstanding coating rates and ease of use, they provide the best performance in production.

© Horn

"Thanks to the good COOPERATION with CemeCon, we have already achieved very good results with OUR OWN FIRST COATING DEVELOPMENTS after installing the CC800® HiPIMS."

Bastian Gaedike, R&D scientist at Paul Horn GmbH

From the production of carbides to tool holders and mounts, through to geometrical developments and coating technology, the high level of production depth combined with motivated and competent employees is a core factor in Paul Horn GmbH's success. The premium manufacturer of cutting tools for slot milling, grooving and internal turning therefore keeps all the relevant quality factors under its own control, and can quickly develop high-quality solutions with the necessary flexibility for today's requirements and those of the future. Early on, Horn recognized the tremendous potential of HiPIMS technology that enables it to stand out from the competition, and is among the first to implement a CC800® HiPIMS in its in-house coating line.

A VERY GOOD TOOL FOR PRODUCT DEVELOPERS

With the CC800® HiPIMS, CemeCon revolutionized PVD sputtering technology by once again significantly increasing the quality and performance of coating materials. The CC800® HiPIMS coating system produces smooth, droplet-free, low-stress coatings. High metal ionization ensures superlative adhesion of up to 130 Newton under a scratch test, with coatings that are both hard and tough. An even coating thickness distribution ensures optimal wear protection of cutting tools.

High flexibility is required for coating precision tools. Therefore, in addition to the need for developing increasingly efficient coating materials, preparations must be in place for customizing coatings to machining cases quickly. Coatings also require the highest adhesion, smoothness and accuracy. The CC800® HiPIMS is the perfect solution. It enables the development and production of coating materials at a much quicker pace and more precisely – due to an easy to operate user interface and the integrated planning tool. Through its intuitive, graphic-based programming the software supports the flexibility offered by the HiPIMS process. This enables almost all the elements in the periodic table to be used as coating materials. They are added either as a multilayer or a nanolayer or as an alloy to the coating structure. The result is unlimited material variety with innumerable combination possibilities. Bastian Gaedike, R&D scientist at Paul Horn GmbH says, "Horn is able to react flexibly and quickly to the requirements of the market and meet the needs of

Three CC800® HiPIMS systems are now in use on a daily basis at Horn's own coating center. (Photo: Horn)

its own specialized product range even better."

In order for customers such as Horn to access technology in the best way possible, they go through intensive training in the use of systems and peripherals. They are then able to align their coating processes precisely to the most diverse types of tools and machining applications, or completely realign them. As part of the HiPIMS technology transfer to Horn, CemeCon trained Bastian Gaedike on how to use the system technology, process programming and general coating technology. At the CemeCon training center, he precisely won the confidence to handle the coating process safely and accurately, and to react quickly to the changing requirements of the machining sector. "Through the training, I was quickly able to adapt, change or even develop new processes myself," says Bastian Gaedike. We achieved very good results shortly after installing the HiPIMS system with our first application-specific EG3 and EG5 coating developments. This success was the basis for the installation of two additional CC800® HiPIMS systems."

BEST PERFORMANCE IN PRODUCTION

Three CC800® HiPIMS systems are now in use at Horn's own coating center, with a total of eleven coating systems in continuous operation. Maurizio Colecchia, head of

the coating department at Horn, works with the systems on a daily basis: "The CC800® HiPIMS is not only the ideal platform for new developments – it is also a real workhorse. It coats medium batch sizes all the way up to the highest coating rates of up to 2 µm per hour, at tight tolerances. Conversion to any other coating material or adjustments for changed tool quantities can be done very quickly. In addition, the system operates fully automatically with minimum maintenance. A guarantee for high efficiency."

Lothar Horn, managing director of Paul Horn GmbH (Photo: Horn)

TOOL CONCEPTS FOR SUCCESS AND PROFIT

"We have developed extensive expertise in all facets of tool production and we can offer our customers tool designs they can use to achieve quality and profit. Innovative technologies from strategic partners, such as the CC800® HiPIMS from CemeCon, are the key to our competitive advantages and, ultimately, successful and satisfied Horn customers," says Lothar Horn, CEO of Paul Horn GmbH.

