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Optimum Design of Helical Gear System on Basis of Maximum Power Transmission Capability

Authors : Yasaman Esfandiari

Abstract : Mechanical engineering has always dealt with amplification of the input power in power trains. One of the ways to achieve this goal is to use gears to change the amplitude and direction of the torque and the speed. However, the gears should be optimally designed to best achieve these objectives. In this study, helical gear systems are optimized to achieve maximum power. Material selection, space restriction, available facilities for manufacturing, the probability of tooth breakage, and tooth wear are taken into account and governing equations are derived. Finally, a Matlab code was generated to solve the optimization problem and the results are verified.

Keywords : design, gears, Matlab, optimization
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