عنوان مقاله:

Vibration Suppression using design of dynamic vibration Absorber for vertical machine tools

محل انتشار:

نویسندگان:

Abolfazl lotfi-aski - *Department of Agricultural machinery Mechanical Engineering, Science and Research branch, Islamic Azad University, Tehran, Iran.*

Behzad Mohammadi Alasti - *Department of Agricultural Machinery Mechanical Engineering, Islamic Azad University, Bonab Branch, Bonab, Iran*

Mohammad Homaei - *Department of Agricultural Machinery Mechanical Engineering, Islamic Azad University, Bonab Branch, Bonab, Iran*

Ghader Rezazadeh - *Department of Mechanical Engineering, Urmia University, Urmia, Iran*

خلاصه مقاله:

Vibration is an undesired phenomenon in machine tools and can decrease their performance negatively. In this work reduction of undesired vibrations in machine tools has been investigated. The machine tools has been simulated as a five-degree-of-freedom discrete system. Subsequently, in order to reduce the undesired vibrations of the system a dynamic vibration absorber with two unknown parameters has been added to the system in different positions, consequently, one degree has been added to the degree-of-freedom of the system and has been reached to six. Then the governing equations have been obtained by utilizing Newton"s second law and the equations have been solved. For each position optimum values of unknown parameters (mass absorber M D stiffness absorber k D) have been acquired through trial and error to obtain minimum vibration amplitude in the components of machine tools. The results have shown that the head of the machine tool was the best palace to add the vibration absorber also this absorber has least cost between obtained optimum absorbers

کلمات کلیدی:

machine tools, dynamic vibration absorber, optimum absorber, reduce vibration

لینک ثابت مقاله در پایگاه سیویلیکا:

https://civilica.com/doc/538921