PAUL HORN GMBH

www.phorn.de

Since 1969, Paul Horn GmbH has been developing and producing grooving and longitudinal turning tools as well as slot milling tools in Tübingen that impress with their performance and reliability. The high-performance tools are used in a wide range of industries, such as the automotive sector and its suppliers, aerospace, hydraulics/pneumatics, the jewelry industry, medical technology and mechanical engineering. In Germany, the company, which employs 930 people, has been the market and technology leader for many years – not least because of its continuous development and optimization of processes and products. Through its collaboration with international locations and multiple partners around the globe, Horn is able to provide reliable support to its customers all over the world.

„WE SPECIFICALLY REQUEST CEMECON COATINGS“

For sophisticated high-tech products, only turned parts that are perfect are good enough. As one of the market leaders in Europe, Grieshaber GmbH & Co. KG in Schiltach (Germany) is the preferred supplier when aluminum or stainless steel turned parts with the highest quality, precision and optics are required. The manufacturer uses form drilling tools with premium coatings from CemeCon for production.

Particularly with medium and large batch sizes up to several 100,000 units, the service life of the tools is crucial for economic production when processing aluminum and copper-based alloys. Longer service life not only cuts tool costs, but also reduces production interruptions. "Therefore, we are continuously searching for opportunities for improvement. The optimal coating for each processing case and material is a decisive factor. CemeCon coatings are at the front of the pack," says Ludwig Hoferer, technical planning employee with a focus on multi-spindle production at Grieshaber.

In its own tooling shop and the tool grinding department, Grieshaber develops production concepts and special tools for prototypes and preproduction, such as form drilling tools. The company also tests various coatings for the tools. Ludwig Hoferer says, "With InoCon® on drills with a diameter of 4 to

GRIESHABER GMBH & CO. KG

grieshaber PRECISION

Founded in 1903 as a simple handcraft workshop, Grieshaber grew into one of the leading international experts in the production of precision turned parts made of aluminum, non-ferrous metals and select stainless steels. The company, headquartered in Schiltach (in the Black Forest) advises users starting with project planning and supports them throughout the entire development process. Whether large-scale, medium-scale or small-scale batches or custom-made prototypes – with its many years of experience, comprehensive expertise and versatility, Grieshaber produces all item quantities for a wide range of industries, from automotive to sensors all the way to measuring and medical technology.

www.grieshaber-praezision.de

25 mm, we were able to increase service life by a factor of 6 to 8 compared to traditional TiAlN coatings for the processing of stainless steel (1.4301, 1.4305). Especially in the machining of fine contours, we achieved excellent results with the HiPIMS coating."

With form drilling and profiling tools for aluminum, AluSpeed® resulted in significant improvements. The coating proved itself in particular with "soft" types of aluminum with their typical long chipping behavior. The formation of built-up edges was significantly decreased, and the service life was increased by a factor of 3 to 4. "But it's not just the coatings from CemeCon that are first class. Their service is also just right. CemeCon is very flexible and does not have any minimum order quantity requirements. So we can have two or three tools coated for our tests and this allows us to achieve the optimal result," continues Ludwig Hoferer.

