

Finite element analysis of baseplate for failure estimation in light railway transit fastening systems

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Abstract:

Light Railway Transit (LRT) operates daily and connects places in city centre. Hence, it is important for operator company to maintain the operation and maintenance. In railway track maintenance, the fastening systems plays major roles in sustaining the condition of rail, track and the train. This study focuses on the current fastening system failure for product development improvement for maintenance jobs in the railway track, 3D modelling of the Fastening system consists of the base plate, tension clamp, rail pad, washers and the bolt are modelled. Ansys software were analyzed the deformation occurs due to load transmitted by moving train, the amount of stress on the baseplate, the strain occurs and the failure location of the baseplate. Results showed that the failure of baseplate location validates the simulation of the fastening system. The failure location from prediction of the fastening system can identify based on static stress simulation can be used for future baseplate in the fastening systems.

Keywords: Baseplate; Finite Element Analysis; Fatigue Life; Stress; Failure

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