

SULZER

Sulzer Metco

LAYER

Special Issue 2010 The Magazine of Sulzer Metco Thin Film

**On Course
Together**
New Wind in the Sails
through DLC Technology

SPECIAL ISSUE

On Course Together

Professionalism and Reliability as a Basis



Valentin Bühler
Managing Director

Dear business partners

On the occasion of the acquisition of Bekaert's DLC division, we have put together a special issue of LAYER for you. Here, I would like to welcome in particular the new readers who will be holding the customer magazine in their hands for the first time. In line with our policy of collaborative partnership, with each new issue of LAYER, we will be informing you about news from within our company and about current industry trends.

This issue's cover picture symbolises team spirit and staying on course. For the crew of a boat, besides the equipment and the weather, it is mainly the professionalism and reliability within the team that lays the basis for a successful "cruise". We are going on course as a team in order to provide you with even better solutions in the future – based on our targeted optimisation in several respects: technologically, geographically, and regarding application expertise.

This special issue gives you an initial impression of our overall portfolio of products and services: In which industries do our surface solutions contribute to significant efficiency and productivity gains (page 6–9)? What kind of technologies do we offer (page 10–11)? At which locations are we present for you (page 12–14)? And on page 15 you can find more detailed information on our new web presence.

As much effort as we put into it – neither our regular magazine nor the website can substitute personal contact. For this reason I would like to invite you to talk to us, so that we can together develop optimal solutions for your needs.

In this way, we look forward to collaborating with you in the future

Your **Valentin Bühler**
Managing Director

Page 3–5

Top Topic
Sulzer Acquires DLC
Activities from Bekaert

Valuable New
Developments

Page 6–9

Processes / Applications
Expertise Systematically
Enhanced

Page 10–11

Processes / Applications
Four Technologies –
One Common Claim

Page 12–14

People in Focus
Global Presence
Expanded

“Close Partnerships,
Short Reaction Times”

Good Prospects

Page 15

**Internal and External
Infos**
New Website



Sulzer Acquires DLC Activities from Bekaert

As a result of Sulzer's acquisition of Bekaert's diamond-like carbon (DLC) coatings activities on 1 July of this year, the Thin Film Business Unit has expanded its global presence, now operating out of eleven sites in five countries.

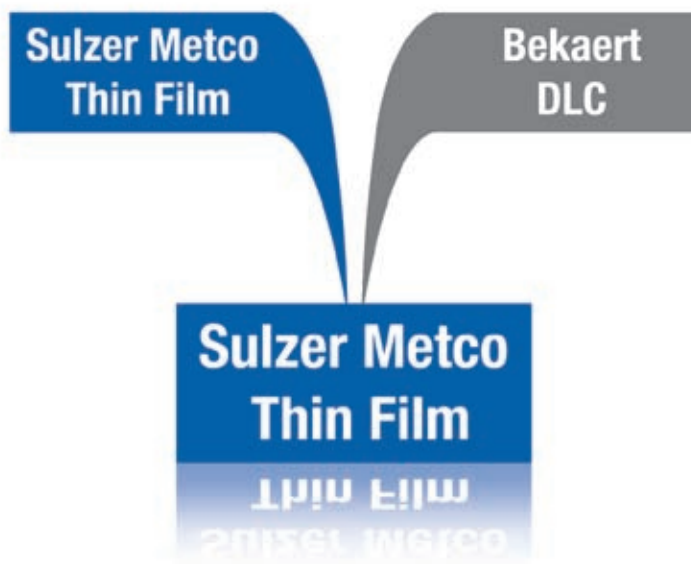
The DLC coatings will now enhance the existing range of Sulzer Metco Thin Film – in addition to plasma heat treatment, PVD coating and combi treatment (more details on pages 10–11). All six sites are included in the merger: Zulte in Belgium, Herford in Germany, Bons-en-Chablais and Limoges in France as well as Amherst (New York) and RTP (North Carolina) in the USA. 150 employees specialised in the development and marketing of thin film processes are strengthening the company. Customers from the following industries will particularly benefit from these surface solutions:

- Plastics
- Machining
- Forming
- Semiconductor
- Racing
- Automotive
- Engineering

Furthermore, the company continues to be active in the field of thin film equipment. There is now a central contact available for each of the areas named (more on the applications and the corre-

sponding contacts on pages 6–9). “The acquisition of the DLC business from Bekaert makes us stronger in several ways: technologically, geographically and regarding expertise in development and application. Thanks to the new capabilities, we can offer solutions that are even

more customised to existing partners and at the same time open up to entirely new customer groups”, states Managing Director Valentin Bühler. The article on pages 4–5 summarises the new possibilities and the advantages for customers. ■





Valuable New Developments

The expansion of the thin film product range with DLC coatings complements the existing portfolio – established strengths are systematically extended and new ones added.

