

Hardened Layer Thickness Tester

Hardness EYE

The Hardness EYE nondestructively evaluates and measures the case depth of samples using the FWHM from X-ray diffraction data. This method eliminates the need for preprocesses such as resin embedding and mirror surface polishing, reducing time and money.

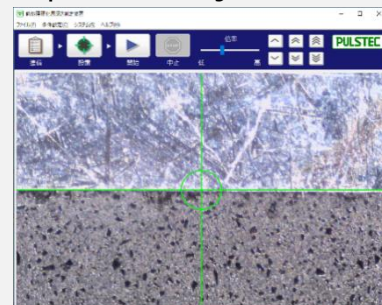


Features

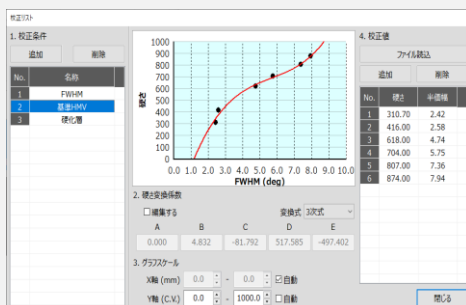
Easy sample setting—just place the sample in surface down



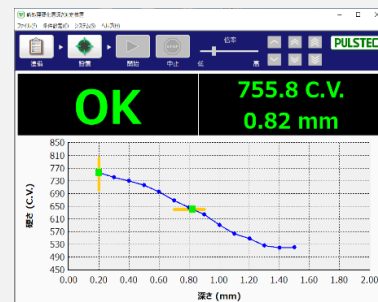
Microscope for accurate position adjustment



Hardness value and FWHM calibration options available for each steel type

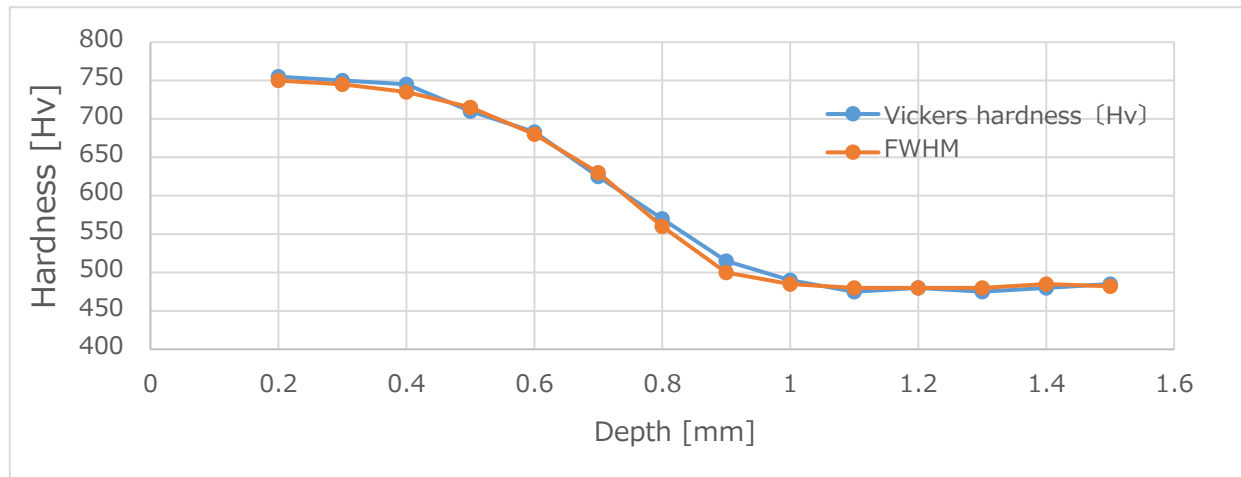


Easy to-read results—passing data is marked as 'OK,' while non-passing data is marked as 'Not Good'

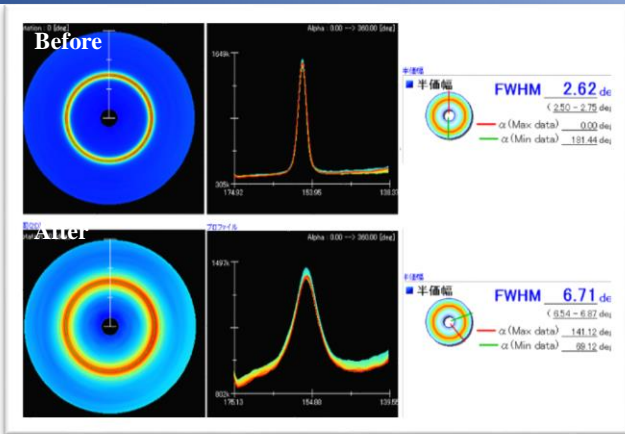


Case Depth Testing (FWHM Vs. Micro-Vickers)

FWHM data correlates with Vickers hardness levels, as shown in the graph below.

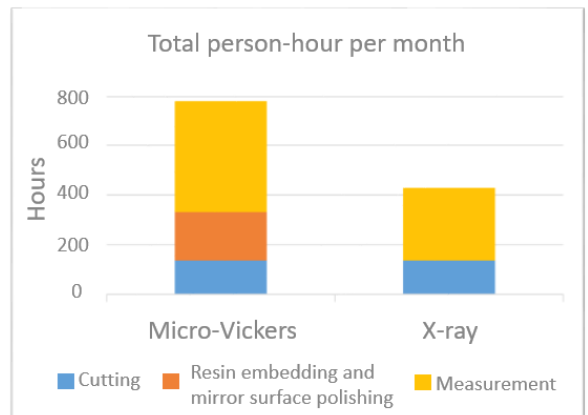


FWHM Different Before and After Heat Treatment



As shown by the images, heat treatment increases hardness. In the 'After' image, the diffraction profile ring has widened and the FWHM has increased from 2.62 degrees to 6.71 degrees.

Reducing Inspection Costs With Hardness EYE



Hardness EYE doesn't require resin embedding and mirror polishing. As shown in the chart, eliminating these pre-inspection processes helps reduce labor costs by nearly half, from 780 hours to 430 hours.

Specifications

X-ray target, Voltage/Current	Cr, 30kV / 1.6mA
X-ray tube cooling method	Air cooling
Measuring object	Carburized hardened steel, Induction hardened steel
Measurement range (Line)	0.2-10mm, automatic measurement
Output	OK/No Good, as evaluated by the case depth value and the hardness distribution curve
Size, Weight	280mm (Width) x 600mm (Diameter) x 390mm (Height) ~28kg *not including laptop
Power supply	100-240V