

Contactless flow measurement for the British Nuclear Group. In order to measure the flow of nitric acid at various measurement points, the flowmeter had to be portable and suitable for various pipe diameters.

Specifications

- **Installation Type:** Portable
- **Flow Channels:** One
- **Medium:** Nitric Acid (HNO₃)
- **Pipe Material:** Steel
- **Pipe Diameters:** 6 to 400 mm
- **Flow Velocities:** Various
- **Temperature:** Ambient

Application



British Nuclear Group needed an accurate and portable instrument to measure flow within nuclear plants like this (Sellafield).

Instrument Solution



Hand-held ultrasonic clamp-on flowmeter KATflow 200 as example of a suitable instrument.

Measurement Task

British Nuclear Group, now named British Nuclear Fuels, specialises in the management and clean-up of nuclear sites. The company required an instrument to measure the flow of nitric acid through air sparged pipes which were not equipped with a flowmeter. The difficulty that the engineering team faced was finding a device that would cope with the varying measurement conditions on the pipes. First of all, the instrument had to be portable so it could be used at different measurement points within the nuclear plant. Secondly, the flowmeter had to deliver accurate measurement data without the need to open pipes in order to avoid the shut down of on-going processes and the exposure of staff to hazardous chemicals.

Solution

The solution came in the form of a portable ultrasonic clamp-on flowmeter similar to the hand-held KATflow 200. Due to its portability, the flowmeter can be used at any part of the plant. At the same time, the clamp-on mounting technique enables the engineers to avoid pipe modifications and the risk of being exposed to the hazardous chemicals. By using a portable flowmeter rather than a conventional fixed installed inline device, the engineers at British Nuclear were also able to make considerable savings on the running of the system as Chris Fairclough, Senior Technical Adviser, explained: "The flowmeter allows us to validate commissioning data in a wide variety of locations, where measurements are only required for a short period of time; and to calibrate the system without the need for a permanent meter. These are necessary sometimes but a portable meter saves time and money". In combination with Katronic's quick, friendly and competent customer service, British Nuclear Group received an excellent turnkey solution.

Advantages

- **Simple, quick and cost effective installation and measurement**
- **No need to interrupt on-going production processes and no risk of contamination with the flowing liquid**
- **Capable of measuring the flow on pipes of various diameters and materials (all common metals, plastics and more)**
- **Easily portable throughout the whole plant**
- **Robust, reliable and accurate instrument**

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