The specific value for customers of this product range optimisation (see page 3) by Sulzer Metco Thin Film is visible in various areas: Beginning with the global presence, moving through the extension of the technological portfolio and ending with the enhanced expertise in terms of qualified staff.

Stronger geographic presence

The traditionally strong presence in Germany as well as in China – now for over five years – is supplemented by business locations in France, Belgium and the USA. “Through the new locations, we have extended

our network of Service Centers and thus look forward to cooperating with our customers even more closely”, Managing Director Valentin Bühler points out in emphasising the main advantage of the additional business locations. “Moreover, the expansion offers the opportunity of adding the new technologies to the existing technology range already available at the individual locations”, Bühler adds. Therefore, current DLC locations will also be offering PVD coating services and vice versa.

Extended technology portfolio

Besides the number of sites, the number of available coating processes has also been extended. The previously offered PVD, plasma heat treatment and combination treatment technologies are being supplemented by the DLC technology. “For customers, what counts most is the solution. The newly available DLC technology has given us a new pillar that supports our extended portfolio”, is how Andrea Hürlimann, Head of Market Segments at Sulzer Metco Thin Film, explains the core value of the DLC coatings. “Users can strategically position themselves for future business using our systematic innovations and enhancements.”

Exploiting synergies

Aristotle’s dictum also holds true for the grown company: “The whole is more than the sum of its individual parts.” Of particular importance here are the plastics and automotive industries – as both parties involved have already been working in these segments prior to the merger. Staff members systematically exchange knowledge and experience in these areas and in doing so build a broader joint basis in terms of expertise. The result for the customer is a transfer of knowledge into technological advantages and, at the end of the day, economic success. In order to achieve sustainable competitive advantages for the customer, innovations have to be implemented quickly and in a needs-oriented way within increasingly dynamic markets. “In brief: We bring

together the customer’s product strategy and our development know-how to find the best possible solution”, Hürlimann explains. Sulzer Metco Thin Film’s expertise is transformed into added value for the customer. Part of this portfolio is on-location advisory services, sampling or training. To achieve this Sulzer Metco Thin Film constantly improves processes and develops new coatings and technologies.

Solutions for new applications

With the now extended activities, Sulzer offers solutions for customers in the semiconductor and racing sectors – beginning with coating services, moving through purchasing own thin film equipment, all the way to shop-in-shop concepts.

The semiconductor industry and the racing sector are very demanding and innovative markets that stand to benefit from DLC coatings and will in future play a prominent role in the portfolio. Customer support is structured in accordance with industries and/or applications – with specific contact persons for each area (see page 9).

Qualified staff

Andrea Hürlimann adds a final aspect: “It is not only equipment, technologies and business locations that are coming together, it is also about the people who keep all this moving. Their expertise and common value basis are a precondition for the sustainable and needs-based application of our solutions and services.” With immediate effect, Sulzer’s quality, environmental protection, and safety standards apply to all business locations and staff. ■

“Sulzer Metco Thin Film’s even greater expertise is transformed into added value for the customer.”

Contact person:

We look forward to talking to you about the individual advantages you can capitalise on through our extension of services.

Please contact your Segment Manager (see page 9) or:

Andrea Hürlimann
Head of Market Segments
Tel.: +41 522 623 021
e-mail: andrea.huerlimann@sulzer.com



The advantages of the service extension have a particularly strong impact in terms of business locations, technologies, application areas and staff.

Expertise Systematically Enhanced

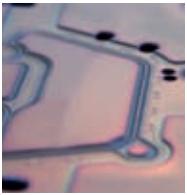
Overview of applications

“In many respects, we are now positioned even more broadly for customers: We supply more industries than before and have opened up additional opportunities in existing areas as well”, states Andrea Hürlimann, Head of Market Segments at Sulzer Metco Thin Film, looking to the future.

“In many respects, we are now positioned even more broadly for customers.”

With the new DLC coatings (more on pages 10–11), the company now offers solutions for greater efficiency in semiconductor production and in racing. Moreover, it can draw upon additional technologies and expertise for plastics processing, machining, forming and the automotive industry.





