

### **Enhancing precision machining for challenging materials: Oerlikon Balzers introduces PVD coating BALIQ TISINOS PRO**

Balzers, Liechtenstein, July 4, 2023 – **When machining hardened steels, stainless steels or high-temperature alloys, tools are exposed to high thermal loads. Oerlikon Balzers, a leading global technology brand for high-quality surface solutions, has set a new industry standard with BALIQ TISINOS PRO. Developed specifically for these materials, this PVD coating reduces the load on the tool and significantly improves wear resistance when hard machining steels with a hardness of up to 70 HRC. Customers benefit from longer tool service life and high-quality production output.**

The S3p (Scalable Pulsed Power Plasma) coating technology from Oerlikon Balzers, is an example of the brand's technological leadership and expertise. It combines the advantages of the arc evaporation and magnetron sputtering coating processes, overcoming the limits of conventional HiPIMS coatings. The advantages of S3p are longer high-current pulses and high density, causing a strong ionization of the coating. The resulting BALIQ coatings stand out with exceptional smoothness, homogeneous coating distribution, extreme density, hardness and substrate adhesion, and high wear resistance.

Machining steels up to 70 HRC is now common in various industries, and the new PVD coating BALIQ TISINOS PRO has an enhanced microstructure that offers even higher toughness and wear resistance. One of its unique qualities is its outstanding smoothness, which is particularly important for micro cutting tools. This enables uniform chip flow, minimizes scrap, and avoids expensive and time-consuming mechanical reworking.

The AlTiSiN-based coating withstands high thermal loads and protects the carbide substrate from thermal corrosion and oxidation. Thanks to its homogeneous coating thickness distribution, BALIQ TISINOS PRO protects all shapes and cutting edges evenly, leading to lower cutting forces and higher process stability.

In a customer ball nose milling test, BALIQ TISINOS PRO far exceeded the tool service life of its predecessor. So BALIQ TISINOS PRO offers significantly longer tool service life, higher process reliability and greater efficiency. The superior performance of BALIQ TISINOS PRO also allows users to take advantage of faster cutting speeds, resulting in shorter machining times and lower total production costs.

BALIQ TISINOS PRO has a sophisticated multi-layer design which extends the life of end mills by up to 50% on average compared to its predecessor coating. This reduces the need for tool changes and associated downtime, resulting in lower overall energy consumption. End mills can also be reconditioned to extend their service life, reducing the demand for new tools by about 30% and making Oerlikon a sustainable and resource-efficient supplier in the metalworking industry.

Dr. Andreas Reiter, Head of Product Line Tools, says: “The refined microstructure has allowed us to further enhance the properties of BALIQ TISINOS PRO. The coating enables an even more stable and reliable machining process that produces high-quality components, especially in micromachining, leading to fewer tool changes. And customers can get their tools recoated with BALIQ TISINOS PRO, which reduces their tooling costs and helps them achieve their sustainability goals by conserving valuable raw materials.”

BALIQ TISINOS PRO will be presented live for the first time at EMO 2023, which takes place in Hannover, Germany, September 18-23, 2023.



Image: Oerlikon Balzers

New PVD coating with improved microstructure: Cutting tools and micro tools coated with BALIQ TISINOS PRO benefit from smooth surfaces without droplets and an extremely homogeneous coating thickness distribution. This ensures smooth chip removal and optimum edge sharpness when machining steels with a hardness of up to 70 HRC.

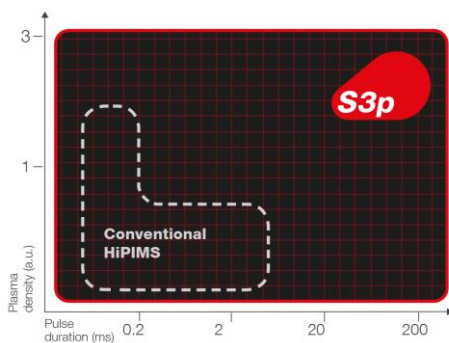


Image: Oerlikon Balzers

The S3p technology developed by Oerlikon Balzers outperforms conventional HiPIMS by producing coatings with exceptional smoothness, homogeneous coating thickness distribution, extreme density, hardness and substrate adhesion, and high wear resistance.



Image: Oerlikon Balzers

The high precision PVD coating BALIQ TISINOS PRO guarantees sharp cutting edges, leading to lower cutting forces and higher process stability, especially with tools that have an ultra-small diameter.

**For further information, please contact:**

Petra Ammann  
Head of Product Marketing Communications  
T +423 388 7500  
petra.ammann@oerlikon.com  
[www.oerlikon.com/balzers](http://www.oerlikon.com/balzers)

**About the Oerlikon Surface Solutions Division**

Oerlikon is a leading global provider of surface and additive manufacturing solutions and services. The division offers an extensive portfolio of market-leading thin-film, thermal spray and additive manufacturing technologies, equipment, components and materials. Emission reduction in transportation, maximized longevity and performance of tools and components, increased efficiency and intelligent materials are hallmarks of its leadership. Pioneering technology for decades, the division serves customers with standardized and customized solutions across a worldwide network of more than 170 sites in 37 countries.

With its technology brands – Oerlikon Balzers, Oerlikon Metco and Oerlikon AM – the Oerlikon Surface Solutions division focuses on technologies and services that improve and maximize performance, function, design, reliability and sustainability, which are innovative, game-changing advantages for customers in the automotive, aviation, tooling and general industries and in the luxury, medical, semiconductors, power generation and oil & gas markets.

The division is part of the publicly listed Oerlikon Group (SIX: OERL), headquartered in Switzerland, which has more than 13,000 employees and generated CHF 2.9 billion in revenue in 2022.

For more information see: [www.oerlikon.com/surface-solutions](http://www.oerlikon.com/surface-solutions)