

齒輪泵浦分析與電腦輔助設計

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摘要

This study undertakes optimal design and solid modeling for gear pumps using a computer aided design (CAD) software. At first, an optimization code, MOST, is used to perform the optimal analysis on the gear pumps combining the flow rate formulas. A good design recipe of the pump design behaving optimal flow displacement can be obtained. Then, the tooth profile data calculated from the theoretic tooth profile equations accounting for the optimal pump design are imported to SW for its CAD modeling using API function based on a Visual C++ code. Therefore, the automatic CAD solid modeling of the gear pumps can be attained. In addition, dialog menus to facilitate design parameters and setting assignment are accomplished. Finally, the parameter analysis is also carried out. By assigning various design variables and constraints, the optimization design, solid models, and discussions of the gear pumps under variant design consideration are achieved.

關鍵字：Gear pump; Computer aided design; Solid