Plastics

The new staff and technologies additionally strengthen the application and solution know-how in plastics processing. The systematic improvement of tool properties prevents, for instance, deforming and offers extra protection against adhesion and corrosion. This results in more efficient production flows through:

- Shortened change-over intervals
- Increased tool life
- Environmentally-friendly production
- Extended life cycles
- Savings in separating agents
- Improved quality of parts
- Reduced maintenance rates
- Protection against cleaning-related wear and damage to tools



Forming

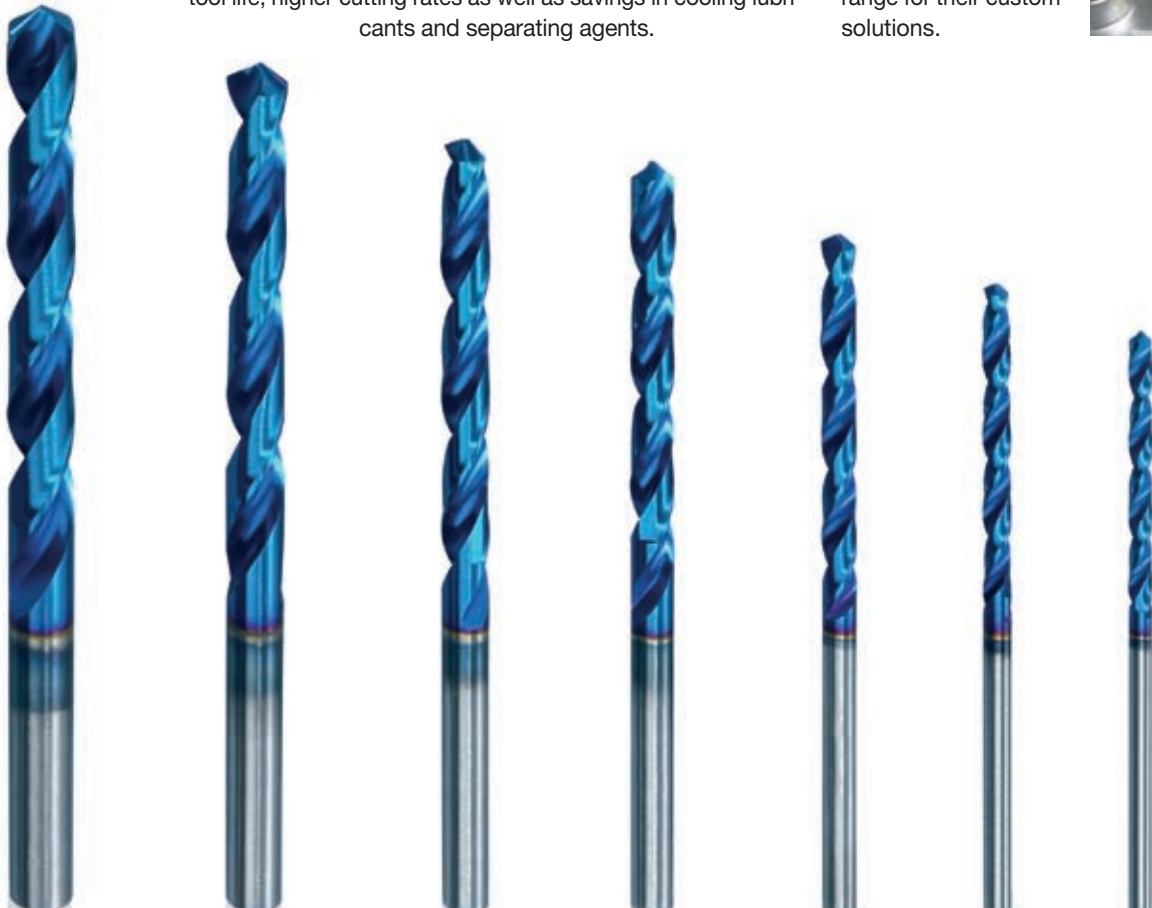
In forming technology, high performance coatings play a decisive role allowing an ideal interplay of process, tool and machine.

Surface solutions for primary shaping and forming tools provide for efficiency gains in production. The coatings reduce cold welding, offer excellent wear protection and low friction – which means they allow for longer tool life, reduced energy consumption and lower manufacturing costs. The DLC coatings enable users to draw upon an even broader range for their custom solutions.



Machining

With its new MAC coatings (Micro Alloyed Coatings), Sulzer Metco Thin Film also provides innovative opportunities for efficient surface solutions in machining. Customised coatings improve the performance of inserts and shank tools made of carbide, HSS, ceramics and cBN – and serve to enhance productivity: The result of improved wear protection, reduced friction and oxidation resistance is extended tool life, higher cutting rates as well as savings in cooling lubricants and separating agents.





Semiconductor

The extension of the range of technologies through DLC coatings opens up new perspectives for the semiconductor industry. DLC coatings extend tool life and reduce particle generation in the production process. They contribute to profitable processes, particularly in the following application areas:

- Chucks (electrostatic, vacuum or thermal)
- Pedestals
- Docking components for precision alignment
- Precision screws
- End effectors
- Precision valve components



Racing

Racing is a further area for which Sulzer Metco Thin Film will now be offering surface solutions. The new opportunities the DLC technology offer, protect parts exacted to extremely high strain such as valve train components, pistons and piston components, hydraulics, suspensions as well as transmissions for use in threshold zones:

- Higher performance
- Reduced wear
- Longer life cycles
- Increased reliability under high-load conditions



Automotive

In the automotive industry the advantages have an effect in two areas. By way of more efficient production processes, for example, the amount of manufacturing steps are reduced and expensive materials substituted. In application, coated components enhance vehicle performance, safety, reliability and ease of handling. With its new technological possibilities and human resources, the company is strengthening its commitment to this industry.





