

# 8 Hydronic Applications Improved by Ultrasonic Meters

Badger Meter  
The Insider Blog



**Badger Meter**



**TECHNICAL AIR SYSTEMS, INC.**  
*A Comfortable Choice*

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# BADGER METER ULTRASONIC METERS

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- Ultrasonic meters are a leading technology because of their ability to simplify flow measurement across a variety of applications
- These meters are increasingly popular in heating, cooling, sub-metering and monitoring applications for their unmatched flexibility, accuracy and repeatability
- Discover eight hydronic applications where ultrasonic meters play an important part in improving operations



# I. COOLING TOWER BLOWDOWN

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- Because [cooling tower blowdown applications](#) are complex and critical to overall system operation, meters must be able to capture low flow measurements with an accuracy of  $\pm 2\%$ .
- Ultrasonic clamp-on meters—like the [Dynasonics® TFX-5000 Ultrasonic flow meter](#)—are a leading choice because operations don't have to shut down for installation.
- The meter simply clamps onto the pipe, ensuring it never contacts the highly concentrated water.
- Unlike in-line meters, ultrasonic clamp-on meters allow debris to pass through without the fear of clogging or losing accuracy.



## 2. CHILLED WATER

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- Precisely staging chillers and monitoring and maximizing [chilled water system](#) efficiency is an important task to keep operations running.
- The [TFX-5000 meter](#) is an ideal choice because of its ability to measure flow with impressive accuracies and temperature differentials better than 0.1 °F.
- Additionally, this meter can measure flow and temperature—providing British Thermal Unit (BTU) energy measurements—without the need for additional tools, allowing operations managers to closely monitor and maximize system staging.

### 3. GLYCOL/ HOT WATER

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- In [glycol/hot water applications](#), the measurement of temperature difference is required to calculate the amount of thermal energy used.
- Badger's ultrasonic clamp-on flow meters provide a complete energy flow solution, delivering notable accuracy to help maximize system efficiency.
- The [TFX-5000 meter](#) is non-intrusive and can seamlessly integrate into existing operations—a single user can install this meter without shutting down operations.



## 4. MAKE- UP WATER

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- Accurate flow measurement is required so that decision-makers know the correct amount of make-up water to add to the system to avoid critical malfunctions or failure.
- In addition to impressive accuracy, ultrasonic clamp-on solutions can capture low-flow measurements to support these efforts.
- These meters are also recognized for their low cost of ownership and ease of installation to be up and running in under an hour.

# 5. CONDENSER WATER

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- Condenser water systems work in tandem with chilled water systems to remove heat energy from a building or process.
- Because of its crucial function, accurate ultrasonic flow meters are a top choice to monitor fluctuating flow rates and maintain proper system operation.
- These meters are a leading option because operations can continue running during installation and sample the flow 40 times per second to provide accurate flow, temperature and energy measurements when paired with accompanying sensors to maintain optimal system function.



## 6. CONDENSATE BOILER FEED-RETURN

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- Condensate return applications have a major impact on system productivity, energy efficiency and reliability because they return condensate to the boiler so less make-up water is needed.
- Accurate and frequent flow measurement ensures that supply water is high quality and that low-quality water is removed from the system.
- Ultrasonic clamp-on meters are a top choice since they can be installed quickly and fit the required parameters of  $\pm 2\%$  accuracy.
- They also cover a wide flow range with the ability to capture low flows within the application, measuring 0.07...33,000 gallons per minute.

# 7. COST ALLOCATION/ SUB- METERING

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- In cost allocation/sub-metering applications, tenants are billed based on their energy and water use. Accurate flow measurement is critical to ensure water flow is tracked 24/7 and communicated to a data management system for proper management and billing.
- Meters like the TFX-5000 meter are ideal options for their wide turndown and low-flow capabilities.
- These meters can be easily installed on a pipe's exterior to start operating in less than an hour.
- That means facilities managers and other stakeholders have access to the information they need almost immediately to start monitoring water usage.



## 8. OVERALL CAMPUS EFFICIENCY AND ENERGY PERFORMANCE CONTRACTS

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- Ultrasonic meters are also frequently used to monitor air handling unit flow rate and BTU efficiency.
- These meters can help facilities managers establish an energy-use baseline for current heating and cooling systems to determine where improvements can be made to save on energy costs.
- This information also helps decision-makers identify inefficiencies and determine if equipment throughout campus facilities needs to be upgraded.
- Since installation time is significantly reduced with meters like the TFX-5000, data can be collected and actioned on quickly.

# MAKING THE TRANSITION TO ULTRASONIC CLAMP- ON METERS

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- Controls contractors, facilities engineers and other stakeholders are realizing the benefits of ultrasonic clamp-on technology and making the switch to better manage their rigorous hydronic systems.
- Learn more about Badger Meter's solutions for HVAC applications and how the right metering technology can make all the difference in improving your operations at <http://www.technicalair.com/badger-meter>
- Find additional Building Performance & Controls articles, along with our entire catalogue of Air Handling/ Air Distribution and Commercial Kitchens articles, at the Engineering Corner: <http://www.technicalair.com/ec>