

PRODUCT CONFORMITY CERTIFICATE

This is to certify that the

WATERFLUX 3070

Manufactured by:

KROHNE Altometer

*A production facility of KROHNE AG, Basel
Kerkeplaat 12
3313 LC Dordrecht
The Netherlands*

has been assessed by CSA Group
and for the conditions stated on this certificate complies with:

**Performance Standards and Test Procedures for Continuous Water
Monitoring Equipment, Part 3: Performance standards and test procedures for water
flowmeters, Environment Agency, version 4, March 2020**

The combined performance characteristic (U_c , the expanded uncertainty) is **0.7% (Class 1)**

Certification Ranges:

Size range DN25 to DN600

Project No.: 80096415
Certificate No: Sira MC100178/03
Initial Certification: 8 November 2010
This Certificate issued: 8 November 2021
Renewal Date: 7 November 2025



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Environmental Team Manager

MCERTS is operated on behalf of the Environment Agency by

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Approved Site Application

Any potential user should ensure, in consultation with the manufacturer, that the monitoring system is suitable for the intended application. For general guidance on monitoring techniques refer to the Environment Agency Monitoring Technical Guidance Notes available at www.mcerts.net

The product is suitable for use, where it is appropriate, for regulated applications such as abstraction, effluent discharge, ultraviolet disinfection and industrial processing.

Basis of Certification

This certification is based on the following Test Report(s) and on Sira's assessment and ongoing surveillance of the product and the manufacturing process:

Sira Report	16W22202 dated 08 November 2010
NMi Certin B.V Report	R49-1 / 2006-NL1-09.01; 812577, dated March 2009
NMi Certin B.V Report	R49-1 / 2006-NL1-10.01; 9200759, dated November 2009
NMi Certin B.V. Report	NMi-13200159-01, dated 18 March 2015

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Product Certified

The measuring system consists of the following parts:

- WATERFLUX 3000 electromagnetic flow / water meter
- IFC 070 electromagnetic signal converter (C / compact or F / remote version)

This certificate applies to all instruments fitted with software version 4.0.4. (serial number A10 01 xxxxx onwards).

Pipe size	Flow rate		Unit
	max	min	
DN25	16	0.32	m ³ /hr
DN40	25	0.50	m ³ /hr
DN50	40	0.81	m ³ /hr
DN65	63	1.30	m ³ /hr
DN80	100	2.00	m ³ /hr
DN100	160	3.20	m ³ /hr
DN125	250	5.00	m ³ /hr
DN150	400	8.10	m ³ /hr
DN200	630	13.00	m ³ /hr
DN250	1000	20.00	m ³ /hr
DN300	1600	32.00	m ³ /hr
DN350	3125	15.63	m ³ /hr
DN450	5000	25.00	m ³ /hr
DN600	7875	63.00	m ³ /hr

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Certified Performance

The instrument was evaluated for use under the following conditions:

Ambient Temperature Range: -10°C to +55°C

The instrument meets MCERTS Class 1 requirements for the combined performance characteristic as specified in Table 6 of the MCERTS performance standard. Details of individual performance characteristics are summarised below:

Test	Results expressed as error % of reading				Other results	MCERTS specification
	<0.5	<1.0	<1.5	<2.0		
Protection against unauthorised access	A custody transfer seal is present					Clause 3.1.2
Indicating device	The flowmeter incorporates an indicating device, analogue and digital output signal					Clause 3.1.6 and 3.1.7
Units of measurement	Various units of measurement are available and displayed.					Clause 3.1.6
Bi-directional flow	The flowmeter displays a '+' or '-' flow reading					Clause 3.1.8
Combined performance characteristic (U_c)		0.70				Clause 6.4 $\pm 1.5\%$ Class 1
Mean error						
DN25	0.46					
DN50	0.44					
DN80	0.29					
DN100	0.50					
DN200	0.47					
DN300	0.33					
Mean error at low flow						
DN25 (0.025m ³ /h)			1.33			
DN50 (0.11m ³ /h)			1.43			
DN100 (0.62m ³ /h)			1.35			
DN200 (4.01m ³ /h)		0.58				
DN300 (3.97m ³ /h)					2.83	
Repeatability	0.15					Clause 6.3.2 1% Class 1
Supply voltage	<0.02				2.9V to 3.6V	Clause 6.3.3 0.5% Class 1