Engineering

In this many-sided area of machine parts there are numerous components that benefit from an optimal surface treatment – both in production and in application:

- Power transmission components
- Engine power components
- Gear wheels
- Bearing parts
- Pneumatic parts
- Fluid technology
- Wind energy technology
- Aerospace technology
- Pick-and-Place automations technology
- Medical technology

Thin Film Equipment

For in-house coating, customers have a broad range of possibilities. Sulzer Metco Thin Film plans, develops and assembles various systems concepts. Due to low maintenance and decreased spare parts requirements, as well as reproducible quality and longevity, the equipment contributes to profitable production processes.

- Engineering and sales of thin film equipment worldwide
- Broad range of thin film equipment for application in R&D, for serial production and big parts
- Modular design of coating units for maximum flexibility
- From stand-alone machine supply to turn-key projects
- Customer-specific special solutions



Contact Persons

Should you have any queries please get in touch with the following persons:

Plastics

Lieven Keymeulen
Segment Manager Plastics
Tel.: +32 9 338 59 10
e-mail: lieven.keymeulen@sulzer.com

Machining

Alexander Mohnfeld
Segment Manager Machining
Tel.: +49 2204 299 277
e-mail: alexander.mohnfeld@sulzer.com

Forming

Alexander Mohnfeld
Segment Manager Forming
Tel.: +49 2204 299 277
e-mail: alexander.mohnfeld@sulzer.com

Semiconductor

Cyndi Ackerman
Segment Manager Semiconductor
Tel.: +1 716 270 2228 232
e-mail: cyndi.ackerman@sulzer.com

Racing

Mark Boghe
Segment Manager Racing
Tel.: +32 473 83 66 19
e-mail: mark.boghe@sulzer.com

Automotive

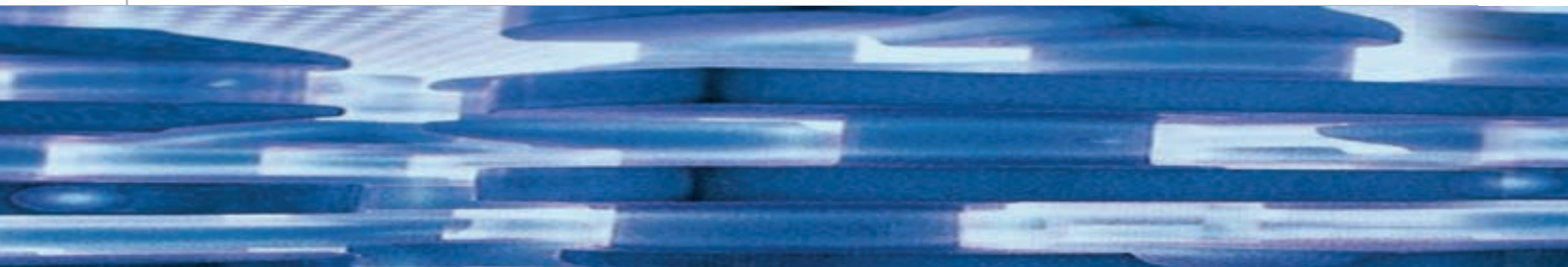
Rolf Heinecke
Segment Manager Automotive
Tel.: +49 5341 8587 14
e-mail: rolf.heinecke@sulzer.com

Engineering

Mark Boghe
Segment Manager Engineering
Tel.: +32 473 83 66 19
e-mail: mark.boghe@sulzer.com

Thin Film Equipment

Volker von der Heide
Segment Manager Thin Film Equipment
Tel.: +49 2204 299 258
e-mail: volker.vdheide@sulzer.com



