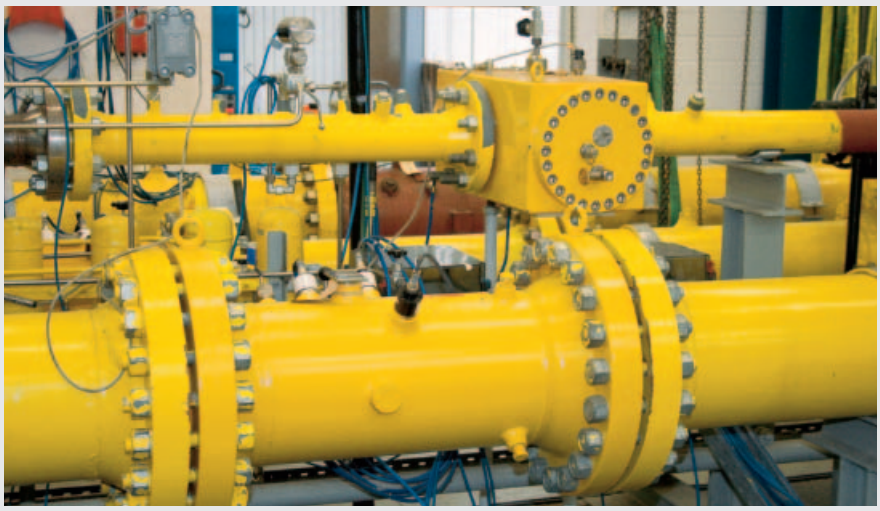
High-pressure test rig for Recklinghausen, Germany

Extension of high-pressure calibrations to 6,500 m³/h

As long ago as 1984, the then VEW planned a high-pressure test rig with Elster AG, Germany. The first official high-pressure calibration was then carried out two years later. Over the last few years, in particular, the significance of high-pressure calibration work has increased steadily as a result of a wide range of customer requirements and statutory regulations. Lead times for gas meters today are essentially dependent on the facilities available in high-pressure test rig technology.

The high-pressure test rig in Recklinghausen has been continuously extended and modernised. 2007 was to be the year in which the measuring range was extended. The first plans for extending the measuring range were laid by our former colleague, Gerd Böhmer. The last high-pressure calibration before the modification phase of the high-pressure test rig was then carried out in April this year. CeH4 based in Celle, Germany, was awarded the contract to dismantle the test rig, supply the new pipe sections and reassemble the system. The first week of May saw the DN 200 pipe sections being dismantled and new foundations being laid. At the same time, the existing electric cabling was also removed. The new sections with a nominal size of DN 250 were installed and the new master meters, namely turbine gas meters SM-RI-X, were fitted. At the same time, the test rig software (hardware and software) was updated and/or replaced by business partner Brehm & Jung. After the DVGW acceptance procedure on 15 June, the system was filled with gas three days later – and the result was perfect.



Master meters SM-RI-X and IRM-3 DUO

The pressure and temperature calibration process was carried out by Mr. Peukert from North Rhine-Westphalian State Metrology and Calibration Department. Dr. Mickan from the PTB, the German National Metrological Institute, then carried out the recalibration of the test rig and produced the new polynomials for the master meters which were then entered into the test rig software. 23 August saw the first meters being calibrated on the "new" high-pressure test rig.

The modifications mean that official calibration tests can now be carried out between 5 m³/h and 6,500 m³/h. At the same time, the pressure drop between the unit under test and the master meter at Q_{max} has fallen from around 5 bar to

Ulrich Müller checks the pulse transfer of a measuring cartridge under test

Jörg Spotke at the new HP control centre

DN 200 pipe sections have become DN 250 pipe sections

less than 2 bar – showing that test rig technology has improved dramatically.

The inlet filter is currently coming to the point where it will have to be replaced. Other ideas and suggestions for dismantling the Recklinghausen high-pressure test rig and making it more flexible are already being worked on. The table here shows a summary of the technical data.

We would like to take this opportunity to express our thanks to the testing agency managers, Ulrich Müller und Jörg Spotke, and to all those who worked on the project for their excellent work and fast turnaround time.

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Master meter	G-rate	Nominal diameter	Flow rate range	Manufacturer
1 SM-RI-X-E	G 4000	DN 300	325 – 6,500 m³/h	Elster-Instromet
2 SM-RI-X-E	G 1600	DN 200	130 – 2,500 m³/h	Elster-Instromet
3 IRM-3 DUO	G 250	DN 100	25 – 400 m³/h	Elster-Instromet
4 Delta 2050 S-Flow	G 65	DN 50	5 – 100 m³/h	Actaris

Test medium:	Natural gas
Test flow rate:	5 m³/h – 6,500 m³/h
Pressure range:	May – September 16 – 50 bar (standard values) October – April 40 – 50 bar (standard values)
Unit sizes:	DN 50 – DN 400 Pressure ratings PN 16 / ANSI 600 (others on request)