

## عنوان مقاله:

Position Error Reduction of Kinematic Mechanisms Using Tolerance Analysis and Cost Function

## محل انتشار:

دومین کنفرانس بین المللی و هشتمین کنفرانس ملی مهندسی ساخت و تولید (سال: 1386)

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## خلاصه مقاله:

It is practically impossible to manufacture a component exactly with the required dimensions. Therefore for each part dimension, a tolerance limit is prescribed. Also for all assemblies, a limit of variation is prescribed for a specified parameter of the assembly which is referred to as the assembly specification, and it could be the position of a point. If the assembly specification has limits of variation in two or more directions, the correlation between these variations also impresses the limit of variation. To determine the bivariate distribution of the assembly specification, in terms of part tolerances, the Direct Linearization Method (DLM) is used. In this paper, the Coupler Point (C.P.) position of a crank slider mechanism during one cycle of motion is considered as the assembly specification. The DLM results are validated with Monte Carlo simulation method and the percent contribution of each manufacturing variable in assembly specification is determined by multiple regression method. This paper proposes that by tightening the tolerances of those manufacturing variables that have the highest contribution in the maximum error of mechanism, the amount of maximum error of mechanism could be decreased significantly.

## کلمات کلیدی:

Tolerance Analysis, Error, Multiple Regression

## لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/81619>

