

A STUDY ON DYNAMIC ANALYSIS OF MULTI-MASS LUMPED PARAMETER SYSTEM BY HOLZER'S METHOD

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Abstract

A common iteration method based upon equilibrium of torque at resonance can be effectively used to evaluate the natural frequencies and mode shapes of many shafting systems, the method originally used by Holzer was proposed as a tabular method designed for easy hand-calculations. The method most commonly employed to calculate the torsional resonant frequency of shafting systems is the "Holzer Analysis" chiefly because it is conveniently adaptable to hand calculations. This method requires successive estimates of the shaft resonant frequency as input, and it is possible to overlook solutions if the selected frequency increment is too large. The Holzer tabulation method is useful for a cursory check of most shaft systems; however, it becomes quite cumbersome and tedious when a forced vibration response of complex systems is required. Forced vibration problems can be made with the Holzer analysis. A system has arranged multi-body i.e. in case of crankshaft rotating system; the sum of all pistons, connected rods, crankshaft section which attaching or arranging on the crankshaft is known as "multi-mass lumped parameter connecting on the crankshaft rotating system".