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THE STUDY OF ION IMPLANTATION AND TRIBOLOGICAL PROPERTIES BASED ON HIGH-SPEED MECHANICAL-SEAL PAIR

Abstract

The high-speed hydraulic pump have of the CZ-5 launch vehicle servo system have both reliability and life requirements, and are required to give tested results of the two requirements. As an important metal surface modification technologyIon implantation is critical to effectively improve frictional wear characteristics of mechanical-seal swiveling ring. It design integrated test plan for an seal-pair frictional wear characteristics based ion- implantation seal swiveling ring feasibility study.The friction and wear characteristics of typical graphite used in space field with steel pair were compared by universal friction and wear tester. Based on the effects of linear velocity, face pressure of hard ring on wear volume and friction coefficient were studied. the comprehensive tribological properties of the friction pair is studied by effect factor of load and speed , the tribological properties will be disclosed.This paper introduces mechanical-seal work reliability of temperature stress and system test performace based seal pair ,the application of these plans will offer a reasonable and high effectiveness-cost rate way for life and reliability compliance test of high-speed hydraulic pump.