

Lecture Notes in Mechanical Engineering • Страницы 744 - 754 • 2021 • 2nd Grabchenko's International Conference on Advanced Manufacturing Processes, InterPartner 2020 • Odessa • 8 September 2020to 11 September 2020 • Код 253159

Prediction of Changes in the Output Characteristics of the Planetary Hydraulic Motor

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In recent years, particular attention is paid to the development of low-speed hydraulic motors, the working elements of which should have a low speed of movement and develop high torques. Planetary hydraulic machines meet these requirements. The disadvantages of planetary hydraulic machines can be attributed to the unevenness of the output characteristics due to the error in the shape of the elements of its rotor system and distribution system, which causes a pulsation of the flow of the working fluid. Thus, conducting research aimed at predicting a change in the output characteristics of a planetary hydraulic motor during operation, for a given range of changes in its operating parameters, is an urgent task. The various parameters that determine the difference in the output characteristics of the planetary hydraulic motor depending on the design features of its rotor system and distribution system are substantiated. The regression equations are obtained that describe the change in the output characteristics of the planetary hydraulic motor during operation, for a given range of changes in its operating parameters. The obtained regression equations adequately describe the difference in the functional parameters of the planetary hydraulic motor during its operation. The change in the efficiency of the planetary hydraulic motor in a wide range of operating parameters changes is substantiated. The performed studies make it possible to predict changes in the output parameters of planetary hydraulic motors in operating conditions. © 2021, The Author(s), under exclusive license to Springer Nature Switzerland AG.

Ключевые слова автора

Meaquacy; Distribution system; Full-factor experiment; Regression equations; Rotor system

Темы SciVal

Название темы Cycloids; Oil; Speed Reducers

Актуальность 87,918

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