

# 50. FACTS

ANNIVERSARY  
ISSUE



## HiPIMS – NEW ENERGY FOR THE DRIVE TECHNOLOGY

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#### MORE BUSINESS IN STAINLESS STEEL? CUTTING INSERTS WITH INOXACON®!

WITH CC800® HiPIMS ACHTECK MAKES A LEAP  
IN STAINLESS STEEL PROCESSING

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#### THIS COMBINATION IS ONLY AVAILABLE AT CEMECON

CC800® HiPIMS FOR UNCOMPROMISING  
PREMIUM QUALITY

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# UNIQUE KNOW-HOW

CemeCon stands for premium coating technology. With Diamond and HiPIMS, we provide tool manufacturers with individual solutions for future challenges – and that for an enormous range of different applications. Why is this so? In our coating systems, we combine unique know-how from constantly updated research results, 30 years of continuous development work and practice in system construction as well as knowledge and experience from our own coating service for customers with the most diverse requirements.

We have been presenting our highlights in the FACTS for many years: For 50 issues now, we have been showing innovations, providing insights into the world of CemeCon and reporting on customers who live their own success story, not least thanks to our technology. This anniversary edition also has a lot to offer: We show, for example, how our Customer Care Team is available to customers around the world around the clock (see pages 16-19) and how Bosch is optimizing the machining of common rail injectors with HiPIMS coatings (see pages 4/5). Let these and other success stories inspire you!

Yours sincerely,

  
Dr Toni Leyendecker

  
Dr Oliver Lemmer

  
Bernd Hermeler

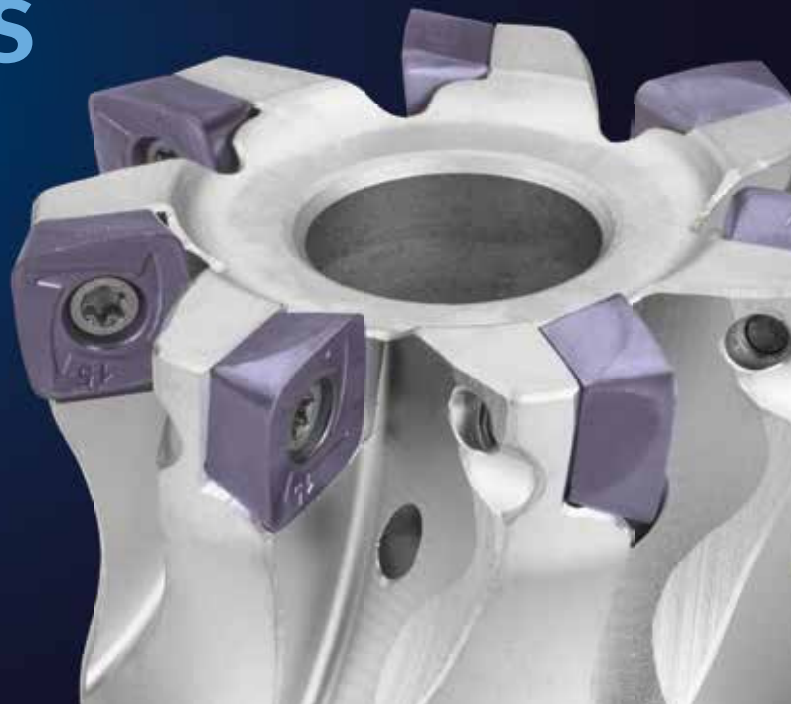
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## HiPIMS COATINGS

  
The Tool Coating

FerroCon<sup>®</sup>Quadro

[coatings.cemecon.de](http://coatings.cemecon.de)



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JOINT RESEARCH PROJECT AT BOSCH

# NEW ENERGY WITH HiPIMS FOR THE DRIVE TECHNOLOGY

Optimizing components for combustion engines is part of Robert Bosch GmbH's daily bread. In particular, the company focuses on injectors to further reduce pollutant emissions and fuel consumption. Bosch has launched a research project for the efficient machining of common rail injectors. On board: CemeCon – pioneer and technology leader in HiPIMS coating technology.



With HiPIMS Bosch was able to achieve higher component quality with increased process reliability in the production of common rail injectors.



Whether for passenger cars, commercial vehicles, two-wheelers, off-highway applications or ship and rail transport – Robert Bosch GmbH develops intelligent mobility solutions. At the Bamberg location, the experts set the standards for modern diesel technology in the manufacture of common rail injectors and nozzles as the lead plant in the international manufacturing network, and continue to develop these standards consistently.

Two years ago, a strategic research project began there to investigate the surface properties of cutting tools in order to optimize the machining of common rail injectors. The aim was to analyse the residual stresses of the substrate (carbide) and the influence of a suitable coating on it. In addition to the Institute for Production Technology and Machine Tools of Leibniz University of Hanover, Bosch Bamberg also brought CemeCon AG on board as a project partner, with whom Bosch had already worked successfully on



Sebastian Glossner, Project Manager Machining for Common Rail Injectors at Bosch Bamberg.

## ROBERT BOSCH GMBH



Robert Bosch founded the Workshop for Precision Mechanics and Electrical Engineering in Stuttgart in 1886.

