

<b>Legal Metrology Policy</b>		 <b>NRCS</b> national regulator for compulsory specifications	
Policy Number	LM-P-022-08-10	Compiled by: HP Ferreira	Signature: 
Effective Date	2010-08-01		
Version No:	1	Approved by: K Temba	Signature: 
File name:	LM-P-022-08-10- TA Evaluation - Water Meter compliance		

## 1. Background

Type Approval does evaluations on water meters according to the National Standards. These evaluations and tests are relatively expensive and the test facilities are limited in South Africa. It is therefore the policy of Legal Metrology Type Approval to give the submitters the opportunity to select their own facility(s) to perform the tests.

It is the policy of Legal Metrology in South Africa as utilizing members/signatories to the Declaration of Mutual Confidence (DoMC) of the OIML Mutual Acceptance Arrangement (MAA) scheme that we do accept Certificates of Conformity and the associated test reports of instruments submitted towards type approval.

The South African National Standards (SANS1529) differ from the OIML R49 recommendation therefore it is not possible to accept OIML Certificate of Conformity (CoC) and the associated test reports without a proper validation of the evaluation results.

## 2. Scope

To provide to Type Approval personnel and submitters of water meters the criteria to be used for the acceptance of test results towards national Type Approval.

## 3. Reference documents

Trade Metrology Act, Act 77 of 1973.

SANS1529-1: Water meters for cold potable water

Part 1: Metrological characteristics of mechanical water meters of nominal bore not exceeding 100 mm

SANS1529-9: Water meters for cold potable water



Part 9: Requirements for electronic indicators used with mechanical water meters, electronic water meters and electronic pre-payment water measuring systems.

NRCS-CPO 112-00: NRCS Conformity Assessment Policy

## 4. Guidelines

### 4.1. Water Meter Test Results

The following water meter test results may be accepted, subject to validation by Type Approval, when received from the following institutions/facilities:

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- a) Test results from laboratories within the borders of the SADC region which are accredited as a test laboratory in terms of SANS17025, and have included in their Schedule of Accreditation the applicable type approval tests as described in the South African national standards.
- b) Test results from any other water meter test laboratory which have the resources to successfully perform the tests and where physical evidence exists of the traceability of the equipment to the South African national standard(s). Proof of traceability is required.



Once the laboratory has been successfully reviewed by Type Approval, a Type Approval test officer shall be present to observe all the tests performed.

- c) Test results from an OIML-R49-Certificate of Conformity (CoC) registered with the BIML and its associated test reports.

As a result of the differences in requirements between the South African national standards and the OIML R49 Recommendation, a description of the OIML R49 tests results which may be accepted and tests results which shall not be accepted are given in Table 1 and Table 2 when an OIML - CoC and associated test reports are presented towards type approval:

**Table 1 - Type Evaluation Tests (For All Water Meters)**

1	2
Test Requirement	Test Results accepted
Static pressure test (R 49-2 Section 6.2)	NO
Determination of changeover flowrates for combination meters (R 49-2 Section 6.3.3)	NO
Determination of the intrinsic errors (of indication) and the effects of meter orientation (R 49-2 Section 6.3.4).	NO
Water temperature test (R 49-2 Section 6.4)	NO
Water pressure test (R 49-2 Section 6.5)	NO
Flow reversal test (R 49-2 Section 6.6)	NO
Pressure-loss test (R 49-2, Section 6.7)	NO
Flow disturbance tests (R 49-2, Section 6.8 and Annex C)	NO
Endurance tests (R 49-2, Section 6.9)	NO
Static magnetic field test (R42-2 Section 6.10 & 7.12)	NO

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**Table2 - Type Evaluation Tests (For Electronic Water Meters and Mechanical Water Meters with Electronic Components).**

1	2
Test Requirement	Test Results may be accepted
Dry heat (non-condensing) (R 49-2 Section 7.2).	<b>YES</b>
Cold (R 49-2 Section 7.3)	<b>YES</b>
Damp heat, cyclic (condensing) (R 49-2 Section 7.4)	<b>YES</b>
Power voltage variation (R 49-2 Section 7.5)	<b>YES</b>
Vibration (random) (R 49-2 Section 7.6)	<b>YES</b>
Mechanical shock (R 49-2 Section 7.7)	<b>YES</b>
Short-time power reductions (R 49-2 Section 7.8)	<b>YES</b>
Bursts (R 49-2 Section 7.9).	<b>YES</b>
Electrostatic discharge (R 49-2 Section 7.10)	<b>YES</b>
Electromagnetic susceptibility (R 49-2 Section 7.11)	<b>YES</b>

The submitter of the water meter shall suggest which test laboratory they would like to use for the Type Approval testing of their equipment and shall submit evidence of the laboratories compliance.

#### 4.2 Water Meter Bodies

Whenever the bodies of water meters, whether cast or plastic moulded are manufactured at a specific factory or premises and the manufacturing of these cast or plastic moulded bodies are relocated to a different factory or premises the newly manufactured water meter bodies shall be submitted to Type Approval for a re-test.

#### 4.3 Conformity to Type

A “Conformity to Type” test program will be implemented whereby water meters which are type approved shall be purchased and submitted to the tests as required by the applicable standards. Failing to comply may lead to the Type Approval Certificate being withdrawn for the specific instrument.

*Note: If any specific requirement from the Trade Metrology Act or applicable Standard(s) is not mentioned in this document it does not mean that the instruments are exempted from the specific requirement.*