

## Pull-Out Behavior of Mechanical Anchor Bolts by Cyclic Loading

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**Abstract :** In this study, the pull-out properties of various mechanical anchor bolts embedded in concrete were investigated. Five kinds of mechanical anchor bolts were selected which were ordinarily used for concrete anchoring. Tensile tests for mechanical anchor bolts embedded in  $\phi 300\text{mm} \times 100\text{mm}$  size concrete were conducted to measure the load - load displacement curves. The loading conditions were a monotonous loading and a repeating loading. The fracture energy for each mechanical anchor bolts was estimated by the analysis of consumed energy calculated by the load - load displacement curve. The effect of the types of mechanical anchor bolts on the pull-out properties of concrete subjected in monotonous loading and a repeating loading was cleared.

**Keywords :** concrete, cyclic loading, mechanical anchor bolt, pull-out strength

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