NATIONAL TYPE EVALUATION PROGRAM

Certificate of Conformance

for Weighing and Measuring Devices

For:
On-Board Weighing System
Lift Truck Scale, Load Cell Electronic, Static and In-Motion
Model: CLS
n_{max}: 1 000
e_{min}: 5 lb
Capacity: 5 000 lb
Accuracy Class: III

Submitted By:
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Standard Features and Options

Standard Features:
- Hardware for Mounting onto a Forklift (maximum fork length 42")
- Auto Level Sensing and Correction Mechanism Contained in Junction Box
- DC Power Supply
- Hard-wired or Wireless Communication
- Static Weighing and In-Motion Weighing Operation

Indicator:
- Rice Lake Weighing Systems indicating element Model 920i (NTEP CC No.01-088)
- or Model 420 Plus (NTEP CC No. 04-076)
- or Model VIRTUi (NTEP CC No. 04-058)
- or Model CLS680 (NTEP CC No. 19-021)
- or metrological equivalent NTEP certified instrument utilizing Rice Lake Weighing Systems CLS communication software

Load Cells Used:
- Two Revere Transducers Model 363-A5 (NTEP CC No. 87-063) or NTEP Certified Equivalent

Installations must satisfy the relationship of $v_{min} \leq d/\sqrt{N}$ where N= number of load cells.
See page 2 for recommended field test procedures.

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 "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.

Craig VanBuren
Chairman, NCWM, Inc.

Stephen Benjamin
Chairman, NTEP Committee
Issued: May 8, 2020

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Rice Lake Weighing Systems

On-Board Weighing System / CLS

Application: The scale is designed for mounting onto the carriage of a lift truck (forklift). The scale is used to weigh commodities on pallets or skids for shipping when interfaced with any NTEP certified and compatible indicating element utilizing Rice Lake Weighing Systems CLS communication software.

Identification: A metal or adhesive label identification badge is attached to the side of the Weighing/Load Receiving Element.

Sealing: Set-up parameters and adjustments for the weighing element are made through the indicating element. The system incorporates an auto level sensing angle correction mechanism inside the junction box. The junction box shall be sealed by threading a wire seal through two screws that fasten the cover. The indicator shall be sealed according to manufacturer specifications.

Operation: Depending on the configuration the instrument can either weigh statically or weigh in-motion. Switching between static weighing and in-motion weighing is not possible.

Static weighing: The forklift and vehicle must be at a standstill to capture weight values. Idling the vehicle engine during weighing operation is permissible. Instrumentation must be configured to prevent capture of weight while the load is in motion. The instrument will blank out when out-of-level conditions exceed 3° (5%) side to side and 7° front to back.

Weighing in-motion: For in-motion weighing the instrument has a minimum weight defined. When the weight is below this minimum the instrument shows a live weight, giving the operator the opportunity to check zero. When exceeding the minimum weight value, the instrument will capture and hold the weight determined when motion, and level conditions are satisfied. The weight is held until the instrument is unloaded and the weight value drops below the minimum weight value. The instrument will blank out when out-of-level conditions exceed 3° (5%) side to side, 5° (9%) backward and 3° (5%) forward.

Testing: Depending on the operation it is recommended to test the instrument for field-testing according to the test procedures below.

Static weighing: For field-testing, it is recommended that a standard type skid be used as a load receiver. Test weights can then be loaded on the skid. Increasing/decreasing load and shift tests should be conducted. Out-of-level tests should be conducted to ensure that the device maintains accuracy when out-of-level up to 5 percent, or the maximum possible out-of-level condition at that location, and that the leveling sensor is adjusted properly and inhibits the weighing operation when the system is out-of-level beyond 3° (5%) side to side and 7° front to back. This may be accomplished by moving the lift truck to an out-of-level area and/or tilting the forks.

Weighing in-motion: For in-motion weighing it is recommended that a skid is used as a load receiver (if possible, a skid that is representative of a standard type skid). Static increasing load and shift tests should be conducted. Additionally, for testing the in-motion functionality it is recommended to test the instrument the same way as it is used, i.e. pick up the load, place the lift truck in motion and continue until the test load can be weighed and the weight value is displayed. Set down the load and check for the return to zero. Out-of-level tests should be conducted to ensure that the device maintains accuracy when out-of-level up to 5 percent, or the maximum possible out-of-level condition at that location, and that the leveling sensor is adjusted properly and inhibits the weighing operation when the system is out-of-level beyond 3° (5%) side to side, 5° (9%) backward and 3° (5%) forward. This may be accomplished by moving the lift truck to an out-of-level area and/or tilting the forks.

