eifeler

OUR PVD COATING SYSTEMS

How surface solutions are created for your success

voestalpine eifeler Vacotec GmbH
www.eifeler.com

voestalpine
ONE STEP AHEAD.

True to our motto ‘one step ahead’, we offer you advanced services in the field of surface treatment. With our technologies, products and application consulting, we can offer you targeted adaptations of your surface properties to help you optimise your manufacturing processes and tool properties.

Our extensive product range has been used successfully for more than 40 years in the following areas:

- Tools:
  - Machining
  - Metal Forming
  - Punching / Fine Blanking
  - Plastics Processing
  - Die Casting
- Components:
  - Automotive Industry
  - Aviation
  - Medical Technology
  - Food and Packaging Industry

With the right product solution for the respective customer application, we make it possible to reduce wear and increase the service life of tools and components.

PVD COATING SYSTEMS

In Düsseldorf, Germany we develop and build sophisticated and innovative PVD Coating Systems for international customers from the tooling and general industry sectors.

Thanks to many years of experience in vacuum technology, we have built up extensive expertise that flows into the design and construction of the latest generation of systems.

The arc-based coating systems alpha440P, alpha700P, and alpha900P utilize the specific ultrafine technology to synthesize smooth and wear-resistant PVD coatings for various tool and component applications.

eifeler's proprietary Duplex technology also enables the nitriding process to be integrated into a single coating cycle – without interruption. This technology is particularly beneficial for forming tools that require high load-bearing capacity in the surface layer and the avoidance of porous interfacial layers.

In addition to PVD system technology, we offer turnkey production lines tailored to these systems – from cleaning to customized measurement technology for quality control of the PVD coatings. Our globally operating service team supports customers from the initial infrastructure planning of our technology on-site to installation, commissioning, and training on our systems.

OUR PVD COATING SYSTEMS

ALPHA440P

The ultimate upgrade

The alpha440P PVD coating system is the new generation of our bestseller alpha400P. It brings the advantages of its predecessor to your modern production environment. Our new system software and smart sensor technology enable precise process control and provide detailed information about the system status.

» Advanced sensor/actuator hardware as the basis for predictive maintenance

» Ideal for cutting and gear cutting tools, but also for dental and medical technology products

» Optional: ultrafine and Duplex technology

» Usable volume: Ø 450 x 525 mm

» Up to 5 batches per day

ALPHA700P

The Power Player

Get highest quality coatings within an environment of maximum productivity and efficiency.

The alpha700P is compact on the outside, but exceptionally spacious on the inside: Its generously sized coating chamber allows you to produce layers using ultrafine and duplex technology – at an impressive speed.

» Duplex PVD coatings: In-situ nitriding and coating process in one cycle without interruption

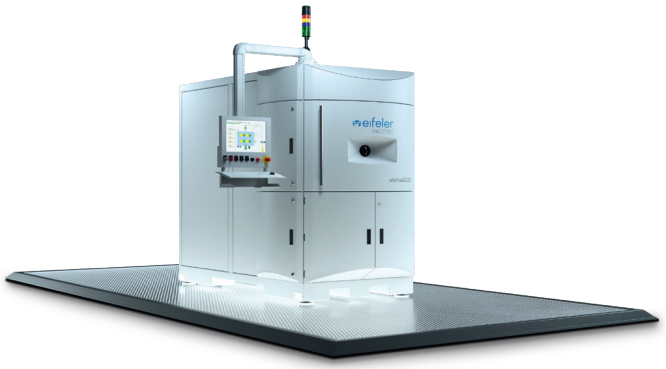
» Suitable for cutting, gear cutting and forming tools

» Dual evaporators for maximum flexibility

» Usable volume: Ø 600 x 700 mm

» Up to 4 batches per day

ALPHA200



THE ENTRY-LEVEL MODEL

The alpha200 PVD coating system enables you to get the shortest reaction times. That makes it ideal for smaller coating productions as well as for research and development.

» Flexible entry-level model for standard coatings

» Usable volume: Ø 350 x 325 mm

» 4 – 5 batches per day

ALPHA900P

THE LARGE, VERSATILE SYSTEM

The alpha900P is the efficient coating system with high throughput. You can use it for the production of cutting tools (hobs, shaper cutters, end mills).

Due to its large chamber, you can even use it as a coating system for large and heavy stamping, forming or die casting tools.

» High plasma density

» Dual evaporators for high production stability

» Usable volume: Ø 800 x 880 mm

» Up to 5 batches per day

ALPHA400C

THE DOOR OPENER FOR TRIBOLOGICAL COATINGS

With the alpha400C coating system, you can produce friction-reducing coatings on reasonably sized parts, especially on carbon-base or MoS2-base. The production of nitridic hard coatings with substrate temperatures below 250 °C / 482 °F are accessible with it as well.

» Ideal for component coatings

» All tribological eifeler coatings available

» Usable volume: Ø 450 x 485 mm

» 2 – 3 batches per day

ALPHA1000C

THE HEAVYWEIGHT FOR MINIMUM FRICTION AND MAXIMUM OUTPUT

The alpha1000C is currently our largest magnetron sputter system. It enables you to produce friction-reducing coatings of large parts. Or you use it to coat large quantities of small tools or components.