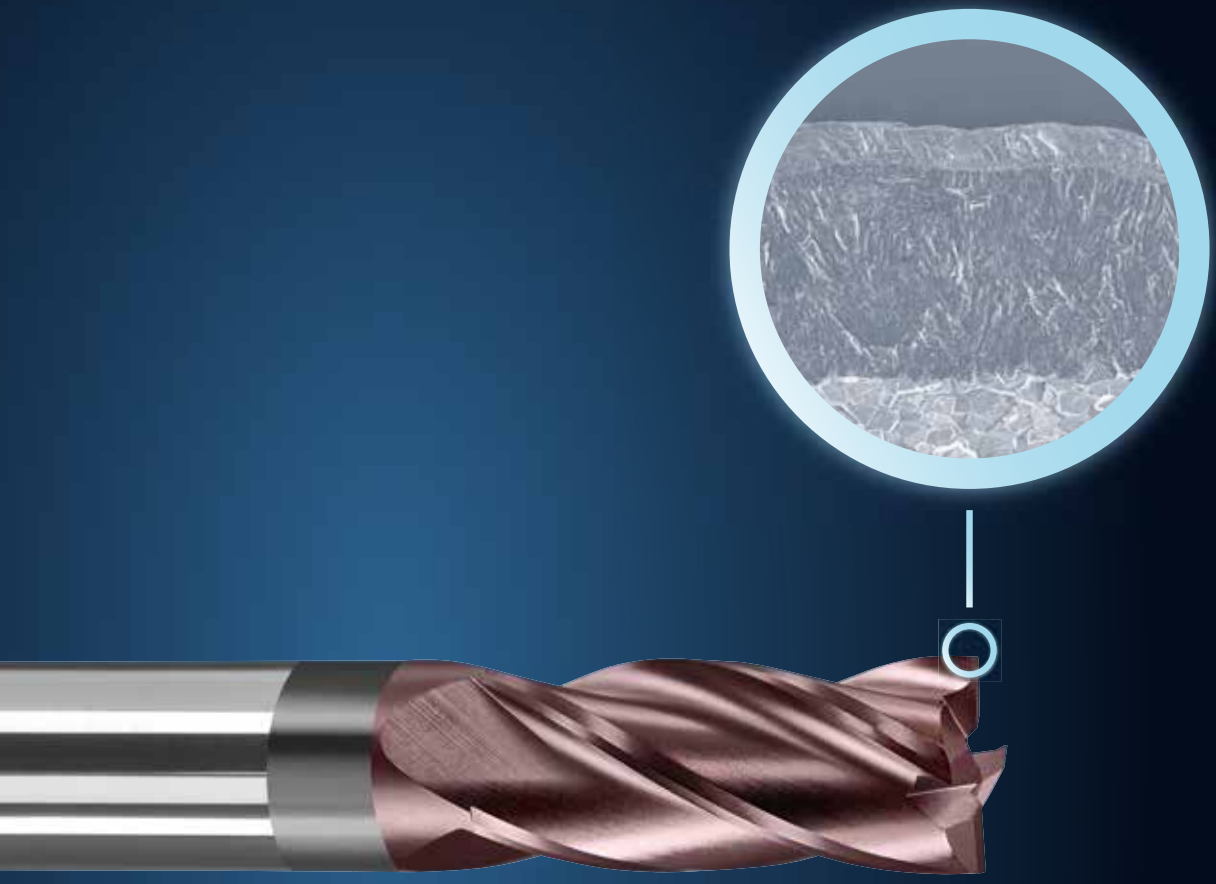
Grieshaber develops special tools for prototypes and preproduction in its own tool workshop. (Photo: Grieshaber)

If the turned parts are included in a series, Grieshaber usually orders the tools for their production from external partners. "Since we have achieved such good results with AluSpeed® and InoCon® in our own tool workshop, we specifically ask for these coatings from our external suppliers, particularly with form drilling tools," says Ludwig Hoferer.

„INOCON® results in tremendous INCREASES in service life compared to other coatings, especially with our high-precision FORM DRILLING TOOLS."

Ludwig Hoferer, technical planning employee at Grieshaber

HiPIMS MEETS Diamond



Over the past 30 years, CemeCon has revolutionized the coating market again and again, starting with TiAlN and followed by CVD diamond and HiPIMS. In 2017, the coating experts are pleased to present a visionary new material concept: CCDia®HiSpeed. This uniquely combines two leading CemeCon technologies, HiPIMS and diamond. The dawn of a new dimension in machining technology!

"Coating materials are still hugely rewarding to us, even after 30 years. It is not surprising, then, that we have ideas which may seem off the wall at first, but which quickly come to set new benchmarks in the world of precision tool coating. Our latest development is a logical follow-on from this mentality: take the best features of two premium technologies, combine them and see what happens," explains Dr Toni Leyendecker, CEO of CemeCon AG, when asked to comment on the launch of "HiPIMS meets Diamond", a new class of coating materials.

A VISION BECOMES REALITY

"Of course, the groundwork had already been done: we have been working with sputter technology for 30 years. This is what forms the basis for the HiPIMS coating process. As the global market leader in diamond coatings, we are well versed in all aspects of this process," adds Leyendecker. "Although the road from vision to successful innovation is often a long one, we are now pleased to launch the first new coating material of its class – CCDia®HiSpeed. We are already using it to coat tools for our pioneering customers."

