Application Note

Chilled Water Flow Metering with Pro-M™ Electromagnetic Flow Meters

ADVANTAGES

- Highly Accurate
- No Moving Parts
- No Pressure Drop
- High Turndown Ratio
- Bi-directional Flow Measurement

Chilled water systems are widely used in industrial and commercial facilities. Chilled water is a versatile and efficient way to provide cooling in a wide range of applications, from large industrial processes to small commercial buildings.

Industrial facilities use chilled water to control the temperature of equipment, processes, and products. Manufacturing processes can generate a tremendous amount of heat, which can damage equipment and products. Therefore, many processes require precise temperature control to ensure product quality and safety. Some industries where chilled water systems are used extensively include food processing, pharmaceutical manufacturing, and chemical production.

Commercial facilities such as office buildings, hospitals, college campuses, and data centers rely on chilled water systems for air conditioning. These systems consist of a central plant, typically including a chiller, cooling tower, air handling units (AHU), pumps, instrumentation, and controls. These systems produce and circulate chilled water through a network of pipes to various air handling units located throughout a facility. See Figure 1 below for a basic diagram of a chiller system used in a commercial facility.

Centralized chilled water systems are more efficient, cost-effective, and easier to maintain than individual air conditioning systems. Additionally, they offer several advantages over traditional air conditioning systems, including improved efficiency, greater control over temperature and humidity levels, and reduced noise and maintenance requirements.

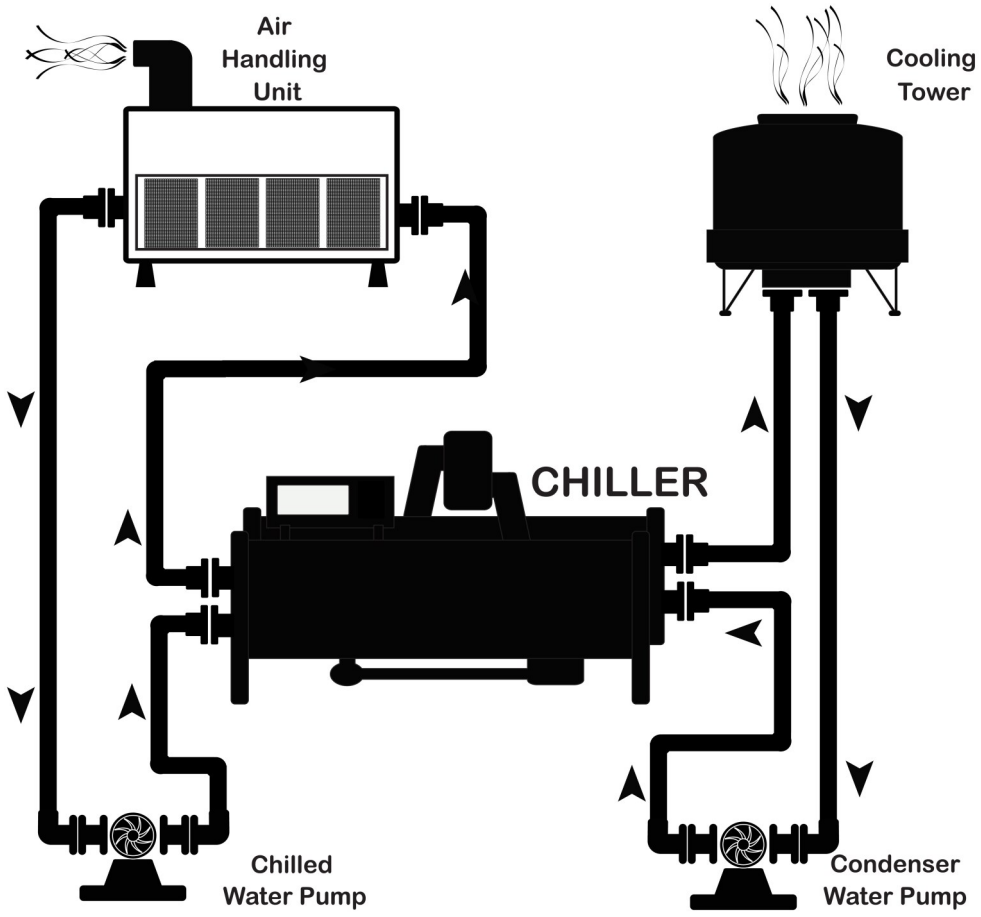

Figure 1

Flow meters are essential components in chilled water systems as they help to monitor and control the flow rate of chilled water throughout the system. By monitoring the flow rate, the system can be adjusted to deliver the appropriate amount of chilled water to the cooling equipment, which helps to prevent the system from using more energy than necessary, increasing the system's overall efficiency. Additionally, most industrial equipment has a specified flow rate needed to cool the equipment adequately. If the flow rate is inadequate, the equipment is at risk of overheating. Installing flowmeters upstream of such equipment is the best way to monitor whether the equipment is being cooled properly.

Flow meters also help with maintenance and safety in chilled water systems. They can help to identify issues in the system, such as leaks and failing pumps, by monitoring changes in the flow rate. When the flow rate drops suddenly in one section of the system, it could mean a substantial leak has formed or a pump has failed. Quickly detecting these problems allows operators to take steps like redirecting the chilled water flow or reducing equipment use while the leak or the pump is repaired.

Overall, flow meters are critical for maintaining the optimal performance of a chilled water system, optimizing energy efficiency, ensuring system performance, identifying maintenance issues, and ensuring system safety.

Why choose a Pro-M™ Electromagnetic Flow Meter?

Electromagnetic flow metering is a tried and true technology for chilled water systems. Pro-M Electromagnetic Flow Meters offer the following benefits:

Feature	Benefit
Highly accurate	Improved process efficiency, cost savings, product quality, safety, and regulatory compliance
No maintenance required	Low total cost of ownership
No pressure drop	No need to overcome pressure loses; reduction in pump energy usage
No moving parts	No need to recalibrate or perform periodic maintenance
High turndown ratio	Captures a wide range of flow rates; peak and off-peak loads
No drifting, no recalibration required	No process interruptions or costly downtime
Bi-directional flow measurement	No need for additional meters

For more information visit

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