

Diehl Metering

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How Diehl Metering pioneered the market's first ultrasonic water meter

Over a decade ago, Diehl Metering became the first company to market an ultrasonic water meter. HYDRUS was developed as a direct response to customers' experience in the Middle East and the meter has since evolved to integrate new innovations, becoming a cornerstone of smart water networks everywhere.

Ultrasonic measuring technology was first adopted by the heating sector in the 1990s. It was developed as an alternative to mechanical turbine measuring technologies, presenting the advantage of measuring flow rates without interfering with the flow stream. This made it less susceptible to blockages caused by metal particles, as well as being more resistant to rust and general wear. In short, ultrasonic energy meters were more reliable and durable.

Diehl Metering, then known as Hydrometer, was one of the pioneers of this technology. From 1991, its research team actively developed ultrasonic technology, and in 1998, Hydrometer launched SHARKY, its first ultrasonic flow sensor for the heating market. This was followed by the SHARKY compact heat meter in 1999.

Identifying a new customer need

For years, ultrasonic technology remained the exclusive domain of the energy sector. Then, from 2005, Hydrometer began working in the Middle East and quickly saw an opportunity to better serve its customers by developing an ultrasonic meter for the water sector.

Around this time, cities like Dubai and Abu Dhabi were expanding rapidly. In this desert-filled region, water is a precious and limited resource. Consequently, it has to be managed particularly carefully – and high-quality meters are a crucial tool in ensuring water is distributed efficiently with minimal risk of waste and leakages.

At the time, standard water meters struggled to cope with the desert sand. Tiny particles would work their way into the pipes, often causing blockages and even permanently damaging meters. In addition, mechanical meters could not distinguish between air and water and therefore would count air in the case of water shut off or intermittent water supply.

To address this issue, some of Hydrometer's customers in the Emirates had started installing ultrasonic energy meters in their water distribution networks. But energy meters are much bigger than water meters and are not designed to cope with humid conditions. Hydrometer knew it needed to offer its customers a better solution, and began work on adapting ultrasonic technology to the needs of water metering.

Designed for the extreme and long-lasting accuracy

In 2008, Hydrometer launched the world's first ultrasonic water meter. Its name was HYDRUS, a combination of Hydrometer and US, the abbreviation for Ultrasonic. The meter was a direct response to the challenges faced by the company's Middle Eastern customers.

Featuring a robust design, HYDRUS was built to resist high temperatures and high humidity, as well as withstand sand and air in the pipes. By building it to meet such extreme conditions, Hydrometer ensured its new meter would deliver long-term performance anywhere in the world.

Listen and improve

Since HYDRUS was first launched, Diehl Metering has continued to listen to its customers and adapt the technology to their needs. The battery life has been extended to up to 16 years, and the meter is now available in all common nominal sizes, as well as an ultrasonic Bulk version. Furthermore, electronic displays ensure that information is available on-site.

The integration of new connectivity standards means that HYDRUS is now capable of gathering multiple metrics about water consumption, flow, and temperature. Diehl Metering's IZAR radio technology, a precursor to the Internet of Things, is integrated into all its ultrasonic meters, enabling utilities to benefit from mobile reading, remote readings, and automatic data transmission in a fixed network, as well as the potential of the Internet of Things.

It is 13 years since HYDRUS was first launched – and 30 years since Diehl Metering first developed ultrasonic measuring technology. Today, the industry has fully embraced the technology, and Diehl Metering continues to listen to its customers, continually enhancing its ultrasonic meters to optimize their precision, stability, and durability, as well as their connectivity.

About Diehl Metering

Diehl Metering is a worldwide leader in the design, manufacture and supply of smart metering solutions. With over 150 years of experience, we empower utilities, municipalities and industries to take control of their infrastructures, bringing new efficiencies to the way they manage water and energy.

Our extensive range of services and solutions includes data-driven insights, IoT connectivity, fully-flexible software, and seamless intelligent metering. We also utilise artificial intelligence to boost performance and deliver cost savings for our customers.

Headquartered in Germany, we are a family-owned business with an international reach. We are proud to maintain our founding principles of quality, reliability and customer proximity while proactively shaping a better future for our customers and the communities they serve. Our approach is to think global and act local. By anticipating trends and remaining agile, we adapt and develop our strategy with our customers and for them.

In supporting their long-term growth, we also contribute to the sustainability of the planet, crafting innovations that enable our customers to make ever better use of the natural resources we all rely on.