WATERFLUX

Electromagnetic flowmeters
for standard applications
in the water and wastewater industry

KROHNE

achieve more

- Extremely robust metal flow tube with Rilsan® coating
- Suitable for custody transfer
- High accuracy, even for very low flow rates
- Battery powered as option: up to 15 years continuous operation and GSM Data transfer

KROHNE – the allure of water.

Welcome to KROHNE. As a global leader in process instrumentation, we supply products and complete solutions to a wide range of industries – all over the world.

Since 1921, the name KROHNE has stood for innovative and reliable solutions in the area of process instrumentation. Today, our products and services cover the entire range of measurement and analysis processes, from individual measuring points to complete plant solutions. Extensive customer care and consulting services round off the portfolio.

In the water industry, we have over 85 years of experience in metrology to draw on, and we have continuously set new standards in this technology.

In 1961, our engineers developed the first electromagnetic flowmeter. Today, we are the global market leader for electromagnetic flowmeters, which we produce in our factories in the Netherlands, Brazil, China and India.

Water is one of the world's key future markets. As a full-service supplier, we develop single-source engineering solutions that will meet future requirements.

WATERFLUX. High precision – 100% KROHNE.

Throughout the history of our company, KROHNE development and application engineers have been continuously pushing the limits of feasibility in developing and testing new instruments. The results are innovations that go far beyond the statutory requirements, thereby setting new standards for the market.

We continue this tradition with WATERFLUX – the electromagnetic water meter for standard applications. As a result, WATERFLUX is designed for custody transfer according to European Directive MI-001. The level of precision complies with the latest stipulation of the ISO/EN and MI-001 standards, with a ratio of 400 between Q1 and Q3 within the legal requirements.

The high operating frequency of 1 Hz to 1/20 Hz guarantees reliable measurement results with rapid inflow and outflow rates.

However, WATERFLUX also means „KROHNE proved": This covers specific trials, measurements and tests that go beyond the legal specifications – and on which our customers can rely 100 percent.

For example, we check the WATERFLUX electronics to a series of extensive temperature change tests, in which the converter is exposed to cyclical fluctuations from -20 °C to +60 °C.

Not only do these test help maintain the guaranteed temperature coefficients, but they also make sure the instrument can be used under extremely harsh conditions. This minimizes failure in the field.

Every WATERFLUX meter that leaves our factory is first wet-calibrated on our officially certified calibration rigs (EN 17025).

Unobstructed pipe cross section. High sampling rates.

The true quality of a water meter lies in its measuring path, which determines whether the instrument can deliver precise, repeatable measurement results even in problematic applications such as suspended particles and solids in the water.

The WATERFLUX measuring tube has a smooth, conical shape. This unique design, consisting of a rectangular cross section, optimized stainless steel electrodes and a homogeneous magnetic field, forms the basis for a flow-optimized pipe cross section, thereby providing reliable measurements that are largely independent of the flow profile.

This design has obvious advantages: WATERFLUX can measure the flow bidirectionally.

As an additional benefit, it optimizes the precision of the measurement results, thank to high sampling rates. And it does this with minimum power consumption, an indispensable advantage, for example during nighttime operation. Being independent of flow profile, WATERFLUX can also be used in applications with extremely short inlets and outlets.

The lining of the measuring tube is made of Rilsan® and is resistant to corrosion, aging and abrasion. As a result, WATERFLUX is a food-grade flowmeter in accordance with KTW, DVGW and ACS and thus also approved for potable water.

The surface and shape of the measuring tube also minimize mineral deposits, resulting in exemplary measurement quality – even over the long term.

WATERFLUX 3070 – power for 15 years.

Electromagnetic water meters boast many important advantages over their mechanical counterparts: outstanding long-term stability, maximum process reliability, no maintenance – to name just a few. But they have one small disadvantage: they need power. WATERFLUX minimizes this disadvantage.
To guarantee the longest battery life possible, all of the components were optimized to consume a minimum of power.

*

The result is obvious: thanks to low power consumption and a powerful battery, WATERFLUX 3070 can deliver highly precise measurements for many years. And it does so in places that either have no power or where no power is possible.

The battery life depends, among other things, on the sampling rate (measuring cycle) and the number of batteries. Up to 2 batteries can be inserted into the water meter. With a sampling rate of 1/15 Hz and 2 batteries, the device can operate for 15 years.

The power consumption of this highly innovative solution is less than that of a conventional electromagnetic flowmeter by factor of 5000 times!

Yet WATERFLUX can do a whole lot more. The water meter has extensive factory-set diagnostic functions that provide continuous self-diagnostic in accordance with the applicable standards like OIML R 49 and MI-001.