Today, the Bosch Group is a leading international technology and service company with some 403,000 associates worldwide. With its four business sectors Mobility Solutions, Industrial Technology, Consumer Goods, and Energy and Building Technology, Bosch offers intelligent solutions for many facets of daily life. Its strategic goal is to provide solutions for connected life, with products and services that improve the quality of life of people worldwide.

Injection technology and auxiliary units for internal-combustion engines, as well as a wide range of solutions for drive electrification, steering systems, safety and driver assistance systems, technology for user-friendly infotainment and cross-vehicle communication, workshop concepts, and technology and services for the automotive aftermarket are all part of the Mobility Solutions division. The vision: to make mobility as emission-free, stress-free and accident-free as possible, and to make it multi-modal and personalized.

[www.bosch.de](http://www.bosch.de)

other tool projects. A decisive factor for CemeCon's participation was, among other things, its extensive experience in the application of HiPIMS coating technology.

### HiPIMS IMPROVES MACHINING

CemeCon has consistently further developed the HiPIMS process to market maturity and high cost-effectiveness. HiPIMS produces smooth, droplet-free and low-stress coatings that are simultaneously hard and tough in an almost unlimited variety. In addition, HiPIMS ensures excellent adhesion and an even coating thickness distribution around the tool cutting edge.

FerroCon® – the HiPIMS coating material developed by CemeCon for the machining of unalloyed, alloyed and high-speed steels – was the focus of the research project and the results confirm its superior properties: With FerroCon®, Bosch was able to achieve considerable tool life and cost savings in the series production of common rail injectors. "The extensive coating know-how makes CemeCon a competent partner in our research project. The cooperation, also with regard to cost reduction in production, was very successful," says Sebastian Glossner, Project Manager Machining for Common Rail Injectors at Bosch Bamberg.

WITH THE CC800® HiPIMS, ACYTECK TAKES STAINLESS STEEL PROCESSING TO A NEW LEVEL

# MORE BUSINESS IN STAINLESS STEEL? CUTTING INSERTS WITH INOXACON®!

The company name Achtek is closely linked to the lucky number in China. The manufacturer from Ganzhou, China, proved to have a lucky hand with its cutting inserts for machining stainless steel – with a CC800® HiPIMS and the coating material InoxaCon®.

Compromises do not fit into the premium strategy of Ganzhou Achtek Tool Technology Co, Ltd. equipment, technology and staff training: Only the best is good enough. When it came to stainless steel machining, Shi Haidong, Vice President Production at Achtek, was not satisfied with what had been achieved. He was looking for the plus to the premium. "Many can machine carbon steel, stainless steel is in a completely different league. When milling stainless steel, high temperatures are generated at the cutting edge, which damages the tool, resulting in poor surface quality on the product. On top of that, stainless steel tends

"The formula for success for our inserts for stainless steel machining: our CARBIDE, a carefully designed GEOMETRY and HiPIMS. The ACYTECK CUTTING INSERT with INOXACON® processes 25 PERCENT MORE stainless steel connectors than the competition."

Shi Haidong, Vice President Production  
at Ganzhou Achtek Tool Technology Co., Ltd.

to smear and form built-up edges. We had high-quality carbide and coordinated geometries – the unique

selling proposition on the market lacked an outstanding coating," says Shi Haidong.

THE BEST? INOXACON®  
FROM THE CC800® HiPIMS!

A screening of all available technologies on the market by Achteck's perfectly equipped R&D department was to determine the best solution. A clear leader emerged: the CC800® HiPIMS from CemeCon. "With no other system can HiPIMS be tailored so specifically to the requirements of stainless steel processing – for outstanding results in cutting," confirms Shi Haidong.

The HiPIMS coating InoxaCon® raises the milling of stainless steel to a new level. Jimmy Zhang, Sales Manager at CemeCon China, says: "InoxaCon® has a low affinity to stainless steels and is extremely smooth. This reliably prevents built-up edges and ensures process reliability. Thanks to its high temperature stability, InoxaCon® optimally protects the tool against heat in the cutting process, as the heat is conducted into the chip".

#### THICK COATING AND SHARP CUTTING EDGE

Thick layers on the sharp edges typical for stainless steel inserts? A

## GANZHOU ACYTECK TOOL TECHNOLOGY CO., LTD.

# ACHTECK

Ganzhou Achteck Tool Technology Co, Ltd, a subsidiary of Chongyi

Zhangyuan Tungsten Co, established in 2007, develops and produces high-performance and precise cutting inserts for milling, turning and drilling such as steel, stainless steel, cast iron, aluminum alloys, superalloys and hardened steel. Following its motto "Top level of technology, equipment and automation around the world", the company continuously invests in advanced production technology. In addition to cutting inserts, Achteck also produces carbide blanks for solid carbide tools in various designs and sizes. A modern measuring laboratory (below) ensures CemeCon's equally high quality standards worldwide.

[www.achtecktool.com/en/](http://www.achtecktool.com/en/)

contradiction? Not with HiPIMS! Joe Ni, Sales Manager at CemeCon China: "The high density of the HiPIMS layers and targeted management of the residual stresses in the coating make the technological leap".

"The formula for success for our inserts for stainless steel machining: our carbide, a carefully designed geometry and HiPIMS. The Achteck cutting insert with a 5 µm thick

InoxaCon® layer processes 25 percent more stainless steel connectors than the competition," says Shi Haidong happily.

