

Picosun Customer interview:

AUSTRIAN MINT

Muenze Oesterreich AG, Vienna, Austria

Mr. Alfred Gnadenberger and Dr. Lukas Lauter (text)

The Austrian Mint received their PICOSUN™ P-300B Advanced ALD system in 2014. The system is designed specially for use in heavy industries and it is equipped with industrial robotics to enable fully automated, unmanned operation and handling of heavy coin carriers. At the moment, the Austrian Mint uses their PICOSUN™ ALD system for protective coatings on some of their numismatic coins, with plans to extend its use in the future. Below please find a customer interview generously granted for Picosun by the ALD tool users at the Austrian Mint, Mr. Alfred Gnadenberger and Dr. Lukas Lauter.



Mr. Alfred Gnadenberger finished his education in mechanical engineering in 1980. After working several years in the packaging industry in office-based sales, he moved into technical management focusing on development and application engineering. In 1993, he joined the Austrian Mint as department manager.

Mr. Gnadenberger, what are the focus points and goals of your work at the Austrian Mint?

The Austrian Mint not only produces all Euro circulation coins for the Republic of Austria, but also a wide range of collector coins in copper, silver and gold – about ten new coins every year. Other well-known products are our Vienna Philharmonic bullion coins in fine silver and pure gold, which are now also available in platinum. I am responsible for the production of collector and bullion coins as well as the supervision of various related technical issues – including the introduction and application of ALD technology.

How did you get interested in Atomic Layer Deposition (ALD)?

In the world of collector coins, optical appearance is everything, including the beautiful, ornate design and surface quality of the minting metal. We all know that when exposed to air, copper is particularly prone to natural tarnishing, which leads to unwanted changes in surface colour. Consequently, we have been protecting our copper coins by means of wet chemistry for years, which has environmental repercussions. For that reason we have always been interested in a cleaner solution. Silver is also an issue as it is sensitive to both oxidation and sulphidation. Fortunately, we came across ALD technology at a trade show and quickly realised its considerable benefits.

What do you see as the key advantages of ALD compared to other thin film deposition methods?

The key advantage for us is the all-over protection of our coins in a single process step; the edge in particular has always been a difficult area to cover. Further advantages are the comparatively low process temperature, the very thin film thickness required to achieve a dense coating (leading to reasonable protection against tarnishing in a rather short time) and, last but not least, the superior adhesion and colour fidelity on different materials.

How did you find out about Picosun?

In the course of our acquisition process we did some research regarding the major suppliers of ALD systems, focusing on Europe and the United States, and did quite a lot of preliminary work into which type of system fulfilled our requirements best.

What made you select a PICOSUN™ ALD system?

PICOSUN's expertise, which is the result of its long experience in ALD technology, completely convinced us, as did PICOSUN's partner KINE Robot Solutions, which is responsible for the robust robotics that we require for our partially unmanned operation at night and weekends.

For what purposes is the PICOSUN™ ALD system used at the Austrian Mint?

As mentioned above, we mainly use our ALD system for the surface protection of copper coins, but also to protect coins and medals manufactured with other precious and non-precious metals against tarnishing. Our goal is to perpetuate the initial optical appearance of each product as faithfully as possible for a reasonable period of time.

What do you regard the most positive aspects of PICOSUN™ ALD systems?

Our PICOSUN™ ALD system has proved to be very well designed and extremely reliable, which is acutely important to us. Another convincing feature is the fully developed concept of the complete system, including a user-friendly interface. We can confirm that all our demands have been met and all our requirements have been completely fulfilled.

What impression do you have of our company, products and services in general?

We emphasise our aforementioned commendation – we are very satisfied. Another asset is your local partner Teltec in southern Germany, which grants a short response time in all matters and removes any possible language barrier for us. Both are major requirements for operating flexibly and successfully in the market.



To whom would you recommend PICOSUN™ ALD systems?

We would wholeheartedly recommend PICOSUN to anyone looking for a fully developed and extremely reliable system regarding ALD technology, no matter what the area of application.