

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

For: Kraus Compressed Natural Gas (CNG) Retail Motor Fuel Dispenser Electronic Computing Models: DAM XXX and SAM XXX* Capacity: Maximum Total Price: \$9999.99 Maximum Total Volume: 999.999 Maximum Unit Price: \$9.999 Accuracy Class: 2.0	Submitted by: Kraus Group, Inc. 25 Paquin Road Winnipeg, Manitoba Canada R2J3V9 Tel: (204) 988-1234 Fax: (204) 654-2881 Contact: Jim Kohut
---	--

Standard Features and Options

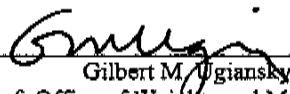
* See Page 2 for specific model suffix designations.

Kraus Micon 500CN electronic computing register Version 3.XX with the number 3 being metrologically significant
SAM 1 single inlet, single hose dispenser
SAM 3 three line internal sequence, single hose dispenser
DAM 2 two line independent, dual hose dispenser
DAM 3 three line internal sequence, dual hose dispenser
Kraus power safe pilot solenoid valve
Kraus temperature compensation fill valve
Single or dual hose
Unit price and electronic totalizer are controlled by a hand-held electronic communicator
Battery back-up for recall of last sale in case of power failure
Intrinsically safe backlit display for night viewing
Internal electronic sequencing through the Micon 500CN electronic computing register head (3-line models only)
Design pressure: Maximum 5000 psi
Maximum electronic totalizer volume: 999999.999

Category 2 method of sealing (see Sealing on Page 2)

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: September 3, 1997


Gilbert M. Ugiansky, Ph.D.
Chief, Office of Weights and Measures
Issue Date: June 2, 1998

Note: The National Institute of Standards and Technology 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 by the Institute. (See NTEP Policy and Procedures.)

Kraus Group, Inc.
Compressed Natural Gas (CNG)
Retail Motor Fuel Dispenser
Models: DAMXXXX and SAMXXXX

Application: The Kraus CNG dispenser is used for measuring CNG as an automotive fuel. The mass flow meter measures the total mass passed through the sensor and is displayed as GGE (Gasoline Gallon Equivalent: 5.660 lb of natural gas). The GGE, the total computed price, and the price per unit are displayed on a Kraus Micon electronic computing register. May be used with other approved and compatible equipment.

Identification: The required information is located on the outside surface of the dispenser housing.

Model Suffix Designations:

Models	X: Transmitter	X: Cabinet	X: Sensor
SAM 1 SAM 3 DAM 2 DAM 3	Blank = Remote meter transmitter	Blank = Standard cabinet	Blank = Micro Motion DH025 mass flow meter sensor (.25 - 25 lb/min)
	K-FLOW Model 1210 used with K-FLOW meter sensor only	H = High-style cabinet	M = Micro Motion DH038 mass flow meter sensor (.5 - 50 lb/min)
	Micro Motion Model RFT 9712** used with Micro Motion meter sensor only	S = Slim-line cabinet (not available on DAM 2 and DAM 3 model dispensers)	K = ABB K-FLOW meter sensor Model K-20 (2 - 15 lb/min)
	C = Internal meter transmitter		
	Micro Motion Model 9739**		
	Micro Motion Model 9739 Version 3.6 used with Micro Motion meter sensor only		

** Only valid for dispensers manufactured prior to January 1, 1996

Sealing: Means to apply wire security seals are provided on the covers of the ABB K-FLOW Model 1210 remote flow transmitter housing, Micro Motion remote flow transmitter housing, and the Kraus Micon electronic computing register head central processing unit board housing.

Audit trail event counters and other information are viewed as follows:

Kraus Micon 500CN Electronic Computing Register Head: Turn the dispenser handle on then off rapidly. The display will show two event counters and the software version number. The total sale display window is the configuration parameter event counter (sealable parameters). The volume display window is an event counter for non-metrological changes (non-sealable parameters). The price per unit display window displays the software version number.

**Kraus Group, Inc
Kraus Compressed Natural Gas (CNG)
Retail Motor Fuel Dispenser
Models: DAMXXXX and SAMXXXX**

Sealing Continued:

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 is preceded by V1.

Micro Motion Transmitter: A computer or hand-held communication device and provisions to connect the device without exposing electrical wires must be provided for the inspector. One connection port will be used to view all meters on site and the information will be in a read only format.

NOTE: One of these devices must be on site and available to the inspector for the dispenser to be covered by this certificate. (Micro Motion only)

ABB K-FLOW Transmitter: The transmitter housing has a display and keypad for viewing audit trail information.

Operation: The delivery hose is connected to the fill connector on the receiving vehicle. The dispenser is turned on by moving the interlock handle to the "on" position. After use, the interlock lever must be in the "off" position before returning the nozzle to the receptacle.

Test Conditions: This Certificate is issued based on the following testing, information provided by the manufacturer, and testing performed in conjunction with Certificate of Conformance Numbers 93-093 and 93-093A1.

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 computing register head and ABB K-FLOW mass flow meter system. The dispenser was initially tested for accuracy and repeatability and tested again approximately 90 days later. Five tests at four flow rates were conducted at various amounts and pressures.

Certificate of Conformance Number 93-093A1: The DAM 3CH was tested at a field location. The emphasis of the evaluation was on the design, performance, and permanence of the device. Permanence testing was evaluated using a Micro Motion RFT 9739 flow transmitter, and DH025 and DH038 sensors.

Certificate of Conformance Number 93-093: The Model DAM 3 dispenser was tested at a field location. The emphasis of the evaluation was on design, performance, and permanence of the device. Permanence testing was evaluated using test data from previous evaluations of a Kraus dispenser using a Micro Motion RFT 9712 flow transmitter and a DH025 sensor. (Certificate of Conformance Number 87-040A1)

The results of these evaluations and information provided by Kraus indicate the devices comply with applicable requirements of NIST Handbook 44.

Type Evaluation Criteria Used: NIST Handbook 44, 1997 Edition

Tested By: E. Jenkins (CA), C. Nelson (CA) 93-093A1 and 93-093; D. Reiswig and C. Nelson (CA) 97-168