

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

45.39	HRC	Force KGF	150	Block Certificate No.
Serial Number	3641791	Force N	1471.05	3641791
Date Cal	09/13/12	Indenter type-	Diamond	
		Method	ASTM E18-11	Operator LKM
Temp Deg C	21	Unc tester (1)	0.32 HRC	
HUMID %	42	Unc Block (2)	0.33 HRC	
Note 1- Uncertainty of secondary standardizing machine that calibrated this testblock.		Reading 1	45.27 HRC	
Note 2- Uncertainty of this calibrated secondary testblock.		Reading 2	45.44 HRC	
Use this value for On-Site Unc. during indirect verification.		Reading 3	45.36 HRC	
K=2		Reading 4	45.36 HRC	
NIST Test Speed		Reading 5	45.42 HRC	
Dwell Minor Load / 3 sec		Reading 6	45.47 HRC	
Dwell Major Load / 5 sec		Average	45.39	
Dwell Recovery / 4 sec		Std. Dev.	0.07	
		Min	45.27	
		Max	45.47	
		Repeatability	0.20	
		Tolerance. +/-	1.0 HRC	

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

This certificate may not be reproduced except in full



Análise crítica:	Data: 29 / 10 / 12
(X) Aprovado	<i>[Signature]</i> Responsável
() Aprovado condicional	
() Reprovado	