Test Conditions: This certificate supersedes Certificate of Conformance 06-074A2 and is issued to evaluate the interaction of the Rice Lake Model CLS680 indicating element (NTEP CC 19-021) containing CLS communication software and the CLS on-board weighing system. Multiple increase/decrease testing was performed using a load cell simulator interfaced with the CLS680 Indicating element and the CLS "Auto Level Sensing and Correction Mechanism Junction Box". The indicating element will blank out when out-of-level conditions exceed 3° (5%) side to side, 5° (9%) backward and 3° (5%) forward this function was verified in all four directions. Previous test conditions are listed below for reference.

Certificate of Conformance 06-074A2: This certificate supersedes Certificate of Conformance 06-074A1 with the emphasis of the evaluation on the, operation and performance requirements of in-motion weighing. The weighing/load receiving element was interfaced with the Rice Lake Weighing Systems, Model VIRTUi3 indicating element. Both static and in-motion field testing was performed on a 5000 x 5 lb lift truck. Increasing load, shift tests and tilt tests were performed with the lift truck in both static and in-motion conditions. Previous test conditions are listed below for reference.

Rice Lake Weighing Systems

On-Board Weighing System / CLS

Certificate of Conformance 06-074A1: This certificate supersedes Certificate of Conformance 06-074 and was issued to increase the angle of tilt, front to back. Field-testing to extend the forward and back pitch from 3° to 7° was performed on a 5000 x 5 lb lift truck, passing multiple tests within acceptance tolerance. Out-of-level limiters would not allow indicator to produce readings past 7° as per specifications. No additional testing was deemed necessary.

Certificate of Conformance 06-074: The emphasis of the evaluation was on the design, operation and performance requirements. The scale was interfaced with Rice Lake Weighing Systems indicating element Model 920i (NTEP CC No. 01-088) utilizing 2 Revere transducers, Model 9363-A5-5K (NTEP CC No. 87-051A3). Separate tests were conducted utilizing Rice Lake Weighing Systems indicating Element Model 420 Plus (NTEP CC No. 04-076A2). Each indicating element was interfaced with the weighing element in a wireless and then wired configuration for testing purposes. The lift truck used for this test was a Class II, 36" x 16" carriage, 42" forks with 29" center–to-center fork spacing. Several static increasing/decreasing load and shift tests were conducted using test weights with the lift truck level and out-of-level 5 percent in all four directions. Tests were also conducted with the vehicle engine running. A standard skid was used as the load receiver. Test loads were distributed to simulate off center weight displacement. DC power supply tests were conducted. The permanence test for this device included over 300 weighments in a 3-week period using pallets containing 1,000 lb, 3,000 lb, and 4,500 lb. Static increasing/decreasing load tests were then repeated.

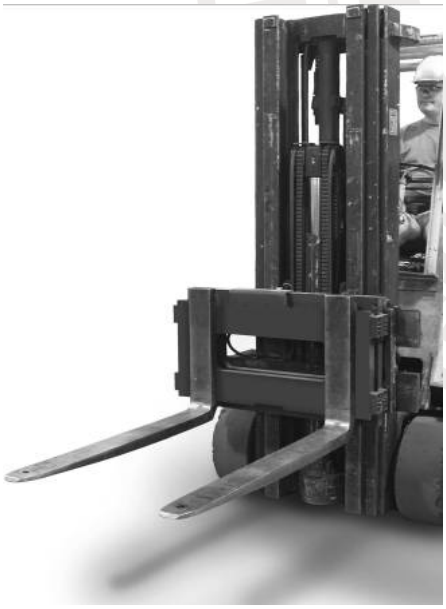
Evaluated By: D. Onwiler (NE) 06-074; M. Carlin (KS) 06-074A1; D. Flocken (NTEP) 06-074A2; J. Gibson (OH) 06-074A3

Type Evaluation Criteria Used: NIST, Handbook 44: Specifications, Tolerances and Other Technical Requirements for Weighing and Measuring Devices, 2020. NCWM, Publication 14: Weighing Devices, 2020.

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

Information Reviewed By: S. Patoray (NCWM), L. Bernetich (NCWM) 06-074; J. Truex (NCWM) 06-074A1, 06-074A2; D. Flocken (NCWM) 06-074A3

Example of Device:



Model CLS