

(54) Title of the invention : An equipment with advanced testing facility for precise characterization of pavement materials under repeated longitudinal wheel movement

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(57) Abstract :
The present invention proposes an equipment to provide an advanced testing facility for precise characterization of pavement materials and modelling of flexible pavements in simulation to the repeated longitudinal wheel movement and confining pressure as per in-situ condition. The proposed equipment is an innovative combination of a cuboid tank (17) equipped with a depth adjuster (1) and a wheel movement system designed to mimic real vehicular loads on pavements. Its purpose is to accurately characterize the resilience of subgrade soils and granular materials based on in-situ confining pressure and analyse distress in partial or full-scale pavement models. The depth adjuster (1) allows for adjusting depths for material characterization, accommodating single or multiple layers for full or partial scale pavement modelling. Variable track lengths cater to different vehicle speeds and traffic intensities, with three track lengths provided: 50 mm, 100 mm, and 150 mm, corresponding to different loading and rest periods. Pressure cells (13) with a capacity of 20 MPa and Linear variable differential transformer (LVDTs) with a maximum deformation limit of 25 mm are provided at depths 100mm, 300mm and 500 mm to measure in-situ variations in the magnitude of stresses and deformations during testing. Fig 1

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