And that's not all. "We are working on cutting inserts with AluCon® for milling TiAl6V4 for the aerospace industry," says Qiu Lianchang, R&D team leader at Achteck. "One can be looking forward to further premium results."

Qiu Lianchang (center) together with other Achteck employees in front of the CC800® HiPIMS.





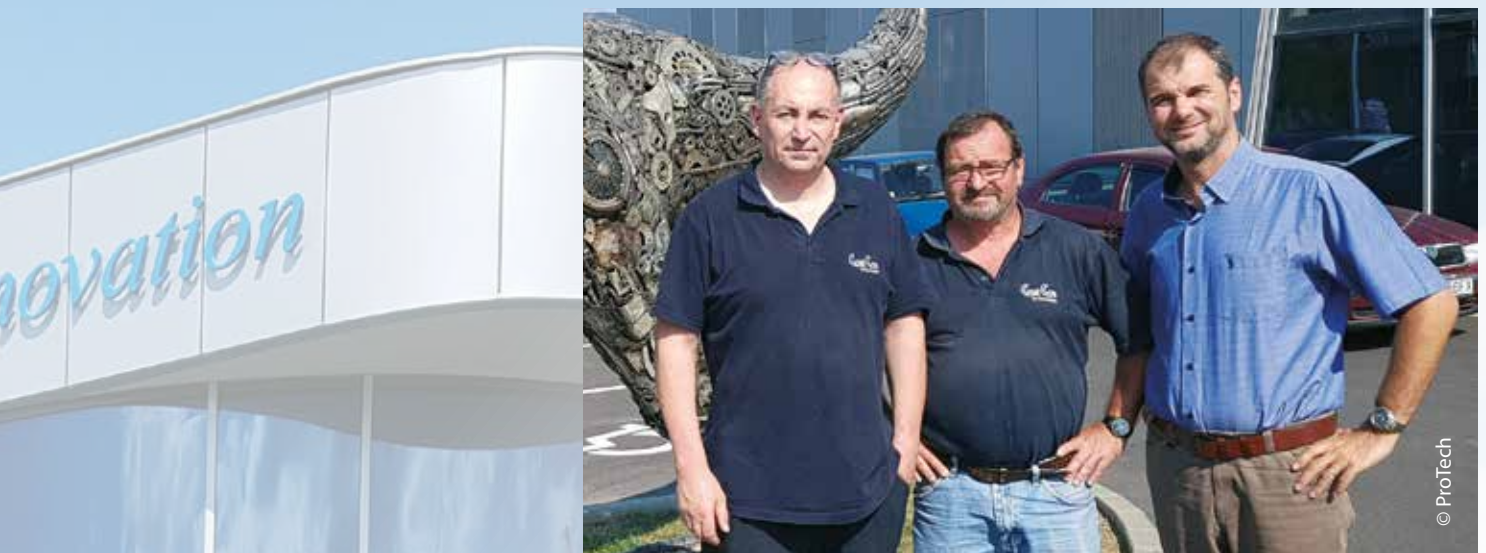
CC800® HiPIMS FOR UNCOMPROMISING PREMIUM QUALITY

# THIS COMBINATION IS ONLY AVAILABLE AT CEMECON

Anyone standing in front of the new ProTech Innovation Center and the metal dinosaur immediately knows which direction the manufacturer of cutting tools and coatings from Slovakia has taken: Premium. In order to fulfill the customer promise of first-class quality on a daily basis, ProTech from Prešov has invested, among other things, in modern precision grinding machines and high-precision measuring technology. ProTech is now achieving a further leap in quality for tools with "bite" with the CC800® HiPIMS from CemeCon.







In front of the ProTech Innovation Center (from left). Falko Trieb and Dirk Prinz, Customer Care Technology at CemeCon, together with Miroslav Palo, owner of ProTech.

Standard was yesterday. The trend in industrial production is moving further and further away from mass tools for everything to small batch sizes and special solutions for special applications. In recent years, ProTech has developed into an expert for special tools that are precisely tailored to the requirements of its demanding customers. "Our customers are creative and demanding - every day they make new demands on the tools and the

coating. As a result, the business is becoming increasingly complex. In our production we grind micro tools with diameters from 0.1 mm as well as large hobs and broaching tools up to 3,000 mm. The spectrum in between is enormous. The coating technology we use must be able to cope with this range, while delivering the highest quality and enabling economical production. We have only found this combination in the CC800® HiPIMS from CemeCon,"

says Miroslav Palo, owner of the family business and mastermind behind the ProTech Innovation Center.

#### VARIANT DIVERSITY UNDER CONTROL

The CC800® HiPIMS is extremely versatile and flexible. It is therefore ideal for coating many different tool variants. "With our HiPIMS system, the coatings can be precisely adapted to the requirements and

## PROTECH COATINGS SERVICE, S.R.O.

In Prešov, Slovakia, ProTech Coatings Service, s.r.o. and ProTech Service, s.r.o. combine their expertise in special tools of the highest quality. The experts are the only ones in Central Europe to offer coating, re-grinding and tool production from all existing materials (starting from HSS and Carbides and ending with superhard CBN, PCD and CVD tools) at one location. Since 2006, ProTech Coatings Service has been offering high-quality coating solutions for cutting tools and components. The basis for the company's success is state-of-the-art coating and testing technology and intensive development work. ProTech Service, s.r.o., founded in 2002 as a regrinding service, today mainly produces cutting tools of the highest quality, which are tailored to the requirements. These bundled competences ensure outstanding tool solutions, short delivery times and fast service. Customers are mainly suppliers to the automotive industry.

