NATIONAL TYPE EVALUATION PROGRAM

Certificate of Conformance

for Weighing and Measuring Devices

For:
Load Cell
Stainless Steel Shear Beam
Model: SB Series
n_{max} Class III, Multiple: 5 000
n_{max} Class III L, Single and Multiple: 10 000
Capacity: 2 500 to 20 000 lb
Accuracy Class: III/III L

***Submitted By: Contact Info. Updated: October 2010**
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Standard Features and Options

Standard Features:

- Nominal Output: 2.0 mV/V
- 4-wire Design

Model	Capacity (lb)	Class III v_{min} (lb) Multiple Cell	Class III L v_{min} (lb) Single and Multiple Cell	Minimum Dead Load (lb)
SB-2500S	2500	0.35	0.22	0.0
SB-5000S*	5000	0.70	0.45	0.0
SB-10000S	10 000	1.40	0.90	0.0
SB-20000S	20 000	2.80	1.80	0.0

*Load cell 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.

Tim Tyson
Chairman, NCWM, Inc.

Randy Jennings
Chairman, National Type Evaluation Program Committee
Issued: October 29, 2010

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Cardinal Scale Manufacturing Co.

Load Cell / SB Series

Application: The load cells may be used in Class III scales for multiple cell applications and III L scales for single and 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, 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 on the load cell. All other required information must be on an accompanying document including the serial number of the load cell.

Test Conditions: This certificate supersedes Certificate of Conformance (CC) No. 87-059 and is issued, without further testing, to include Class III L Multiple load cell applications. The test conditions from the previous certificates are listed below for reference.

Certificate of Conformance Number 87-059: This certificate was issued to consolidate CC Nos. 87-059PA1, 87-059PA, and 87-059P, and to upgrade the status from provisional to full.

Two 5000-lb capacity load cells were tested at NIST using dead weights as the reference standard. The data were analyzed for Class III multiple and Class III L single 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.

Certificate of Conformance Number 87-059PA1 for Class III Multiple Cell: This certificate was in addition to Certificate of Conformance No. 87-059P (dated Nov. 25, 1987) and reflects new values for v_{min} for Class III load cells evaluated for multiple load cell applications. The new values for v_{min} reflect a change in the NTEP application of the tolerances for these load cells.

Certificate of Conformance Number 87-059P for Class III Multiple Cell: Two 5000-lb capacity load cells were tested to capacity using a dead weight machine. The cells were tested over a range of -10 °C to 40 °C. Three tests were run at each temperature. The temperature effect on zero was measured and a creep test was performed at each temperature. The barometric pressure test was waived due to the insensitivity of the load cells to changes in barometric pressure. The manufacturer's laboratory was used to collect the test data.

Certificate of Conformance Number 87-059PA for Class III L Single Cell: One 5000-lb capacity load cell was tested to capacity using a dead weight machine. The cell was tested over a temperature range of -10 °C to 40 °C. Three tests were run at each temperature. The temperature affect on zero was measured and a creep test was performed at each temperature. The barometric pressure test was waived due to the insensitivity of the load cells to changes in barometric pressure. The manufacturer's laboratory was used to collect the test data.

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

Type Evaluation Criteria Used: NIST, Handbook 44: Specifications, Tolerances and Other Technical Requirements for Weighing and Measuring Devices, 1996. NCWM, Publication 14: Weighing Devices, 1996.

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

Information Reviewed By: H. Oppermann, R. 1Whipple (NIST); D. M. Ripley (NIST) (87-059A1)