

## OPTISWIRL 4070 put to test

- Vortex flowmeter tested at the pigsar test facility under practical conditions
- The accuracy of natural gas measurement was better than device specifications at the tested pressures
- Advantages for the user: Highly accurate monitoring of natural gas pipelines in the plant, improved burner control and more accurate billing

**Duisburg, December 10, 2009:** Today, natural gas is one of the most important energy carriers in many factory processes with constantly increasing sales. In many companies and plants it is an easy to handle fuel, without which operation is virtually unimaginable. Although the current price tag of around 40 cents per cubic metre seems very low in and of itself, there are considerable costs that come to bear in practice: For example, at this gas price in a DN 100 natural gas pipe at 25 bars of pressure, 35 million euros flow through the pipe per year. In this case, it is worth investing in precise measuring equipment, especially if internal balancing of energy consumption is a goal.

In this application, a vortex flowmeter such as the OPTISWIRL 4070 C provides high accuracy at minimal investment cost. In order to check the characteristics of the OPTISWIRL when measuring natural gas, KROHNE had a production model tested under practical conditions at the pigsar testing facility in Dorsten.

The high pressure gas meter testing facility operated by EON Ruhrgas is the national standard for the Federal Republic of Germany and as such is responsible for maintaining the reference value for unit of volume for high pressure natural gas and passing on this reference value to other laboratories. In association with and under the control of the Federal Institute of Physics and Metrology (PTB), pigsar conducts calibrations and verifications as an independent laboratory.

An OPTISWIRL 4070 C DN150 PN40 featuring integrated pressure and temperature compensation was used as a test device. The purpose of the test was the volumetric measurement (standard cubic metres) of natural gas routed directly to the calibration rig from the EON Ruhrgas operating network. Results were then compared to those of the turbine-type meters used as reference devices. Two series of tests at 16 and 41 bars of pressure were run as these are representative of the prevailing pressure range of 16-40 bar in practice. The result did not only confirm the specific measuring accuracy - it exceeded it considerably: at 16 bar of pressure, the measuring accuracy of the OPTISWIRL only deviates an average of  $\pm 0.24\%$  from the turbine, while measuring uncertainty is at  $\pm 0.15\%$ .



Figure 1: OPTISWIRL 4070 C on the pigsar test rig

At the higher pressure, the values were even somewhat better with the same measuring uncertainty, measuring inaccuracy was only  $\pm 0.135\%$ . This puts the device clearly above the standard specified accuracy of 1% for gases in both tests.

For the user, improved measuring accuracy means more precise monitoring and, in the case of internal balancing that means more accurate billing: In the first example cited, 0.1% measuring accuracy corresponds to a sum of 35000 EUR. The price of an OPTISWIRL (size DN150) does not even amount to a fifth of this.



Figure 2: OPTISWIRL 4070 C

About KROHNE: Established in 1921, the family business of KROHNE employs 2,564 people around the world and has representatives on all continents. The company has its headquarters in Duisburg, Germany and develops, manufactures and sells products in the field of measuring technology, standing for innovation and superior product quality. KROHNE is one of the market leaders in industrial process measuring technology.

Issued by:  
KROHNE Messtechnik GmbH  
Ludwig-Krohne-Str. 5  
D-47058 Duisburg

Press contact:  
Jörg Holtmann, PR Manager  
Tel: +49 (0)203 301 4511  
Fax: +49 (0)203 301 10 511

Website: [www.krohne.com](http://www.krohne.com)

E-mail: [j.holtmann@krohne.com](mailto:j.holtmann@krohne.com)