[www.commercSERVICE.sk/-home-protech-coating](http://www.commercSERVICE.sk/-home-protech-coating)





© ProTech

Mastering the diversity of variants - the CC800® HiPIMS as the most flexible coating system is perfect for ProTech's requirements.

"Actively managing  
A WIDE RANGE OF VARIANTS –  
each in PREMIUM QUALITY – is the core of the  
PROTECH INNOVATION CENTER. I see the  
CC800® HiPIMS from CemeCon as a cornerstone  
in our FUTURE STRATEGY."

Miroslav Palo, owner of ProTech s.r.o.

match the speed of the CC800® HiPIMS. "For example: the process needs 4.5 hours for a 3 µm batch. It can be converted in 30 minutes. This enables four to five different batches per day and thus ensures maximum productivity," says Falko Trieb, Customer Care Technology at CemeCon.

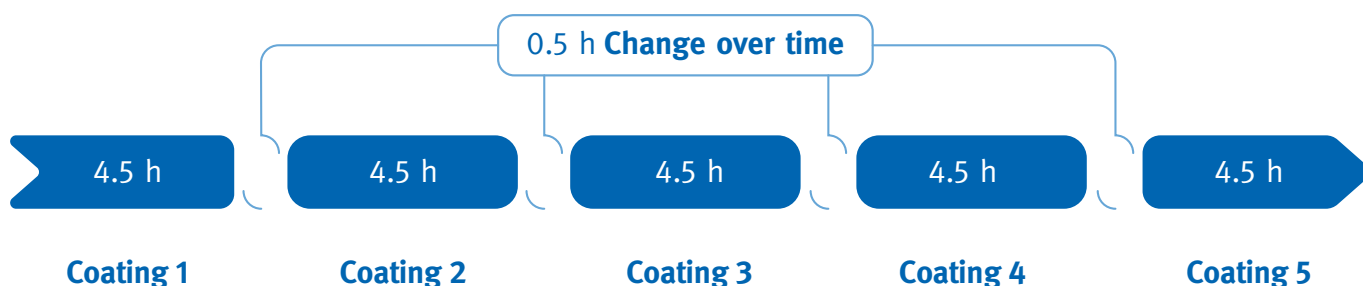
ProTech has also invested in the ideal coating technology for future challenges, Miroslav Palo is certain: "The variety and complexity of market requirements will grow immensely. Actively managing a wide range of variants – each in premium quality – is the core of the ProTech Innovation Center. I see the CC800® HiPIMS from CemeCon as a cornerstone in our future strategy."

implemented within a short time. For example, 12 µm thick layers for cutting inserts can be deposited in the morning, followed at midday by 1 µm wafer-thin layers with tight tolerances for micro tools," says Dirk Prinz, Customer Care Technology at CemeCon AG, enthusiastically.

For premium quality over the entire bandwidth, the coatings have

outstanding properties: they are extremely smooth, incomparably adhesive, hard and at the same time tough, have a fine-grained, very dense morphology, low residual stresses and high thermal stability. An extraordinary combination!

And there's more: Apart from the high flexibility and first-class quality, no other coating system can



# PERFORMANCE LEAP IN THREAD PRODUCTION

Every year, more than one billion taps and thread formers are produced worldwide – for many years, most of them have been coated with traditional TiN and TiCN coatings, unchanged in most cases. Up to now they have been the reference in demanding internal thread production. The HiPIMS coating material TapCon®Gold now brings new momentum to thread production and ensures significantly improved cutting results.

Taps in particular must have long tool life and achieve consistent thread quality and tolerance over their entire tool life. This is because threading, as one of the final machining steps, is central to the quality of the workpiece. "During this critical process step, manufacturers take a very close look before embarking on something new. TapCon®Gold is convincing all along the line and is now being produced in series. Various tool manufacturers have successfully tested the HiPIMS coating specially designed for HSS taps and formers and series production started. The results exceed all expectations," says Manfred Weigand, Product Manager Round Tools at CemeCon, enthusiastic about the very good machining results. One example: When machining C45, taps with conventional coatings cut an average of 432 threads (+/-10 percent) with TapCon®Gold, the average number of threads was 690 (+/-10 percent), which is an increase of about 60 per-

cent! The quality of the cut thread is excellent right down to the last hole.

