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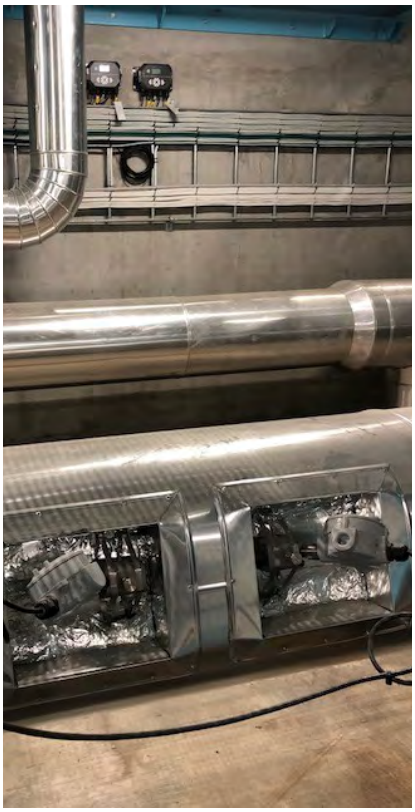
Application note

Water measurement for cooling and heating systems at the ESS Research Center

Benefits:

- Easy to set up
- No process interruption
- Strong reputation in clamp on measurement
- Reliability built from previous projects
- Solid local support



Summary

The European Spallation Source (ESS) organization leads a large science and technology infrastructure project in Lund, Sweden aimed at building the largest proton accelerator in the world. Its goal is to send protons at ultra-high velocity and under high power in a 2.6m diameter and 400m length closed helium cooled loop to produce neutrons.

Once neutrons are released, scientists investigate them further for various reasons as explained by ESS.

ESS states "Our vision is to build and operate the world's most powerful neutron source, enabling scientific breakthroughs in research related to materials, energy, health and the environment, and addressing some of the most important societal challenges of our time."

Application

Process details:

Media:	Water
Pressure:	0-12 barg (0-174 psig)
Flow:	Between 0-12 l/s and 0-60 l/s (0-190 GPM and 0-951 GPM)
Temperature:	From 5°C to 120°C (41°F to 248°F)
Pipe material:	Stainless steel
Pipe size:	From DN80 to DN350 (3" to 14")
Accuracy:	±2% of reading

Challenge

The energy and facility company responsible for the proton accelerator heating and cooling system required high-performing instrumentation and control equipment.

Given that any deviation across the energy controlled system related to heating and cooling could have an impact on the development of the protons, it was critical that the customer used technology that provided superior accuracy and unrivalled levels of reliability without compromising safety.

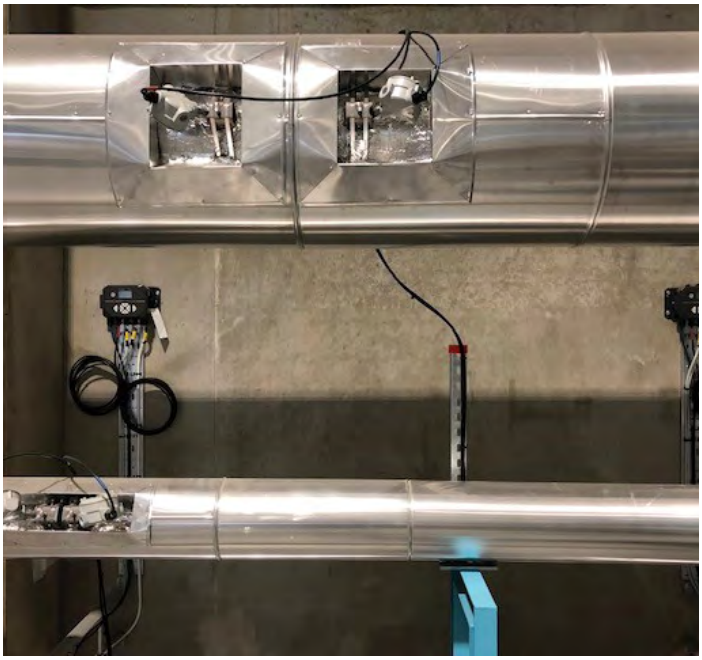
The solution

Based on its excellent track record, Panametrics was awarded the contract and provided 27 Aquatrans AT600 with C-RS transducers for the first deployment phases.

The flow meters will feed the control system to ensure proper efficiency of the heating and cooling system is achieved. This will help optimize the operation of the proton accelerator.

The result

Based on the current results, Panametrics has been selected for the next and final phases of the project for similar applications.



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Panametrics, a Baker Hughes Business, provides solutions in the toughest applications and environments for moisture, oxygen, liquid and gas flow measurement.

Experts in flare management, Panametrics technology also reduces flare emissions and optimizes performance.

With a reach that extends across the globe, Panametrics' critical measurement solutions and flare emissions management are enabling customers to drive efficiency and achieve carbon reduction targets across critical industries including: Oil & Gas; Energy; Healthcare; Water and Wastewater; Chemical Processing; Food & Beverage and many others.

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