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Edited by:

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Title

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Experimental investigations of tensile properties of ultra-high strength steel S1100QL at room and elevated temperature

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Abstract

The aim of this paper was to present experimental study into the influence of elevated temperatures on mechanical properties of Ultra-High-Strength Steel (UHSS) S1100QL. This steel belongs to the group of structural steels and it is primarly used for designing various types of lifts and cranes with the goal to decrease mass of the structures with simultanious increase of load capacity . The goal of this study was to determine the highest temperature to which still holds it's mechanical properties. During the first part of testing tensile tests were conducted on room and seven other elevated temperatures (from 100°C to 700°C). Obtained results showed that between 400°C and 500°C properties begin to drop. This phenomenon is further investigated by conducting several more tests at temperatures of 425°C, 450°C and 475°C to determine the extact temperature value where mechanical properties drop.

Keywords: Elevated temperature; S1100QL; UHSS; tensile testing