

# **IQ Structures created a hologram for the commemorative silver coin of the Czech National Bank**

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Czech National Bank (CNB) issues commemorative silver five hundredth Crown with hologram Steam locomotive Škoda 498 Albatros. It is the first volume of the new series called "Famous Vehicles". The hologram was created by IQ Structures, a Czech research and production organisation, a member of IQS Group.

The coin is struck from an alloy containing 925 parts silver and 75 parts copper. The weight of the coin is 25 g, diameter 40 mm and thickness 2.6 mm. It is issued in two versions. 5,700 coins will be produced in regular quality with a scalloped edge. The other 12,000 pieces will be of proof quality with a highly polished mint field, matte relief and a smooth edge with frieze.

A total of six special effects were used on the hologram of the Albatros locomotive. Transferring sophisticated effects to precious metal requires special technology. This technology is conditioned by specific know-how both on the hologram production side and on the coinage side.

"Our team has been working on the development since January 2018 together with the Czech Mint. We wanted to perfectly print simple holographic motifs, but also advanced and unique optical effects. One of them, for example, is the so-called Full 3D effect applied in the area of the tunnel from which the locomotive emerges. This effect allows us to create the spatial illusion of a sparks flying from the engine, seemingly below the plane of a coin," says Robert Dvořák, Business Development Director at IQ Structures.

IQ Structures is a world leader in the design and manufacture of optical security features for the anti-counterfeiting protection of ID documents, valuables and banknotes. The company holds 23 patents and patent applications related to controlled micro-structuring and nano-structuring of surfaces in various industries.

"When you look at the locomotive, you see the relief rising above the surface of the coin. Actually, you feel like you're looking at a regular minting. The surface is perfectly smooth. In combination with the holographic rotational developments on the locomotive wheels, an attractive visual composition evoking a real locomotive in motion is created.

We create our effects using structures smaller than a millionth of a meter. Our technology allows us to create illusions of space and spatial objects in front of and below the hologram plane. We create relief effects imitating three-dimensional objects such as various animal figures, flowers and faces of famous personalities. We are able to combine these effects freely. We thus create image compositions that are visually attractive and extremely resistant to counterfeiting," adds Dvořák.

The author of the coin is Asamat Baltaev, who chose a part of a locomotive wheel as the main motif for the obverse side. In the upper part of the coin there is a text with the name of the state CZECH REPUBLIC and in its lower part the denomination 500 CZK.