Converter operation is also monitored continuously, as are the sensor electrodes, the battery charge level and electronic functions. Draining of measurement tube, malfunctions and irregularities are detected and immediately displayed on the high-contrast, high-resolution display.

*optionally available with two batteries

No maintenance.
No additional expenses.

The actual efficiency and economic feasibility of a bulk water meter is often felt only after many years. Or it becomes apparent in just a few seconds – by glancing at its internal qualities.

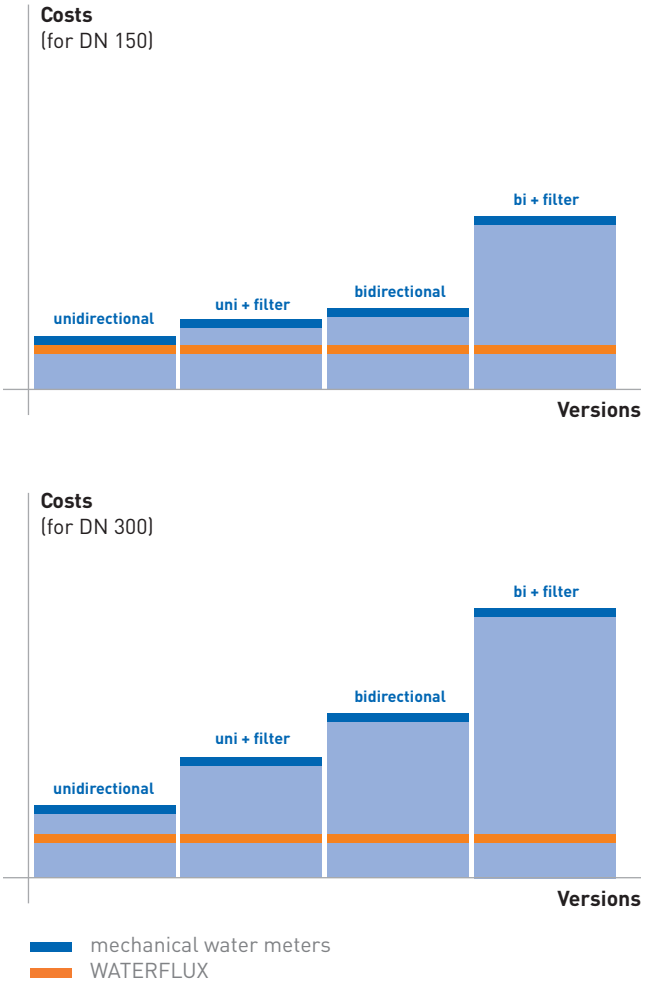
Thanks to its unobstructed measuring path, WATERFLUX is far superior to conventional water meters, with their sensitive mechanical components, where pressure loss and long-term stability are concerned. No moving parts, no parts extending into the measuring tube, no filters or additional grounding rings, no rectifiers or cleaning intervals, no maintenance: this is WATERFLUX.

However, the extremely sturdy housing construction of our bulk water meter also contributes to its long-term stability. For example, a flange made of cast steel with a protective PU coating is used for the flow sensor, while the signal converter is made from a combination of cast aluminum and protective PU coating.

WATERFLUX helps save money.

A look at the table makes one thing clear: the cost advantages offered by WATERFLUX over mechanical water meters rise significantly in proportion to the nominal diameters.

Costs:
WATERFLUX compared to mechanical water meters



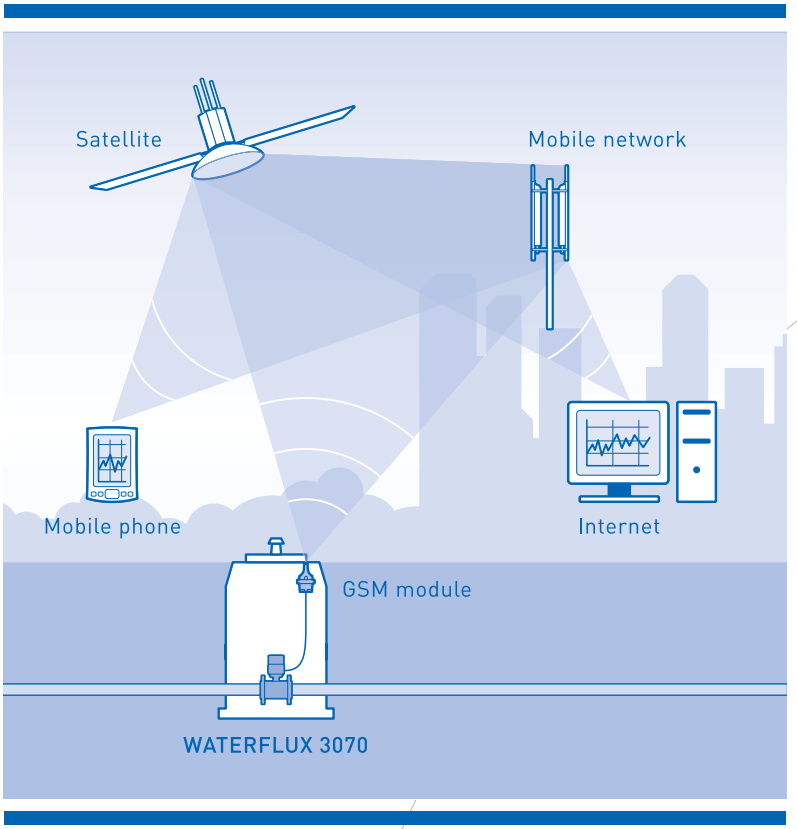
GSM delivers up-to-the-minute information. Anywhere in the world.

