

# DAVID L. ELLIS COMPANY, INC.

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## Certificate of Calibration and Conformance for Rockwell Test Block

FOR: THE L.S. STARRETT COMPANY  
121 CRESCENT STREET, ATHOL, MA USA 01331

52.93	HRC			
Serial Number	3604881	Force KGF	150	Block Certificate No.
Date Cal.	06/30/11	Force N	1471.05	<b>3604881</b>
		Indenter type-	Diamond	
Temp Deg C	21	Method	ASTM E18-08b	Operator LKM
HUMID %	42	<b>Unc tester (1)</b>		<b>0.32 HRC</b>
Note 1- Uncertainty of secondary standardizing machine that calibrated this testblock.		<b>Unc Block (2)</b>		<b>0.34 HRC</b>
Note 2- Uncertainty of this calibrated secondary testblock. Use this value for On-Site Unc. during indirect verification.		<b>Reading 1</b>		<b>52.72 HRC</b>
K=2		<b>Reading 2</b>		<b>53.06 HRC</b>
NIST Test Speed		<b>Reading 3</b>		<b>52.88 HRC</b>
Dwell Minor Load / 3 sec		<b>Reading 4</b>		<b>53.03 HRC</b>
Dwell Major Load / 5 sec		<b>Reading 5</b>		<b>53.00 HRC</b>
Dwell Recovery / 4 sec		<b>Reading 6</b>		<b>52.91 HRC</b>
		<b>Average</b>		<b>52.93</b>
		<b>Std. Dev.</b>		<b>0.13</b>
		<b>Min</b>		<b>52.72</b>
		<b>Max</b>		<b>53.06</b>
		<b>Repeatability</b>		<b>0.34</b>
		<b>Tolerance. +/-</b>		<b>1.0 HRC</b>

The above calibration was verified with the following equipment, which is traceable to NIST,PTB,IMGC or NPL

United Tru-Blue II Standardizing Machines  
Serial Number: 281620, 211220

Star Industrial Tools UKAS  
Star #ST11864

The standardized test blocks are calibrated in accordance with ASTM E18 Annex A4 using NIST Rockwell standard reference materials (SRM) 2810, 2811 and 2812. All other Rockwell scales are traceable to Ellis hardness levels through laboratory standardizing machines. The standardizing machines are directly verified according to ASTM E18 using devices that are traceable to NIST either directly or through an A2LA or NVLAP approved laboratory.

Expanded uncertainty uses coverage factor K=2, providing a confidence level of approximately 95%

This test report is not to be used to claim product endorsement by the David L. Ellis Company Inc., A2LA, NVLAP or any government agency.

This block is calibrated according to A.S.T.M. E-18 standards, ANSI (NCSL) Z540-1, (ISO) 10012, ISO/IEC Guide 17025 and MIL-STD 45662A by David L Ellis Co., Inc. A2LA certificate number 1310.01 Calibration and NVLAP Lab Code: 200127-0 CALIBRATION LABORATORIES

*Linda Mansfield*

Representative

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Accredited 1310.01  
Calibration



Lab Code:200127-0  
Calibration Laboratories