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Certificate Of Calibration

Calibrated for :P & B Testing
 6645 West Tidwell
 Houston Texas,77092

Report No:	49814	Calibration Interval:	1 Year
PO. No.:	85446	Calibration Date:	11/06/2020
Company No:	TI02	Calibration Due Date:	11/06/2021
Description:	Brinell Portable	Serial No:	TI02
Model No:	Portable	Manufacturer:	King
Temperature:	68°F	Humidity :	45.00 %RH
Cal. Procedure:	FCP-5, Rev 2		

The standards used in this certification have measurement traceability to the International System of Units (SI). The certifications were performed I.A.W Thermo-Temp, Inc. Quality Manual. The work instruction used for this calibration is indicated above. The certification was performed in accordance with one or more of the following specifications: ASTM E10-08, ASTM E103, ASTM E110. All uncertainties calculated in accordance with ASTM E10-08 are only a reference for the customer, and not considered an Accredited report. The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor K = 2, providing a level of confidence of approximately 95 %. The results of this certification apply to only the equipment listed on this report, and do not carry any implication regarding long-term stability of the instrument.

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Asset Requirements: 0

STANDARDS USED FOR CALIBRATION

Manufacturer	Serial Number	Model Number	Calibration Due	Report Number
Sun-Tec	190731-13	HBW		190731-13
Sun-Tec	191009-2	HBW		SJT.01/110147
Sun-Tec	20121459	SBS-20	08/05/2021	92673
Morehouse Instrument	70282	3000 KGF	10/02/2021	81096
Starrett	UFK012	10MM	12/10/2023	73192

NOTES:



CALIBRATION RESULTS AS FOUND/AS LEFT CONDITION

INDIRECT METHOD - TESTBLOCK 1									
Test Block				ACTUAL READINGS(mm)					AVERAGE
HBW	BALL	FORCE	INDENTATION						
210.00	10.00	3000.00	4.17	4.16	4.16	4.16			4.16
REPEATABILITY(mm)				TEST BLOCK	4.17	ERROR			-0.01
0.00				TOLERANCE			6.30		
Tolerance		6.30		ACTUAL READINGS(HBW)					AVERAGE
UNCERTAINTIES				210.72	210.72	210.72			210.72
mm		HBW		TEST BLOCK		210.00	ERROR		-0.72
0.0160		1.6800							

INDIRECT METHOD - TESTBLOCK 2									
Test Block				ACTUAL READINGS(mm)					AVERAGE
HBW	BALL	FORCE	INDENTATION						
401.00	10.00	3000.00	3.05	3.04	3.04	3.04			3.04
REPEATABILITY(mm)				TEST BLOCK		3.05	ERROR		-0.01
0.00							TOLERANCE		12.03
Tolerance		12.00		ACTUAL READINGS(HBW)					AVERAGE
UNCERTAINTIES				403.54	403.54	403.54			403.54
mm		HBW		TEST BLOCK		401.00	ERROR		-2.54
0.0160		4.3000							

DIRECT METHOD								
APPLIED LOAD IN KGF		INDENTER BALL SIZE IN mm		ACTUAL READINGS IN mm			AVERAGE	
3000.000		10.00		0.3390	0.3390	0.3390	0.339	
= 0.341				Proving Ring		0.3410	Error	-0.002

INDENTER BALL VERIFICATION (Batch ID#083012083012-RB)						
INDENTER BALL SIZE IN mm	ACTUAL READINGS IN mm					AVERAGE
10.0000	9.9990	9.9970	9.9970			9.9977

Calibration Performed By:			Certificate Authorized By:		
Jeromy Holman	Technician		Kevin Green	11/10/2020	
Name	Title	Signature	Field Services Manager	Date	Signature