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**PRESS ANNOUNCEMENT**

**Staying Cool: Titan Enterprises Discuss 5 Industrial Applications for Cooling Water Flow Measurement**

The terms water meters and flow meters can be used interchangeably, but there is a key difference between them. Whilst all water meters are flow meters, not all flow meters are water meters. Commonly applied in the domestic environment for devices used to determine your water bill, water meters measure the total amount of water that passes through them. Flow meters, on the other hand, measure the volume and flow rate of a liquid or gas passing through a pipe. They can be used for water, but also for other fluids and gases in various industrial applications.

**Flow Measurement in Cooling Water Systems**

In cooling water systems, water is used to remove heat from an industrial process or air conditioning equipment. Such systems provide cooling for critical processes found in power generation stations, food and beverage process facilities, data centres, hospitals and pharmaceutical production.



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Neil Hannay, Senior R&D Engineer with Titan Enterprises, says: "Selecting an appropriate flow meter for a cooling water system is just as vital as the operational process itself." Flow monitoring helps to optimise plant or system efficiency, save energy, control chemical costs and enhance overall profitability.

### Five Applications for Cooling Liquid Flow Meters

#### *1. Water coolant for glass bottle production*

Graphoidal Developments design and manufacture advanced lubrication and coating systems for the glass container and tableware industries. Titan's [Industrial Process Atrato®](#) ultrasonic flowmeters are installed in the water lines to monitor the application of the coolant to the shears which are used to cut semi-molten glass in bottle making machines. The accurate application of a lubricant and coolant is critical to the reliability of the whole machine. In addition to the multiple flow ranges of this ultrasonic device, in older glass bottle making plants the deposition of rust in the water coolant lines require a robust flowmeter that is immune to 'dirty water' problems. As the [Process Atrato®](#) flowmeter has no moving parts, there are no components to wear out or clog due to inherent rust abrasion and particles.

#### *2. Metering laser coolant flow*



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There are numerous applications for industrial and medical lasers: cutting, welding, micro-machining, cosmetic and eye surgery. Lasers generate a significant amount of heat that needs to be quickly and effectively dissipated to ensure stable long-term performance of the instrument. Water circulated through a chiller or heat transfer system is a popular cooling method for lasers. Titan's [800 series turbine flowmeters](#) are integrated into several leading industrial and medical laser systems to provide consistent laser cooling through accurate and repeatable water flow measurement.

### 3. *Cooling systems for medical treatment applications*

An innovative liquid-based cooling system by Paxman Coolers Ltd utilises Titan's [NSF-approved mini turbine](#) flowmeters to monitor the rate of coolant flow around the patented cooling cap during chemotherapy treatment. The scalp cooling technology can alleviate the damage caused to the hair follicles by reducing the temperature of the scalp by a few degrees before, during, and after chemotherapy treatment. Titan's mini turbine flowmeter is considered ideal for the Scalp Cooling System because it offers an excellent balance of measurement accuracy, long term resistance to coolant fluids, high reliability and is proven easy to maintain and cost effective.



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*4. Cooling the world's most sensitive astronomical camera*

The world's largest optical telescope, the 10.4m Gran Telescopio Canarias (GTC) on the Canary Island of La Palma, is equipped with a powerful astronomical camera built by the University of Sheffield, UK. The camera, called HiPERCAM, is the most sensitive astronomical camera in the world and has been used to study black holes, neutron stars, white dwarfs, exoplanets, active galactic nuclei and the outer regions of our Solar System. The five light sensors used in HiPERCAM are ultra-sensitive charge-coupled devices which require cooling to 183K (-90°C) to minimise noise in the images. This cooling is achieved using very high performance thermo-electric (peltier) coolers, which in turn require a liquid coolant (a water-glycol mixture at +5°C) to remove the heat they extract. Micro bubbles and metallic sludge in the



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telescope's coolant supply meant that a flow measurement device impervious to these unavoidable characteristics was essential. Titan's [FT2 optical flow sensor](#) that uses an LED and photo-diode to measure flow was used successfully without being affected by the undesirable properties of the telescope's cooling fluid.



### 5. *Measuring Refrigerant Flow*

Reliable flow monitoring of refrigerant liquids is a vital requirement for cooling equipment used in data centre facilities. Refrigerants in cooling systems are widely used by big data centres and electricity production facilities to keep equipment running efficiently and prevent over-heating.

Using steel reinforced polymer components, the low inertia turbines of [Titan's 900](#) and [1000 Series turbine flow sensors](#) are ideal for measuring the low viscosities encountered with volatile refrigerant fluids measured in liquid form.



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Because water can conduct heat about 30 times faster than air, using water or a water-mix as the cooling medium enables a highly efficient liquid cooling system, vital for electronic systems, medical appliances and highly sensitive instruments.

The bottom line for cooling liquid water systems is for reliable monitoring and ensuring there is adequate flow of coolant to the downstream instrument or process, thus mitigating against serious problems caused by over-heating, such as degradation of operational performance, damage to critical equipment and shutdowns.

Visit Titan Enterprises' [website](#) for further information on flow measurement or to discuss specific OEM applications, please contact [Titan Enterprises](#) on +44 (0)1935 812790 or email [sales@flowmeters.co.uk](mailto:sales@flowmeters.co.uk).

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Drawing upon over 40-years of flowmeter innovation - Titan Enterprises Ltd is a leading manufacturer of high-performance flow measurement solutions, including the Atrato® & Metraflow® ultrasonic flowmeters, Oval Gear flowmeters, low flow Turbine flow meters and a flow instrument range. Titan's company philosophy of "pushing the envelope by trying to do things a little different and better" has resulted in sales of over 2 million flowmeters and components into 50 countries worldwide and a repeat purchase percentage of 95%. All flowmeters produced by Titan Enterprises are designed and manufactured to ISO 9001 and calibrated to an uncertainty of  $\pm 0.25\%$ .



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**138-Cooling Water Flowmeters**

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**Website link for PR**

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