ABSTRACT

T present study deals with the investigation of mechanical properties of elastomeric materials under isothermal conditions. With the increasing importance of dynamic simulations during the vehicle development process, a need for a more precise description of rubber-metal parts, which have manifold and numerous applications in vehicles, is felt. The finite element method is a good tool to model and analyze the complex nonlinear behaviour of rubber parts, although an appropriate material model is needed. The main goal of this study is to model, besides the hyperelasticity and viscoelasticity of rubberlike solids, the amplitude dependent dynamic stiffness and damping.