Heat removal, oxidation resistance, stability, feed behavior, conductivity – the new coating materials now have new properties and combinations of properties which were previously unattainable. And the perfectly coordinated interplay of HiPIMS and diamond opens up new horizons in machining. The CCDia®HiSpeed coatings offer the possibilities to design diamond-coated products with the help of color and thus to differentiate them from other tools. Lead users can now set up applications which in the past would have been either impossible or required compromises to be made.

THE BEST OF TWO WORLDS

HiPIMS ensures that the coating material has heat-insulating properties. The energy is sent to the chips, which reduces cratering wear. Diamond as an ideal heat conductor supports and distributes the heat evenly within the substrate, thereby preventing the carbide from overheating. This results in especially heat-resistant coatings. With diamond, the hardest of all materials, HiPIMS gets the best possible base. The tool remains stable and there is no "eggshell effect" (hard shell, soft core).

The surface of the new coating materials is softer than pure diamond coatings, which improves the running-in behavior of the tools. Despite this, the tools benefit from the extreme hardness of diamond and deliver optimum productivity.

In the new coating materials, the HiPIMS component provides a conductive surface. This, for instance, makes measuring easier when cutting graphite or circuit boards, which favors automated manufacturing.

TAKING SOMETHING GOOD AND MAKING IT BETTER

Toni Leyendecker: "It's understandable that we, as engineers, want to challenge the limits of feasibility. It also goes without saying that as service providers, we respond to the requirements of our customers and develop solutions accordingly. However, the secret of future success and sustainability is becoming more and more rooted in the willingness and ability to develop solutions for which the requirements are still to be formulated. It may seem paradoxical, but CCDia®HiSpeed is a case in point: we can easily list its properties, but can only guess at the range of possible applications. This is where the visionaries in our customer base enter the picture. As always, the reward for every pioneer is the conquest of new areas."

NEW HiPIMS COATING MATERIAL: ALUCON®

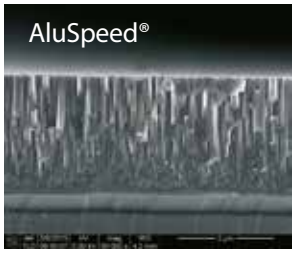
HiPIMS CHANGES EVERYTHING

Its low affinity to non-ferrous metals makes AluSpeed® so successful for the processing of aluminum and non-ferrous metals. Moreover, the hardness of borides is far superior to other PVD coating materials. The HiPIMS process makes even greater use of the outstanding physical properties of this coating material. For example, the new HiPIMS coating, AluCon® – a further development of AluSpeed® – is the solution for the difficult-to-machine titanium aluminum alloys used in aircraft construction.

Due to their low weight, lightweight construction materials such as titanium aluminum alloys are increasingly being used in the production of airplanes. These and other non-ferrous metals present particular challenges to machining providers. Dedicated high-end tools are the answer for high-performance materials. The new TiB_2-based HiPIMS coating material AluCon® makes this type of innovative tool concept possible. It is the upgrade to the proven AluSpeed®. The new coating combines the advantages of the TiB_2 material with the adhesion, density and hardness of the HiPIMS process. Drills, milling cutters, reamers, threading tools and inserts coated with this material process **aluminum, copper, lead-free copper, titanium** and **their alloys** with ease.

AluCon® has a hardness of 5,000 $HV_{0.05}$ and can be supplied in a variety of coating thicknesses. The very thin variant is especially suitable for machining aluminum with sharp cutting edges. Because of its extremely low affinity to non-ferrous metals, AluCon® offers the best possible protection against built-up edges. The extreme smoothness of AluCon® also decreases friction and thereby reduces the temperature in the machining process. This ensures an optimal removal of swarf and prevents problematic adhesions. The dense, closed structure of the HiPIMS coating AluCon® also successfully reduces the diffusion and thus the wear at high cutting temperatures of up to 1,000°C. This enables the user to achieve a significantly longer service life. The excellent adhesion combined with the high hardness of 5,000 $HV_{0.05}$ accompanied by improved ductility of the coating material result in a better performance for the wet and dry machining of non-ferrous metals – and all with increased cutting parameters. The fine crystal structure also ensures sharper edges.

