A heuristic method for transmission design

Viktor Ivanov[1]*, Lubomir Dimitrov[2], Svitlana Ivanova[3] and Galyna Naleva[4]

[1] Odessa National Polytechnic University, Ukraine

[2] Technical University of Sofia, Bulgaria

[3] South Ukrainian National Pedagogical University named after K. D. Ushynsky, Ukraine

[4] National University "Odesa Maritime Academy"

* Corresponding author: ivv@opu.ua

Abstract

The application of heuristic methods in the design of transmissions is investigated. The structure of heuristic methods is revealed and the heuristic techniques that compose them are established. These techniques are combined into one generalized method, which allows replacing all the considered methods. A heuristic method specially allotted for the design of transmission is also developed. This method contains, among other things, the following heuristic techniques. Search for all possible variants of elements location corresponding to one of the same graph. Introduction nodes to the graph that corresponding certain function, for the implementation of which a node can be added to the design or vice versa, a node can be removed from the design, and the function it has implemented will be implemented by other elements.The advantages of a heuristic search on the example of designing a double row thrust bearing are evidenced. The bearing contains a node through which the speed of the intermediate ring is always equal to half the speed of the shaft. Due to this, the distance that the rolling element path is reduced, and the bearing has greater durability.

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