## Correlation of Material Mechanical Characteristics Obtained by Means of Standardized and Miniature Test Specimens

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**Abstract :** New methods of mechanical testing were developed recently that are based on making use of miniature test specimens (e.g. Small Punch Test). The most important advantage of these method is the nearly non-destructive withdrawal of test material and small size of test specimen what is interesting in cases of remaining lifetime assessment when a sufficient volume of the representative material cannot be withdrawn of the component in question. In opposite, the most important disadvantage of such methods stems from the necessity to correlate test results with the results of standardised test procedures and to build up a database of material data in service. The correlations among the miniature test specimen data and the results of standardised tests are necessary. The paper describes the results of fatigue tests performed on miniature test specimens in comparison with traditional fatigue tests for several steels applied in power producing industry. Special miniature test specimens fixtures were designed and manufactured for the purposes of fatigue testing at the Zwick/Roell 10HPF5100 testing machine. The miniature test specimens were produced of the traditional test specimens. Seven different steels were fatigue loaded (R = 0.1) at room temperature.

**Keywords :** mechanical properties, miniature test specimens, correlations, small punch test, micro-tensile test, mini-charpy impact test

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