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The influence of test execution geometry on the measured bond behavior between concrete and reinforcing steel

(Geometrieinflüsse in der Versuchsdurchführung zur Bestimmung des Verbundtragverhaltens zwischen Beton und Bewehrungsstahl)

The behavior of the composite material reinforced concrete depends strongly on the interaction of its components concrete and reinforcing steel. In order to analyse this experimentally pull-out and push-in tests are carried out. So far, the specimen forms and test execution was not standardized. The test series described in literature vary greatly in specimen form and size, bond zone length, reinforcing steel diameters and rip forms as well as in the load introduction method, loading rate, concrete recipe and steel grade. Their comparability is therefore limited.

Aim of this work is the numerical study of the bond behavior with special emphasis on the influence of test execution geometry. For this a series of Finite Element Models is required, which should be created and validated in LS-Dyna. In the context of this work the evaluation of the FEM output results should be carried out. Based on that relationships for the estimation of the influence geometry has on the bond behavior between concrete and reinforcing steel should be detected.

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