

## Supplemental VisCo-friction Damping for Dynamical Structural Systems

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**Abstract :** Coupled dampers like viscoelastic-frictional dampers for supplemental damping are a newer technique. In this paper, innovative Visco-frictional damping models have been presented and investigated. This paper attempts to couple frictional and fluid viscous dampers into a single unit of supplemental dampers. Visco-frictional damping model is developed by series and parallel coupling of frictional and fluid viscous dampers using Maxwell and Kelvin-Voigt models. The time analysis has been performed using numerical simulation on an SDOF system with varying fundamental periods, subject to a set of 12 ground motions. The simulation was performed using the direct time integration method. MATLAB programming tool was used to carry out the numerical simulation. The response behavior has been analyzed for the varying time period and added damping. This paper compares the response reduction behavior of the two modes of coupling. This paper highlights the performance efficiency of the suggested damping models. It also presents a mathematical modeling approach to visco-frictional dampers and simultaneously suggests the suitable mode of coupling between the two sub-units.

**Keywords :** hysteretic damping, Kelvin model, Maxwell model, parallel coupling, series coupling, viscous damping

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