



NATIONAL TYPE EVALUATION PROGRAM

Certificate of Conformance

for Weighing and Measuring Devices

For:

Load Cell
Bending Beam
Models: 745, 745A, 793 and 0745A
Capacity: 500 lb to 20 000 lb
Accuracy Class: III

Submitted By:

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Standard Features and Options

Models 745 and 745A		Model 793		Model 0745A		
Capacity (lb)	V_{min} Single/Multiple Cell (lb)	Capacity (lb)	V_{min} Single/Multiple Cell (lb)	Capacity (lb)	V_{min} Single Cell (lb)	V_{min} Multiple Cell (lb)
500*	0.075	500	0.05	500	0.025	0.05
1000	0.14	1000	0.10	1250	0.05	0.125
1250	0.175	2000	0.20	2500*	0.1	0.25
2500*	0.35	2500	0.25	5000	0.2	0.5
4000	0.56	3000	0.30	10 000	0.4	1.0
5000*	0.70	4000	0.40			
10 000	1.40	5000	0.50			
20 000	2.80	10 000	1.00			
<ul style="list-style-type: none"> • n_{max} Single Cell: 3 000 • n_{max} Multiple Cell: 5 000 • Minimum Dead Load: 0.0 lb • Nominal Output: 2 mV/V • 4-wire Design • Excitation Voltage: 15 V (max) 		<ul style="list-style-type: none"> • n_{max} Single Cell: 3 000 • n_{max} Multiple Cell: 5 000 • Minimum Dead Load: 0.0 lb • Nominal Output: 3 mV/V • 4-wire Design • Excitation Voltage: 15 V (max) 		<ul style="list-style-type: none"> • n_{max} Single Cell: 10 000 • n_{max} Multiple Cell: 10 000 • Minimum Dead Load: 0.0 lb • Nominal Output: 2 mV/V • 4-wire Design • Excitation Voltage: 10 V (max) 		

*Two Load Cells Evaluated in Each Capacity

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 15, 2011

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**Mettler-Toledo, Inc.**

Load Cell / 745, 745A, 793 and 0745A

Application: The load cells may be used in Class III 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. 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: The manufacturer's name, model designation, and serial number are applied to the load cell using a pressure sensitive identification badge or will be etched into the body of 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 92-108A4 and is issued to include 10 000 lb capacity for the Model 0745A family. No additional testing was required. Previous test conditions are listed below for reference.

Certificate of Conformance Number 92-108A4: This certificate supersedes Certificate of Conformance Number 92-108A3 and is issued to add the Model 0745A. This model is similar to the other models listed on the certificate. The difference is that the model 0745A has a larger n_{\max} and a smaller v_{\min} . Two 2500 lb capacity load cells (Model 0745A) were tested at NIST using dead weights as the reference standard. The data were analyzed for single and multiple load cell applications. The cells were tested over a temperature range of -10 °C to 40 °C. Multiple 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 92-108A3: This certificate is issued based upon the following test and upon information provided by the manufacturer. This certificate supersedes Certificate of Conformance 92-108A2 and is issued to add the Model 793. Model 793 is similar to Model 713 certified under Certificate of Conformance 97-072. The difference is that the Model 793 has a metal cover welded over the sensing hole.

Certificate of Conformance Number 92-108A2: This certificate is issued based upon the following tests and upon information provided by the manufacturer. This certificate supersedes Certificate of Conformance Number 92-108A1 and is issued to add the Model 745A. The Model 745A is identical in design and construction to the Model 745 with the only difference being the Model 745A is manufactured in a different facility. Two 2500-lb capacity load cells (Model 745A) were tested at NIST using dead weights as the reference standard. The data were analyzed for single and 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 92-108A1: This certificate is issued based upon the following tests and upon information provided by the manufacturer. Two 500-lb and two 2500-lb capacity load cells were tested at NIST using dead weights as the reference standard. The data were analyzed for single and multiple 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 92-108: This certificate is issued based upon the following tests and upon information provided by the manufacturer. Two 5000-lb capacity load cells were tested at NIST using dead weights as the reference standard. Two 2500-lb capacity load cells were tested at the manufacturer's facility using dead weights as the reference standard. The data were analyzed for both single and 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. Representatives from NIST evaluated the manufacturer's test facility, witnessed repeat tests on the 2500-lb load cells and analyzed the data.

Evaluated By: NIST Force Group 92-108, 92-108A1, 92-108A2; K. Chesnutwood (NIST Force Group) 92-108A4



Mettler-Toledo, Inc.

Load Cell / 745, 745A, 793 and 0745A

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: R. Whipple (NIST) 92-108; J. Williams (NIST) 92-108A1; T. Ahrens (NIST) 92-108A2; S. Patoray (NCWM), L. Bernetch (NCWM) 92-108A3; J. Truex (NCWM) 92-108A4, 92-108A5

Example of Device:

