μ-X360s
Portable X-ray Residual Stress Analyzer

Residual Stress measurement in 60 seconds
Retained Austenite measurement in 90 seconds

APPLICATIONS
- Gear
- Spring
- Bearing
- Crankshaft
- Shotpeening
- Additive Manufacturing

FEATURES
- Nondestructive
- Fast measurement speed
- Easy setup
- Low X-ray power
- On-site capability
- Portable

For more information, visit https://www.pulstec.net/

Ask for Demo
The Benefit of the cos α Technique

Since 1925, when the X-ray diffraction (XRD) technique was introduced, it has been widely used to non-destructively determine residual stress in polycrystalline materials. The most popular application of XRD has been the $\sin^2 \psi$ approach. This uses multiple incident angle X-ray exposures and a zero- or one-dimension detector to capture the diffracted scatter. This application has provided many years of good stress data, but it was greatly improved by the newer $\cos \alpha$ technique where a single incident X-ray exposure is detected using a two-dimensional detector and the stress is then determined by using the full Debye-Scherrer ring.

Pulstec offers $\cos \alpha$ equipment which provides the single incident X-ray angle and high sensitivity two-dimensional detector. This system has the following benefits: fast measurement speed, light weight, small footprint, on-site analysis option, low X-ray power, and low cost.

How the equipment works

1. Place a sample under the sensor unit.
2. Start measurement wizard.
3. Adjust incident angle, working distance, and measurement spot.
4. Close the shielding door and hit the start button.
5. Result is displayed after 90 seconds.

SPECIFICATIONS

Measurement method
- Single incident angle X-ray $\cos \alpha$ method

Measurement items
- Residual Stress
- FWHM
- Retained Austenite(Optional)

Size(mm) and Weight(kg)
- Sensor unit: 213(W) x 107(H) x 114(D), 2.4kg
- Power supply unit: 289(W) x 235(H) x 159(D), 6.2kg

X-ray tube and output
- Cr, V, Mo, Cu or Co replaceable
- Air cooling
- 30kV, 1.5mA maximum

Collimator size
- $\phi1$mm (Spot size at sample surface is approx. 2mm)

Power supply
- AC100 to 240V, 50/60Hz, 130W