

Microstructure Effect on Reignition and Welding Properties of Copper-Tungsten Electric Contact

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Abstract— Copper Tungsten contacts are frequently used in high power circuit breakers and contactors in air, oil, SF₆ or vacuum. Arc interruption and anti-welding properties are important design parameters. In this study, we examined the effects of tungsten particle size on reignition and weld resistance in air. Oxidation and mechanical properties are also determined to find the optimum contact properties for arc erosion under thermal and mechanical stresses. Static gap arc erosion is used to supplement observations in a dynamic weld test. This avoided device mechanical variables that affect contact erosion.

Keywords: copper-tungsten; reignition, welding, powder metal, microstructure, oxidation, transverse rupture strength.