Thermo-Temp INCORPORATED
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http://www.thermotemp.com

Certificate Of Calibration

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

Report No:	112953	Calibration Interval:	1 Year
PO. No.:	86315	Calibration Date:	05/02/2023
Company No:	28	Calibration Due Date:	05/02/2024
Description:	Detroit Brinell	Serial No:	28
Model No:	LONG STROKE	Manufacturer:	Detroit
Temperature:	80°F	Humidity :	47.00 %RH
Cal. Procedure:	FCP-5, Rev 2		

The standards used in this certification have measurement traceability to the International System of Units (SI), through National Metrology Institutes (NIST, PTB, NIM). 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.

Asset Requirements: 0

STANDARS USED FOR CALIBRATION				
Manufacturer	Serial Number	Model Number	Calibration Due	Report Number
Sun-Tec	211214-5	HBW		211214-5
Sun-Tec	210819-2	HBW		210819-2
Sun-Tec	20121459	SBS-20	08/22/2023	115281
Morehouse Instrument	70282	3000 KGF	10/26/2023	106720
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						
207.00	10.00	3000.00	4.20	4.20	4.20	4.20			4.20
	REPEATABILITY(mm)			TEST BLOCK		4.20	ERROR		0.00
	0.00						TOLERANCE		6.21
	Tolerance	6.20		ACTUAL READINGS(HBW)					AVERAGE
	UNCERTAINTIES			206.53	206.53	206.53			206.53
	mm	HBW		TEST BLOCK		207.00	ERROR		0.47
	0.0120	1.2000							

Buck Snider

Digitally signed by Buck Snider
DN: cn=Buck Snider, o=PB Testing, Inc., ou=P&B Testing, Inc., email=qa@pbtesting.com, c=US
Date: 2023.05.15 09:10:27 -05'00'

INDIRECT METHOD - TESTBLOCK 2									
Test Block				ACTUAL READINGS(mm)					AVERAGE
HBW	BALL	FORCE	INDENTATION						
415.00	10.00	3000.00	3.00	3.02	3.02	3.02			3.02
	REPEATABILITY(mm)			TEST BLOCK		3.00	ERROR		0.02
	0.00						TOLERANCE		12.45
	Tolerance	12.50		ACTUAL READINGS(HBW)					AVERAGE
	UNCERTAINTIES			409.03	409.03	409.03			409.03
	mm	HBW		TEST BLOCK		415.00	ERROR		5.97
	0.0130	3.7000							

DIRECT METHOD							
APPLIED LOAD IN KGF	INDENTER BALL SIZE IN mm	ACTUAL READINGS IN mm					AVERAGE
3000.000	10.00	0.3410	0.3410	0.3410			0.341
= 0.341		Proving Ring		0.3410	Error		0.000

INDENTER BALL VERIFICATION (Batch ID#083012-RB)						
INDENTER BALL SIZE IN mm	ACTUAL READINGS IN mm					AVERAGE
10.0000	9.9990	9.9990	9.9990			9.9990

Calibration Performed By:			Certificate Authorized By:		
Jeromy Holman	Technician		Ashley Holman	5/3/2023	
Name	Title	Signature	Quality Control	Date	Signature