



United Calibration Corp

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Established 1964

Certificate of Direct Verification for Rockwell Hardness Tester

Certificate Number

75082-344

Company and Location

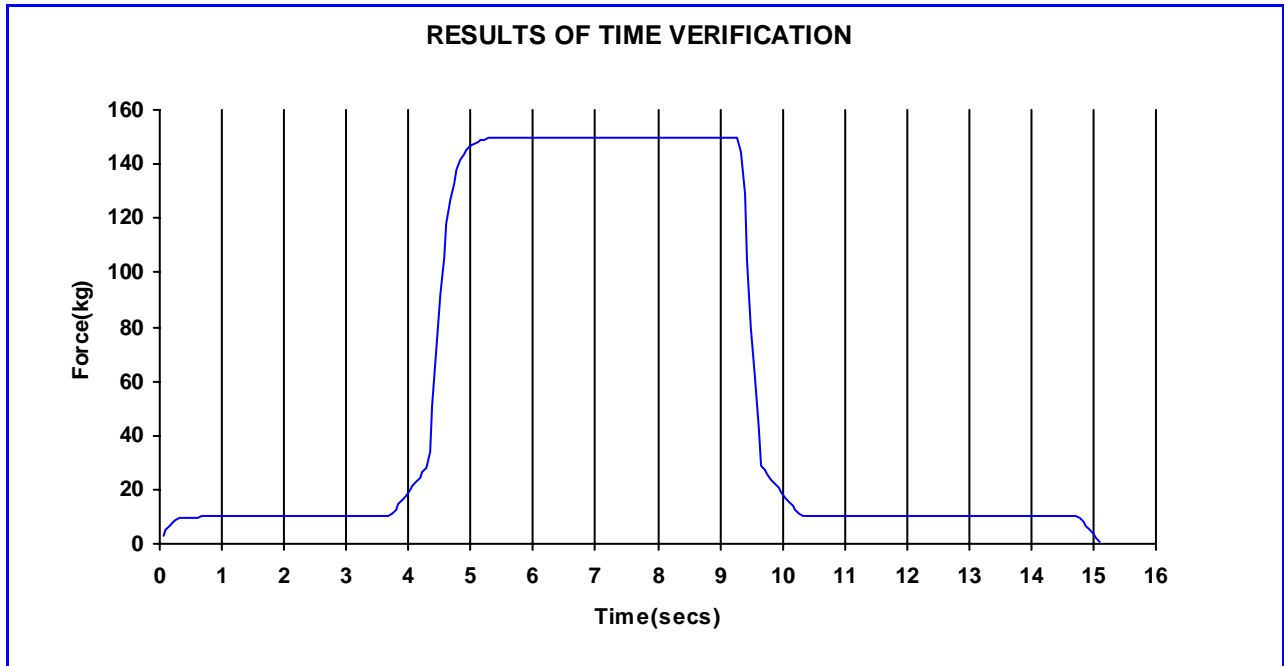
The ZYX Company - Anytown, USA

Equipment Under Test : TB-II/10
Equipment S/N: 231312
Calibration Date: 24-Sep-03
Temperature (Deg F): 75
Humidity (%): 54

Calibration Standards: Calibrator S/N 011
Calibration Due Date: 6/23/2005
Transducer: Load Cell S/N 508488
Transducer Cal Due Date: 17-Jul-04
Measurement SD (gms): 4.88

This document certifies that the equipment identified above has been calibrated in accordance with the requirements of ASTM E 18-02, ISO 6508-2 and UCC Procedure 280 using standards which are traceable to the National Institute of Standards and Technology. UNITED CALIBRATION CORPORATION maintains a quality system which meets the requirements of ISO/IEC Guide 17025, ANSI/NC SL Z540-1 and ISO-9002.

Calibration results relate only to items tested or calibrated.



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Lab Code 200521-0

HYSTERESIS

Average Uncertainty of Machine Repeatability (without block or indenter) = 0.14 Point

Scale	Test 1	Test 2	Test 3	Test 4	Test 5	Mean
HR15N	99.84	99.85	99.85			99.85
HR30N	99.79	99.86	99.85			99.83
HR45N	99.94	99.81	99.80			99.84
HRA	99.87	99.89	99.91			99.89
HRBW	129.88	129.84	129.86			129.86
HRC	99.75	99.74	99.71			99.73

DEPTH VERIFICATION

Number of points = 100
 Range: 3000 microns
 Standard Deviation .08 microns
 Error (%) 0.0230
 Measurement Uncertainty (microns) .22

FORCE VERIFICATION

Number of points 33
 Range: 0 to 150 Kg
 Standard Deviation 11.69 gms
 Error (%) 0.0114
 Measurement Uncertainty (gms) = 30.4

FORCE TOLERANCE

DEPTH TOLERANCE	Nominal Force (Kgf)	Avg Measured Force (Kgf)	Tolerance (+/-Kgf)
	3.00	2.99	0.06
+/- 1.0 micron for Regular Scales	10.00	9.99	0.20
+/- 0.5 micron for Superficial Scales	15.00	14.98	0.10
	30.00	30.00	0.20
	45.00	44.99	0.30
	60.00	59.99	0.45
	100.00	99.99	0.65
	150.00	150.02	0.90

Performed By:

Phil Eusebi
 Rockwell Technician

Approved By:

Jere H. Watson
 Technical Director

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