

WRc-NSF

AN INTRODUCTION TO WATER METER CALIBRATION AND APPROVALS TESTING



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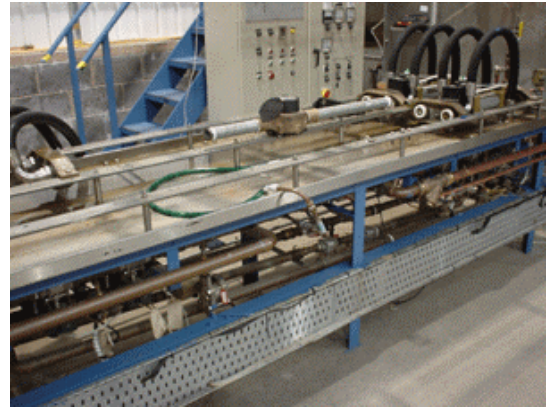
An Introduction to Water Meter Calibration and Approvals Testing

The calibration facilities at the WRc-NSF Mechanical testing laboratory in South Wales is accredited by UKAS as a calibration laboratory for water meters. The facilities include:

Small Meter Test Rig for calibrating domestic and light industrial positive displacement water meters

The small meter test rig for positive displacement meters up to 40mm in size can test up to 48 meters simultaneously. The low sensitivity of positive displacement meters to flow disturbance means that they can be batched together and checked utilising a standing start and stop test method. This enables the testing of large batches of identical size and class of meter, which can be calibrated at very low unit cost. Both in-line and concentric meters can be calibrated. WRc-NSF usually conducts a seven-point accuracy check but alternative flowrates and repeatability checks can be accommodated in accordance with your requirements.

WRc-NSF Ltd is one of only two such laboratories in the UK that can carry out type-approval testing and calibration of small positive displacement water meters. All classes of positive displacement meter can be evaluated including Class C and D meters that register at the lower flowrates likely to be encountered in domestic or small commercial premises. Type-approval testing, on behalf of the UK's Department of Trade and Industry, meets the requirements of the EEC Directive, concerning the laws of Member States relating to cold water meters and WRc-NSF Ltd also has the capability of testing to the requirements of OIML R49 parts 1 and 2.



Small Meter Testing

Small Turbine Meter Test Rig for calibrating turbine meters or other meters that are sensitive to flow disturbance

The small meter test rig can calibrate turbine meters or other water meters that are sensitive to flow disturbance such as single or multi jet meters. This test rig utilizes a flying start and stop test method to check the accuracy of a meter whilst it is continuously running. The test rig uses several different methods of collecting the output from the meter under test including pulse or frequency output measurement. If the meter has a mechanical readout only, the facility includes a sophisticated state of the art image capture system which photographs the meter readout at the beginning and end of the test to freeze the display whilst the meter is running.



Large Meter Test Rig for calibrating industrial and leak detection meters up to 100 mm

The large meter test facility can accommodate meters from 40 mm to 100mm in diameter. WRc-NSF is also able to conduct type-approval testing and calibration of large water meters up to 100 mm in diameter. This large meter test rig makes use of both standing start and stop and flying start and stop test methods depending on the characteristics of the meter being calibrated. The test rig uses several different methods of collecting the output from the meter under test including pulse or frequency output measurement.



Large Meter Testing

Assessment Service for Meters in dispute

A service is offered for verifying meters that are in dispute. For revenue meters the local water supplier should be notified if the performance of the meter is under suspicion. WRc-NSF evaluates meters under dispute for many of the water supply companies as part of an independent arbitration service and a report can be provided which includes seven point calibration data. Meters ranging from the smallest Class D domestic water meters, up to 100 mm industrial size meters can be evaluated.

Specialist Meter Testing

WRc-NSF Ltd can offer many specialist meter testing services to users and suppliers alike. For example, a manufacturer recently commissioned an extensive series of trials to prove the performance of its new meter under a range of over twenty disturbed flow conditions. The versatility and traceability of the flow test rigs make them ideal for such work.

Other examples of work that has been undertaken include:

- investigation into the performance of insertion flowmeters
- evaluation of flowmeters against the needs of particular applications
- user assessment of clamp-on meters
- study of vortex meter behaviour
- pressure drop testing

WRc-NSF engineers and technicians have considerable experience with regards to flowmetering in all its forms. They are complemented by experts in electronics, statistics, regulation and many other areas enabling multi-skilled teams to be put together to solve your problems.

WRc-NSF generally tests to EN 14154 or ISO 4064, 'Measurement of Flow of Cold Potable Water in Closed Conduits' unless directed otherwise by the client.

WRc-NSF's water meter calibration rigs utilise a gravimetric system to accurately weigh the water that has passed through the meters undergoing test. Accurate measurement of the water density then enables the volume of water passed to be calculated. All equipment used is traceable to national standards.

The laboratory can also test meters to establish that they satisfy UK Water Regulations requirements, (by not wasting or contaminating a Water Undertaker's supplies). The results of these tests can be reported to the Water Regulations Advisory Scheme (WRAS) for acceptance of the meter by the water industry as meeting the requirements of the water fittings regulations.



Positive Displacement Meters Under Test

For further copies of “An Introduction to Water Meter Calibration and Approvals Testing” and information please contact WRc-NSF

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