Investigation on effect of holding time in brazing of steel to cemented carbide using Cu-Ag alloy filler metal

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Abstract
Nowadays, cemented carbides-steels joints by brazing method are taken into consideration. One of the problems of these joints is the creation residual stresses that can reduce it with choose correct parameters of brazing. In this study, Silver base alloy filler containing copper, zinc and cadmium have been used in temperature 780°C and the effect of time parameter 5, 10 and 15 minutes on microstructure and mechanical properties were investigated. The results indicated that brazing in 15 minutes causes a columnar growth of solid solution phase of copper from cemented carbide side to steel and provides maximum strength of
94MPa. As well as, by passing of time wetting angle of cemented carbide surface reduces from 40° to about 27°.

Keywords: Cemented Carbide, Steel, Brazing, Microstructure, Mechanical Properties.