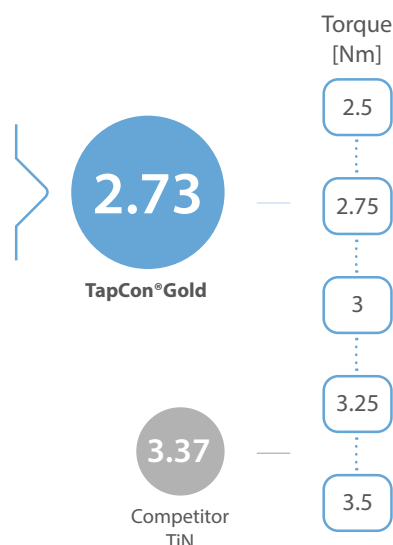
The secret of this success lies in the HiPIMS technology from CemeCon. It achieves maximum adhesion even on very complex tool geometries. Thereby TapCon®Gold, like all HiPIMS coatings, is extremely dense and smooth. This ensures stable low torques, excellent running-in behaviour and

reliable chip removal with minimal adhesion. The high toughness of the coating also provides optimum protection for the cutting edges during threading. "With HiPIMS we can adjust the coating thickness exactly to the diameter of the threading tool. We also offer manufacturers the option of deburring the finished ground tools to prepare the surfaces perfectly for coating," adds Manfred Weigand.

Material:  
**Heat-treated steel**

Tool:  
**HSS Tap M8 x 1.25**

$V_C$ :  
**42 m/min**







INTRODUCED IN AUTUMN AT THE EMO 2019, ALREADY A BIG HIT TODAY:

## FERROCON®QUADRO – THE HiPIMS COATING WITH A THICKNESS OF UP TO 12 µm!

When it comes to really thick coatings, manufacturers of cutting inserts have so far had no choice but to resort to the CVD coating process, which is very limited in its possibilities. As a result, different coating technologies were required for different layer thicknesses. With the HiPIMS technology the situation changes radically. Not only does it require – other than the CVD process – no toxic or environmentally hazardous chemicals, but also layer thicknesses from 1 to 12 µm are possible.

The HiPIMS technology bundles advantages that no other system can provide: Smooth, tough layers with low residual stress. And this with every conceivable material. Almost every element of the periodic table can be built in layers. With coating temperatures around 500 degrees HiPIMS is additionally very gentle to

the substrate. This prevents carbide embrittlement.

### NOW ALSO IN THICK

When CemeCon developed the first HiPIMS layers to market maturity, it was particularly manufacturers of microtools who very quickly took

advantage of the unique selling points achieved by the technology. Other tool types quickly followed, because HiPIMS combines the advantages of all PVD coating technologies. Now, with FerroCon®Quadro, a coating material is also available for manufacturers of cutting inserts intended for heavy-duty machining.



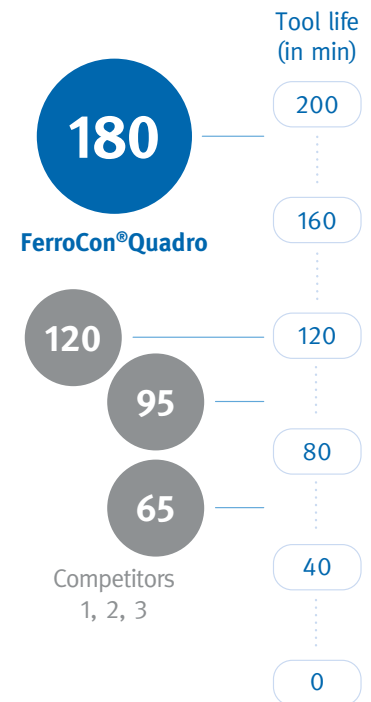
Material:  
1.0503 (C45), 32 HRC

Milling tool with  
indexable inserts

$v_c = 220 \text{ m/min}$

$a_p = 0.5 \text{ m/min}$

Without cooling



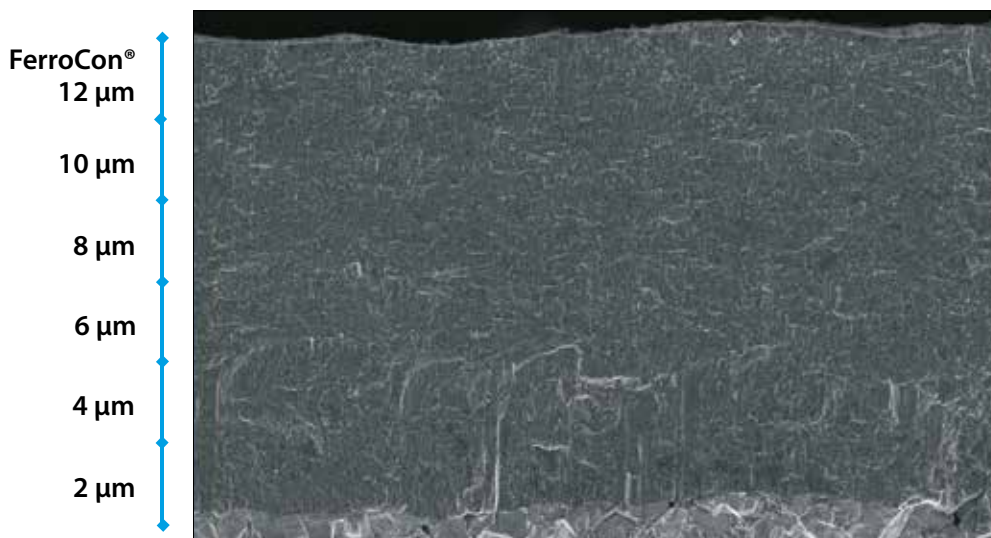
This opens up completely new possibilities for indexable inserts in the machining of cast iron and steel.

