

Certificate of Calibration

THIS IS TO CERTIFY THAT THE FOLLOWING DESCRIBED EQUIPMENT HAS BEEN
CALIBRATED IN ACCORDANCE WITH UNITED TESTING SYSTEMS CANADA LTD.,
PROCEDURE SOP- 9079 - Rev XX - XXXX.

CERTIFICATE NUMBER: CR#XXXXX-C
CERTIFICATE ISSUED: June 5, 2019

CALIBRATION DATE: June 5, 2019
REQUESTED DUE DATE: June 5, 2020

CALIBRATION & CUSTOMER INFORMATION:

COMPANY: ANY COMPANY
ADDRESS: 123 ANY STREET
CITY/PROVINCE: ANY CITY, ANY PROVINCE
SYSTEM LOCATION: UTS CANADA LTD. FORCE LAB
SYSTEM CALIBRATED: N / A
LOAD CELL/TRANSDUCER: XXXXX 75000 lbf S/N XXXXX
ASSET NUMBER(S): XXXXX
DIRECTION: COMPRESSION
CALIBRATION RANGE(S): 75000 lbf
INDICATOR / RESOLUTION: UNITED DAT-266-EZPC S/N UTSC-012 / 0.00001 mV/V
TEMPERATURE / HUMIDITY: 23.0 °C | 45%
METHOD: SET THE FORCE
SYSTEM CONDITION: GOOD
READINGS AS FOUND: IN TOLERANCE
READINGS AS LEFT: IN TOLERANCE
CALIBRATION TECHNICIAN: TECHNICIAN

THE FOLLOWING NIST / PTB TRACEABLE STANDARDS WERE USED:

READOUT: HBM DK-38 S/N 269.

STANDARD FILE:	Sn500kN	DAT-266-EZPC-2	HOBO
STANDARD S/N:	B86071-003	UTSC-012-085	615410-286
MANUFACTURER:	HBM	UNITED	HOBO
DATE CALIBRATED:	Month Day, Year	Month Day, Year	Month Day, Year
DATE DUE:	Month Day, Year	Month Day, Year	Month Day, Year
CERTIFIED BY:	NIST	UTS CAN STD LAB	ALPHA
TRACEABILITY NO.:	684/284807-14	CR#20639	AC14081447
CAPACITY:	112000 lbf	±4.0 mV/V	100 °C / 100 %RH
MODE:	COMPRESSION	UNCERTAINTY	UNCERTAINTY
CLASS A LIMIT:	3000 lbf	0.00005 mV/V	0.16 °C / 2.3 %RH

SECOND ORDER LEAST SQUARE RESULTS FOR THE DATA:

COEFFICIENTS: A = -7.838433E-04 STD. DEVIATION: 47.2 lbf
B = 4.007995E-05
C = 1.066693E-12

UNCERTAINTY:

THE EXPANDED UNCERTAINTY OF THE FORCE MEASUREMENTS IS CERTIFIED TO BE LESS
THAN 0.25% USING A COVERAGE FACTOR OF $k = 2$ FOR A CONFIDENCE LEVEL OF 95%.
EXPANDED UNCERTAINTIES ARE VALID FOR A TEMPERATURE RANGE OF 23°C +/- 0.5°C.

CALIBRATED BY

United Testing Systems Canada Limited

21 - 225 Bradwick Drive, Concord, Ontario L4K 1K7

Tel.: (905) 669-5327 Fax: (905) 738-5051

E-mail: service@utscanada.com

AUTHORIZED SIGNATORY

ISO/IEC 17025

ANSI/NCSL Z540-1-1994; Part 1

Accredited by:

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NVLAP Lab Code: 200311-0

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UNITED CALIBRATION GROUP

Calibration Report

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COMPANY: ANY COMPANY
SYSTEM CALIBRATED: N / A
LOAD CELL/TRANSDUCER: XXXXX 75000 lbf S/N XXXXX

CALIBRATION RESULTS:

OBSERVED DATA: MULTIPLE RUNS ARE SHOWN SERIALLY. UNLESS OTHERWISE NOTED, THE DATA SHOWN IS 'AS FOUND / AS LEFT' WITH NO ADJUSTMENT MADE. COMPUTED FORCES HAVE BEEN TEMPERATURE CORRECTED AS NECESSARY.

