

The Tukon 2500 Minuteman automated Knoop/ Vickers hardness testers offers performance, accuracy and flexibility unique to any other automated micro/macro hardness tester on the market today. This instrument is equipped with an all new version of Minuteman automation software, presenting an innovative solution for amplified magnification ranges with a high resolution calibrated digital zooming capability. Additionally offered with the Tukon 2500 is an industry leading force application range of 10 gf – 50 kgf enabling this precision instrument to evaluate the most difficult Knoop or Vickers hardness applications.



Precision optical measurement path with a high resolution digital camera

Motorized five position modular turret

Microscope quality, long working distance optics

Optional 180 × 160 mm motorized XY-stage with 5 μm or better accuracy



Minuteman software with calibrated optical zooming, CHD analysis, graphing, data collection, and more

Applications

- Steels, non-ferrous metals, IC wafer
- Thin plastics, metallic foils, platings, coatings, surface layers, laminated metals
- Effect of heat treatment
- Hardness depths of carburized layer
- Cemented carbide, ceramics, steels, non-ferrous metals
- Thin plates, metallic foils, plating, miniature objects
- Hardness resulting from welding or deposition

Technical Specifications

Scales	HV, HK
Test Load	10 gf - 50 kgf
Test Load Accuracy	+/- 1.5% < 200g, +/- 1% > 200g
Force Application	Load Cell
Dwell Time	.1 - 999 seconds
Standard Compliance	ASTM E384, ASTM E92, ISO 6507, ISO 9385, ISO 4546
Turret	288° motorized five position modular turret
Z-Axis Travel	Motorized, 500 mm per minute
Standard Magnification Range	50X, 100X, 200X, 300X, 400X, 500X, 700X
Extended Magnification Range	30X, 50X, 100X, 200X, 300X, 500X, 600X, 1000X, 2000X
Overview Camera	Available on Tukon 2500 fully automatic systems
Light Source	LED
Data Output	Microsoft® Excel and Crystal Reports
Statistics	Minimum, Maximum, Standard Deviation, Mean, Cp, Cpk
Operating Temperature	10 - 38° C (50 - 100° F)
Humidity	10% - 90% non-condensing
Power Requirements	100VAC, 120VAC, 220VAC, 240VAC, 50/60 single phase
Power	370W
Dimensions	960 x 358 x 600 mm
Weight	75 kg (165 lbs)

Software Features

- CHD analysis
- Comprehensive graphing
- Automatic quit value
- Return and re-measure capabilities
- Data export to Microsoft Excel or Crystal Reports
- Photo capture and export
- Automatic test, measure, save, and export
- Automatic image analysis
- Automatic image focusing
- Variable brightness, contrast, and illumination
- Three level password protected user system
- Traverse interrupt and resume
- Virtual joystick for motorized sample traversing



System Configurations

Software Features	1	2	3	4	5	6
Calibrated Digital Zooming	•	•	•	•	•	•
Manual Filar Measurement	•	•	•	•	•	•
Automatic Measurement Analysis		•	•	•	•	•
Automatic Sample Focusing			•		•	•
Automatic Stage Movement				•	•	•
Hardware						
Overview Camera						•
High Performance PC	•	•	•	•	•	•
Sample Support						
T-Slot Table	•	•				
Manual XY-Stage with PC Interface			•			
Motorized XY-Stage				•	•	•

Accessories

- Knoop and Vickers indenters
- Long working distance objectives
4X, 10X, 20X, 40X, 50X, 100X
- XY - Stage with digital PC interfaced micrometers
- Motorized 180 × 160 mm XY Stage
- ASTM / ISO compliant hardness reference test blocks
- Universal Clamping and Leveling Device (UCLD)
- Overview camera



Wilson Hardness
 825 University Avenue, Norwood, MA 02062
 Tel: +1 800-695-4273
www.wilsoninstruments.com

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