



## NATIONAL TYPE EVALUATION PROGRAM

# Certificate of Conformance

for Weighing and Measuring Devices

**For:**

Force Transducer (Load Cell)  
 Compression Column  
 Model: RC1 & RC3 Series  
 $n_{\max}$ : Multiple Cells: 10 000  
 Capacity: 16 534 to 220 462 lb (7.5 to 100 metric ton)  
 Accuracy Class: III L

**Submitted By:**

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**Standard Features and Options**

The RC1 and RC3 Series are identified by the model designation RC1-XX or RC3-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
RC1-7.5t, RC3-7.5t	7.5 t	0.23 kg	0 t
RC1-15t, RC3-15t	15 t	0.45 kg	0 t
RC1-25t*, RC3-25t	25 t	0.75 kg	0 t
RC1-22.5t, RC3-22.5t	22.5 t	0.7 kg	0 t
RC1-50klb*, RC3-50klb	50 klb	1.5 lb	0 lb
RC1-30t, RC3-30t	30 t	0.9 kg	0 t
RC1-40t, RC3-40t	40 t	1.2 kg	0 t
RC1-100klb, RC3-100klb	100 klb	3.0 lb	0 lb
RC1-50t, RC3-50t	50 t	1.5 kg	0 t
RC1-90t, RC3-90t	90 t	2.7 kg	0 t
RC1-150klb, RC3-150klb	150 klb	4.5 lb	0 lb
RC1-200klb, RC3-200klb	200 klb	6.0 lb	0 lb
RC1-100t, RC3-100t	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.

Stephen Benjamin  
 Chairman, NCWM, Inc.

Kurt Floren  
 Committee Chair, National Type Evaluation Program Committee  
 Issued: November 19, 2012

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**Flintec, Inc.**

## Load Cell / RC1 &amp; RC3 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 supersedes Certificate of Conformance Number 92-098A6 and is issued to include the 100 t load cell capacities based on previous testing and information provided by the manufacturer. Previous test conditions are listed below for reference.

**Certificate of Conformance Number 92-098A6:** This Certificate supersedes Certificate of Conformance Number 92-098A4 and is issued to recognize a change to the model RC1-s version, renamed RC3. The model number RC1-s remains on the certificate to cover load cells previously manufactured and distributed. This Certificate is issued without additional testing based on previous testing.

**Certificate of Conformance Number 92-098A5:** This Certificate supersedes Certificate of Conformance Number 92-098A4 and is issued to include the 50 t, and a 150 klb load cell capacities based on previous testing and information provided by the manufacturer. Also, reference to Newtons (N) was removed from the CC.

**Certificate of Conformance Number 92-098A4:** This Certificate supersedes Certificate of Conformance Number 92-098A3 and is issued to include the 7.5-t, 15-t, 30-t, and equivalent 22.5-t metric ton (t) load cell capacities based on previous testing and information provided by the manufacturer.

**Certificate of Conformance Number 92-098A3:** This Certificate superseded Certificate of Conformance Number 92-098A2 and was issued to include the "S" suffix which represents a smaller load cell with the modified anti-rotation mechanism option and to designate the RC1 Series load cell for use only in multiple cell applications. 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.

**Certificate of Conformance Number 92-098A2:** This Certificate superseded Certificate of Conformance Number 92-098A1 and was issued to change the name of the company from Flintab, Incorporated to Flintec, Incorporated, to include the 900-kN load cell capacity and equivalent capacities in avoirdupois pound units of mass to the Certificate. This Certificate is issued without additional testing based on previous testing and information provided by the manufacturer.

**Certificate of Conformance Number 92-098A1:** This Certificate superseded Certificate of Conformance Number 92-098 and was issued to change the  $v_{\min}$  values, which were originally based on the temperature effect on minimum dead load output of 1d/5 °C to values based on 3d/5 °C.

**Certificate of Conformance Number 92-098:** One 250-kN capacity load cell was tested at NIST using dead weights as the reference standard. The data was analyzed for multiple load cell applications. The cell was 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.

**Evaluated By:** NIST Force Group, NIST Office of Weights and Measures 92-098, 92-098A3

**Type Evaluation Criteria Used:** *NIST Handbook 44 Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices*, 2000 Edition. *NCWM Publication 14 Weighing Devices*, 2000 Edition.



**Flintec, Inc.**  
Load Cell / RC1 & RC3 Series

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

**Information Reviewed By:** H. Oppermann (NIST) and R. Whipple (NIST) 92-098; R. Whipple (NIST) 92-098A1; D. M. Ripley (NIST) 92-098A2; J. Williams (NIST) and G. Newrock (NIST) 92-098A3 and 92-098A4; S. Patoray (NCWM) 92-098A5; J. Truex (NCWM) 92-098A6, 92-098A7

**Example of Device:**

