

Fatigue Limit Diagram for Rail Clips Subject to Plastic Deformation

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The purpose of this study is to develop a fatigue design method for rail clips subject to plastic deformation. Firstly, a new fatigue limit diagram was formulated based on the mechanical properties of material and its fatigue limit under repeated load. The diagram is represented by the relationship between the mean strain and the oscillating strain amplitude. Secondly, the material of the clip was tested to obtain the accurate values of the fundamental properties necessary for establishing the diagram. Thirdly, fatigue tests were carried out and the fatigue limit diagram was compared with the test results in order to check the validity of the diagram. Finally as a case, a fatigue design of the rail clips subject to plastic deformation was performed by use of the diagram.