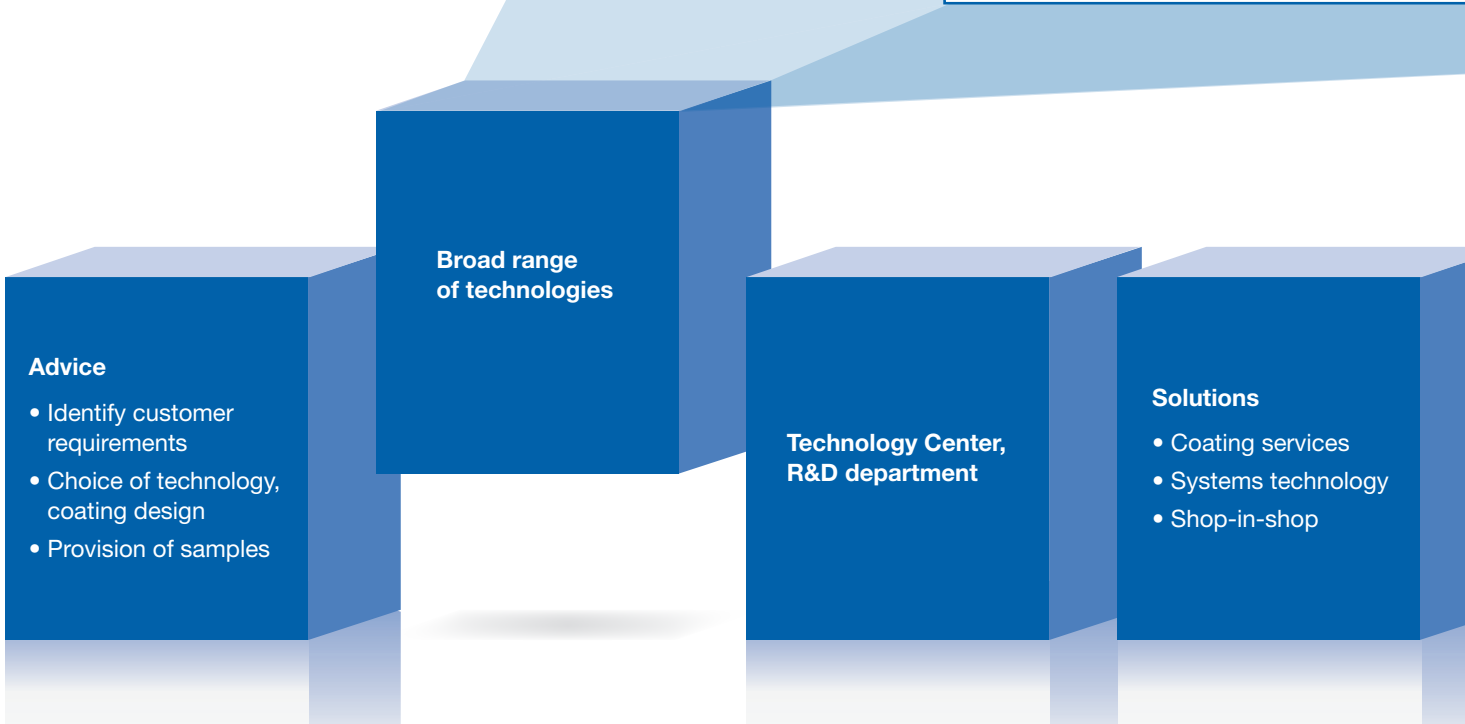
Four Technologies – One Common Claim

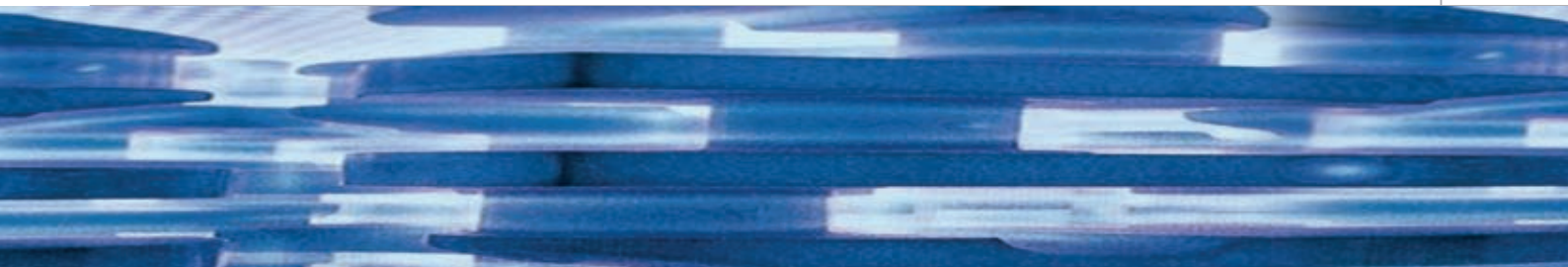
Enhancing the thin film portfolio with DLC coating creates greater opportunities for developing efficient surface solutions. The new technology is being integrated into the existing portfolio of plasma heat treatment, PVD coating and combination treatment.

“For users, what is particularly important are the improved properties of coated tools or parts in practical application – this also holds true for the DLC technology we have now taken on board”, stresses Dr Georg Erkens, Division Manager Systems, R&D at Sulzer Metco Thin Film. Nevertheless, technological expertise is the decisive factor for optimal results in application (more on pages 6–9). “We have acquired this know-how over time through systematic research and development work”, adds Erkens. Below, these technologies as well as their corresponding processes and brands are portrayed. As varied as these surface solutions may be – they are all based on the common claim of configuring processes more efficiently.

