APPLICATION NOTE

HARDNESS, TENSILE STRENGTH AND FOREIGN MATERIAL INSPECTION OF FORGED PRODUCTS

Faulty heat treatment or material mix-ups in forged parts stay invisible. MAGNATEST enables non-destructive 100% inspection of hardness and strength.



THE CHALLENGE

Forged automotive components are exposed to high mechanical loads and must meet strict hardness and tensile strength requirements. Deviations caused by improper heat treatment or material mix-ups cannot be detected visually. Destructive testing is not feasible for mass production, making non-destructive 100% inspection essential for safety-critical parts.

THE SOLUTION

Inspection is performed using the MAGNATEST system with encircling coils. A low-frequency magnetic field induces eddy currents in each forged part, and changes in impedance are evaluated. Variations in magnetic permeability indicate differences in hardness and tensile strength, while electrical conductivity allows detection of foreign or mixed materials.



THE RESULT

The system enables fast, automated sorting of defective components at the end of the production line. Heat treatment abnormalities, strength deviations and material mix-ups are reliably identified without damaging the parts. Continuous electromagnetic testing ensures consistent quality and enhances safety in automotive forging applications.

FOERSTER



MAGNATEST PRODUCT FAMILY

Magnetic-inductive testing of metallic materials in the automotive and aviation sectors

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MAGNATEST D

Magneto-inductive testing of metallic components for material properties

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