On the Study of the Optimization of Kinematic Synthesis of the Transmission Mechanism of a 8-Link Drive Press and the Co

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ABSTRACT

The linkage-drive power transmission mechanism for press mold, when compared with other types of mechanism, can provide more stable working impact load and more moderate variation of slider ’ s velocity. With these facts, press machine will alternately produce better product, extend fatigue lives of gears and linkages, and reduce the degree of wearing away of clutch and brake. Because the linkage sizes of the linkage-drive press can be modified to satisfy a specific production requirement, this research is focused on the dimensional synthesis of an eight-linkage-drive press machine. In this thesis, the concepts of mechanism synthesis will be applied on the design of linkage mechanism along with numerical analysis. Various combinations of linkage sizes will be synthesized through powerful computations. Due to more and more serious requirement on “ accuracy ” in industry, the clearance between mechanism members has become the key factor in this issue. Therefore, this research has also included clearance factor into the problem of dimensional synthesis. The linkage mechanism model has been built with clearances at joints in order to investigate the influence of clearance on output force and mechanical efficiency.

Keywords : Linkage-drive press ; Power transmission mechanism ; Linkage mechanism ; Clearance

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