一种基于电容传感器的航空发动机转静子间隙测量系统

针对航空发动机静子机匣采用K77合金材料和镍铬铝混合涂层且为非连续表面，本文分析了在航空发动机转静子间隙测量中被测面材质特殊、测量面的非连续性等问题，设计了一种基于电容传感器非接触测量原理的航空发动机转静子间隙测量系统，该系统消除了特殊材料的影响，有效的提取了非连续表面形貌特征，解决了传感器难以安装的问题。通过对比实验发现，该测量系统的跳动测量结果相对于传统系统提高了25%，验证了该系统测量的有效性。

A measurement system of rotor-stator clearance in aero-engine based on capacity sensor

Specific to K77 alloy and Ni-Cr-Al mixed coating using in the stator casing of aero-engine and its discontinuous surface, this paper analyzes the problem of special material, the discontinuity of measuring surface and other issues in the measurement of rotor-stator clearance in aero-engine, and a measurement system based on non-contact measuring principle of capacitive sensor is designed, which eliminate the influence of special material, extract the morphology characteristics of discontinuous surface effectively and solve the problem of sensor installation difficulties. Compared to the traditional system, this measurement system could improve runout accuracy by nearly 25%.