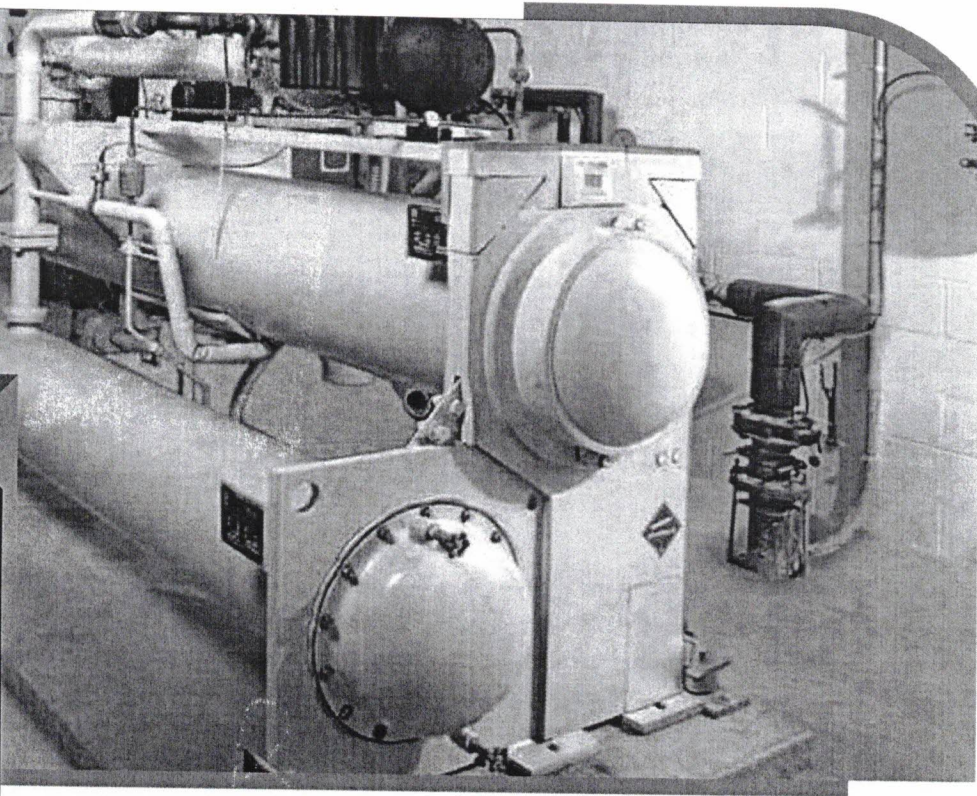


Application Note
Chiller Water Supply Line

The concept of chilled water systems has been around since the ancient Romans time, where Romans would run water through the walls to cool the space inside their buildings. Similarly, chilled water systems are typically used for medium and large buildings. Along with different configurations, it is used to transfer heat between the inside and the outside of a building. While the chilled water system cost can be a lot, the greater energy efficiency and lower maintenance costs usually make up for it.

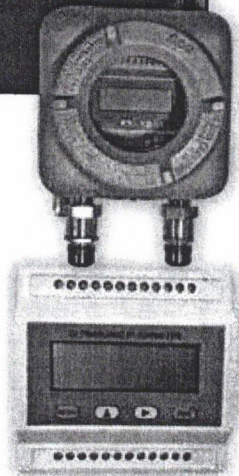
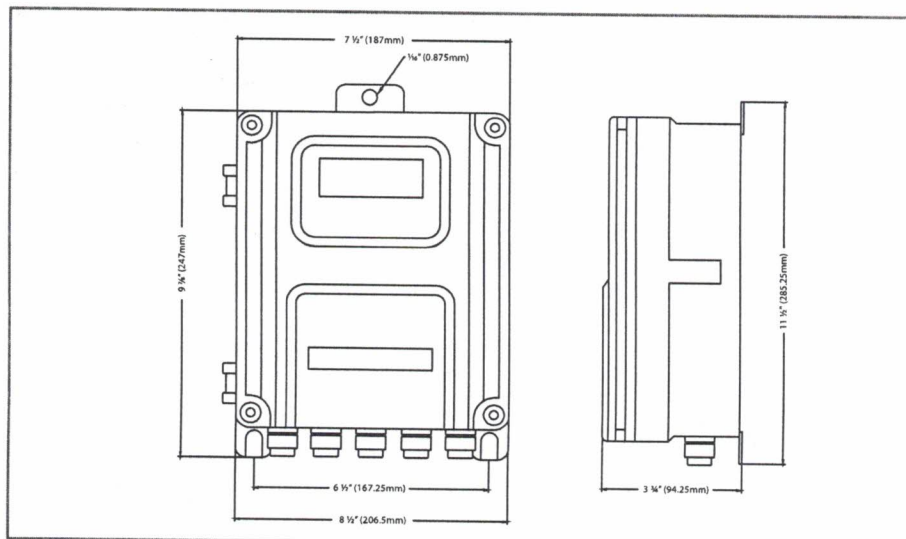
Additionally, commercial buildings require a significant amount of cooling and often use chilled water systems because they are useful and less expensive. These water chillers cool water to between 40°F and 45°F and then pump it through a closed loop into the connected air handlers and building to provide cooling. Because of rising energy costs and constant system operation, operators use flow meters to enhance the efficiency of existing chilled water systems and limit how often the equipment runs, lowering operating costs without affecting its operation.



