

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

**For:**

Bench Scale  
Digital Electronic  
Model: FV and HV Series  
 $n_{\max}$ : 3100  
Capacity: See page 2  
Platform: See page 2

Accuracy Class: III

**Submitted by:**

A&D Engineering  
1555 McCandless Drive  
Milpitas, CA 95035  
Contact: Mr. Jerry Wang  
Tel.: (408) 263-5333  
Fax: (408) 263-0119

**Standard Features and Options**

The specific models and capacities of devices covered by this Certificate are listed on page 2.

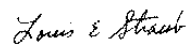
Liquid crystal display  
Pushbutton tare and zero with motion detection  
Automatic zero maintenance  
Externally selectable weight units (unit key)  
Comparator mode, (preset) with "HI" and "LO" indications  
Internal 9V DC battery operation or AC adapter

Options: Wall mounting Kit  
AC Adapter

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: February 13, 1996



Louis E. Straub  
Chairman, NCWM, Inc.



G. Weston Diggs  
Chairman, National Type Evaluation Program Committee

Issue date: March 13, 1996

Note: The National Conference on Weights and Measures does not "approve", "recommend", or "endorse" any proprietary product or material, either as a single item or as a class or group. Results shall not be used in advertising or sales promotion to indicate explicit or implicit endorsement of the product or material by the NCWM.

This is a reissuance by the NCWM of a Certificate of Conformance already issued by the National Institute of Standards and Technology.

**A and D Engineering  
Bench Scale  
Model: FV and HV Series**

**Models:**

<b>Models</b>	<b>Capacity</b>	<b>Platform Size</b>
FV-30KA2	31 X 0.01 kg, 60 X 0.02 lb, 960 x 0.5 oz	12.8" x 16.5" (330mm x 424mm)
FV-60KA2	60 x 0.02 kg, 120 x 0.05 lb, 1920 x 1 oz	12.8" x 16.5" (330mm x 424mm)
FV-150KA1	150 x 0.05 kg, 300 x 0.1 lb, 4800 x 2 oz	15.4" x 20.8" (390mm x 530mm)
HV-30KA2	30 X 0.01 kg, 60 X 0.02 lb, 960 x 0.5 oz	12.8" x 16.5" (330 mm x 424 mm)
HV-60KA2	60 x 0.02 kg, 120 x 0.05 lb, 1920 x 1 oz	12.8" x 16.5" (330 mm x 424 mm)
HV-60KA1	60 x 0.02 kg, 120 x 0.05 lb, 1920 x 1 oz	15.4" x 10.8" (390 mm x 530 mm)
HV-150KA1	150 x 0.05 kg, 300 x 0.1 lb, 4800 x 2 oz	15.4" x 20.8" (390 mm x 530 mm)

A "WP" suffix of the model indicates a stainless steel indicator and scale (i.e., FV-30KWP).  
A "SP" suffix to the model indicates a stainless steel platform with a high impact plastic weighing indicator (i.e., FV-31KSP).

**Application:** General purpose.

**Identification:** The identification badge is on the left side of the indicator.

**Sealing:** The keyboard calibration mode is activated by an internal switch. Access to this switch is sealable with a wire security seal inside the battery compartment.

**Operation:** The counting mode option is not permitted for commercial applications. The scale must be marked on both the customer and operator side with the statement "The counting feature is not legal for trade." if the counting feature is operational.

**Test Conditions:** This Certificate supersedes Certificate of Conformance (CC) Number 90-064A1 and is issued to reduce the capacity of the HV-30KA2 from 31 kg to 30 kg and to add the model HV-60KA1. The model HV-60KA1 is added without additional testing based on information supplied by the manufacturer.

**Certificate of Conformance Number 90-064A1:** This Certificate supersedes Certificate of Conformance Number 90-064 and is issued to include the HV series scales. The HV model is metrologically equivalent to the FV model. Information provided by the manufacturer indicates that the differences between the HV and FV are non-metrological and do not affect performance. This CC is issued based on that information without additional testing.

**Certificate of Conformance Number 90-064:** The emphasis of the examination was on the device design, operation, visibility of the liquid crystal display and accuracy during low battery conditions. A load of one-half capacity was applied to the scale over 108 400 times. The scale was tested for accuracy periodically during this time. Additionally, the scale was tested over a temperature range of -10 °C to 40 °C (14 F to 104 °F). The results of the tests were within the applicable acceptance tolerances specified. The WP and SP suffixes are covered on this certificate based on information provided by the manufacturer.

**Type Evaluation Criteria Used:** NIST Handbook 44, 1996 Edition

**Tested By:** S. Cook (CA)

**Information Reviewed By:** Constantine V. Cotsoradis (NIST)