



Test Benches

CALIBRATION AND VERIFICATION OF METERS

Xylem test benches - delivering accuracy, quality and reliability to water meter testing

Xylem test benches are in operation in over 22 countries worldwide having earned an excellent reputation for their high quality, consistency and ongoing reliability.

Our modular design approach provides maximum flexibility, both during design and operation. It enables the customer to specify their own particular requirements during the specification process, which are then incorporated into an optimal custom-made solution by Xylem's testbench design experts.

Each test bench is designed for the initial calibration and ongoing verification of the complete range of residential, domestic and C&I meters developed by Xylem. They can also provide optimal testing of water meters from other manufacturers, in large quantities across a user-defined measuring range.

The measurement parameters and preparation procedure for each test are defined and controlled by the customer's own calibration engineers. Once configured the testing process is very simple to undertake, delivering high accuracy measurements in the minimum possible time.

Key benefits

- **Conforms to standards but with flexibility to meet your enhanced tests**
 - **Easy maintenance minimises downtime**
 - **Enables maintenance contracts to be ratified**
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Product Features:



All water meter technologies supported

Including mechanical, ultrasonic or electromagnetic.

- Water meter size : DN 10 - DN 300
- Measurement range:
min. flow 1 litre/h
max. flow 1600 m³/h



Fully automatic, or semi-automatic test rigs

Automatic mode: data is automatically collected via inputs (pulse or frequency) or from optical sensors, or with cameras with digital conversion.

- Semi-automatic mode: readings are typed manually via keyboard/keypad into the computer



Water used as the test medium

- Water temperature range: 5 - 95 °C
- Water sources:
closed circuit system via a storage tank or connection to an external water supply



Testing methods

Weighing/static weighing, master meter method, volumetric using reference vessels

- Flying start and stop with pulse and time compensation or
- Standing start and stop



Additional testing possible

Dependent on the capabilities of the meter under test, the following additional checks are possible:

pulse inputs, frequency inputs, manual reading, optical sensors, process cameras, analogue current or voltage outputs.



Multiple testing procedures supported

Supports standard testing at 3 flowrates, and extended testing e.g. 14 flowrates or more. The flow is automatically adjusted via pumps with variable speed controller, adjusting valves, bypass valves and an accurate frequency controller



Flexibility

Water meters can be tested at various pressure or temperature conditions fully automatically.



Inherent material construction

All parts in contact with water are made from stainless steel, brass or composite materials. The stainless steel parts as weighing tank and piping system are made from the high quality stainless steel AISI 304 (AISI 316L).



Computer controlled

The entire test process is controlled by the test program running on a PC. All control signals are sent from the PC to electronic modules located in a rugged control box.



High quality components

The important components of the test bench, including the test tables, diverters, control board PTB, program TBF, pumps and pipe assemblies are produced by Xylem brands. The test bench also incorporates sensitive weighing scales, flowmeters and variable speed controllers to ensure accurate feedback and control.

As an option the Spektron UV disinfection system, a cost effective and reliable solution for drinking water, can be part of the test bench.



Services

Experts are available to support customers throughout the accreditation process, by sharing the knowledge and practical experience gained operating our own fully accredited ISO 17025 test facility.



Easy maintenance

Every important hydraulic component is attached with precision-made threaded connections to enable easy dismantling. Every component can be easily removed from the pipe assembly for easy maintenance.



What's included

- All components, sub-assemblies and materials
- On-site installation and commissioning of the test bench
- Training in operation
- Free software updates for the first 2 years

Standards

- ✓ The test benches are suitable for water meters designed to comply with the **MID 2014/32 EU** and standard **ISO 4064**, and meet requirements of **OIML-R 49** and **ISO 4064**.
- ✓ The measuring process is designed to achieve a **measurement accuracy** in the range **0.04 to 0.15 %** of the true value.
- ✓ Components of the measurement system which influence the measurement reading, such as scales, flow meters, thermometers and pressure gauges, are calibrated and assessed to national standards using units of measurement that conform to the **International System of Units (SI)**.
- ✓ All algorithms and calculations in the calibration program used to determine conventional true value, error calculations and corrections for density, buoyancy expansion, compressibility, temperature difference correction for the balance flow meter and other associated calculations, are developed and tested in conformance to international standards.
- ✓ The Sensus Quality Assurance System is approved to **ISO 9001**.



