



The Only Multiphase Flow Technology
that Measures Water Directly

AquaField™ GOLD



The Challenge

In oil and gas production, produced water is a nuisance. The production of water reduces the pressure in the reservoir more than necessary, and the produced water reduces the capacity of the production facility. The operator needs to dispose of the water, either by discharging it to the environment or by re-injecting it to the reservoir. The produced water will always represent a cost for the operator.

The Solution

Introducing AquaField™ Gold, a state-of-the-art multiphase flow meter designed to monitor changes in water production from individual wells. Its patented detection principle measures both water content and conductivity in the flow, utilizing a compact, robust, full-bore design without intruding parts to ensure minimal pressure drop.

Accurate flow measurements are a valuable tool for operators, providing insights that contribute to efficient production, reservoir management, early issue detection, and alignment with environmental

sustainability principles. AquaField™ Gold surpasses traditional MPFM's, offering a non-nuclear solution capable of tolerating PVT changes without requiring updated PVT data during operation. Notably, AquaField™ stands out as the only technology capable of directly measuring water in multiphase flow.

In addition to its advanced capabilities, AquaField™ Gold provides real-time three-phased flow measurement and instant detection and reporting of production irregularities to the operators, enabling prompt action.

AquaField™ Gold sets itself as a reliable and efficient solution for operators seeking optimal performance to their production processes.



AquaField™ Gold Key Specifications

Real-Time Measurements

- Oil-Water-Gas Flowrates
- Water Cut
- Water Fraction
- Gas Fraction
- Conductivity (Salinity)

Applications

- Reservoir Management
- Production Optimization
- Well Production Testing
- Well Performance Monitoring
- Water Breakthrough Detection
- Custody Transfer

Features and Benefits

- No PVT Input Required (Note 1)
- Low OPEX
- Low CAPEX
- Non-Intrusive
- Real-Time Measurement
- No Nuclear Element

Note 1: Salinity input provided by "Conductivity Probe"

Installation

- AquaField™ Gold can be configured for both upward and downward flow, delivering accurate and repeatable measurements regardless of the flow regime. The meter's size and operating envelope are determined by the minimum acceptable flow velocity. AquaField™ Gold is designed for vertical installation, ensuring optimal performance in various flow conditions.
- The conductivity probe is integrated into a standalone flange, providing flexibility for installation downstream (at the outlet) of the AquaField™.



Technical Specifications

Typical Operating Range

Meter Body Size	1.5" ANSI 600 RF	3" ANSI 600 RF	3" ANSI 1500 RF/RTJ	4" ANSI 1500 RF/RTJ
Water Cut	0 to 100%			
Conductivity (Salinity)	0.5 – 30 S/m (3 000 to 300 000 ppm)			
Minimum Gross Liquid Production (*)	500 bbl/d (80 m3/d)	2000 bbl/d (320 m3/d)	1600 bbl/d (254 m3/d)	3000 bbl/d (480 m3/d)
* The operating envelope and size of the meter is determined by the minimum acceptable flow velocity. It is not possible to quantify the uncertainty in the measurements below the gross liquid production for the selected AquaField™ specified in table below. However, AquaField™ will continue to measure and record data.				
* Can be offered in Duplex, Super Duplex & Alloy material				

Typical Performance

Measurement Uncertainties at GVF Range	at 0-20 % GVF	at 20-60 % GVF	at 60-90 % GVF
Water Cut	± 2 % abs	± 2 - 3 % abs	± 3 - 5 % abs
Liquid Flow Rate	5 % abs		
Gas Flow Rate	± 5 to 10 % rel.		
Conductivity (Salinity)	± 0,5 S/m abs. (± 2500 ppm)		

Environmental

Design Life	Minimum 20 years
Ambient Temp for Storage	-10 to +55 °C
Operating Temperature	-20 to +120 °C
Operating Pressure	ANSI 600 – Maximum 90 barg / ANSI 1500 Maximum 220 barg


Material

Meter Body, Flanges & Conductivity Probe	22% Cr. Duplex
Internal Process Wetted Surface	PEEK

Electrical

Voltage Rating	Nominal 24 V dc (21 - 27 V dc)
Power Consumption	37 W at 24 VDC (50 W supply recommended)
Communication Port	RS-485 and Ethernet RJ45
Communication Protocol	Modbus RTU and Modbus TCP

Certifications

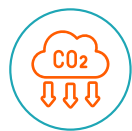
EX Certificates	EC Declaration of Compliance
IECEX / ATEX	Zone 1 II 2G Ex db eb ib [op is] IIB T3 Gb
	Zone 2  II 3G Ex ec ic IIB T3 Gc

The Value of AquaField™ Gold for Your Business



Enhanced Recovery

Accurately measures water fraction and provides crucial information to optimize production and maximize oil recovery.



CO2 Emission Reduction

Remove the need for traditional and periodic individual testing of wells using test separator and enable continuous production optimization.



Real-Time Monitoring

Online, continuous, and real-time conductivity readings in water continuous flows.



Production Optimization

Provides accurate measurements of water fraction which enables operators to make informed decisions and maximize overall production efficiency.



Remote Well Management

Monitor and analyze water production data remotely. The AquaField™ interfaces with RS485 MODBUS industry standard protocols.



Intuitive Dashboard

Provides operators with a comprehensive and user-friendly interface, allowing for easy visualization and analysis of water fraction data.

Product Feature	MPFMs	AquaField™ Gold
Direct Water Measurement	✗	✓
Conductivity/Salinity Measurement	✗	✓
Robustness to PVT Changes	✗	✓
Low CAPEX Cost	✗	✓
Low OPEX Cost	✗	✓

About

Hammertech AS, a subsidiary of Nordic Technology Group AS, is a Norwegian tech company specializing in multiphase flow metering solutions for the oil and gas industry. Committed to innovation and customer service, their flagship product, AquaField™, is the world's first PVT-independent Multiphase Meter. This groundbreaking technology optimizes production, enhances efficiency, and reduces greenhouse gas emissions. Hammertech AS's focus on sustainability aligns with industry trends, making them a key player in advancing cleaner energy practices. www.hammertech.no

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