NATIONAL TYPE EVALUATION PROGRAM

Certificate of Conformance

for Weighing and Measuring Devices

For:
Load Cell
Bending Beam
Model: TB Series
n_{max}: Class III, Multiple Cell: 5000
Capacity: 500 lb to 5000 lb
Accuracy Class: III

Submitted By:
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Standard Features and Options

The TB Series is identified by the Model Number TB-X(K), where the "X" suffix represents the load cell capacity in pounds, and the optional "K" suffix is the standard abbreviation for "thousand."

Standard Features:

- Nominal Output: 2mV/V
- 4-wire Design

Model Number	Capacity (lb)	Multiple Cell, Class III v_{min} (lb)	Minimum Dead Load (lb)
TB-500	500	0.07	5
TB-1K	1000	0.14	10
TB-2.5K *	2500	0.35	25
TB-4K	4000	0.56	40
TB-5K	5000	0.70	50

* Two load cells submitted for evaluation.

Temperature Range: -10 ºC to 40 ºC (14 ºF to 104 ºF)

This device was evaluated under the National Type Evaluation Program and was found to comply with the applicable technical requirements of "NIST Handbook 44: Specifications, Tolerances and Other Technical Requirements for Weighing and Measuring Devices." Evaluation results and device characteristics necessary for inspection and use in commerce are on the following pages. *Editorial changes, not affecting the type or metrological content, corrected this certificate.

Kristin Macey
Chairman, NCWM, Inc.

Jerry Buendel
Chairman, National Type Evaluation Program Committee
Issued: November 29, 2016

Cardinal Scale Manufacturing Company

Load Cell / TB Series

Application: The load cells may be used in Class III scales for multiple cell applications consistent with the model designations, number of scale divisions, and parameters specified in this certificate. Load cells of a given accuracy class may be used in applications with lower accuracy class requirements provided the number of scale divisions, the v_{min} values, and temperature range are suitable for the application. The manufacturer may market the load cell with fewer divisions (n_{max}) and with larger v_{min} values than those listed on the certificate. However, the load cells must be marked with the appropriate n_{max} and v_{min} for which the load cell may be used.

Identification: A pressure sensitive identification badge containing the manufacturer, model designation, and serial number is located on the load cell. All other required information, if not marked on the load cell, must be on an accompanying document including the serial number of the load cell.

Test Conditions: This certificate supersedes Certificate of Conformance Number 99-018 and was issued to adjust the series capacity range parameter. The 10 000 lb capacity cell was removed from the certificate and the 500 capacity cell was added. No additional testing was deemed necessary per NCWM Publication 14, Weighing Devices, Technical Policy. Previous test conditions are listed below for reference.

Certificate of Conformance Number 99-018: Two Model TB-2.5K (2500-lb capacity) load cells were tested at NIST using dead weights as the reference standard. The data were analyzed for multiple load cell applications. The cells were tested over a temperature range of -10 °C to 40 °C. Three tests were run on each cell at each temperature. The temperature effect on zero was measured and a time dependence (creep) test was performed. The barometric pressure test was waived due to the insensitivity of the load cell design to changes in barometric pressure.

Evaluated By: NIST Force Group, NIST Office of Weights and Measures 99-018

Type Evaluation Criteria Used: NIST, Handbook 44: Specifications, Tolerances and Other Technical Requirements for Weighing and Measuring Devices, 2016. NCWM, Publication 14: Weighing Devices, 2016.

Conclusion: The results of the evaluation and information provided by the manufacturer indicate the device complies with applicable requirements.

Information Reviewed By: G. Newrock (NIST), T. Ahrens (NIST) 99-018: J. Truex (NCWM) 99-018A1

Example of Device: