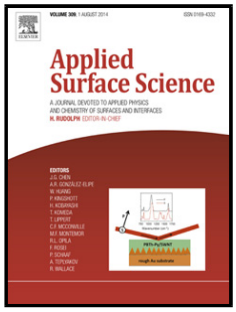

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Mechanical properties of several laser remelting processed steels with different unit spacings

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Abstract

To investigate the mechanical properties of laser remelting (LR) processed steels, three kinds of steels were selected and gridding shaped LR unit was manufactured in their surface layers. The microstructure, mechanical properties and their relation in different LR steels were compared and discussed. It is found that the strengthening effect of the LR steel is mainly governed by the microstructures in the laser remelted zone of LR unit, while the microstructures in the heat affected zone of LR unit show essential influence on the duration of the toughening effect. On this basis, the mechanical properties of the LR steels with different unit spacings were also investigated to optimize the strengthening and toughening effects of the unit.

Keywords: Mechanical property; Laser remelting; Microstructure; Steel