» Low deposition temperature (< 250 °C)

» High flexibility and high productivity

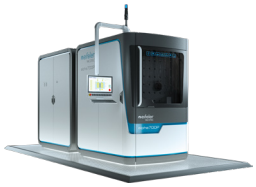
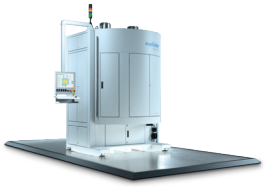
» Optional: deposition of nitridic hard coatings with substrate temperature < 250 °C / 482 °F

» Usable volume: Ø 600 x 1,000 mm

» 2 – 3 batches per day

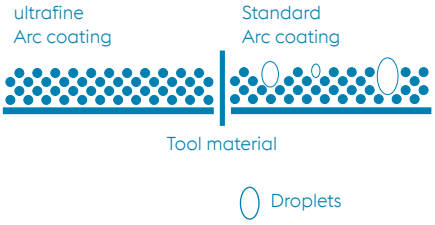
OUR SYSTEMS IN COMPARISON

	ALPHA200	ALPHA440P
		
Usable volume (Ø x H)	350 x 325 mm	450 x 525 mm
Load	Max. 350 kg	Max. 750 kg
Coating chamber (L x W x H)	580 x 600 x 580 mm	775 x 700 x 750 mm
Dead weight of complete housing	2,600 kg	Min. 4,065 kg
Distributed load	1,075 kg/m^2	1,060 kg/m^2
Bias	10 kW / max. 1,000 V DC / pulsed DC	30 kW / max. 1,000 V DC / pulsed DC
Evaporator sources	8 pcs. with each max. 125 A	12 pcs. with each max. 125 A
Sputter sources	–	–
Batches per day	4 – 5	Up to 5
Exemplary batch end mills (Ø 10 x 70 mm)	144 pcs. per batch	432 pcs. per batch
Exemplary batch hobs (Ø 100 x 150 mm)	8 pcs. per batch	24 pcs. per batch
Turntables	Different numbers of planetaries available	Different numbers of planetaries available

ALPHA700P	ALPHA900P	ALPHA400C	ALPHA1000C
			
600 x 700 mm	800 x 880 mm	450 x 525 mm	600 x 1,000 mm
Max. 1,250 kg	Max. 1,500 kg	Max. 750 kg	Max. 1,500 kg
975 x 850 x 1,150 mm	1,100 x 1,100 x 1,355 mm	775 x 630 x 750 mm	865 x 865 x 1,570 mm
Min. 5,500 kg	Min. 5,675 kg	2,600 kg	5,040 kg
1,250 kg/m^2	2,205 kg/m^2	850 kg/m^2	1,900 kg/m^2
30 kW / max. 1,000 V DC / pulsed DC	30 kW / max. 1,000 V DC / pulsed DC	10 kW / max. 700 V DC / pulsed DC	10 kW / max. 700 V DC / pulsed DC
16 pcs. with each max. 125 A	24 pcs. with each max. 125 A	–	–
–	–	4 pcs. 643 x 145 mm, 6 kW each	6 pcs. 1,243 x 145 mm, 10 kW each
3 – 4*	3 – 4*	3 – 4	2 – 3
900 pcs. per batch	1,764 pcs. per batch	432 pcs. per batch	1,440 pcs. per batch
30 pcs. per batch	42 pcs. per batch	–	–
Different numbers of planetaries available	Different numbers of planetaries available	Different numbers of planetaries available	Different numbers of planetaries available

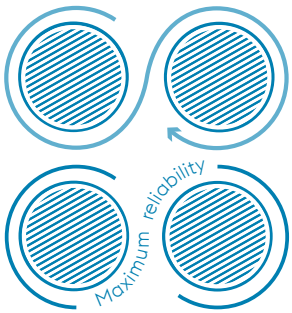
* With Duplex-process 2 – 3 batches

ULTRAFINE



The eifeler ultrafine technology delivers ultrafine coatings with the minimisation of layer defects and droplets.The coating surfaces are smoother compared to the conventional arc coatings. With this technolgy there is an extended range of applications in comparision to conventional standard arc-coatings.

DOUBLE EVAPORATOR



With the double evaporator system it is possible to use up to four different target materials. This allows a maximum flexibility. Also the fast target change is an advantage which enables a quick changeover to other coatings. The efficient uilisation of the target material, the high plasma densitiy and the homgeneous coating thickness distribution over the substrate height rounding off the role possibility of the double evaporator system.

PLASMA NITRIDING

The combination of a thermochemical plasma nitriding process with the following deposition of a voestalpine eifeler PVD coating in a non-interrupted vacuum system process we call duplex treatment.

The surface hardness of the tool material is definitively increased, which contributes considerably to the increase in performance of the PVD coating.

Therefore we developed a nitriding process, suitable for this procedure and apply it on our coating systems, where it is performed before the coating process.

RESEARCH AND DEVELOPMENT

Future-oriented research and development has long been part of the strategic focus of the voestalpine eifeler group. As one of the leading providers of products and services for surface treatment, we ensure through our research and development department in Düsseldorf that we always have innovative solutions available for our customers and for changing market challenges. Our continuous product and technology developments are made possible by our highly qualified engineers as well as a strong worldwide know-how network extending along the entire value chain.

DO YOU HAVE ANY QUESTINS ABOUT OUR PRODUCT RANGE OR WOULD YOU LIKE TO REQUEST A QUOTE?

You can contact us by phone on +49 211 522 2400.

Per email at info@eifeler-vacotec.com.

Or use our contact form at www.eifeler.com/en/contact.

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EIFELER

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