NATIONAL TYPE EVALUATION PROGRAM

Certificate of Conformance

for Weighing and Measuring Devices

For:
Load Cell
Double-Ended Shear Beam, Compression
Model: DB Series
n_{max}: Multiple Cell: 10 000
Capacity: 20 000 lb to 200 000 lb
Accuracy Class: III L

Submitted By:
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Standard Features and Options

Standard Features:

- Double Ended Shear Beam Strain Gauge Load Cell
- Stainless Steel Construction
- Number of Wires: 4 wires
- Excitation Voltage: 15 VDC maximum
- Nominal Output: 2 mV/V

Model	Capacity (lb)	v_{min} (lb)	Minimum Dead Load (lb)
DB 20000S	20 000	0.56	175
DB 35000S*	35 000	1.0	350
DB 50000S*	50 000	1.4	350
DB 75000S	75 000	2.1	350
DB 100000S	100 000	2.8	500
DB 200000S	200 000	5.6	1000

* Two load cells submitted for evaluation.

Options:

- A "P" suffix at the end of the Model denotes a body utilizing through-hole mounting.

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.

Brett Gurney
Chairman, NCWM, Inc.

James Cassidy
Chairman, National Type Evaluation Program Committee
Issued: March 4, 2019

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Cardinal Scale Manufacturing Co.

Load Cell / DB Series

Application: The load cells may be used in Class III L 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 97-133A2 and is issued to recognize models with a P suffix. The manufacturer reported cells with a P suffix have altered ends allowing for a pin mounting. NTEP reviewed drawings and information provided by the manufacturer and ruled the metrological integrity was not affected so no additional testing was required. The previous test conditions are listed below as reference.

Certificate of Conformance Number 97-133A2: This Certificate supersedes Certificate of Conformance Number 97-133A1 and is issued to include additional capacities within the parameters of the family as described by NCWM Publication 14. Information submitted by the manufacturer was reviewed. No additional testing was required.

Certificate of Conformance Number 97-133A1: This Certificate supersedes Certificate of Conformance Number 97-133 and is issued to include the 50 000-lb capacity load cell. Two 50 000-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. Previous test conditions are listed below for reference.

Certificate of Conformance Number 97-133: Two 35 000-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 97-133

Type Evaluation Criteria Used: NIST, Handbook 44: Specifications, Tolerances and Other Technical Requirements for Weighing and Measuring Devices, 1999. NCWM, Publication 14: Weighing Devices, 1999.

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

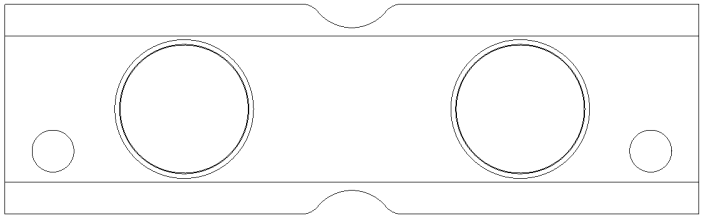
Information Reviewed By: T. Ahrens (NIST) 97-133; G. Newrock and J. Williams (NIST) 97-133A1; S. Patoray (NCWM) 97-133A2; J. Truex (NCWM) 97-133A3

Cardinal Scale Manufacturing Co.

Load Cell / DB Series

Examples of Device:

Model DB 50000S



Model DB 50000SP