Inka Harrand, Product Manager Cutting Inserts at CemeCon, is pleased about the very positive customer response to the new HiPIMS coating material FerroCon®Quadro: "All initial orders are closely monitored. An extensive incoming inspection is carried out, which includes, among other things, the remeasurement and documentation of the edge rounding. An edge rounding of about 40 µm before coating creates ideal conditions for optimum adhesion. We have surprised some of our customers that thanks to our

technology, such thick layers are adhesive! HiPIMS radically reduces the residual stresses in the layer. Arc technology is limited to 4 µm layer thickness in the mass production of inserts – with FerroCon®Quadro, 12 µm are possible. This is a paradigm shift in roughing and heavy machining! Each µm of coating thickness ensures better performance and significantly increases the service life of the inserts.

Her colleague Dr Christoph Schiffrers, Product Manager Technology, is

sure: "HiPIMS is a gamechanger. Currently there is no system on the market that is more flexible, faster and future-proof than our CC800® HiPIMS coating system. Paired with the right know-how and our premium coating materials, our customers are not only in pole position, but can stand on the podium at every race".



FerroCon®Quadro with a coating thickness of up to 12 µm – the HiPIMS technology from CemeCon makes it possible.

# COATINGS AS INDIVIDUAL AS YOUR MARKET REQUIREMENTS

## Dental Technology

Machining of zirconium oxide  
crowns, inlays and bridges



**InoxaCon®**



**AluCon®**

## CCDia® CarbonSpeed



## Implantation

Milling of implants  
from titanium and  
chrome-cobalt alloys.



## Automotive engineering

Machining of lightweight  
aluminum components.



## Aerospace

Drilling and milling  
of CFRP components.



CCDia® AeroSpeed®



## Renewable Energies

Milling of complex components  
on wind power plant.



FerroCon® Quadro



CCDia® CarbonSpeed



## Mold and Die

Milling of graphite electrodes  
for the production  
of display molds.



Christian Franke and his colleagues  
from **CUSTOMER CARE**  
are available every day on  
the **24/7 HOTLINE**.



## TOP SERVICE AROUND THE CLOCK



Whoever decides in favor of a turnkey coating system including peripherals from CemeCon receives more than just first-class technology. The Customer Care Team takes over the planning, supplies a complete solution including all peripherals and integrates them into the customer's existing infrastructure. In addition, the experts are available 24 hours a day, seven days a week – via hotline and online service – and also support customers on site. Christian Franke is part of the Customer Care Team in Würselen and shows how he and his colleagues work in the CemeCon coating centers worldwide to support technology customers in the challenges of everyday coating.



Christian Franke (left) and the Customer Care Team are available to technology customers (below) worldwide 24 hours a day, 7 days a week.



When purchasing a turnkey coating line, customers are trained in the world's largest coating center for cutting tools in Würselen and on site directly on the line. In this way, CemeCon puts them in a position to handle the system safely and to correct faults quickly themselves. If questions do arise in daily operation, Christian Franke and his colleagues from Customer Care are available on the 24/7 hotline. The customer need not fear language barriers: In Würselen alone, the employees speak a total of 19 languages – not counting the international branches and partners. "With the customer's

permission, I access the system via the online service in the process and can see what the customer sees on his system display. Then I can start the diagnosis together with him," says Christian Franke, describing the first steps as soon as a customer asks for support by phone.

After that, three different scenarios are basically conceivable: "In the vast majority of cases, we can clarify the questions within a very short time and the customer can continue working," says Christian Franke. "A typical message is, for example, the absence of a process gas. This happens, for example, if the valve was not opened after the container was replaced. You are not always directly aware of this. The problem

Thanks to online remote access, Christian Franke sees what the customer sees on the system display and can help him quickly.







Because CemeCon's own on-site coating service works with over 40 systems itself every day, most spare parts are in stock and can be shipped the same day.

is solved in a few minutes and the customer can continue with the coating process.

In some cases another cause is behind the message. "For example, this could be a defective pressure gauge," explains Christian Franke. "We also clarify this by telephone and have the corresponding spare part sent directly to the customer".

Because the warehouse at the headquarters in Würselen – not least because of the company's own coating

service – various spare parts are available in large quantities, these can usually be dispatched on the same day and reach the customer in the twinkling of an eye. Thanks to the service-friendly design of the machine and intensive training when purchasing the system, the component can be replaced quickly and easily without further assistance from CemeCon.

"We are also happy to support the customer personally on site. Our service technicians can be there

worldwide within 48 hours," says Christian Franke, who is happy to consult with his colleagues before he leaves. "Since all areas of responsibility are represented here at CemeCon in Würselen, the constant exchange of all specialists across



"The **CONSTANT EXCHANGE** of all specialists **ACROSS DEPARTMENTS** is part of everyday life at CemeCon. In this way, we are continuously gaining experience both from **PLANT DEVELOPMENT AND CONSTRUCTION** as well as our **COATING SERVICE**. The customer benefits enormously from this **BUNDLED COMPETENCE**."

"The CemeCon Systems  
are the **MOST ADVANCED  
TECHNOLOGIES** on the market.

I enjoy working for  
the **MARKET LEADER** and helping  
**TO FURTHER DEVELOP** this  
technology."



departments is part of everyday life. In this way, we are continuously gaining experience both from plant development and construction as well as our coating service. The customer benefits enormously from this bundled competence".

Christian Franke greatly appreciates the work in the Customer

Care Team: "HiPIMS and diamond coating systems from CemeCon are the most advanced technologies on the market. I enjoy working for the market leader and helping to further develop this technology". Process, software and hardware updates complement the program and ensure continuous development of the customer's coating systems.

Christian Franke is happy when the customer can learn from his know-how.





"A CEMECON COATING SYSTEM  
is not just a machine.  
It is 30 years of  
ENGINEERING PASSION and the  
result of our DAILY EXPERIENCE  
in COATING SERVICES.  
We wouldn't be satisfied with  
anything less!"

Bernd Hermeler, CMO CemeCon AG.







NETWORK FOR GLOBAL GROWTH MARKETS

# WORLDWIDE PREMIUM

A key to success for globally producing tool manufacturers is consistent quality. CemeCon adapts the coating solutions to customer-specific requirements. Since all CemeCon coating centers worldwide are equipped with the same modern HiPIMS and diamond technologies, the customer-specific work plans can be reliably transferred from one center to another.

Markets, customer requirements and cultures in Asia, Europe and the USA differ. "That is why it is crucial for us not only to speak the customer's language literally, but also to grasp his needs and understand his perspective," says Dr Beate Hüttermann, Executive Director Sales at CemeCon. With this individual support, tool manufacturers, regrinders and universities around the world can always rely on the same quality standards, the same premium products and the same high level of consulting and service.

The base for this is the close cooperation of the CemeCon coating centers – at the headquarters in Würselen, in the USA, China, Japan/Korea and soon also in the new sales branch in India. CemeCon Scandinavia and CemeCon in the Czech Republic and further sales

partners in Taiwan and Russia complete the network for the global growth markets.

## CONTINUOUS NETWORK EXPANSION

HiPIMS and diamond coatings paired with CemeCon's consistent quality thinking open up undreamt-of opportunities and new markets for tool manufacturers. "Our coatings are valued as premium products and the worldwide demand is increasing! This puts us in a position to continuously expand our capacities everywhere and further improve our service," says Dr Toni Leyendecker, CEO CemeCon AG.

In recent years, the center in Horseheads/USA has already been significantly expanded to create more

space for diamond and HiPIMS technologies. Also in Suzhou/China the capacities were expanded in 2019 with a new building for the diamond and HiPIMS production. In Japan, CemeCon started production in the new coating center at the beginning of the year (see pages 26/27). In India – currently represented by an esteemed partner – a new subsidiary will be established in 2020.

In addition to coating service and engineering, CemeCon provides individual support for their turnkey customers through comprehensive after-sales services, even after the purchase. These include the commissioning of the machines with integration into the production workflow, intensive customer training and the maintenance and servicing of the systems.



CemeCon,  
USA



CemeCon  
Scandinavia A/S,  
Denmark



CemeCon,  
Germany



CemeCon s.r.o.,  
Czech Republic

AO Rosmark-S  
Russia

# CEMECON WORLDWIDE







# ON A GROWTH PATH

On August 1<sup>st</sup>, 2019, Marjorie Steed was appointed President of CemeCon Inc. Leading the North American branch office, she and her team will increasingly nurture new markets and open up revolutionary HiPIMS technology to new users.

CemeCon Inc. has been supplying North American tool manufacturers with premium coatings and coating technology for 21 years. The subsidiary of CemeCon AG has expanded its capacities several times over those two decades to meet increasing demand. In 2004, it moved to its current headquarters, the IST Center in Big Flats, New York. For a long time, CemeCon Inc.

concentrated on HiPIMS coatings; since September 2014, the experts in the USA have also been coating cutting tools with the world's leading diamond technology. The latest expansion of the North American headquarters in 2018 not only increased diamond production, but freed up space to accommodate the future-oriented HiPIMS technology.

"With the growth of HiPIMS and Diamond, this is an exciting time for CemeCon and I am thrilled and humbled to lead our company into the future," said Steed, who was one of 12 employees when she started in 2006, and today oversees 54 staff members across two facilities. "We've built a great team here and we will continue to provide the quality and consistent products our customers rely on."

## AN IMPORTANT FIGURE FOR CEMECON

"Marjorie Steed started 14 years ago and quickly became an important part of the team," says Dr Toni Leyendecker, founder and CEO of CemeCon AG. "She has positive qualities that we need in this global business, which is an asset for CemeCon and the future of the company."

Since her first day at work, Steed has shaped and expanded customer service in the USA – whether as one-person customer service department or, since 2015, as Vice President of Operations. She knows all facets of CemeCon – from the first step in coating production for



Marjorie Steed (left) talks with Kameron Waxman about the groundbreaking CC800<sup>®</sup> HiPIMS.



Majorie Steed was named CemeCon Inc. president on August 1<sup>st</sup>, 2019 as part of a planned transition.

cutting inserts and shank tools to incoming and outgoing goods. On this basis, she and her team of experts support tool manufacturers from the United States and Canada. In her first months as President, she already increased diamond coating capacities and expanded the sales team.

With each new step, Steed has been instrumental in driving growth to provide even better service to customers.

The team is particularly important to her. Because the employees are the foundation for CemeCon's success: "Fifty percent have been here for five or more years and 30 percent for ten or more years," says Steed. "CemeCon Inc. was built on the people who grow into different roles together with the company. We have assembled a team of experts."

