APPLYING UCI MOBILE HARDNESS TESTING ON CERAMICS

Ceramic components risk cracking with conventional hardness testing. SONODUR 3 enables fast, non-destructive UCI testing without surface damage.

THE CHALLENGE

Ceramic components in medical, automotive and electronic systems require reliable hardness control due to high wear resistance but limited fracture toughness. Conventional indentation methods risk cracking delicate parts, demand extensive preparation and are unsuitable for thin coatings. Transporting samples for lab testing slows on-site inspections and complicates consistent quality assurance in production environments.

THE SOLUTION

The SONODUR 3 applies Ultrasonic Contact Impedance technology, determining hardness from the vibration shift of an indenter in stable surface contact. Depending on ceramic type, probes with 10 N or 50 N force ensure appropriate sensitivity and repeatability. The portable system enables direct field or in-line measurements and integrates into maintenance or production workflows without damaging finished surfaces.

THE RESULT

UCI testing provides hardness values in HV, HRC or HB within seconds and evaluates distribution across multiple points with high reproducibility. Even brittle ceramics and thin coatings can be assessed without visible marks, enabling clear OK/NOK decisions. The rapid and non-destructive method stabilizes quality control and reduces downtime caused by laboratory-based procedures

SONODUR 3

Portable, high-quality and suitable for industrial use - the user-friendly SONODUR 3 sets standards in the field of mobile materials testing

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