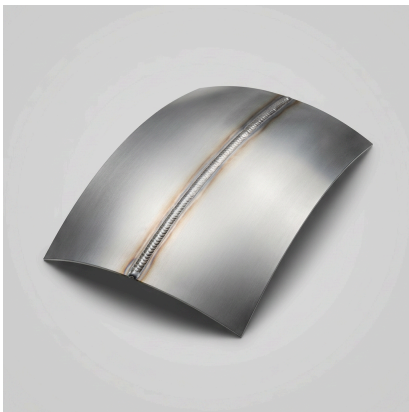


APPLICATION NOTE

TESTING OF HEAT-AFFECTED ZONES THROUGH CONDUCTIVITY MEASUREMENT ON AIRCRAFT STRUCTURES

Heat-affected zones (HAZ) can weaken aircraft aluminum without visible damage. SIGMATEST detects conductivity changes fast and non-destructively.



THE CHALLENGE

Extreme temperatures near turbines or lightning strikes can locally alter the microstructure of aluminum aircraft components. These heat-affected zones (HAZ) may lead to a reduction in mechanical strength without visible surface damage. Since structural integrity is critical in aviation, a fast and reliable non-destructive method is required to detect conductivity changes that correlate with material weakening directly on the aircraft.

THE SOLUTION

SIGMATEST measures electrical conductivity using the eddy current method. Aircraft manufacturers define precise test points and conductivity tolerance ranges. By comparing measured values with specification limits, heat-affected zones can be clearly identified. Deviations beyond tolerance indicate the need for repair or component replacement.



THE RESULT

Structural damage caused by overheating or lightning impact is detected quickly and reliably. The portable device enables fast on-site inspections during maintenance operations. Accurate conductivity measurement ensures objective assessment, reduces downtime and supports safe aircraft operation.

THE PRODUCTS

SIGMA TEST

Portable conductivity meter for fast and reliable testing of non-ferromagnetic metals



SIGMA TEST TCM

Electrical conductivity measurement of non-ferromagnetic metals



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Headquarters

Institut Dr. Foerster GmbH & Co. KG

In Laisen 70
72766 Reutlingen
Germany

+49 7121 140 0
info@foerstergroup.com