



FCI ST100L
in compressed
chlorine gas
line

Chlorine Gas Flow Meter in Chlorinator System

Application Note Case Study ANCS010

Chlorinators are a frequently used system for water disinfection in municipal and industrial water treatment processes.

Problem

The chlorinator system's flow measurement system was drifting which resulted in poor control over the amount of chlorine being used. The system was initially supplied with simple, site-gauge rotameters and later, for automation and control, differential pressure (dP)-type orifice plate flow meters were added. The dP meters were continuously drifting out of calibration and could not be relied upon to accurately signal the chlorine dispensing control system.

Flow Conditions

- Pipe diameter: 1" [DN25]
- Flow rate: 150 lb/day to 2,000 lb/day [68 kg/day to 907 kg/day]
- Temperature: 60 °F to 100 °F [16 °C to 38 °C]
- Pressure: 0 psig to 10 psig [0 bar(g) to 0.7 bar(g)]
- Media composition: Chlorine gas
- Straight run: Limited, inadequate
- Flow range encompasses transitional region

Solution

FCI Model ST100L constant power technology thermal flow meter was installed in the chlorine gas inlet line to the chlorinator panel. The flow body included built-in Vortab[®] flow conditioner to overcome both lack of straight-run and transitional flow region to provide repeatable flow profile and accurate measurement. The ST100L sensor element and flow body, including Vortab flow conditioner, are fabricated of Hastelloy C-276 for protection and long service life in highly corrosive chlorine. Because chlorine gas is a safety issue for calibration labs and air equivalency calibrations for chlorine are inadequate, FCI provided on-site start-up assistance which included calibration adjustments based on the site's rotameter measurements.

FCI Model: ST100L-G2xx000xxxxxEJC0000