Plasma Heat Treatment

For over 40 years, the company has been supporting users in this area, where parts are exacted to tribological, corrosive and mechanical-dynamic strains. Beyond classical heat treatment, Sulzer Metco Thin Film offers the processes known as IONIT® and IONIT OX®. The plasma nitrocarburising process IONIT® is particularly suitable for alloyed steel, cast, sinter and special materials. IONIT OX® is a combination of gas nitrocarburising, plasma activation and post oxidation, which produce particularly corrosion resistant surfaces.





PVD Coating

PVD coatings (Physical Vapour Deposition) are applied to metal, ceramics, plastics and composite material surfaces for performance and productivity increases or for purely optical-aesthetic reasons. The broad selection of established PVD hard material coatings such as TiN, CrN, TiCN, AlCrN and AlTiN lays the basis for efficiency gains in various industries. The new MAC series (Micro Alloyed Coatings) offers an individual layer design and thus fulfils the special requirements of individual industries regarding the coating and manufacturing process. The properties of coatings such as **Mpower** or **Pfusion** can be customised with regard to hardness, temperature stability, coating thickness as well as deposition temperature.

Combi Treatment

The basis for combination treatment is the plasma nitriding process as well as the subsequent PVD or DLC coating. It has no influence on the mechanical properties of tool cores such as toughness and crack sensitivity. With combination-treated components, production costs are significantly reduced. This is due to reduced material costs (substitution of expensive materials) as well as lower manufacturing costs (reduced number of manufacturing steps).

DLC Coating

New in Sulzer's product range are the DLC coatings. These consist of particularly low-friction non-metal and metal, diamond-like carbon layers such as W:C-H and coatings of the brands DYLYN® and CAVIDUR®. The coatings from the DYLYN® series are customised to fit the requirements of electrical conductivity and hydrophobic and/or hydrophilic behaviour. CAVIDUR® coatings are produced in a combined PVD-PACVD process. Coatings from both series offer amongst others the following advantages:

- Excellent adhesion
- High wear resistance
- Low coefficient of friction
- Smooth coatings

Further information:
thinfilm.sulzernetco.com

**Know-how
pertaining to
the complete
process chain**

**Decades
of industry
experience**

Service & Support

- Long-term delivery reliability
- Comprehensive project support
- Continuous quality assurance

*Overview of
Sulzer Metco Thin Film's
performance range*

Global Presence Expanded

Worldwide 11 business locations

With the six new and five existing locations, Sulzer Metco Thin Film is now actively supporting its customers on three continents.

The additional Service Centers provide new opportunities for supporting customers in Europe, the US and China with efficient surface solutions. ■

Germany

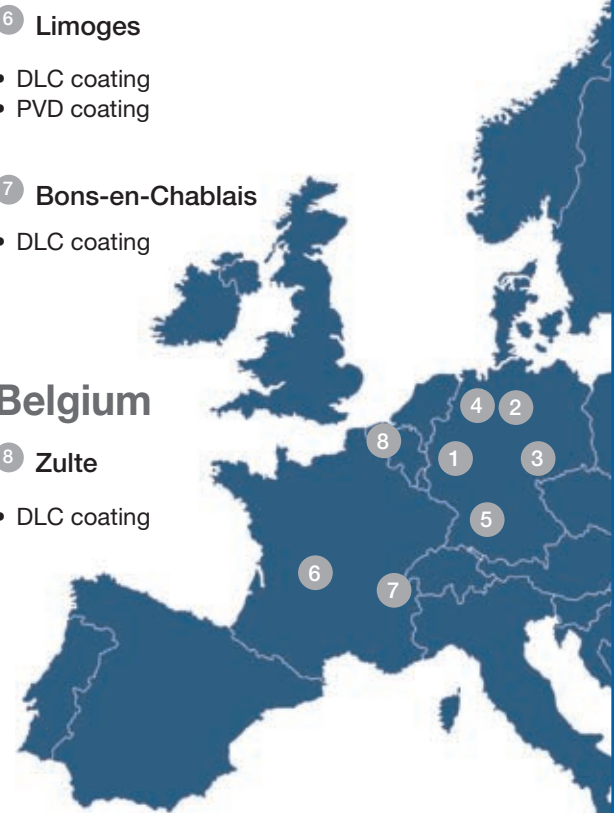
- ① **Bergisch Gladbach Headquarters**
 - PVD coating
 - Heat treatment
 - Thin film equipment
 - Innovation and R&D
- ② **Salzgitter**
 - Heat treatment
- ③ **Niederwürschnitz**
 - Heat treatment
- ④ **Herford**
 - DLC coating
- ⑤ **Altbach**
 - PVD coating
 - Heat treatment