The test bench for the mechanical and static meters DN15 - DN50

- Fully automatic
- 2 testing lines
- Max.20 meters (DN15 and DN20) tested
- Cold water and hot water up to 60°C

The test bench for iPERL and the others static meters DN15 - DN40

- Fully automatic
- 2 testing lines
- Max.40 meters (DN15 and DN20) tested
- Cold water up to 25°C



Xylem brands components

In accordance with Xylem's drive for excellence, the innovative solutions and advanced production technologies of LOWARA products are continuously developed so that customers can always get state-of-the art, reliable and energy efficient equipment.



e-NSC End Suction Pump Series

- ✓ Built with the highest level of flexibility and modularity
- ✓ Guarantees power and efficiency to your applications
 - Hydraulic and motor efficiency exceeding the European Ecodesign requirements
 - Improved hydraulic coverage and performance
 - Operation-related optimization of load management, thanks to versions equipped with HYDROVAR

The newly designed high efficiency hydraulics easily meet the requirements of ErP2015 standard, while IE3 motors ensure exceptionally low operating costs.



Stainless steel vertical multi-stage pumps type e-SV

- ✓ Extra efficient - the e-SV™'s hydraulics, combined with a high - efficiency motor (IE3) deliver maximum efficiency.
- ✓ Easy to maintain-the e-SV™'s design allows removal of the mechanical seal without having to remove the motor, reducing repair time by up to 50%. A standard DIN mechanical seal, wearing components, service tools and standard IEC motors enable faster and easier maintenance and servicing.
- ✓ Energy saving-pumps are among the largest users of industrial energy. The e-SV™'s lower energy requirement reduces Co2 emissions and an impact on the environment

Lowara BLOCK BG(M) self-priming household water supplies

- ✓ Close-coupled self-priming centrifugal pumps with built-in ejector system, designed to remain primed even in the presence of water-dissolved gases.
- ✓ The extensive use of pressed stainless steel ensures a high-performance, durable and lightweight pump.
- ✓ The use of rolled stainless steel results in high performance and a pump with a long service life.



References



Sensus has produced qualified test benches for water, flow meters and heat meters for more than 70 years.

The sensitive scales incorporated in the test bench, utilise Electromagnetic Force Compensation (EFC) which produces excellent reproducibility and accuracy at high-resolution.

The system includes an integrated calibration weight, which can be initiated via simple key press. The calibration weight is so accurate that it automatically compensates for the individual gravitational force at different places on the Earth.

Over 160 Xylem meter test benches are operational in 22 countries around the World.



The combine test bench for the mechanical and static meters DN15 - DN300

- *Fully automatic*
- *2 testing tables*
- *Max.10 meters (DN15 and DN20) tested*
- *Water temperature range: 6 - 85°C*

Significant installations include:

- Dubai, UAE - the size of the testing water meters up to DN 300
- Manama, Bahrain - the size of the testing water meters up to DN 50
- Berlin, Germany - the size of the testing water meters up to DN 200
- Munich, Germany - the size of the testing water meters up to DN150
- Petersburg, Russia - the size of the testing water meters up to DN 200
- Moscow, Russia - the size of the testing water meters up to DN 300

Xylem |'zīləm|

- 1) The tissue in plants that brings water upward from the roots;
- 2) a leading global water technology company.

We're a global team unified in a common purpose: creating advanced technology solutions to the world's water challenges. Developing new technologies that will improve the way water is used, conserved, and re-used in the future is central to our work. Our products and services move, treat, analyse, monitor and return water to the environment, in public utility, industrial, residential and commercial building services settings. Xylem also provides a leading portfolio of smart metering, network technologies and advanced analytics solutions for water, electric and gas utilities. In more than 150 countries, we have strong, long-standing relationships with customers who know us for our powerful combination of leading product brands and applications expertise with a strong focus on developing comprehensive, sustainable solutions.

For more information on how Xylem can help you, go to www.xylem.com



Sensus Slovensko a.s.
Dr. Alberta Schweitzera 194
91601 Stara Tura
Slovakia
+421 32 7752 244
sensus.com



Xylem Europe GmbH
Bleicheplatz 6
Schaffhausen 8200
Switzerland
+41 5264 452 00
xylem.com