AluCon® shows what it can do, for example, when turning aluminum: With the HiPIMS coating, the **service life of the inserts increased by 30%** compared to tools with traditional coatings.



A comparison of the SEM images clearly shows the difference: As it is produced using the HiPIMS process, AluCon® has a much denser structure and improved coating properties.

CARBIDE GRADES: QUALIFIED FOR DIAMOND

Premium coatings have the highest requirements. The properties of the carbide are a decisive factor in diamond coatings. CemeCon tests the carbide grades from various manufacturers and qualifies them for individual CCDia® coatings. This ensures permanently high coating quality.

For more than 25 years, CemeCon has produced diamond coatings for cutting tools. Previously only carbides with 6% cobalt could be coated. Now the range has increased significantly. Today, CemeCon can deposit diamond coatings onto carbide grades ranging from 4 to 10% cobalt. So that tool designers can be informed quickly, CemeCon provides tool manufacturers with a continuously updated overview of the carbides that are approved for diamond coatings.

With the expanded range of suitable carbides, tool manufacturers now have many options. Depending on the application and required characteristics of the tools, they can combine tougher or harder metals with various diamond specifications. This results in tailor-made, adapted tool solutions.

For choosing the optimum process it is crucial to name the carbide type on your delivery sheet as well as using a qualified carbide. Our extensive overview of the suitable carbides offers a solution for every tool concept.

Ask us for our carbide overview. We would be happy to advise you.

Talk to an expert

+49 2405 44 70 123
coatingservice@cemecon.de

Diamond coatings

CemeCon has an extensive diamond coating product range. And CemeCon is the only company that offers excellent multilayer diamond coatings. Depending on the coating material and requirements, various coating thicknesses are possible – from thin (3 µm) to thick (17 µm).

CCDia®FiberSpeed
for CFRP and GFRP

CCDia®MultiSpeed
for aluminum with a high content of silicon and MMC

CCDia®AeroSpeed®
for CFRP, CFRP/Al and CFRP/Ti stacks

CCDia®CarbonSpeed
for graphite

FIRST DIAMOND COATING PRODUCTION OPENED IN INDIA

Headquartered at Himalayan foothills, IND-SPHINX Precision Ltd. manufactures high precision cutting tools for demanding applications ranging from printed circuit board (PCBs), semi-conductors to aerospace, medical and micro machining. A high level of manufacturing expertise is required in order to consolidate and expand the company's market position in India, a country developing as a technology nation in huge strides. This is the reason for IND-SPHINX to invest in the latest CVD diamond coating technology. One measure was to integrate a complete CemeCon CVD diamond coating line into its manufacturing process thereby taking the quality of tools to higher orbit.

"We have been collaborating with CemeCon for coating services for more than a decade. Five years ago, we installed a CemeCon PVD coating unit and have been successfully coating our tools on CC800®/9 ML with smooth sputter coatings," states Neeraj Beriwal, Coating Manager IND-SPHINX.

IND-SPHINX, as a pioneer, is the first tool manufacturer in India to invest in a CC800®/9 CVD diamond coating facility including all peripherals – in order to provide customers with precisely adapted NexGen coatings. This system allows for the fully automatic deposition of extremely smooth, highly adhesive nanocrystalline and crystalline diamond multilayer coatings. With CemeCon technology, even complex three-dimensional tools receive extremely homogeneous coating distribution within very narrow tolerances. CemeCon diamond coating machine has the biggest loading capacity of all systems available on the market.

From left: Neeraj Beriwal, Coating Manager at IND-SPHINX as well as Gulshan and Suraj Prakash, diamond coating plant operators at IND-SPHINX.