France

- ⑥ **Limoges**
 - DLC coating
 - PVD coating
- ⑦ **Bons-en-Chablais**
 - DLC coating

Belgium

- ⑧ **Zulte**
 - DLC coating



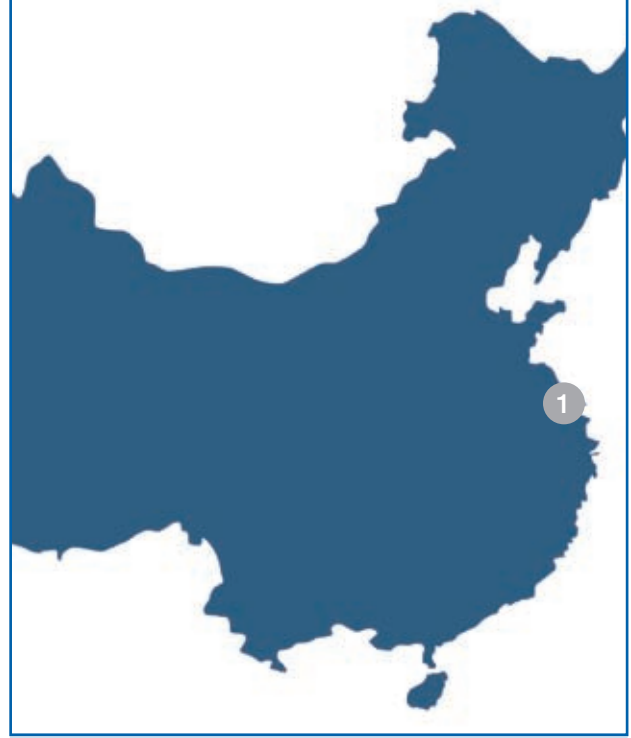
USA

- ① Amherst, NY
 - DLC coating
- ② RTP, NC (Research Triangle Park)
 - DLC coating



China

- ① Shanghai
 - PVD coating
 - Heat treatment





“Close Partnerships, Short Reaction Times”

Partner of the semiconductor and plastics industry

Amherst, located in the northeast of the US, is one of the new sites of Sulzer Metco Thin Film. The more than 1,800 square metre facility employs about 30 people and offers coating services to customers in semiconductor manufacturing and plastics processing.

“We enhance component performance with our diamond-like carbon and DYLYN® diamond-like nano-composite coatings. For example, DYLYN® coatings are applied to wafer handling components in the

semiconductor industry to reduce particle generation, a critical requirement for this industry. By processing these components in a class 1000 cleanroom* we meet the high requirements of this industry”, confirms Cyndi Ackerman, the site manager. This location also focuses on minimising our environmental footprint and is in addition ISO 9001:2000 certified.

The team consists of coating, metallurgy and materials specialists as well as highly qualified technicians. “With our skilled personnel and coating know-how we will continue to distinguish ourselves from competitors by building close partnerships with our customers and providing them with a quick response. In particular, we help customers to make their production procedures sustainably more cost-effective”, says Ackerman. Customers from the US, Canada and Mexico benefit from the services of this site. ■



Sulzer Metco Thin Film in Amherst, NY



* Cleanroom: In order to prevent the disruptive influence of particles, which are found in normal ambient air, the production of semi-conductors must take place in a cleanroom. In these rooms, the concentration of airborne particles is kept as low as possible. A class 1000 cleanroom has at most 1,000 particles larger than 0.5 microns in size per cubic foot (1 cubic foot = approx. 0.03 cubic metres).

Good Prospects

Further growth in China

Since 2005, the Sulzer Metco business location in Shanghai has been supplying solutions for the Chinese market. More than 100 employees currently work in the areas of thermal spray and thin film solutions. In particular, companies from the Chinese motor vehicle and plastics processing industries are benefiting from the thin film solutions. “The demand for our specialised heat treatment and the IONIT OX® process is continually rising as the automotive market is still growing strongly in China. To be able to meet the demands we are planning to add additional heat treatment capacity”, explains site manager Anthony Herbert. In addition to plasma heat treatment, PVD and thermal spray coatings are also included in the services on offer at the location.

“In cooperation with our European locations, we are already conducting DLC samplings for our customers”, continues Anthony. With the existing thermal spray, plasma heat treatment and PVD coatings the location now offers even more possibilities for developing custom-made solutions to the growing market in China. ■



New Website

First-hand information

Sulzer Metco Thin Film has created an extensive information platform pertaining to Sulzer Metaplas' whole brand world. Partners and interested persons can get comprehensive information on the Sulzer Metaplas brands, technologies and solutions for respective industries at thinfilm.sulzermetco.com.

