

SYSTEMS AND METHODS FOR AUTOMATED SENSING AND MACHINING FOR REPAIRING AIRFOILS OF BLADES

ABSTRACT

A method for repairing an airfoil (34) comprising creating a nominal numerically-controlled tool path based on a nominal shape of the airfoil (34), measuring the airfoil (34) using a displacement sensor (66), capturing differences in the airfoil (34) shape as compared to the nominal shape, creating a three-dimensional map by synchronizing x, y and z coordinates and readings from the sensor (66), modifying the tool path based on the three-dimensional map, and machining the airfoil (34). A system for measuring and machining an airfoil (34) comprising a computer (60) operable for data acquisition and numerically-controlled tool path generation, a numerically-controlled machine (62), a cutting tool holder (64) comprising a plurality of cutting tools (68), and a displacement-sensing probe (66).

Fig. 3