



## **Effect of Additional Dynamic Tension Force on Vertical Dynamic Response of Suspended Cables**

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**Abstract:** This paper shows numerically the effect of the additional dynamic tension force on the dynamic response of suspended cables. Since the nonlinear analysis is unable to show explicitly the effect of additional dynamic tension force because of the coupling between the vertical and transverse modes and the presence of nonlinear terms, the effect of additional dynamic tension force was studied using the linear theory of cables. The effect of additional dynamic tension force shall first be shown on the natural frequencies and vibration modes' shapes for various cables with different configuration parameters. The dynamic response of two classes of suspended cables, one with considerable sag and another with shallow sag are then presented to identify the significance of additional dynamic tension force for both cases.

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