#### HiPIMS AND DIAMOND: THE SOLUTION FOR NEW CHALLENGES

Like all CemeCon coating centers around the globe, the North American subsidiary is equipped with the most technologically advanced tool coating systems. The CC800® HiPIMS, for example, opens up undreamed of possibilities for the machining industry: Deposition rates down to 3 µm per hour, exceptional adhesion, smoothness and toughness – HiPIMS combines the advantages of all coating processes. Virtually every element of the periodic table can be deposited. This enables users to develop their own coatings.

"It's a superior technology, CemeCon has perfected it and now we have to communicate this information to the outside world," says Steed. "The

foundation we're building on makes it easier for us to reach new markets. With the combination of the CC800® HiPIMS and the CC800® Diamond, CemeCon is at the cutting edge of coating technology."

In 2019, CemeCon Inc. organized several successful "Live Batches" to demonstrate the possibilities of the CC800® HiPIMS to customers. As metal alloys continue to evolve and composite materials become more and more common, Steed expects even more guests in 2020.

"High-tech materials have changed the challenges of machining. With our first-class coating technologies, we support customers with new solutions," she said. "We want to show them what our systems can do – we want to prove it. We are constantly developing further for our customers."

# BRILLIANT START FOR DIAMOND COATING SERVICE

After completion of the new building in Nagoya, the new coating center in Japan started production. Since the beginning of January, CemeCon has been supporting its customers there with diamond coating services.

Finding a location, building, installing systems, integrating processes, training employees – getting a completely new premium coating center up and running is hard work and requires a great deal of know-how. All the greater is the joy when everything runs according to plan,

as in Nagoya, Japan: In November 2019, CemeCon employees from Germany installed the first CC800® Diamond together with their Japanese colleagues. In order to guarantee the consistently high quality standards worldwide, the system was extensively tested and released

for safe production from January 2020. The official opening will take place in April.

In Japan, diamond coating technology has so far been used mostly by the major tool manufacturers, while medium-sized and smaller

A modern measuring laboratory ensures the worldwide identical high quality standards of CemeCon.







The team from CemeCon K.K. now also supports tool manufacturers with a diamond coating service.



CemeCon employees from Germany installed the first CC800® Diamond together with their Japanese colleagues in November 2019.

companies use the coatings much less frequently. With its own application development in Nagoya, which is directly linked to the headquarters in Germany, CemeCon K.K. enables Japanese and Korean tool manufacturers to access CemeCon's know-how.

"Diamond coating is very complex. This is why we support our customers from the very beginning in the development of new diamond-coated tools. In particular, the carbide substrate and the tool geometry must be coordinated with the coating. This is where we pass on our expertise to customers so that diamond tools can be developed quickly and efficiently," says Alexander Marxer, Managing Director of CemeCon K.K.

Surface

Coating  
temperature

Max. coating  
thickness

Residual stresses  
of the coating

Toughness  
of the coating

Ease of  
production

Flexibility

Mini tools

## Arc

**Droplets**

**500 °C**

**4 µm**

**High  
compressive**

**High**

**Yes**

**Low**

**No**

## CVD

**Rough**

**1000 °C**

**10–15 µm**

**Tensile stress**

**Low**

**No  
(precursor)**

**None**

**No**

## HiPIMS

**Smooth**

**500 °C**

**12 µm**

**Residual stress  
management  
for low com-  
pressive stress**

**Very high**

**Yes**

**High (all  
materials,  
all substrates)**

**Yes**

## WOULD YOU LIKE TO LEARN MORE ABOUT OUR COATING TECHNOLOGY?

All contact information for our Coating Service and Coating Technology experts around the globe can be found at [www.cemecon.de/en/contact](http://www.cemecon.de/en/contact)

We're only a click away!

## OUR NEXT EVENTS 2020

26<sup>TH</sup> APRIL - 01<sup>ST</sup> MAY 2020

**ICMCTF**

San Diego (USA)

14<sup>TH</sup> - 15<sup>TH</sup> MAY 2020

**AWK - Aachener Werkzeug-  
maschinen Kolloquium**

Aachen (Germany)

25<sup>TH</sup> - 29<sup>TH</sup> MAY 2020

**Metalloobrabotka**

Moscow (Russia)

10<sup>TH</sup> - 13<sup>RD</sup> JUNE 2020

**Metaltech**

Kuala Lumpur (Malaysia)

17<sup>TH</sup> - 19<sup>TH</sup> JUNE 2020

**PVD/CVD Seminar**

Aachen (Germany)

22<sup>ND</sup> - 25<sup>TH</sup> JUNE 2020

**HiPIMS-Conference**

Sheffield (Great Britain)

06<sup>TH</sup> - 11<sup>TH</sup> SEPTEMBER 2020

**PSE**

Garmisch-Partenkirchen  
(Germany)

14<sup>TH</sup> - 19<sup>TH</sup> SEPTEMBER 2020

**IMTS**

Chicago (USA)

15<sup>TH</sup> - 19<sup>TH</sup> SEPTEMBER 2020

**AMB**

Stuttgart (Germany)

29<sup>TH</sup> SEPTEMBER - 01<sup>ST</sup> OCTOBER 2020

**Toolex**

Sosnowiec (Poland)