Coating Surface Roughness Measurement Made On Coining Dies

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The paper describes the surface roughness measurement of functional parts of tools for minting coins. The coining dies were coated with three types of coatings – CrN, TiCrN and WC/C. Roughness of the coining die surface is a very important factor for the quality of a struck coin. The quality of specific coatings on the coining die surface was evaluated by a contact (Hommel Tester T500 roughness measurement device) and contactless method (microscope Sensofar PLu neox) by using optical interferometry and confocal microscopy. Results from the shop measurement gained by using the roughness measurement device were compared to the laboratory measurements gained by using microscope. Moreover, results were illustrated in the graph. Measured values were identical. Only the CrN coating showed bigger difference. Minimum roughness value was measured on the coining die with the TiCrN coating. The WC/C coating reached the maximum roughness value. 3D visualization method of surface roughness using software Gwyddion proved inappropriate for burnished surfaces.

Keywords: roughness, coining die, roughness measurement device, optical interferometry, confocal microscopy

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