

ST98 Flow Meter with Vortab VIP Conditioner Ideal For Wastewater Treatment Aeration System Control



San Marcos, CA — Wastewater treatment plant engineers in search of an accurate, economical solution for air/gas flow measurement in aeration basins will find that [Fluid Components International's](#) precision [ST98 Thermal Mass Flow Meter](#) when combined with the [Vortab Model VIP Flow Conditioner](#) provides superior

performance to minimize compressed air flow energy costs..

In wastewater treatment plants, a variety of processes are employed to eliminate organic pollutants from water. The activated sludge method requires the pumping of compressed air into aeration basins where a diffuser system ensures the air is distributed evenly for optimum treatment. Large amounts of compressed air are required to ensure the aeration process operates effectively, with flow meters installed in the system piping to help monitor the air that is released into the basins. This is essential because the air flow controls the growth of micro-organisms that treat the wastewater.

Precisely controlling the air flow is necessary to reduce compressed air energy costs, which are one of the largest expenses in the treatment process. The ST98 Flow Meter in combination with the VIP Flow Conditioner is ideal for this task because of the meter's accurate performance over a wide flow range, ease of installation and low maintenance requirements. It features a no-moving parts thermal dispersion mass flow sensing element that provides excellent accuracy and reliability in harsh environments. The ST98 also includes an integral 2-way HART interface, which allows engineers to receive multiple process variables and configure the meter remotely from the safety of the control room.

The ST98 Flow Meter offers high accuracy to $\pm 1\%$ of reading, 0.5% of full scale. Repeatability is $\pm 0.5\%$ of reading. This insertion style flow meter can be installed without shutting down the process by using a simple NPT fitting. The ST98 operates over a wide flow range from 0.75 to 600 SFPS (0.21 to 172 NMPS), and the turndown ratio is factory preset from 10:1 up to 100:1. It operates at pressures up to 250 psig [17 bar (g)].

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The Vortab Insertion Panel (VIP) Flow Conditioner compensates for flow disturbances in wastewater treatment aeration basin compressed air piping systems. Flow disturbances are typically caused by elbows, valves and shorter than optimum upstream straight-pipe runs. Adequate pipe straight-runs upstream and downstream from the meter are necessary to ensure a smooth flow profile for proper measurement. Vortab VIP Flow Conditioners remove both swirl and distorted velocity flow profiles under challenging pipe layout conditions.

The VIP blends the proven performance and superior low pressure drop of Vortab tab-type flow conditioning technology with the low cost and ease-of-installation of an insertion panel type flow conditioner solution. Vortab technology greatly reduces pressure drop compared to alternative technologies such as tube bundles, screens and perforated plates, which helps minimize plant energy consumption and energy costs.

Many flow meter technologies require several diameters of straight pipe run to meet their meter's accuracy specifications, and the Model VIP Insertion Panel Flow Conditioner solves this pipe straight-run dilemma. A VIP installed at just 3 pipe diameters downstream from the flow disturbance, with the flow meter installed at just 3 pipe diameters downstream of the VIP, neutralizes the flow disturbance and produces a symmetrical and swirl-free repeatable flow profile. The thin, lightweight panel design of VIP is easily installed between flanges or can be welded in place.

The Model VIP Flow Conditioner is easy to order and specify. The standard Model VIP Flow Conditioner is manufactured of 316L stainless steel in sizes for installation in pipes from 2 to 40 inch diameters (50 to 999.9 mm). Other materials and larger line sizes are available upon request. They are available in both ANSI and DIN flange-mount or weld-in-place configurations. A typical VIP weighs less than 20 ounces (560 grams) per diameter which means it is easily transported and installed on site without using special handling equipment.

Fluid Components International is a global company committed to meeting the needs of its customers through innovative solutions to the most challenging requirements for sensing, measuring and controlling flow, level and temperature of air, gases, and liquids.