Bulk water meters are sometimes installed in extremely remote measuring points such as water chambers or difficult to reach transitional points.

The ability to read the measured results on-site may be standard, but it does not always meet the current and actual needs of the user or operator.

That is why WATERFLUX comes with an optional, state-of-the-art remote control system: a data logger and a GSM module.

The stored data is transmitted remotely at a customizable frequency (e.g. once a day), by SMS either to the control system or to a cell phone.


Satellite
Mobile network
Mobile phone
Internet
GSM module
WATERFLUX 3070

Optimal solution for any application.

Depending on the requirements, WATERFLUX can be fitted with a typical converter. This modularity is also reflected in the names of the devices: in other words, the device name is made up of the name of the sensor as well as the name of the converter. Example: WATERFLUX 3070 is a combination of the WATERFLUX 3000 sensor and the IFC 070 converter.

There are three specialists at your disposal for the different tasks.

WATERFLUX 3070 – when a stand-alone solution is needed.

Combined with the battery powered IFC 070 converter, WATERFLUX can be perfectly used as a water meter for measuring stations where connection to a power supply is either not available or not possible.

Typical applications for the WATERFLUX:

- Potable water, revenue metering
- Irrigation flow metering
- Distribution network monitoring
- Water abstraction
- Pipeline leakage detection

IFC 070 C
Compact installation
on the sensor

IFC 070 F
Separate installation
from the sensor

WATERFLUX 3300 – when it matters.

Combined with the IFC 300 converter, WATERFLUX proves itself in a wide range of applications, even those not related to drinking water measurement. Thanks to its extensive diagnostic functions, WATERFLUX 3300 is the first choice, especially for critical applications.

IFC 300 C
Compact installation
on the sensor

IFC 300 F
Separate installation
from the sensor

IFC 300 W
Wall-mounting
for non-hazardous areas

IFC 300 R
Rack version for
mounting in the central
control room

WATERFLUX 3100 – when cost-effectiveness is the priority.

Combined with the IFC 100 converter, WATERFLUX is particularly suited to applications which demand economic measuring technology solutions at a high technological level.

IFC 100 C
Compact installation
on the sensor

IFC 100 W
Separate installation
from the sensor

Operating conditions

	WATERFLUX 3070 | Water meter
Medium	- Raw water, well water, potable water etc. - Pure or containing solids - Conductivity > 50 µS/cm
Operating temperature	-5...70 °C; +23...158 °F
Ambient temperature	-20 °C to + 65 °C
Operating pressure	0 to 16 bar
Pressure loss	< 0.01 bar
Flow	Bidirectional

Technical data

	Design
Accuracy (WATERFLUX 3000)	±0.2% ±1.5 mm/s
Liner of measuring tube	Rilsan®
Measurement tube housing	Sheet steel (polyurethane coated)
Measurement electrodes	Stainless steel 1.4301
Reference electrode	Stainless steel 1.4301
Converter housing	Aluminum die-cast (polyurethane coated)
Connecting box (for remote version)	Stainless steel 1.4404 (ASME 316 L)
Flange	Cast steel + polyurethane coated DN 25...600 PN 16 / 1"...24" 150 lbs
Dimensions, flange to flange	Conform to DVGW / ISO
Design	Compact and remote version
Installation position	Any
Protection class (EN 60529)	IP 66/67 for compact version IP 68 for remote version (optional)
External auxiliary power	None
Battery operation (built-in)	1 or 2 lithium monocell batteries
Signal outputs (without built-in remote remote operating equipment)	2x passive pulse outputs for forward and reverse flow 2x passive status outputs for alarm function and battery charge status

KROHNE measuring technology
Product overview

- Electromagnetic flowmeters
- Variable area flowmeters
- Ultrasonic flowmeters
- Mass flowmeters
- Vortex flowmeters
- Flow controllers
- Level meters
- Temperature meters
- Pressure meters
- Analysis products
- Measuring systems for the oil and gas industry
- Measuring systems for sea-going tankers

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