MONITORING THE AUTOFRETTAGE PROCESS OF INJECTION SYSTEMS

Incorrect autofrettage can weaken high-pressure tubes. Eddy current testing reliably verifies material properties and process quality automatically.

THE CHALLENGE

Common rail injection systems operate under extremely high pressures. To withstand loads up to 15,000 bar, high-pressure tubes undergo an autofrettage process to increase inner wall strength. If this process is not performed correctly, the risk of cracking remains. Reliable verification of the material condition after autofrettage is therefore essential for ensuring component safety and durability.

THE SOLUTION

FOERSTER uses the MAGNATEST D system with an encircling test coil to verify the autofrettage process. The high-pressure tube is positioned inside the coil, where magnetic and electrical material properties are measured. To set up the testing system, a tolerance field is automatically defined using reference parts. All components from series production are then compared against it, classified, and sorted.

THE RESULT

The system enables clear differentiation between correctly and incorrectly treated components. Automatic sorting into OK and NOK parts ensures reliable process monitoring and incoming goods inspection. Integrated graphical evaluation and documentation functions support continuous quality assurance and stable production of high-pressure injection systems.

MAGNATEST D

Magneto-inductive testing of metallic components for material properties

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