



Boiler with
FCI ST98
flow meter

Natural Gas Flow Meter for Boiler

Application Note Case Study ANCS 004

Problem

A leading electronics manufacturer of RAM memory, NAND flash memory, and CMOS image sensors required flow meters to measure natural gas flow to 16 on-site boilers used to heat the facility.

The previously installed vortex shedding flow meters were showing inaccurate, non-repeatable and erratic false readings. An FCI local sales engineering representative was able to determine the existing vortex flow meters were unable to cope with the pipe vibrations present in the application.

Flow Conditions

- Line size: 3" Sch. 40 [DN75]
- Process connection: 3/4" NPT
- Limited straight-run
- Media: Natural gas
- Flow rate: 3,000 SCFH to 30,000 SCFH
[85 m³/hr to 850 m³/hr]
- Process temperature: 40 °F to 80 °F [4 °C to 27 °C]
- Pressure: 7 psig to 12 psig [0,5 bar(g) to 0,8 bar(g)]
- Pipe subject to continuous vibration

Solution

Replace vortex flow meters with FCI thermal dispersion flow meters, Model ST98.

The vortex meters were removed and FCI Model ST98 with remote electronics were installed. The thermal flow meter's insertion probe was inserted in the natural gas line. The electronics/transmitter was installed about 15 feet [3 meters] away from the probe where vibration was minimal and display viewing was easy. A 3-inch [75 mm] Vortab[®] VIS flow conditioner was also installed to ensure best accuracy and repeatability in this straight-run limited application.

FCI Model ST98 Flow Meter

Benefits

- Reliable: No moving parts design is unaffected by the vibration.
- Lower cost: Direct mass flow measurement.
- Accurate and repeatable: Vortab flow conditioner overcomes limited straight piping to achieve repeatable flow profile.
- User time savings: Remote electronics provide convenient readout and operator access.
- Lowest replacement cost: Simple insertion-type probe is fitted into existing pipe.