In terms of contents, Sulzer Metco Thin Film's new web presence offers a lot of interesting facts. Describing the website, Corinna Heinz, Marketing Manager at Sulzer Metaplas, states: "It was important for us to depict the whole range of services in a way that enables our customers to inform themselves quickly and comprehensively. In case of detailed questions, each respective section provides details of specific contact persons."



Welcome page
thinfilm.sulzermetco.com

The brands are clearly laid out according to the respective technology. Further information is obtained by clicking on a brand name.



The section entitled "Industries" gives an overview of the performance range aimed at harvesting efficiency gains through surface treatment in the respective industries.



Exhibition Dates

More information on expert conferences and exhibitions that Sulzer Metco and Sulzer Metaplas respectively will be attending on:

www.sulzermetco.com

(section: About Us/News/Events)



IMTS 2010
Chicago, USA
13 – 18 September 2010



AMB
Stuttgart, Germany
28 September – 2 October 2010

Colloquium on Hardening
(Härtereikolloquium)
Wiesbaden, Germany
13 – 15 October 2010



K 2010
Düsseldorf, Germany
27 October – 3 November 2010

Professional MotorSport World Expo
Cologne, Germany
16 – 18 November 2010

Contact person:
Corinna Heinz
Marketing Manager
Tel.: +49 2204 299 215
e-mail: corinna.heinz@sulzer.com

Sulzer Metaplas GmbH
Germany
Headquarters
Am Böttcherberg 30–38
51427 Bergisch Gladbach
Tel.: +49 2204 299-0
Fax: +49 2204 299-266
e-mail: metaplas@sulzer.com

Sulzer Metaplas GmbH
Germany
Theodor-Heuss-Straße 63
38228 Salzgitter
Tel.: +49 5341 8587-0
Fax: +49 5341 8587-16
e-mail: thinfilm.salzgitter@sulzer.com

Sulzer Metaplas GmbH
Germany
Bernd-Beltrame-Straße 5
09399 Niederwürschnitz
Tel.: +49 37296 9324-0
Fax: +49 37296 9324-119
e-mail: thinfilm.niederwuerschnitz@sulzer.com

Sulzer Metaplas GmbH
Germany
Oststrasse 68
32051 Herford
Tel.: +49 5221 6933-30
Fax: +49 5221 6933-25
e-mail: thinfilm.herford@sulzer.com

Sulzer Metaplas GmbH
Germany
Im Ghai 20
73776 Altbach
Tel.: +49 7153 613117-0
Fax: +49 7153 613117-9
e-mail: thinfilm.altbach@sulzer.com

Sulzer Sorevi S.A.S.
France
125 Rue des fougères
74890 Bons-en-Chablais
Tel.: +33 4 50 31 40 06
Fax: +33 4 50 31 75 34
e-mail: thinfilm.bonsenchablais@sulzer.com

Sulzer Sorevi S.A.S.
France
5 Allée Skylab – Parc d'Esther
BP 6810
87068 Limoges Cedex
Tel.: +33 5 55 37 04 90
Fax: +33 5 55 38 13 35
e-mail: thinfilm.limoges@sulzer.com

Sulzer DLC Coatings N.V.
Belgium
Karreweg 13
9870 Zulte
Tel.: +32 9 338 59 10
Fax: +32 9 338 59 11
e-mail: thinfilm.zulte@sulzer.com

Sulzer Metco (US) Inc.
USA
6000 North Bailey Avenue, Suite 9
Amherst, NY 14226
Tel.: +1 716 270 2228
Fax: +1 716 270 2230
e-mail: thinfilm.amherst@sulzer.com

Sulzer Metco (US) Inc.
USA
12 T.W. Alexander Dr., Bldg. 200 Suite B
Research Triangle Park, NC 27709
Tel.: +1 919 485 6001
Fax: +1 919 485 8995
e-mail: thinfilm.rtp@sulzer.com

Sulzer Metco Surface Technology
P.R. China (Shanghai) Co. Ltd.
666 Min Bei Road
Minhang, Shanghai 201107
Tel.: +86 21 5226 2000
Fax: +86 21 5226 4701
e-mail: smcn.shanghai@sulzer.com



IMPRINT

Publisher and Editorial Address:
Sulzer Metaplas GmbH
Am Böttcherberg 30–38, 51427 Bergisch Gladbach
www.sulzermetco.com

Editorial Staff:
Sulzer Metaplas GmbH
Corinna Heinz, Andrea Hürlimann
C&G: Strategische Kommunikation GmbH, Overath

Layout and Production:
C&G: Strategische Kommunikation GmbH, Overath
www.c-g-gmbh.de
Text: Tobias Hartmann
Graphics: Tatjana Weber-Braun

thinfilm.sulzermetco.com