

***National Type Evaluation Program
 Certificate of Conformance
 for Weighing and Measuring Devices***

For:
 Load Cell
 Multi-Column Compression
 Models: CSP-A3 and CSP-B10*
 n_{max} , Single Cell, Class III: 3000
 n_{max} , Single Cell, Class III L: 10 000
 Capacity: 10 000 kg to 100 000 kg
 25 000 lb to 200 000 lb

 Accuracy Class: III/III L

Submitted by:
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Standard Features and Options

* The Model CSP Series is identified by the designation CSP-X₁ X₂ -Y₁ Y₂-Z₁ Z₂ Z₃ Z₄, where:

CSP	X ₁	X ₂	Y ₁ Y ₂	Z ₁	Z ₂	Z ₃	Z ₄
	A = Class III B = Class III L	n_{max} in thousands	Y ₁ = capacity in thousands Y ₂ = units, where kg = pounds and t = metric tons	electrical cable length or connector		P = analog D = digital	wiring and private label variations

The specific load cell capacities, v_{min} , and minimum dead loads are listed on Page 2.

Temperature Range: -10 °C to 40 °C (14 °F to 104 °F)

This device was evaluated under the National Type Evaluation Program (NTEP) and was found to comply with the applicable technical requirements of 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.

Effective Date: April 9, 1999

Louis E. Straub
 Louis E. Straub
 Chairman, NCWM, Inc.

G. Weston Diggs
 G. Weston Diggs
 Chairman, National Type Evaluation Program Committee
 Issue date: July 12, 1999

Note: The National Conference on Weights and Measures does not "approve", "recommend", or "endorse" any proprietary product or material, either as a single item or as a class or group. Results shall not be used in advertising or sales promotion to indicate explicit or implicit endorsement of the product or material by the NCWM.

This is a reissuance by the NCWM of a Certificate of Conformance already issued by the National Institute of Standards and Technology.

Revere Transducers, Inc.
Multi-Column Compression Load Cell
Models: CSP-A3 and CSP-B10

Application: The load cells may be used in both Class III and III L scales for both 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, the v_{\min} values, and temperature range are suitable for the application.

Identification: A pressure sensitive identification badge containing the manufacturer, model designation, and serial number is located on the load cell. All other required information must be on an accompanying document including the serial number of the load cell.

Model Designations:

Capacity (lb)	Class III v_{\min} (lb)	Class III L v_{\min} (lb)	Minimum Dead Load (lb)
25 000	2.5	0.8	0
40 000	4.0	1.3	0
50 000	5.0	1.6	0
60 000	6.0	1.9	0
75 000	7.5	2.4	0
100 000	10.0	3.3	0
150 000	15.0	5.0	0
200 000	20.0	6.6	0

Capacity (kg)	Class III v_{\min} (kg)	Class III L v_{\min} (kg)	Minimum Dead Load (kg)
10 000	1.0	0.3	0
20 000	2.0	0.65	0
25 000	2.5	0.8	0
30 000	3.0	1.0	0
40 000	4.0	1.3	0
50 000	5.0	1.6	0
60 000	6.0	2.0	0
75 000	7.5	2.4	0
100 000	10.0	3.3	0

Test Conditions: This Certificate supersedes Certificate of Conformance Number 88-082A3 and is issued to include a digital output option. A representative sample of a load cell equipped with a digital output option was tested at NIST (Model SSB, Certificate of Conformance Number 86-041A3) using dead weights as the reference standard. The data were analyzed for single cell load cell applications. The load cell was tested over a temperature range of -10°C to 40°C . Three tests were run at each temperature. The temperature effect on zero was measured and a time dependence test (creep) was performed. The barometric pressure test was waived due to the insensitivity of the load cell to barometric pressure. Previous test conditions are listed below for reference.

Revere Transducers, Inc.
Multi-Column Compression Load Cell
Models: CSP-A3 and CSP-B10

Test Conditions (Continued):

Certificate of Conformance Number 88-082A3: This Certificate superseded Certificate of Conformance Number 88-082A2 (issued August 12, 1993) and was issued to reflect a change of the outer casing material for the CSP family of load cells from steel to stainless steel; additional capacities within the original capacity range; and change of address and contact person in submitter block. The modification does not change the metrological integrity of the device. No additional testing was required to issue this Certificate.

Certificate of Conformance Number 88-082A2: This Certificate superseded Certificates of Conformance Numbers 88-082P (issued May 24, 1988); 88-082P Amended (issued September 9, 1988); 88-082 (issued May 25, 1989) and 88-082A1 (issued March 28, 1991). This Certificate was issued to reflect new suffix designations for the CSP family of load cells. No additional testing was required to issue this Certificate.

Certificate of Conformance Number 88-082A1: This Certificate was in addition to Certificate of Conformance Number 88-082 dated May 25, 1989. This Certificate was issued to reflect new values for v_{\min} based upon the change to Handbook 44 performance requirements for the temperature effect on zero, effective January 1, 1991.

One 40 000-kg capacity load cell was tested using dead weights as the reference standard. The data were analyzed for single load cell applications for both Class III and Class III L. The cell was tested over a temperature range of -10°C to 40°C . Three tests were run on the 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. The manufacturer's laboratory was used to collect the test data.

Representatives from the National Institute of Standards and Technology evaluated the manufacturer's test facility, witnessed repeat tests on the load cells, and analyzed the data.

Certificate of Conformance Number 88-082: This Certificate was issued to upgrade the Certificate from provisional to full. This Certificate of Conformance was based on an evaluation of the manufacturer's test facility, witness of repeat tests on load cells, and analysis of the data by representations from the National Institute of Standards and Technology.

Certificate of Conformance Numbers 88-082P and 88-082P Amended: One 40 000-kg capacity load cell was tested using dead weights as the reference standard. The data were analyzed for single load cell applications for both Class III and Class III L. The cell was tested over a temperature range of -10°C to 40°C . Three tests were run on the 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.

The results of the evaluations indicate the load cells comply with applicable requirements of NIST Handbook 44.

Type Evaluation Criteria Used: NIST Handbook 44, 1999 Edition

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

Information Reviewed By: T. Grimes (NIST), S. Cook (CA) 88-082A1; H. Oppermann 88-082A2; D. Ripley (NIST) 88-082A3; G. Newrock (NIST), L. Sebring (NIST) 88-082A4