TAKING FULL ADVANTAGE OF THE SYSTEMS' CAPABILITIES

Training is the key to successful turnkey integration. In Würselen, Germany, CemeCon operates the world's largest diamond coating center for cutting tools. It is home to more than 30 years of expertise and experience – the ideal basis for providing essential knowledge to IND-SPHINX tool experts. As Neeraj Beriwal states,

© IND-SPHINX

From left: Manish Adwani, National Sales Manager India, Sunil Taneja, Managing Director IND-SPHINX, Werner Pütz, Application Development CemeCon, Raghavan Mukund, CEO IND-SPHINX and Ronuk Taneja, Director IND-SPHINX

"Because of the excellent training, we learnt how to operate the system and the relevant processes within a very short span of time. We are extremely pleased with the support we have received from the team CemeCon – starting with the installation of the CC800®/9 ML and now once again with CC 800®/9 Dia!"

Assistance from the coating experts goes far beyond simple explanations about the functions. "CemeCon team provides us with prompt and concise advice and support, allowing us to take full advantage of the capabilities of the system and develop new, customized solutions for our tools. We are focussing high precision applications in micro and mini range like e.g. PCB tools, semi-conductor applications, aerospace and tools for medical applications" states Sunil Taneja, Managing Director at IND-SPHINX. "'With long standing know how on base materials, tool geometries, micro geometries and applications, CemeCon CVD diamond coatings will be a force multiplier for us."

EXPERTISE IN CFRP AND NON-FERROUS METALS

In the developing Indian market, CemeCon technology has significantly enhanced IND-SPHINX's expertise in the processing of CFRP and other non-ferrous materials. Raghavan Mukund, CEO of IND-SPHINX: "The new diamond coating line allows us to offer our customers complete solutions and deliver them much more quickly, which puts us in a better position in the market."

IND-SPHINX PRECISION LTD.

IND-SPHINX
PCB DRILLS | PCB ROUTERS

AXIS

www.indsphinx.com

IND-SPHINX Precision Ltd. was founded in 1987 in cooperation with SPHINX WERKE Müller A.G. Switzerland. Located in Parwanoo at the foothills of the Himalayas, the Indian company has expert knowledge of all types of PCB and AXIS tools for Micro-machining producing more than 12 million tools per year. To meet the stringent quality requirements of industries such as aerospace, medical technology and circuit board manufacturing, IND-SPHINX relies on Swiss precision machines, accurate Japanese, Swiss and German measuring instruments and high quality European technology. IND-SPHINX' facilities are ISO 9001:2008, ISO2003:13485 certified.

CEMECON INC. INVESTED

DIAMOND COATING CENTER IN THE USA EXPANDED

In the aerospace and automotive industries, the use of sophisticated lightweight construction materials such as fiber-reinforced plastics and hard to cut non-ferrous metals is on the rise. The excellent properties of the patented diamond coatings from CemeCon ensure that these materials are machined precisely and economically. Demand among tool manufacturers in North America is also greatly increasing. This is why CemeCon has decided to expand its diamond coating center in Horseheads, New York.

"CemeCon's patented diamond technology, which is used to coat tools, has been here in Horseheads since September 2014. Success came quickly, and demand is continuing to grow. As such, we are now extending our capacity and expanding the diamond coating center by 1,500 m^2. A stronger presence will further consolidate our position as an innovative leader in the diamond coating market," says Gary Lake, CEO of CemeCon Inc.

OPTIMIZED PRODUCTION

To ensure there is sufficient space, the existing 2,500 m^2 complex in Horseheads was expanded to incorporate a new 1,500 m^2 building. The entire diamond production line will be relocated to this building. From the very beginning, CemeCon created the perfect basis for simultaneous process optimization and aligned the building's infrastructure and equipment with the exact requirements for diamond coating. Full production will get underway here starting in November 2017.

Toni Leyendecker, CEO of CemeCon AG: "This expansion also sends out a strong message to the international market. With the construction of our second production site for diamond coating – in addition to our coating center in Würselen – we are further increasing and ensuring global availability of our CCDia® coatings."

The team from CemeCon Inc. (from left): Kai Scofield, Andy Brayer, Melissa Smith, Autumn Carson, Marjorie Steed and Ryan Lake.

The new building also offers additional benefits. The space that is being freed up by moving the entire diamond process can be used for demonstrations, and for production using the new CC800® HiPIMS in particular. This enables CemeCon Inc. to combine PVD, HiPIMS and diamond processing, thereby allowing the company to further optimize contract coating processes and to optimize the technology for turnkey coating lines.

