



NATIONAL TYPE EVALUATION PROGRAM

Certificate of Conformance

for Weighing and Measuring Devices

For:

Load Cell (Force Transducer)
Compression Column
Model: RL70510 & RL80453 Series
 $n_{\max}$: 10 000, Multiple Cell
Capacity: 16 534 to 220 462 lb (7.5 to 100 metric ton)
Accuracy Class: III L

Submitted By: Contact Info. Updated November 2022

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Standard Features and Options

The load cells are identified by the model designation RL70510-XX or RL80453-XX, where XX represents the load cell capacity and the additional suffix "S" represents the optional smaller load cell with the modified anti-rotation mechanism.

Nominal output: 2 mV/V
t = metric ton

Cable: 4-wire design
Nominal Input Impedance: 400 or 1150

Counterforce Material: Stainless Steel

Model	Capacity	V _{min}	Minimum Dead Load
RL70510-7.5t	7.5 t	0.23 kg	0 t
RL70510-15t	15 t	0.45 kg	0 t
RL70510-25t*	25 t	0.75 kg	0 t
RL70510-22.5t	22.5 t	0.7 kg	0 t
RL70510-50klb*	50 klb	1.5 lb	0 lb
RL70510-30t	30 t	0.9 kg	0 t
RL80453-100klb	100 klb	3.0 lb	0 lb
RL80453-50t	50 t	1.5 kg	0 t
RL80453-90t	90 t	2.7 kg	0 t
RL80453-150klb	150 klb	4.5 lb	0 lb
RL80453-200klb	200 klb	6.0 lb	0 lb
RL80453-100t	100 t	3.0 kg	0 lb

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.

Ronald Hayes
Chairman, NCWM, Inc.

John Gaccione
Committee Chair, National Type Evaluation Program Committee
Issued: July 1, 2015

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Rice Lake Weighing Systems
Load Cell / RL70510 & RL80453 Series

Application: The load cells may be used in 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.

Test Conditions: This certificate was issued based upon the following test conditions and upon information provided by the manufacturer. One 250 kN capacity load cell and one 50 000 lb cell were tested at NIST using dead weights as the reference standard. The data was analyzed for multiple load cell applications. The cells were tested over a temperature range of -10 °C to 40 °C. The excitation voltage was 10.0 VDC. 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.

Additional testing was done to include the “S” suffix which represents a smaller load cell with the modified anti-rotation mechanism option. One 50 000 lb capacity load cell with the modified anti-rotation mechanism was tested at NIST using dead weights as the reference standard. The data were analyzed for multiple load cell applications. 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.

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*, 2015 Edition. *NCWM Publication 14 Weighing Devices*, 2015 Edition.

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

Information Reviewed By: J. Truex (NCWM)

Example of Device:

