Non-Contact Sensor for Open Channel Flow Measurement

Open channel discharge measurement using area velocity method has been proven to be an apt solution for waste water channel and sewer line application. Hydrovision GmbH put together its hard earned experience to develop and successfully install non-contact velocity sensors that work based on frequency shift of back scattered microwave signal with a frequency of 24 GHz. The flow meter for open channels, consisting of radar type velocity sensor and an ultrasonic water level transmitter, is suitable for open channel, river and municipal sewerages. The system can be easily installed while the channel or river systems are in operation. Hydrovision has developed a finite differential-algorithm that calculates an accurate average velocity from the measurement of surface velocity at a known point on the flowing surface. The radar sensor comes with an integrated inclination sensor and checks its position after each measurement so that any inclination error can be corrected. An optional surcharge sensor can be adopted so that the system measures from open channel conditional to a surcharged condition like in sewers. The non-contact measurement system offers distinct advantages such as accurate open channel flow measurement, easy installation, bi-directional flow measurement and optional surcharge water level measurement. In addition, the new technology does not require installation of a shut down or dewatering system, as it ensures health safety for not requiring any human contact with the wastewater during installation. The system is also considered low maintenance since sensor cleaning is not required.

Clamp on Ultrasonic for Large Bore Pipes

A recent request from a water utilities company for a solution to monitor two large water pipes, 1400mm HDPE, feeding from a reservoir, gave Katronic another opportunity to show the versatility of the KATflow 150. By using the Clamp-on meter the customer was able to maintain full bore flow with no narrowing, keeping costs to a minimum. The chosen solution used two pairs of sensors, providing reliable and accurate measured flow rates, either as an average or with two independent values.

Furthermore, fixed installation clamp on ultrasonic flow meters provide a cost-effective solution for pipes greater than 200mm in diameter especially once the installation costs are taken into consideration. Fitting a full bore or even reduced bore magnetic or venturie flow meter requires breaking the pipeline and shutdown of the system as well as manpower, tools and lifting equipment which add a significant cost. Consumables such as seals and bolts and longer term considerations like recalibration mean that the cost of any inline device add up.

To this end, the instrumentation frameworks for the UK Water companies now require that bidders be able to offer clamp-on flow meters are part of their standard product offering. Moreover, the sensors can be installed directly to the surface of the pipes whatever the condition, old, soiled or newly installed. With a Katronic clamp-on flow meter the customer is guaranteed an excellent product and market-leading technology with after-sales support.
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