Proposal of an Equation for Calculating Fatigue Strength of SD685 Rebar Considering the Range of High Frequency Repetitive Loading

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The slope k of the S-N line in the range of high-frequency repetitive loading used in the current equation for calculating the fatigue strength of SD685 rebars is not unmitigated because of the small number of experimental data. In this paper, an equation for calculating the fatigue strength of SD685 rebars was proposed based on experimental data including the range of high-frequency repetitive loading. SD685 rebars had $k = 0.22$ within 2×10^6 cycles, which was larger than that of SD490 rebars. On the other hand, it was found that the fatigue strength can be calculated on the safe side at 2×10^6 cycles or more even if k is set to 0.06, which is the value of SD490 rebars.