NATIONAL TYPE EVALUATION PROGRAM

Certificate of Conformance

for Weighing and Measuring Devices

For:
Meter Indicating Mass
Digital Electronic
Flow Sensor Model: Optimass 7000 Series
Actual Flow Sensor Model: Optimass 7VX07 TZZ
Converter (electronics) Mode: Optimass MFC 300 (see below)
Flow Rates: (see below)

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Standard Features and Options

Standard Features:

- Category 1 Method of Sealing (see pg 2)
- Single Flow Tube Construction
- Approved for Mass or Volume Measurements
- Hazardous Location Versions – Div. 1 and Div. 2 with IS Outputs
- Large Backlit Display with Multiple Screens
- Sensor is Bi-directional Serial Output
- Integral or Remote Modular Converter Electronics or Interfaced with other NTEP Approved Register/Controller

Option:

- Built-in Heating/Cooling Jacket and Purge-port Versions

Optimass Sensor Model Matrix:

7	V	X0	Y	Blank	T	ZZ
7	3 = Integral Converter (electronics)	00	C = Compact – Integral Converter (electronics)		T = Titanium	40 = 1.5"
	0 = Remote Converter (electronics)	00	Blank Space = Remote Converter (electronics)		Sensor Tube	50 = 2"
	0 = Without Converter (electronics)	10*	C = Compact – Without Converter (electronics)		Material	80 = 3"

* Note: When connected to an NTEP approved receiver/controller with Category III audit trail capability.

Optimass Converter (electronics) Model Listing:

- MFC300C: converter (electronics) mounted as integral part of sensor
- MFC300F: converter (electronics) mounted remotely (1000 ft. max. cable length) in field-mounted housing
- MFC300W: converter (electronics) mounted remotely (1000 ft. max. cable length) in wall-mounted housing

Flow Rate Capabilities:

Meter Sizes	Range of Flow Rates in Mass	Minimum Measured Quantity
1.5"	330 – 3 750 lbs / m	1 500 lbs
2"	660 – 7 500 lbs / m	3 000 lbs
3"	1 320 – 15 000 lbs / m	6 000 lbs

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.

Tim Tyson
Chairman, NCWM, Inc.

Randy Jennings
Chairman, National Type Evaluation Program Committee
Issued: February 2, 2011

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Krohne, Inc.

Meter Indicating Mass / Optimass 7000 Series

Application: For use in stationary installations and may be used to display in the mass or volume mode. This meter must be used with an approved and compatible indicator/controller (see Operation). The mass flow meter may be used to measure multiple normal liquids with specific gravities of 0.90 to 1.55. This Certificate *does not* cover the use of a specific meter to measure multiple products where the *variation* in their specific gravities exceeds 0.1 specific gravity units without a change to zero or calibration.

Product:

Product Group	Typical Product*	Specific Gravity
Normal Liquids	Water, alcohols, glycols, water and mixes thereof, agricultural liquids, food products, feeds and fertilizers, chemicals, petroleum products, solvents, herbicides and suspensions.	0.90 to 1.55

*NOTE: Not all "typical products" listed in this table are covered by this certificate. Only those products falling within the specific gravity range listed in the last column are covered. Some products may have a specific gravity that falls into more than one product group. Only products, which fall into the product groups, and specific gravity ranges listed in this table are covered by this certificate.

Identification: The identification badge for the flow sensor is located on the sensor main body. The identification badge for the converter is located on the converter housing. If a second party converter (electronics) is used in lieu of the Optimass MFC 300, the second party electronics will be marked in accordance with the identification provisions of the regulation.

Sealing: Prior to sealing, verify the pin shunt (located under the converter glass cover and on the face plate in the lower right corner) is in the locked position (pin shunt in far left upper position). The converter glass window cover and the connection compartment covers are sealed to the housing by threading a wire security seal through the locking catch with Allen set screw screwed all the way in to secure the locking catch such that the covers cannot be rotated more than a partial turn. The oval shaped electronics compartment is sealed by threading a sealing wire between two drilled bolts attaching the cover to the compartment. If other approved and compatible transmitters are used, they should be sealed in accordance with the sealing provisions of their respective certificate. The sensors are embedded within the flow tubes therefore inaccessible and have no sealing requirements.

Operation: The Optimass model 7000 series flow sensor is intended to be used with the Optimass model MFC 300 electronics, and may be used with an approved and compatible second party electronics; provided the communication means of both the sensor (transmitting signal) and electronics input (receiving signal) are compatible, the transmitting and receiving signals have been tested (pulse, frequency, serial, etc.), and both the sensor and electronics have a Certificate of Conformance.

