Certificate of Conformity No 135-10363

Object	**Heat counter (Energiemanager) RMS621**
Applicant	**Endress + Hauser Wetzer GmbH + Co. KG** **Obere Wank 1** **87484 Nesselwang**
Requirements	Examination in accordance with EN 1434-4, point 6,4 performance test.
Confirmation	The heat counter RMS621 fulfills the requirements to the metrological characteristics of a calculator unit in accordance with EN 1434-1. The heat counter RMS621 fulfills the requirement of the operational behavior respectively of the measuring accuracy in accordance with EN 1434-4 Nr. 6.4.
Date of Test	26 August 2005

Wabern, 27.09.05

For the test

Dr. Henri Baumann

Section Mechanics

Dr. Philippe Richard, Head of section

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Eidg. Justiz- und Polizeidepartement
Département fédéral de justice et police
Dipartimento federale di giustizia e polizia
Federal Department of Justice and Police

Measurement Report No 135-10364

Object	**Heat counter (Energiemanager) RMS621**
Order	Examinations of the characteristics of the heat counter RMS621 in the saturated and overheated steam working mode.
Applicant	**Endress + Hauser Wetzer GmbH + Co. KG** Obere Wank 1 87484 Nesselwang
Traceability	The reported measurement values are traceable to national standards and thus to internationally supported realizations of the SI-units.
Date of Measurement	2 September 2005

Wabern, 27.09.2005

For the measurements	Section Mechanics
Dr. Henri Baumann	Dr. Philippe Richard, Head of section

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Measurement Report **Nr. 135-10364**

Extent of the Measurement

The heat meter RMS621 was tested within the pressure range between 1 bar up to 300 bar, and in the temperature range between 120 °C to 500 °C.

Measurement Procedure

To investigate the comportment of the RMS621 in the saturated and overheated steam working mode, pressure and temperature were respectively simulated with a current source and a precise resistance decade. The values displayed by the RMS621-Calculator were compared with the computed values in accordance with the IAPWS-97.

Measurement Conditions

Ambient temperature:	(21.5 to 22.5) °C
Ambient pressure:	(961 to 963) mbar
Ambient humidity:	(41 to 42) %

Measurement Results

Counter C, S/N **7600330422E**:

Overheated steam							
Pressure (bar)	Temperature (°C)	Density (kg/m^3)	Error (%)	Uncertainty (%)	Enthalpy (kJ/kg)	Error (%)	Uncertainty (%)
1.00	120.00	0.56	2.58	7.00	2716.61	-0.01	< 0.01
10.00	200.03	4.85	-0.49	0.82	2828.33	0.01	< 0.01
49.90	299.80	22.01	-0.04	0.18	2925.38	0.00	< 0.01
299.80	500.05	114.94	0.01	0.04	3085.35	0.00	< 0.01

Saturated steam						
Temperature (°C)	Density (kg/m^3)	Error (%)	Uncertainty (%)	Enthalpy (kJ/kg)	Error (%)	Uncertainty (%)
120.00	1.12	0.00	0.18	2705.94	0.00	< 0.01
200.02	7.86	0.00	0.02	2792.08	0.00	< 0.01
299.79	46.01	-0.01	0.01	2749.96	0.00	< 0.01

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Measurement Report **No 135-10364**

Counter D, S/N 7600320422E:

Overheated steam							
Pressure (bar)	Temperature (°C)	Density (kg/m^3)	Error (%)	Uncertainty (%)	Enthalpy (kJ/kg)	Error (%)	Uncertainty (%)
1.00	120.02	0.56	0.97	7.10	2716.66	0.00	< 0.01
10.00	200.06	4.85	-0.53	0.82	2828.40	0.01	< 0.01
50.63	299.83	22.40	0.00	0.18	2922.72	0.00	< 0.01
300.00	500.11	115.02	0.00	0.04	3085.28	0.00	< 0.01

Saturated steam						
Temperature (°C)	Density (kg/m^3)	Error (%)	Uncertainty (%)	Enthalpy (kJ/kg)	Error (%)	Uncertainty (%)
120.02	1.12	0.02	0.18	2705.97	0.00	< 0.01
200.05	7.87	0.00	0.02	2792.10	0.00	< 0.01
299.83	46.03	0.00	0.01	2749.89	0.00	< 0.01

Uncertainty of Measurement

The reported uncertainty of measurement is stated as the combined standard uncertainty multiplied by a coverage factor $k = 2$. The measured value (y) and the associated expanded uncertainty (U) represent the interval ($y \pm U$) which contains the value of the measured quantity with a probability of approximately 95%. The uncertainty was estimated following the guidelines of the ISO.

The measurement uncertainty contains contributions originating from the measurement standard, from the measurement method, from the environmental conditions and from the object being measured.

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