MICROSTRUCTURE AND CRACK TESTING ON ROTOR SHAFTS USING EDDY CURRENT

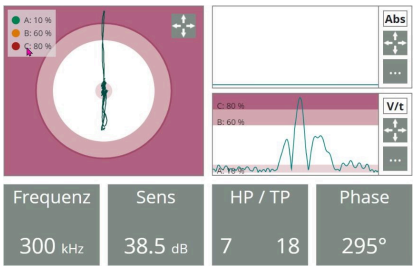
Microstructure deviations or cracks in rotor shafts can reduce electric motor reliability. Eddy current testing reliably detects defects during production.

THE CHALLENGE

Rotor shafts are key load-bearing components in electric motors and must reliably transmit torque under high mechanical stress. Variations in microstructure, hardness or alloy composition after induction hardening can impair performance. Additionally, surface cracks in critical areas such as teeth or radii may lead to premature failure if not detected early.

THE SOLUTION

Microstructure testing is performed with the MAGNATEST D and application-specific encircling coils. Low-frequency eddy currents enable evaluation of hardness state, structural condition and material mix-ups. For crack detection, the STATOGRAPH CM+ with highly sensitive differential probes scans the surface, identifying disturbances in eddy current flow caused by hardening cracks or surface flaws.



THE RESULT

Critical zones of the rotor shaft are inspected reliably and quickly within the production process. Components with structural deviations or cracks are automatically sorted out. The combined system ensures consistent material properties, prevents defective parts from entering assembly and enhances operational reliability of electric drive systems.

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MAGNATEST D

Magneto-inductive testing of metallic components for material properties

STATOGRAPH CM+ / CM

Crack testing of complex workpieces with eddy current

TCL PRODUCT FAMILY

Universal, modular platform for advanced automated eddy current testing

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