IMPROVING CUSTOMER SUPPORT

In future, Autumn Carson and Melissa Smith, both long-term employees at CemeCon Inc., are also planning to expand support and communication between customers and CemeCon around the world. "This will mean bringing customer and sales support to a new level," says Melissa Smith.

There has also been a few staff changes at CemeCon Inc. Howard Ransey, who was a Key Account Manager for many years, has retired. Dr Craig Morton has been supporting the sales department at the USA headquarters since June 2017. With decades of experience in the manufacture of precision tools (most recently in the R&D department of a major tool producer in Tennessee), Morton is there to provide expert advice and support in technical matters. "We would like to thank Howard Ransey for his work and commitment to the development of CemeCon Inc. His high level of customer focus will remain a cornerstone of our CemeCon spirit," states Gary Lake. "We are also very pleased with the experience and relationships that Craig Morton brings to the table as a new member of our account management team."

Dr Craig Morton supports the sales department in the USA.

They find the best properties in the expanded coating center in Horseheads (from left): John Makovitch, Production Manager and Joel Davis, Round Tools Production.

CEMECON K.K. IN JAPAN EXPANDS ITS NETWORK

CemeCon K.K., the CemeCon subsidiary in Japan, is growing step-by-step. Currently, there is a coating center under construction there, with on-site support provided by four employees, all of whom of course speak Japanese. The newest member of the CemeCon family is Masaki Kinjoh, who supports the team as the sales manager. In the near future the subsidiary will also be developed into a production site.

Alex Marxer, CEO of CemeCon K.K., gives a presentation at the JTA.

Recently, CemeCon K.K. became a member of the Japan Cutting & Wear-resistant Tool Association (JTA), which has 127 members involved in tool manufacturing, and is the largest association of its kind in Japan. As a result, the company has taken a further step towards establishing itself in this highly technological and future-focused market.

BEST CHOICE

IN JUST THREE CLICKS

„The new CemeCon Coating-App leads to a COATING MATERIAL RECOMMENDATION in just three clicks. That is already halfway to your own PREMIUM COATING!“

Dennis Miranda, a member of the Coating Service expert team at CemeCon

Anyone who is searching for the right coating material has the perfect tool at hand with the new CemeCon Coating-App. "In just THREE CLICKS you can get a recommendation for the right coating material, depending on the tool, application and the material to be processed. This means that 50% of the premium coating is then already defined!" says Dennis Miranda, a member of the Coating Service expert team. The other 50% depends on the customer's requirements. The CemeCon experts provide advice on this.

A premium coating is the result of multiple variants, parameters and process steps. CemeCon differentiates precisely between the requirements and distinguishes itself from other coating companies in its approach. As a result, the expert from Aachen supplies coatings with a "built-in competitive advantage".

PREMIUM SERVICE focuses on the tool in its individual form and function. From the selection of the coating process and coating specifications through the pretreatment of the tools, coating with the coating material with the correct thickness and tolerance, all the way through to the finish and final inspection. This is how the best possible premium coating is the result of best practices.

"If new geometries, innovative tool concepts and special applications are involved, we support our customers with PREMIUM PLUS SERVICE. We design a coating solution in close collaboration with our customer, which is precisely tailored to the market requirements," says Dennis Miranda.

You can find the CemeCon Coating-App at **coating-app.cemecon.de**.
Also optimized for smartphones and tablets!
You can reach the Coating Service expert team by calling **+49 2405 4470 123.**

CemeCon
The Tool Coating

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18TH -23RD SEPTEMBER 2017
EMO
Hannover (Germany)

23RD - 26TH OCTOBER 2017
V2017 (EFDS)
Dresden (Germany)

7TH - 8TH NOVEMBER 2017
5th VDI Symposium for Machining Steel and Cast Iron Materials 2017
Kassel (Germany)

15TH - 17TH NOVEMBER 2017
IOT seminar about PVD-/CVD-thin coating technology (incl. visiting the coating production on-site)
Aachen (Germany)

7TH - 6TH DECEMBER 2017
RSD-Conference
Pilsen (Czech Republic)

16TH - 17TH MARCH 2018
GrindTec
Augsburg (Germany)