NATIONAL TYPE EVALUATION PROGRAM

Certificate of Conformance

for Weighing and Measuring Devices

For:
Load Cell
Column Compression
Model: SCA Series
n_{max} Multiple Cell: 10 000
Capacity: 20 000 to 200 000 lb
Accuracy Class: III L

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

Standard Features:

- Columnar, Compression Strain Gauge Load Cell
- Stainless Steel Construction, Metal Seal
- Number of Wires: 4 wires
- Excitation Voltage: 15 VDC maximum
- Nominal Output: 2 mV/V
- Nominal Input Impedance: 1150 Ohm

Model	Capacity (lb)	v_{min} (lb)	Minimum Dead Load (lb)
20K-SCA	20 000	0.6	200
50K-SCA	50 000	1.5	500
75K-SCA	75 000	2.25	750
100K-SCA	100 000	3	1 000
120K-SCA	120 000	3.6	1 000
150K-SCA	150 000	4.5	1 500
200K-SCA	200 000	6	1 500

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 28, 2010

Cardinal Scale Manufacturing Co.

Load Cell / SCA Series

Application: The load cells may be used in Class III L scales for multiple cell applications consistent with the model designations 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.

Test Conditions: This Certificate supersedes Certificate of Conformance (CC) Number 89-042A3 and is issued to include a new version of the SCA series load cell. Two 50 000-lb capacity load cells of the new design 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 89-042A3: This Certificate supersedes Certificate of Conformance (CC) Number 89-042A2 and is issued to include a new version of the SCA series load cell. Two 50 000-lb capacity load cells of the new design 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.

Certificate of Conformance Number 89-042A2: This Certificate supersedes Certificate of Conformance (CC) Number 89-042A1 and is issued to add the Model 120K-SCA load cell. The load cell is added without formal testing based upon information supplied by the manufacturer.

Certificate of Conformance Number 89-042A1: This Certificate supersedes Certificate of Conformance (CC) Number 89-042 (dated December 20, 1989) and reflects new values for v_{min} based upon the change to Handbook 44 performance requirements for the temperature effect on zero effective January 1, 1991.

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.

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, 2007. NCWM, Publication 14: Weighing Devices, 2007.

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

Information Reviewed By: C. V. Cotsoradis (NIST) 89-042A3; S. Patoray (NCWM), L. Bernetich (NCWM) 89-042A4

Example of Device:

Model SCA