



Nederlands Meetinstituut

Certificate

No. **PF/8428**

Application no. 10085767

Applicant: KROHNE Altometer
Kerkeplaat 12
3313 LC Dordrecht
The Netherlands

Submitted: Ultrasonic liquid meter Altosonic V DN150 and transmitter UFC 500 P with software version 0_29, both provided with serialnumber AP097 021.

Scope: Evaluation of the above stated devices for compliance with OIML International Recommendation R117, accuracy class 0.3.

Tests: The volume-output of the measurement transducer has been compared with a volumetric standard to determine its deviation as a function of the volume flowrate. These tests have been carried out by KROHNE Altometer, while being witnessed by NMI.

Testaddress: KROHNE Altometer
Krausstraat 14 - 18
3364 AD Sliedrecht
The Netherlands

Results: The measurement transducer meets the requirements for accuracy class 0.3, as defined in OIML International Recommendation R117, in the range of 32 to 450 m³/h.

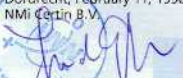
References: OIML International Recommendation R117
OIML Testreport No. PF/7984

Remarks: The measurements have been executed using standards for which the traceability to primary standards, (inter)national standards and/or properties of pure substances has been demonstrated. The expanded uncertainty of this particular standard equals 0.02 %, in the region in which it was used for testing (certificate no. VL-92375).

Annexes: Annex 1, tabular presentation of measurement data (2 pages).
Annex 2, graphical presentation of averaged measurement data (1 page).

Dordrecht, February 11, 1998.

NMI Certin B.V.


Dr. Ir. J.G.M. van der Grinten
The manager Product-Certification Flow

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Q(1) m ³ /h	Q(1) % Q _{max}	V _i p	T _{in} °C	T °C	V _{in} p	E _v %
32.9	7.3	91947	7.1	7.1	91945	0.00
32.9	7.3	92001	7.1	7.1	91944	0.06
33.3	7.4	91971	7.1	7.1	91944	0.03
32.4	7.2	91961	7.1	7.1	91944	0.02
32.4	7.2	91943	7.1	7.1	91944	0.00
E _{max}	0.02	%	Range	0.06	%	

Q(2) m ³ /h	Q(2) % Q _{max}	V _i p	T _{in} °C	T °C	V _{in} p	E _v %
132.3	29.4	91875	7.3	7.3	91944	-0.08
132.3	29.4	91846	7.3	7.3	91944	-0.11
136.4	30.3	91878	7.3	7.3	91944	-0.07
134.1	29.8	91840	7.3	7.3	91944	-0.11
133.2	29.6	91830	7.3	7.3	91944	-0.12
E _{max}	-0.10	%	Range	0.05	%	

Q(3) m ³ /h	Q(3) % Q _{max}	V _i p	T _{in} °C	T °C	V _{in} p	E _v %
223.7	49.7	91886	7.0	7.0	91944	-0.06
223.2	49.6	91880	7.0	7.0	91944	-0.07
224.1	49.8	91847	7.0	7.0	91944	-0.11
223.7	49.7	91865	7.0	7.0	91944	-0.09
223.2	49.6	91888	7.2	7.2	91944	-0.06
223.2	49.6	91894	7.2	7.2	91944	-0.05
224.1	49.8	91855	7.2	7.2	91944	-0.10
E _{max}	-0.08	%	Range	0.05	%	

Liquid: WATER

Ambient conditions:

Temperature: 18.1 °C

Humidity: 75 % RH

Pressure: 1013 hPa

$Q(4)$ m ³ /h	$Q(4)$ % Q_{nom}	V_i p	T_m °C	T °C	V_{sc} p	E_i %
354.6	78.8	91953	7.2	7.2	91944	0.01
354.2	78.7	91938	7.2	7.2	91944	-0.01
354.2	78.7	91966	7.3	7.3	91944	0.02
355.1	78.9	91946	7.3	7.3	91944	0.00
355.1	78.9	91933	7.3	7.3	91944	-0.01
355.1	78.9	91932	7.3	7.3	91944	-0.01
355.1	78.9	91941	7.3	7.3	91944	0.00
E_{avg}	0.00	%	Range	0.04	%	

$Q(5)$ m ³ /h	$Q(5)$ % Q_{nom}	V_i p	T_m °C	T °C	V_{sc} p	E_i %
441.0	98.0	91939	6.3	6.3	91941	0.00
442.4	98.3	91934	6.3	6.3	91941	-0.01
441.9	98.2	91922	6.3	6.3	91941	-0.02
441.0	98.0	91957	6.3	6.3	91941	0.02
441.5	98.1	91961	6.3	6.3	91941	0.02
441.9	98.2	91924	7.2	7.2	91944	-0.02
442.8	98.4	91942	7.2	7.2	91944	0.00
E_{avg}	0.00	%	Range	0.04	%	

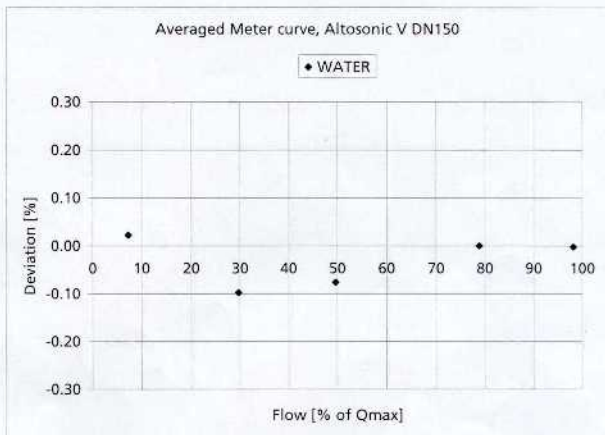
Symbols used:

- Q Flowrate, expressed in cubic metres per hour, or percentage of 450 m³/h
- V_i Volume indication meter under test
- V_{sc} Volume indication of standard, corrected to metering conditions
- p Number of pulses
- E_i Deviation in volume indication meter under test
- mpe Maximum permissible error (OIML R117)
- E_{avg} Averaged deviation per flowrate
- Range Maximum deviation minus minimum deviation

Liquid: WATER

Ambient conditions:

Temperature: 18.1 °C
 Humidity: 75 % RH
 Pressure: 1013 hPa



Liquid: WATER

Ambient conditions:

Temperature: 18.1 °C

Humidity: 75 % RH

Pressure: 1013 hPa