



NATIONAL TYPE EVALUATION PROGRAM

Certificate of Conformance

for Weighing and Measuring Devices

For:

Load Cell

Bending Beam

Model: BM11 Series

 n_{\max} Class III Single/Multiple Cell: 5 000 n_{\max} Class III L Multiple Cell: 10 000

Capacity: 10 lb to 1 000 lb (5 kg to 500 kg)

Accuracy Class: III / III L

Submitted By:

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The BM11 Series is identified by the Model Number BM11-XX, where the XX suffix represents the load cell capacity.

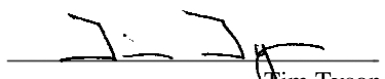
- Nominal Output: 2 to 3mV/V
- Cable: 4-wire and 6-wire design
- Material: Stainless Steel
- Nominal Input Impedance: 350 ohms
- Load Cell Parameters: (See Page 2)

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

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.



Kurt Floren
Chairman, NCWM, Inc.



Jim Tyson
Chairman, National Type Evaluation Program Committee
Issued: November 28, 2011

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Application: The load cells may be used in Class III or 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.

Load Cell Parameters: Class III, $n_{max} = 5000$ single/multiple cell and Class III L, $n_{max} = 10\ 000$ multiple cell:

Model Number	Capacity (lb)	v_{min} , Class III S/M (lb)	v_{min} , Class III L M (lb)	Minimum Dead Load (lb)
BM11-10	10	0.0005	0.0006	0
BM11-20	20	0.0010	0.0012	0
BM11-60	60	0.0030	0.0036	0
BM11-100	100	0.0050	0.0060	0
BM11-150	150	0.0075	0.0090	0
BM11-200	200	0.0100	0.0120	0
BM11-250	250	0.0125	0.0150	0
BM11-300	300	0.0150	0.0180	0
BM11-400	400	0.0200	0.0240	0
BM11-500	500	0.0250	0.0300	0
BM11-600	600	0.0300	0.0360	0
BM11-700	700	0.0350	0.0420	0
BM11-1000	1000	0.0500	0.0600	0

Model Number	Capacity (kg)	v_{min} , Class III S/M (kg)	v_{min} , Class III L M (kg)	Minimum Dead Load (kg)
BM11-5kg	5	0.0003	0.0003	0
BM11-10kg*	10	0.0005	0.0006	0
BM11-20kg	20	0.0010	0.0012	0
BM11-30kg	30	0.0015	0.0018	0
BM11-50kg	50	0.0025	0.0030	0
BM11-75kg	75	0.0038	0.0045	0
BM11-100kg*	100	0.0050	0.0060	0
BM11-125kg	125	0.0063	0.0075	0
BM11-150kg	150	0.0075	0.0090	0
BM11-200kg*	200	0.0100	0.0120	0
BM11-250kg	250	0.0125	0.0150	0
BM11-300kg	300	0.0150	0.0180	0
BM11-350kg	350	0.0175	0.0210	0
BM11-500kg	500	0.0250	0.0300	0

* load cells submitted for evaluation

Test Conditions: This Certificate supersedes Certificate of Conformance number 07-020 and was issued to add additional capacity cells to the lower range and adjust the v_{min} values based upon the test data. Two additional load cells were tested by the NMI Certain B.V. at The Netherlands facility. Testing was conducted in accordance with the OIML DoMC Mutual Acceptance Arrangement, signed by the NCWM as a utilizing participant for load cell testing. Testing was conducted using deadweights as the reference standard. The load cells were tested over a temperature range of -10 °C to 40 °C with tests run on each cell at each temperature. The



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temperature effect on zero was measured and a time dependence (creep) test was performed. The barometric pressure test was performed on the cells. The data were analyzed for multiple load cell applications. OIML R60 selection criteria were used to determine cells tested. Previous test conditions are listed below for reference.

Certificate of Conformance Number 07-020: Two Model BM11 200 kg (200 kg 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: T. Bartel (NIST Force Group, NIST Office of Weights and Measures) 07-020; C. Bontenbal (NMI), R. Scholten (NMI) 07-020A1

Type Evaluation Criteria Used: NIST, Handbook 44: Specifications, Tolerances and Other Technical Requirements for Weighing and Measuring Devices, 2011. NCWM, Publication 14: Weighing Devices, 2011.

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

Information Reviewed By: S. Patoray (NCMW), L. Bernetich (NCWM) 07-020; J. Truex (NCWM) 07-020A1

Example of Device:



Model BM11 Series