Test Conditions: An Optimass 7000 series 2-inch flow sensor was submitted for evaluation and approved under Certificate of Conformance Number 06-042. In addition, the converter (electronics) model Optimass MFC 300C was submitted for evaluation, and approved under Certificate of Conformance Number 10-080. This Certificate is issued based on the testing conditions of those certificates to allow the Optimass 7000 series flow sensor to be used with the Optimass MFC 300 series converter (electronics) without additional testing.

The acceptance tolerance of 0.2% as provided for in the Mass Flow Meter Code of the National Institute of Standards and Technology Handbook 44 was applied. The results of the evaluation and information provided by the manufacturer indicate the devices comply with applicable requirements.

Evaluated By: Charlie Nelson (CA) and R. Norman Ingram; J. Roach (CA)

Type Evaluation Criteria Used: NIST, Handbook 44: Specifications, Tolerances and Other Technical Requirements for Weighing and Measuring Devices, 2010. NCWM, Publication 14: Measuring Devices, 2010.

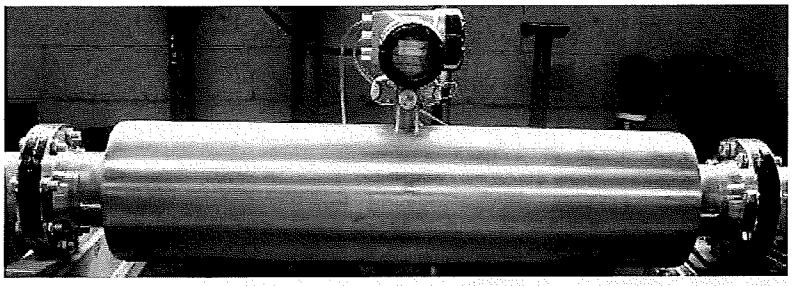
Conclusion: The results of the evaluation and information provided by the manufacturer indicate the device complies with applicable requirements.

Information Reviewed By: J. Truex (NCWM)

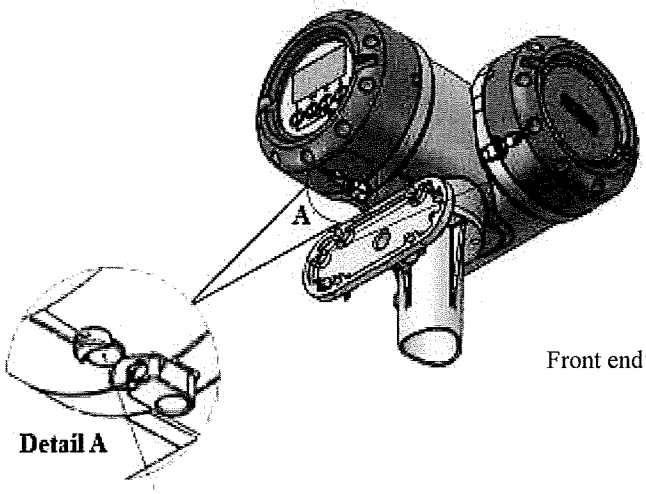
Krohne, Inc.

Meter Indicating Mass / Optimass 7000 Series

Examples of Device:

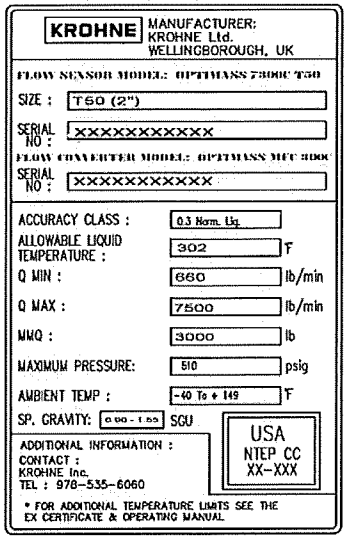


Model Optimass 7VX0Y TZZ



Front end electronic removed in this view to show locking catch.

Locking catch with wire and seal lead or plastic seal.



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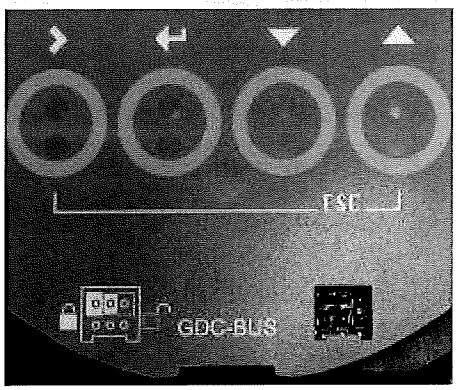

Pin Shunt

View of the bottom half of face plate showing location of the Pin Shunt in the locked position. Position can be observed with glass window cover in place by shining a light through the glass at a downward angle at about the five o'clock position. The unlocked position is with the Pin Shunt moved one pin to the right. Use needle-nosed pliers to move the Pin Shunt.