

EuroLoop: innovative verification, calibration and test facility for flow measurement

NMi counting on Elster-Instromet

Elster-Instromet will supply the reference meters for the GasCal-EuroLoop project in the harbour of Rotterdam. For this high-profile high-pressure gas test rig project, NMi has once again selected Elster-Instromet: no wonder, when it's all about master meter and gas meter calibration.

NMi chose to award the supply contract for the reference meters for EuroLoop to Elster-Instromet. This is a recognition of our competence when it comes to measuring technology. Today's changing market with its high number of players was the reason for Elster-Instromet to seize the opportunity to demonstrate our expertise in this field. "Not words, but deeds." As a team we are striving to show what we are able to achieve in today's market environment.

What is EuroLoop?

EuroLoop is set to become the world's largest test site for natural gas and petroleum flow and quantity measurement. It will be developed on a 200 by 100 metre site in Rotterdam Pernis on the banks of the 'Nieuwe Maas' River. Besides liquid



EuroLoop site for the calibration facility in the harbour of Rotterdam

and gas test facilities, a training centre of the Metrology College will be built there. EuroLoop will offer the following services:

- Official verification, calibration and type examination of flow meters
- Experiments in the field of process and flow technology
- Education and training at intermediate and advanced technical college level



Here a new building is being erected, housing state-of-the-art development, research and administration facilities



Since Elster-Instromet's primary field of activity is gas metering, our main focus will lie on the gas sector. Years of experience, research and the best technology available will flow together in this facility. Driven by the most recent requirements of the gas industry, NMI has the ambition to implement the test rig with the lowest possible measurement uncertainty.

experience gathered in the relevant step. Installing the EuroLoop system will boost testing capacity needed on the basis of the risen market demand. One particularly positive aspect is that flow is not dependent on consumption or season and that, consequently, all flow rates can be guaranteed at all times. The project is to be completed by late 2009.

Many years of experience

Elster-Instromet's convincing track-record and know-how has certainly played an important role when selecting the components for the EuroLoop system. We have already supplied reference meters for numerous flow, test and calibration facilities worldwide. For the reference runs, turbine gas meters were chosen as master meters, with ultrasonic meters connected in series as check meters. This arrangement is almost identical to the time-tested setup in Winnipeg, Canada, which has been running successfully at Trans Canada Calibrations for over 7 years now.

Unlike other test facilities, EuroLoop is a self-contained system. The gas is adjusted to the required test conditions and is able to move through the unit under test and the reference meters in a loop.

In total, Elster-Instromet will supply 17 reference meters (ultrasonic gas meters Q.Sonic-5, turbine gas meters SM-RI-X and rotary gas meters IRM-DUO) for this project, with nominal diameters varying from 16" to 2". Another important factor is gas quality, which will be analysed in the future using our gas chromatograph EnCal3000.

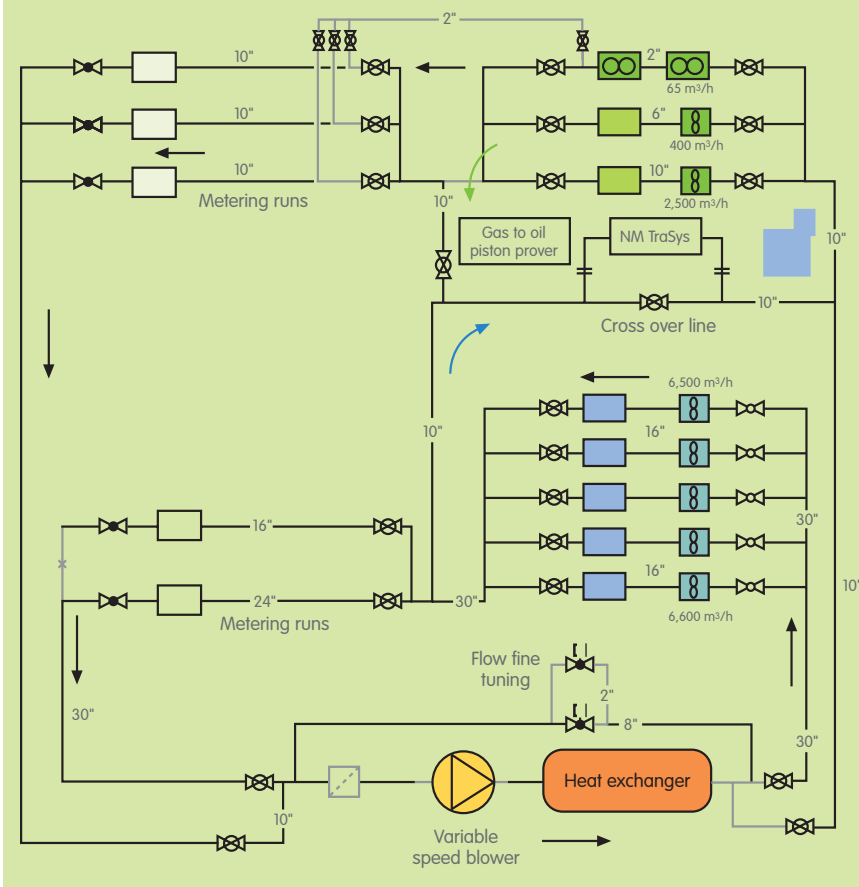
High standards

We at Elster-Instromet share the same ambition with the experts from the gas industry and operators of calibration facilities to lift current metrological accuracy limits to the highest possible level. With our years of experience and by building on previous projects implemented by us, through continuous research and innovations, we are in the position to provide the optimised technology required for this purpose.

With increasing energy prices, customers are particularly sensitive when it comes to billing the energy supplied. By further minimising measurement uncertainty, we will make an important contribution to accurate billing.

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Flowchart of the measuring process



One of the things that will achieve this is the use of a piston prover with a new measuring principle. The oil-filled piston prover is connected directly to the high-pressure gas line. The gas flowing in from this line displaces a certain volume of oil that can be measured very precisely. Consequently, **direct** calibration can be achieved via the gas-to-oil coupling. This allows a higher reproducibility and reliability of the measured results than before.

The total uncertainty achievable in the first step will probably be around at most 0.15%. However, the installation is designed for an uncertainty of only 0.10%. This value will probably be able to be reached gradually on the basis of the

Here are some more specifications for the gas calibration facility, so that you can better picture the dimensions and capacity:

- Nominal sizes 2" to 29"
- Flow rate 5 – 30,000 m³/h, 5 – 1,800,000 m³/h under atmospheric conditions
- Pressure 1 – 65 bar (freely selectable)
- 5 metering runs
- Serial calibration of up to 3 units
- Testing capacity 800 – 1500 meters per year
- Uncertainty 0.15% (target: 0.10%)