NATIONAL TYPE EVALUATION PROGRAM

Certificate of Conformance

for Weighing and Measuring Devices

For:
Load Cell
Beam
Model: HSB, HAB and TB Series
n_{max}: 5000, Class III / Multiple Cell
10 000, Class III L / Multiple Cell
Capacity: 250 kg to 5000 kg (500 lb to 10 000 lb)
See chart page 2 for all details

***Submitted By: Contact Info. Updated December 2022**
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Standard Features and Options

- Nominal Output: 2 mV/V and 3 mV/V
- 4-wire and 6-wire Design
- Material: Alloy Steel and Stainless Steel
- Minimum dead load: 0 kg

Model nomenclature:

- H(X)B-(Y)KG, where "X" = "A" for Alloy Steel or "S" for Stainless Steel, and "Y" = Capacity in kilograms. Example: 1000 kilogram capacity stainless steel model = "HSB-1000KG"
- TB-(Z)KMP, where "Z" = Capacity in thousands of pounds. Example: 2,500lb capacity stainless steel model = "TB-2.5KMP"

Temperature Range: -10 ºC to 40 ºC (14 ºF to 104 ºF)

This device was evaluated under the National Type Evaluation Program and was found to comply with the applicable technical requirements of *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. *Editorial changes, not affecting the type or metrological content, corrected this certificate.

Hal Prince
Chairman, NCWM, Inc.

Craig VanBuren
Chair, NTEP Committee
Issued: September 24, 2020

1135 M Street, Suite 110 / Lincoln, Nebraska 68508

Cardinal Scale Manufacturing Company

Load Cell / HSB, HAB and TB Series

Load Cell Parameters					
Capacity (kg)	**Capacity (lb)**	**Multiple Cell / Class III n_{max} 5000 v_{min} (kg)**	**Multiple Cell / Class IIIL n_{max} 10 000 v_{min} (kg)**	**Multiple Cell / Class III n_{max} 5000 v_{min} (lb)**	**Multiple Cell / Class IIIL n_{max} 10 000 v_{min} (lb)**
250	500	0.02	0.0125	0.04	0.025
375	750	0.03	0.0187	0.06	0.0375
500	1000	0.04	0.025	0.08	0.050
600	1250	0.048	0.03	0.1	0.0625
750	1500	0.06	0.0375	0.12	0.075
1000	2000	0.08	0.050	0.16	0.10
1200	2500	0.096	0.06	0.2	0.125
1500*	3000	0.12	0.075	0.24	0.15
2000	4000	0.16	0.10	0.32	0.20
2500	5000	0.20	0.125	0.40	0.25
3000	6000	0.24	0.15	0.48	0.30
4000	7500	0.32	0.20	0.60	0.375
5000	10 000	0.40	0.25	0.80	0.50

*capacity evaluated

Application: The load cells may be used in Class III and IIIL 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} value, and temperature range are suitable for the application. The manufacturer may market the load cell with fewer divisions (n_{max}) and with greater 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 label located on the cell, states manufacturer name, model and serial number. Other pertinent information, if not marked on the cell, will be specified on the Calibration Certificate accompanying the cell.

Test Conditions: This certificate was issued based upon the following tests and upon information provided by the manufacturer This Certificate supersedes Certificate of Conformance number 17-086 and is issued to add additional model TB Series per NTEP policy and manufactures information. No additional testing was deemed necessary. Previous test conditions are listed below for reference.

Certificate of Conformance Number 17-086: This certificate was issued based upon the following tests and upon information provided by the manufacturer. Four 1500 kg load cell 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. Tests were run on the cells 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. NCWM Publication 14 selection criteria were used to determine cells tested.

Evaluated By: K. Chesnutwood (NIST Force Group); M. Manheim (NCWM) 17-086A1

Type Evaluation Criteria Used: *Handbook 44 Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices*, 2017 Edition. *NCWM Publication 14: Measuring Devices*, 2017 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) 17-086; D. Flocken (NCWM) 17-086A1

Cardinal Scale Manufacturing Company

Load Cell / HSB, HAB and TB Series

Example(s) of Device: