



## NATIONAL TYPE EVALUATION PROGRAM

# Certificate of Conformance

for Weighing and Measuring Devices

**For:**

Load Cell  
Double-ended Beam  
Model: OP-342, OP-343, OP-345, OP-347 & OP-353  
 $n_{max}$ : Multiple Cell, Class III L: 10 000  
Capacity: 15 000 lb to 150 000 lb (10 000 kg to 70 000 kg)  
Accuracy Class: III L

**Submitted By:**

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**Standard Features and Options**

- Nominal Output: 2.0 mV/V to 3.0 mV/V
- 4-Wire Design
- Excitation Voltage: 10VDC maximum
- Material: Alloy Steel
- Bridge Resistance Input Nominal: 700ohms
- Method of Sealing: Potted With Metal Cover (Alloy Steel)

See Page two for specific load cell models, parameters and  $v_{min}$  values.

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  
Chairman, National Type Evaluation Program Committee  
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### Optima Scale Manufacturing Inc.

Load Cell / OP-342, OP-343, OP-345, OP-347 & OP-353

**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.

**Specific Load Cell Models and Parameters:**

Model	Capacity (E <sub>max</sub> , lb)	$v_{min}$ (lb)	Min Dead Load (e <sub>min</sub> , lb)	$n_{max}$
OP342,OP-343,OP-345,OP-347,OP-353	15 000	1.37	750	10 000
OP342,OP-343,OP-345,OP-347,OP-353	20 000	1.83	1000	10 000
OP342,OP-343,OP-345,OP-347,OP-353	25 000	2.28	1250	10 000
OP342,OP-343,OP-345,OP-347,OP-353	30 000	2.74	1500	10 000
OP342,OP-343,OP-345,OP-347,OP-353	35 000	3.19	1750	10 000
OP342,OP-343SE,OP-343,OP-345,OP-347,OP-353	40 000	3.65	2000	10 000
OP342,OP-343SE*,OP-343,OP-345*,OP-347,OP-353	45 000	4.11	2250	10 000
OP342,OP-343SE,OP-343,OP-345,OP-347,OP-353	50 000	4.56	2500	10 000
OP342,OP-343SE,OP-343,OP-345,OP-347,OP-353	60 000	5.47	3000	10 000
OP342,OP-343SE,OP-343,OP-345,OP-347,OP-353	65 000	5.93	3250	10 000
OP342,OP-343SE,OP-343,OP-345,OP-347,OP-353	75 000	6.84	3750	10 000
OP342,OP-343,OP-345,OP-347,OP-353	100 000	9.12	5000	10 000
OP342,OP-343,OP-345,OP-347,OP-353	125 000	11.39	6250	10 000
OP342,OP-343,OP-345,OP-347,OP-353	150 000	13.68	7500	10 000
Model	Capacity (E <sub>max</sub> , kg)	$v_{min}$ (kg)	Min Dead Load (e <sub>min</sub> , kg)	$n_{max}$
OP342,OP-343,OP-345,OP-347,OP-353	10 000	2.02	500	10 000
OP342,OP-343,OP-345,OP-347,OP-353	15 000	3.01	750	10 000
OP342,OP-343SE,OP-343,OP-345,OP-347,OP-353	20 000	4.03	1000	10 000
OP342,OP-343SE,OP-343,OP-345,OP-347,OP-353	25 000	5.02	1250	10 000
OP342,OP-343SE,OP-343,OP-345,OP-347,OP-353	30 000	6.03	1500	10 000
OP342,OP-343SE,OP-343,OP-345,OP-347,OP-353	35 000	7.02	1750	10 000
OP342,OP-343,OP-345,OP-347,OP-353	40 000	8.03	2000	10 000
OP342,OP-343,OP-345,OP-347,OP-353	50 000	10.03	2500	10 000
OP342,OP-343,OP-345,OP-347,OP-353	60 000	12.03	3000	10 000
OP342,OP-343,OP-345,OP-347,OP-353	70 000	14.06	3500	10 000

\*Load Cells Submitted for Evaluation



## Optima Scale Manufacturing Inc.

Load Cell / OP-342, OP-343, OP-345, OP-347 & OP-353

**Identification:** A pressure sensitive identification badge containing the manufacturer, model designation,  $n_{\max}$ ,  $v_{\min}$  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:** Two load cells, models OP-343 and OP-345, 45 000 lb capacity, 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  $-10^{\circ}\text{C}$  to  $40^{\circ}\text{C}$ . 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 not conducted due to the insensitivity of the load cell design to changes in barometric pressure. NCWM Pub 14 selection criteria was used to determine load cells to be tested.

**Evaluated By:** K. Chesnutwood (NIST Mass & Force Group)

**Type Evaluation Criteria Used:** NIST, Handbook 44: Specifications, Tolerances and Other Technical Requirements for Weighing and Measuring Devices, 2015. NCWM, Publication 14: Weighing Devices, 2015.

**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)

### Examples of Device:



OP-342



OP-343



OP-345



OP-347



OP-353