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Test	Results expressed as error % of reading				Other results	MCERTS specification
	<0.5	<1.0	<1.5	<2.0		
Fluid Temperature	0.22				12°C to 50°C	Clause 6.3.5 0.5% Class 1
Ambient air temperature	0.04				-10°C to +55°C 0C	Clause 6.3.6 0.5% Class 1
Relative humidity	-0.03				Test conducted at 45% relative humidity	Clause 6.3.6 0.5% Class 1
Stray currents	<0.02					Clause 6.3.9 0.5% Class 1
Bi-directional flow Mean error Repeatability	-0.08				See Note 1	Mean error ±1.5% Class 1 Repeatability 1% Class 1
Loss of Power for electronic flowmeters	No changes in pre-set data					Clause 6.3.1 to be reported
Response time					<30s	Clause 6.3.19 30 seconds
Warm up time					<1s	Clause 6.1.2 to be reported
Vibration	-0.11				Note 2	Clause 6.3.20 to be reported

Note 1: Repeatability for bi-directional flow could not be calculated as only 2 data points were taken at each flow rate

Note 2: Vibration test conducted with random vibrations over frequency range 10Hz to 150Hz on 3 perpendicular axes, for a period of at least 2 minutes per axis.

Note 3: The following tests are not applicable to the flowmeter:

6.3.4	Output Impedance	6.3.14	Flow reversal
6.3.7	Incident light	6.3.15	Ancillary devices
6.3.8	Sensor location	6.3.16	Effect of conduit material
6.3.10	Sonic velocity compensation & response	6.3.17	Effect of conduit size
6.3.11	Accuracy of computation	6.3.18	Fill level
6.3.12	User defined stage-discharge equation		

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Field Test Results

The field test was conducted on a WATERFLUX 3070 in series with a mechanical water meter for 3 months at a water utility site.

Test	Results expressed as error % of reading				Other results	MCERTS specification
	<0.5	<1.0	<1.5	<2.0		
Error under field test conditions	Error range 1.40% to 7.52%					Clause 7.3
	Field test error is <2% for 42% of readings					2% Class 1
	Field test error is <5% for 88% of readings					5% Class 2
	Field test error is <8% for 100% of readings					8% Class 3
Up time					100%	Clause 7.4 >95%
Maintenance					none	Clause 7.5 to be reported

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Description

The WATERFLUX 3070 is a battery powered water meter based on the electromagnetic flow principle. It is dedicated for applications in the water and wastewater industry. It consists of a WATERFLUX 3000 sensor and a battery operated IFC 070 converter. The converter can be mounted directly on the sensor (compact version) or separately (field version).

WATERFLUX 3070 is designed for custody transfer applications. It meets the requirements of the OIML R49 and can be verified according to MI-001. For potable water applications it is certified with DVGW, ACS, KTW. Krohne Altometer meets the applicable requirements of MID module D for the conformity assessment of water meters. The accuracy of the WATERFLUX 3070 is 0.2 % of the measured value plus 0.5 mm/s and every flow meter leaving the factory is calibrated.

The principle of the electromagnetic flow metering is based on Faraday's law of induction: passing an electrically conductive body through a magnetic field, a voltage is induced. This voltage is proportional to velocity and picked up by electrodes.

The WATERFLUX 3000 sensor has a rectangular cross section resulting in an improved flow profile, high accuracy in low flow conditions, large span and minimal power consumption. It is stated by the manufacturer that straight up- and downstream lengths are not required.

A grounding electrode provides the grounding of the medium, grounding rings are not required. The field version of the sensor can be submerged (IP68) and with an optional buriable coating can be installed directly underground. The tube and coil are designed for efficient energy consumption.

The IFC 070 converter is battery operated with two internal lithium batteries, with an operating life time is up to 15 years. It can display positive and negative counter, sum counter and flow rate. It can further provide diagnostic information for self checking, battery warnings, counter overrun, flow direction and empty pipe detection. It has two pulse outputs and two status outputs.

General Notes

1. This certificate is based upon the equipment tested. The Manufacturer is responsible for ensuring that on-going production complies with the standard(s) and performance criteria defined in this Certificate. The Manufacturer is required to maintain an approved quality management system controlling the manufacture of the certified product. Both the product and the quality management system shall be subject to regular surveillance according to 'Regulations Applicable to the Holders of CSA Certificates'.
2. The design of the product certified is defined in the CSA Design Schedule for certificate No. Sira MC100178/03.
3. If the certified product is found not to comply, CSA Group should be notified immediately at the address shown on this certificate.
4. The certification marks that can be applied to the product or used in publicity material are defined in 'Regulations Applicable to the Holders of CSA Certificates'.
5. This document remains the property of CSA Group and shall be returned when requested by CSA Group.

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