Flow Meter Helps Chemical Company Meet ISO 50001 Standard To Lower Energy Costs

Thermal Meters Combine High Accuracy and Repeatability in Compressed Air Systems

San Marcos, CA — Process and plant engineers tasked with new stringent energy conservation goals to meet the requirements of ISO 50001 while also reducing costs will find the ST80 Series thermal mass flow meter from Fluid Components International (FCI) helps them meet both their environmental energy conservation and operational cost goals.

A global manufacturer of specialty chemicals that employs compressed air throughout its process facilities recently installed the FCI ST80 air/gas flow meter with VORTAB® Meter Run (VMR) flow conditioners to help it attain ISO 50001 Energy Management System certification. The installation of the ST80 flow meters was part of an initial benchmarking project to establish present energy usage and to identify areas for improvement.

The company engineers chose to install the thermal mass flow meters with the tab-type flow conditioners for several reasons. First, they wanted to avoid any installation concerns with regard to sufficient pipe straight run for optimum flow measurement accuracy at their desired measurement points. The ST80 flow meters achieve a standard accuracy of ±1.0% reading, ±0.5% full scale, or better, with repeatability of ±0.5% of reading with flow rates as low as 0.25 SFPS up to 1000 SFPS [0,07 NMPS to 305 NMPS] and up to 100:1 flow turndown.

Second, they also chose to install the thermal flow meters with isolation ball-valve connections for easy extraction of the meters from the compressed air process lines during operation to permit calibration verification or re-calibration if necessary, which also is required to comply with the ISO standard. The thermal dispersion meters, which require virtually no maintenance, were installed on 4 and 6-inch [101,6 mm and 152,4 mm] compressed air lines. They are also available for other applications in line sizes from 1 inch to 99 inches [25 mm to 2500 mm] and air/gas temperatures up to 850 °F [454°C].

The VMR Meter Run flow conditioner is a low-pressure loss solution for flow profile irregularities caused by elbows, valves, blowers, compressors and other disruptions often present in industrial piping systems. The VMR is suitable for Schedule 40 or 80 pipe from 2 inch to 12 inch sizes [51 mm to 305 mm]. Construction materials are 316L stainless or carbon steel or Hastelloy C.

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Featuring FCI's Adaptive Sensor Technology™ (AST™), the ST80 flow meter is designed with an innovative, patented hybrid sensor drive. This measuring technique combines, for the first time, both of the industry's highly proven constant power (CP) and constant temperature (CT) thermal dispersion sensing technologies in the same instrument.

In addition to this new measurement drive technique, an exclusive flow sensor design was developed by FCI and optimized for compressed air applications to ensure high levels of measurement performance. This unique sensor design is immune to the pulsations and mechanical noise commonly found in compressed air systems. Coupled with FCI's ability to calibrate under actual flow, pressure and temperature conditions, accuracy and repeatability is unrivaled within the industry.

This outputs and user interface choices for this meter are extensive and interface with virtually any control system and/or set-up or configuration devices. Standard outputs include dual, NAMUR NE43 compliant 4-20 mA analog outputs, HART (version 7), Modbus 485 and a USB port (for interfacing with configuration freeware). FOUNDATION Fieldbus or PROFIBUS PA or DP can be optionally added. The optional backlit LCD display provides digital and bar graph readouts of the flow rate and temperature, totalized flow, alarms, diagnostics feedback and even a user defined label/tag field.

The transmitter enclosure for the ST80 flow meter is NEMA 4X/IP67 rated, selectable for NPT or metric conduit port threading and is available in both aluminum and stainless steel and may be remotely located up to 1000 feet [305 m] apart from the flow element. The instrument also carries global approvals for use in hazardous areas and a third party evaluation that demonstrates compliance to IEC 61508.

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

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