

**National Conference on Weights and Measures**  
15245 Shady Grove Road, Suite 130 • Rockville, MD 20850

Certificate Number: 00-088A1

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***National Type Evaluation Program***  
***Certificate of Conformance***  
***for Weighing and Measuring Devices***

**For:**

Bench and Counter Scale

Digital Electronic

Models: HV-XXKGV\*, HV-XXKGL\*,  
and HV-XXKV-WP\*

$n_{\max}$ : 3000

Capacities: 15 kg (30 lb), 60 kg (150 lb),  
and 220 kg (500 lb)

Accuracy Class: III

**Submitted by:**

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**Standard Features and Options**

\* See Page 2 for specific model designations and  $e_{\min}$  values.

Automatic multiple range operation

Gross/net display

Lb/kg/oz conversion

Semi-automatic (push-button) zero setting mechanism (SAZSM)

Semi-automatic (push-button) tare

RS-232C serial interface

Initial zero setting mechanism (IZSM)

Automatic zero setting mechanism (AZSM)

Piece counting: **"The counting feature is not legal for trade"** is labeled on the indicator face

**Models HV-XXKGV/HV-XXKGL:** Plastic indicator housing

Models with the V suffix have a fluorescent display, use AC line power and offer an optional built-in dot matrix printer

Models with the L suffix have a liquid crystal display and use six "D" size batteries or an AC adapter as a power source

**Model HV-XXKV-WP:** Stainless steel indicator housing

Models have a fluorescent display and use AC line power

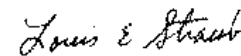
Temperature Range: -10 °C to 40 °C (14 °F to 104 °F)

This device was evaluated under the National Type Evaluation Program (NTEP) 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.

Effective Date: March 13, 2002



Ronald D. Murdock  
Chairman, NCWM, Inc.



Louis E. Straub  
Chairman, National Type Evaluation Program Committee  
Issue date: March 14, 2002

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**A&D Engineering**  
**Bench and Counter Scale**  
**Models: HV-XXKGV, HV-XXKGL, and HV-XXKV-WP**

**Application:** General purpose bench scale.

**Identification:** The manufacturer's identification, model number, and capacity by division size is located on the face of the indicator. The serial number is on a pressure sensitive self-destructive label on the left side of the plastic indicator head and on the rear of the stainless steel indicator head.

**Model Designation:**

| Model                      | Platform        | Capacities With Multiple Ranges and Division Sizes                       |                                                                           |                                                                         |
|----------------------------|-----------------|--------------------------------------------------------------------------|---------------------------------------------------------------------------|-------------------------------------------------------------------------|
| HV-15KGV/L<br>HV-15KV-WP   | 250 mm x 250 mm | 0 to 3 kg x 0.001 kg<br>3 to 6 kg x 0.002 kg<br>6 to 15 kg x 0.005 kg    | 0 to 6 lb x 0.002 lb<br>6 to 15 lb x 0.005 lb<br>15 to 30 lb x 0.01 lb    | 0 to 96 oz x 0.05 oz<br>96 to 240 oz x 0.1 oz<br>240 to 480 oz x 0.2 oz |
| HV-60KGV/L<br>HV-60KV-WP   | 330 mm x 424 mm | 0 to 15 kg x 0.005 kg<br>15 to 30 kg x 0.01 kg<br>30 to 60 kg x 0.02 kg  | 0 to 30 lb x 0.01 lb<br>30 to 60 lb x 0.02 lb<br>60 to 150 lb x 0.05 lb   | 0 to 480 oz x 0.2 oz<br>480 to 960 oz x 0.5 oz<br>960 to 2400 oz x 1 oz |
| HV-200KGV/L<br>HV-200KV-WP | 390 mm x 530 mm | 0 to 60 kg x 0.02 kg<br>60 to 150 kg x 0.05 kg<br>150 to 220 kg x 0.1 kg | 0 to 150 lb x 0.05 lb<br>150 to 300 lb x 0.1 lb<br>300 to 500 lb x 0.2 lb | 0 to 2400 oz x 1 oz<br>2400 to 4800 oz x 2 oz<br>4800 to 8000 oz x 5 oz |

**Sealing:** The device can be sealed by means of a wire security seal threaded through two drilled head screws which hold the door on the rear of the indicator head, preventing access to the calibration switch.

**Test Conditions:** This Certificate supersedes Certificate of Conformance Number 00-088 and is issued to include the Model HV-XXKV-WP scales, which are metrologically the same as the HV-XXKGV/L but have a stainless steel enclosure for the indicator and A/D converter. A Model HV-15KV-WP was submitted to test the effects of temperature on accuracy, zero drift, and creep with the A/D converter enclosed in stainless steel. The scale was successfully tested over a range of -10 °C to 40 °C. Results of the previous test conditions are repeated below for reference.

**Certificate of Conformance Number 00-088:** The emphasis of the evaluation was on device design, marking, performance, and compliance with influence factor requirements. Two models were submitted for evaluation; the HV-15KGL and the HV-200KGV. Several increasing/decreasing load and shift tests were performed. The devices were tested over a temperature range of -10 °C to 40 °C (14 °F to 104 °F). A load of approximately one-half capacity was applied to the scale over 100 000 times with accuracy tests performed at approximately every 25 000 times. Tests were also conducted with line voltages of 100 VAC and 130 VAC on the V suffix model and 6 VAC and 9.9 VDC on the L suffix model.

The results of the evaluations indicate the devices comply with applicable requirements.

**Type Evaluation Criteria Used:** NIST Handbook 44, 2001 Edition

**Tested By:** K. Jones (CA) 00-088; 00-088A1

**Reviewed By:** S. Patoray (NCWM) , L. Bernetich (NCWM) 00-088A1