State of California
Department of Food and Agriculture
Division of Measurement Standards

Certificate Number: 4730(b)-06

California Type Evaluation Program
Certificate of Approval
for Weighing and Measuring Devices

For:
Compressed Natural Gas (CNG)
Retail Motor Fuel Dispenser
Electronic Computing
Models: DAM-XXXXX and SAM-XXXXX*
Capacity: Maximum Total Price: $9999.99
Maximum Total Volume: 999.999**
Maximum Unit Price: $9.999

Accuracy Class: 2.0

Submitted by:
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Standard Features and Options

* See Page 2 for specific model suffix designations.
** Gasoline gallon equivalent or gasoline liter equivalent.

Kraus Micon 500CN electronic computing register Version 3.XX (Certificate of Approval Number 4755-98)
Micro Motion sensor Model CNG050 (flow rate: 4 pounds per minute to 78 pounds per minute)
Micro Motion transmitter Model 1700 series or 2700 series
Endress+Hauser sensor Model Promass (flow rate: 3.5 pounds per minute to 41 pounds per minute)
Temperature compensation fill valve
Single or dual hose
Battery back-up capability
Design pressure: Maximum 5000 PSI
Maximum electronic totalizer volume: 999999.999
Unit price and totalizer are controlled by a hand-held electronic communicator

This device was evaluated under the California Type Evaluation Program (CTEP) and was found to comply with the applicable technical requirements of California Code of Regulations 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 7, 2006

Mike Cleary, Director

Kraus Global, Inc.
Compressed Natural Gas (CNG)
Models: DAM-XXXX and SAM-XXXX

Application: For use as a stationary dispenser measuring compressed natural gas as an automotive fuel for fleet or contract sales and may be used for retail sales when used with approved and compatible card readers issuing receipts.

Identification: The required information is located on the inside surface of the dispenser riser above the top part of the cabinet.

Model Suffix Designations: SAM/DAM XXXXX – XXXXXXXXX*

* The underlined (X) placeholders are non-metrological options not represented in the table below.

Basic Model	X: Number of Inlet Lines	X: Electronics	X: Cabinet	X: Meter	X: Approvals
SAM - (single hose) DAM - (dual hose)	1 = Single inlet, single hose dispenser 3 = Three line internal sequence, single hose dispenser 2 = Two line independent, dual hose dispenser 3 = Dual hose three line internal sequence dispenser	( ) Blank = Remote C = Internal	L = Low style H = High style S = Slim-line (not available on DAM 2 and DAM 3)	G = Micro Motion CNG 050 mass flow sensor with either 1700 series or 2700 series transmitter N = Endress+Hauser Promass M mass flow sensor with Promass 63 transmitter M = Micro Motion DH-038 sensor with RFT 9739 transmitter	North American – ( ) leave blank

Sealing: Dispenser configuration parameters are sealed through the MICON 500CN register head. Two methods of sealing (event logger and/or physical) are available.

A switch located inside the housing of the MICON 500CN register head allows access to configuration parameters. A wire security seal may be threaded through drilled head bolts that attach the cover to the housing. Additionally, a wire security seal may be threaded through the handle shaft behind the cotter pin so that the handle coupler cannot be removed from the handle shaft.

The event logger is displayed when the dispenser handle is turned on and off rapidly. The total sale display (upper) window will show the configuration event counter for sealable parameters (metrological), the volume display (middle) window will show the event counter for non-sealable parameters (non-metrological), and the unit price display (lower) window will show the software version number.

The transmitters will be sealed in accordance with the sealing provisions associated with their mass flow sensors. KRAUS will disable the remote capability on the Micro Motion 1700 series transmitter by setting the Screen Access to "Off". The menu tree on the transmitter display will not be accessible, allowing only toggling between flow rate and the alarm acknowledgement screen. The transmitter is sealed internally and externally to prevent access. Internally, the plastic flap over the transmitter communication contacts is secured closed with a tamper-proof seal. The sensor has no metrological parameters which require the use of sealing.

Kraus Global, Inc.
Compressed Natural Gas (CNG)
Models: DAM XXXX and SAM XXXX

Operation: Volume totals are viewed on the dispenser face by using the hand-held electronic communication device used for changing prices. Volume totals are viewed as follows: Turn the dispenser handle off and aim the communicator at the optical sensor located to the right of the price display. Press the "**SEL**" key and the red indicator light will flash as the MICON 500CN electronic computing register head receives the communicator's signal. Hold the "**SEL**" key down to scroll to the volume display. The volume total will be preceded by V1.

Test Conditions: This certificate supersedes Certificate of Approval Number 4730(a)-98 and is issued to include the Micro Motion Model CNG 050 mass flow sensor with the 1700 Series or 2700 Series transmitter and the Endress+Hauser Model Promass M mass flow sensor with the Promass 63 transmitter. Two dispensers were submitted for evaluation, one with Micro Motion CNG 050 sensor with 1700 Series transmitter and one with Endress+Hauser Promass M sensor with Promass 63 transmitter. The emphasis of the evaluation was on device design, performance, interaction of the assembled components, and permanence. Multiple test drafts were conducted at various flow rates (see Standard Features and Options, page 1 for details). Throughput requirements were waived based on previous testing of the mass flow sensors. However, tests as stated above were repeated approximately 45 days later to verify transmitter electronics.

Previous test conditions are listed below for reference.

Certificate of Approval Number 4370(a)-98: This certificate superseded Certificate of Approval Number 4730-98 and was issued to correct the flow rate listed previously. No additional testing was conducted as this certificate was issued based on the test conditions listed below

Certificate of Approval Number 4730-98: The Model DAM 3K dispenser was submitted for field evaluation. The emphasis of the evaluation was on the design, performance, and interaction of the assembled components. The evaluation was performed using a Kraus Micon 500CN (Certificate of Approval Number 4755-98) computing register head and ABB K-FLOW (Certificate of Approval Number 4616(a)-98) mass flow meter system. The dispenser was initially tested for accuracy and repeatability at several flow rates, amounts and pressures. It was tested again approximately 90 days later.

This certificate includes the upgraded Micon 200 and Micon 100 register heads and is based on testing and information provided by the manufacturer.

Certificate of Approval Number 4568-97: The Tulsa Gas Technologies Model TGT-K2 Series dispenser was submitted for evaluation. The emphasis of the evaluation was on the design, software application, and interaction of the assembled components. A modified Micon 200 register head was installed with a Micro Motion meter system. The throughput permanence test was waived due to previous permanence testing on the Micro Motion meter (Certificate of Approval Number 3003(b)-95). The TGT dispenser was also tested with an Auto Gas Card Reader, Model AF2006M(xx), for compatibility. The dispenser was initially tested for accuracy and repeatability at several flow rates and pressures. Similar tests were repeated approximately 30 days later.

Certificate of Approval Number 3884-93: The Model DAM 3 dispenser was submitted for field evaluation. The emphasis of the evaluation was on the device design, performance, and permanence. The dispenser was tested at a field location. Permanence testing was evaluated using test data from previous evaluations of the Kraus Micon 100-I, the Micro Motion RFT 9712 flow transmitter, and the DX025XXXXX sensor (Certificate of Approval Number 3003(a)-91).

Results of the evaluations and information provided by the manufacturer indicate the devices comply with applicable requirements.

Type Evaluation Criteria Used: Title 4, California Code of Regulations, 2005 Edition

Tested By: D. Reeiswig, C. Nelson (CA) 4730-98; and R. Norman Ingram (CA) 4730(b)-06