STANDARD I.D.	STANDARD lbf	READING mV/V	INDICATED lbf	ERROR lbf	ERROR %	Un (k=2) %
FIRST RUN COMPRESSION (0 DEGREES ROTATION)						
Sn500kN	7500.0	0.30001	7503.3	3.3	0.045	0.15
Sn500kN	15002.4	0.60062	14999.1	-3.3	-0.022	0.15
Sn500kN	30001.3	1.20289	30007.9	6.6	0.022	0.11
Sn500kN	45002.3	1.80562	45016.1	13.8	0.031	0.10
Sn500kN	60000.5	2.40854	60017.1	16.6	0.028	0.12
Sn500kN	75002.5	3.01228	75026.5	24.0	0.032	0.16
SECOND RUN COMPRESSION (120 DEGREES ROTATION)						
Sn500kN	7500.0	0.30024	7509.1	9.1	0.121	0.15
Sn500kN	15001.3	0.60139	15018.3	17.0	0.113	0.15
Sn500kN	30000.7	1.20360	30025.5	24.8	0.083	0.11
Sn500kN	45000.1	1.80621	45030.8	30.7	0.068	0.10
Sn500kN	60000.5	2.40995	60052.1	51.6	0.086	0.12
Sn500kN	75000.8	3.01472	75087.2	86.4	0.115	0.16
THIRD RUN COMPRESSION (240 DEGREES ROTATION)						
Sn500kN	7500.0	0.29955	7491.9	-8.1	-0.108	0.15
Sn500kN	15000.1	0.59984	14979.7	-20.4	-0.136	0.15
Sn500kN	30000.7	1.20142	29971.2	-29.5	-0.098	0.11
Sn500kN	45001.8	1.80328	44957.8	-44.0	-0.098	0.10
Sn500kN	60001.6	2.40520	59934.0	-67.6	-0.113	0.12
Sn500kN	75001.4	3.00680	74890.3	-111.1	-0.148	0.16

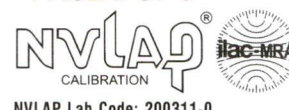
NOTES: FIRST RUN ZERO: BEGIN = 0.00000 mV/V, END = -0.00024 mV/V.
SECOND RUN ZERO: BEGIN = 0.00000 mV/V, END = -0.00021 mV/V.
THIRD RUN ZERO: BEGIN = 0.00000 mV/V, END = -0.00023 mV/V.
ZERO OFFSET = -0.01291 mV/V.
EXCITATION VOLTAGE = 10 VDC, UTS CABLE LENGTH = 11 ft.
PIN A, B = +EXC, PIN C, D = -EXC, PIN E = -SIG, PIN F = +SIG.

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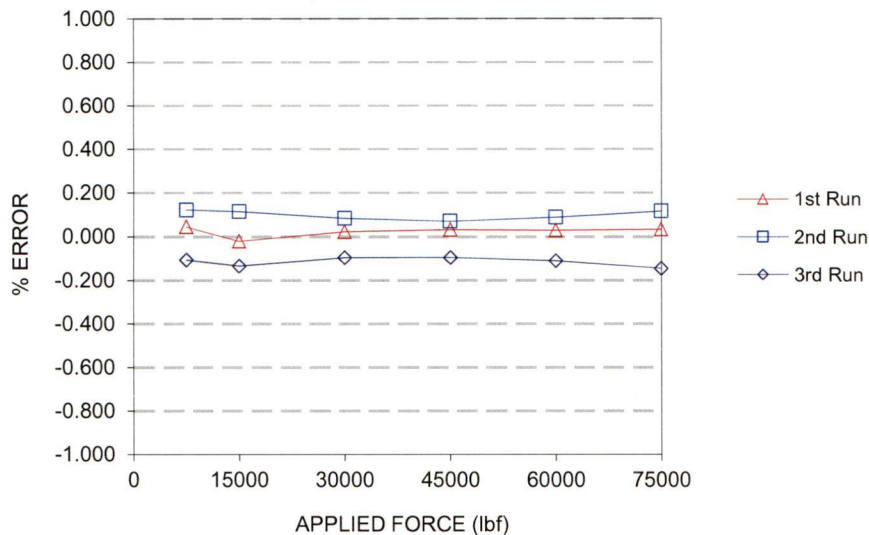
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SYSTEM CALIBRATED: N / A
LOAD CELL/TRANSDUCER: XXXXX 75000 lbf S/N XXXXX

CALIBRATION RESULTS:

DEVIATION OF CALIBRATION RUNS
(COMPRESSION)



NOMINAL VALUE lbf	PREDICTED RESPONSE mV/V
7500	0.29988
15000	0.60066
22500	0.90156
30000	1.20257
37500	1.50371
45000	1.80497
52500	2.10635
60000	2.40785
67500	2.70947
75000	3.01121

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