APPLICATION EXAMPLE

Precise Steam Measurement by mean of a ISA 1932 Nozzle

Metra Energie-Messtechnik, a 100 % Daughter Company of Bopp & Reuther Messtechnik from Speyer / Germany, is proud to report about an exciting success story. We are a specialist in dP Flow Measurement and recently were awarded a larger order from a power plant for supplying several DN 500 steam metering sections.

Customer requirements:

Our customer is a well-known power plant operator and has set itself the goal of better recording its energy balances in the context of increased environmental awareness and thus also to consistently optimise its steam energy flows step by step. Important selection criteria for him were the expert advice of the Metra Energie-Messtechnik team, a modern, modular and comprehensible measurement technology, the development of an optimal measurement solution with focus on low pressure loss and high measurement accuracy. Metra Energie-Messtechnik was finally able to develop and deliver exactly this complete package to the customer from one source.

Solution:

We designed and delivered a custom solution for measuring steam at 16 bara, 340 °C. The supplied components are designed for temperatures up to 400 °C and pressures up to 23 bara. The nominal flow range is 10-80 t/h. We measure differential pressure, absolute pressure and the temperature of the medium. In combination with our patented zero balance module and our flow computer ERW 700 we can guarantee an accuracy of less than ±1 % (v. measured value) for the whole measuring chain. Optionally with an additional special calibration, ±0.5 % (of measured value) would also have been possible.

Special Features:

The primary element is an ISA 1932 DN 500 nozzle including inlet section, which is designed for a very low pressure drop and is welded into the customer's line. The entire system is designed in accordance with ISO 5167, so that the plausibility and accuracy of the measurement - in comparison to other measuring methods - can be checked quickly and easily at any time, even during operation, since it is a standardized measuring principle. This is a decisive criterion for many operators when selecting a suitable measuring method. The flow computer transmits the calculated mass and energy values as well as all instantaneous values via a TCP/IP Ethernet interface to the customer's control system.

Discover more under:

https://www.metra-emt.de/en/products/meter-according-to-the-differential-pressure-method/

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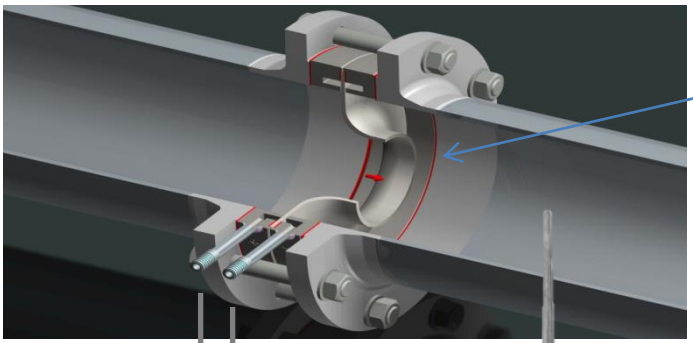
METRA Energie-Messtechnik
Member of Bopp & Reuther Messtechnik Group

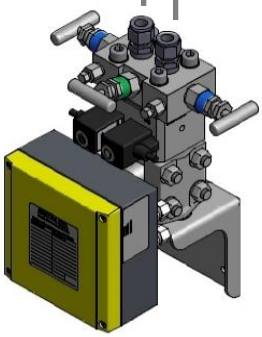
Principle Sketch of the solution:



ISA 1932 Nozzle

Temperature sensor
PT100

Δp Transmitter
with zeroing module, integrated Pressure measurement and 3-fold shut off device



Steam Flow Computer ERW 700
with Ethernet-Module for the calculation of mass and energy

TPC / IP Ethernet-communication

Customer‘s control system