

## عنوان مقاله:

Meshing Error of Elliptic Cylinder Gear Based on Tooth Contact Analysis

## محل انتشار:

ماهنامه بین المللی مهندسی، دوره 33، شماره 7 (سال: 1399)

تعداد صفحات اصل مقاله: 11

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## خلاصه مقاله:

In order to study the dynamic meshing characteristics of the elliptic cylinder gear and obtain the meshing error of the gear transmission system, the two-dimensional static contact analysis of the gear tooth surface is carried out using ANSYS software, and the key parts of the contact area of the tooth surface are determined. Then, the dynamic meshing model of the elliptic cylinder gear is established and the dynamic contact process under load is simulated by ANSYS LS-DYNA software. The distribution law of effective plastic strain, effective stress and pressure of the driving and driven wheels are obtained. On this basis, the distribution law of meshing error is obtained by calculation. The results show that the distribution of stress, strain and tooth surface pressure during tooth meshing is related to the position of the tooth on the elliptical pitch curve. The position of the tooth on the pitch curve and the load it bears has a certain influence on the meshing error. The results of this research can provide some guidance for subsequent study of transmission error of non-circular gears, gears modification and engineering applications.

## کلمات کلیدی:

Elliptical Cylinder Gear, Static contact, finite element analysis, dynamic meshing characteristics, meshing error

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