Application

In a Chiller Water Supply Line, the Ultrasonic Flow Meter is installed when chiller water is distributed through a tertiary pumping system. The tertiary pumping system pulls water from the supply line and sends it through the air handling units (AHUs) in different buildings or areas. The supply line flow rate is used to identify and confirm the required chilled water flow to the tertiary pumping system. The temperature of the chilled water is maintained at $\leq 6.5^{\circ}\text{C}$ and the output from the flow meter is connected to the BMS system.

Dimension for Tek-Clamp 1200A Ultrasonic Clamp-On Flow Meter



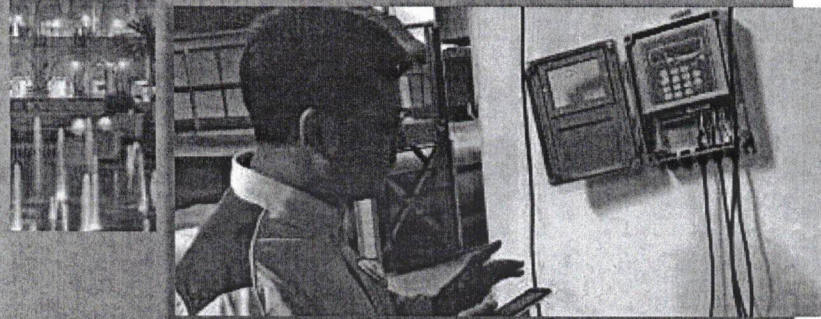
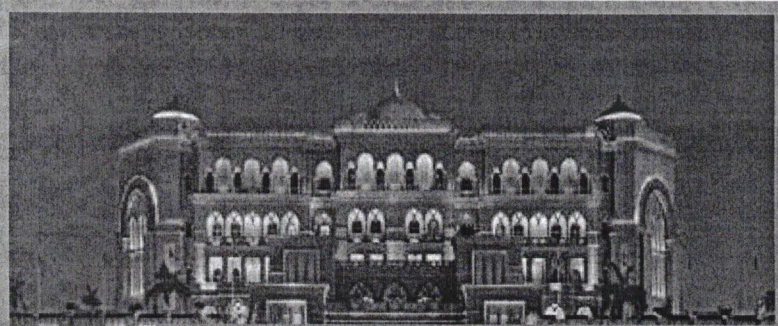
Tek-Clamp 1200A

Ultrasonic Clamp-On Flow Meter

Our Customer

Emirates Palace Hotel, United Arab Emirates

The Emirates Palace Hotel consists of chiller water supply line and is the most luxurious 5-star hotel situated in Abu Dhabi, United Arab Emirates, operated by Kempinski and opened in February 2005. The facilities include 394 residences, including 92 suites and 22 residential suites with 2 spa facilities with additional 40 meeting rooms. It also includes a 1.3 km long beach, a marina, two helicopter landing pads, a ballroom with 2500 people accommodation, various luxury shops and international restaurants.



The previously installed flow meter was neither working nor giving trustworthy readings. Hence, chiller plant operators were unsure about its performance. The customer lost confidence in the measurement as it measured unstable flow because the flow was zero at some location. Engineers, facilities managers and other key stakeholders have the critical responsibility of precisely staging chillers including monitoring and maximizing chilled water system efficiency. It was also challenging to measure the flow for long-distance pipes. Engineers, facilities managers and other key stakeholders have the critical responsibility of precisely staging chillers including monitoring and maximizing chilled water system efficiency. It was also challenging to measure the flow for long-distance pipes.

Challenges

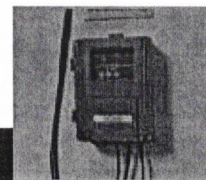
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- ① *Untrustworthy readings.*
- ② *Unsure flow meter performance.*
- ③ *Measured unstable flow including zero flow at some locations.*

Solution

Tek-Clamp 1200A when installed on the chiller water supply line at 'Emirates palace -Abu Dhabi'.

Our client was thrilled with Tek-Clamp 1200A Ultrasonic Clamp-on Flow Meter result and he asked to keep the meter for 5 days. The best part is that Tek-Clamp 1200A Ultrasonic Clamp-On flow meter is that it can be installed without shutting down operation or cutting into the pipe, both expensive and time-consuming.



"Designed to measure fluid velocity of liquid in a full or closed pipe."

Conclusion

We have successfully installed Tek-Clamp 1200A Ultrasonic Clamp-On Flow Meter at 'Emirates palace -Abu Dhabi'. Since the client was happy about the result, he asked to keep the meter for 5 days. Meter is been installed on DN250MM chilled water pipe with water temperature 10°C. pipe material is Carbon Steel to minimize corrosion along with 75MM insulation. It did take some time to remove the insulation to install our clamp on sensor (M2) but we received signal strength 72-78 and quality 89-93. The flow rate has been stable at around 873 g/m. Tek-Clamp 1200A Ultrasonic Clamp-On Flow Meter is highly innovative digital signal processing meter and provides reliable, repeatable, and accurate bidirectional flow measurement over a wide turndown ratio.