| POLICY | | | |
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## 1. Scope

Requirements for Verification Officers and additional verification tests required in SANS 1529 - 9 when a mechanical meter has already been verified in terms of SANS 1529 – 1

## 2. Reference documents

Trade Metrology Act
SANS1529-9
SANS1529-1

## 3. Policy

**OVERVIEW:** Various electronics manufacturers have developed electronic indicators or prepayment systems for fitting to existing meters approved and verified in terms of SANS 1529 – 1. These indicators or prepayment systems are approved in terms of SANS 1529 – 9. The electronics manufacturers are not geared up specifically for verifying water meters as this is not a core function and will only conduct the additional tests specified in SANS 1529 – 9, mainly by simulation and observation. They need to be accredited by SANAS for the following tests.

Note: Clause 4.15 of 1529-9 must be complied with and all prescriptions documented in the type approval documents, before simulation tests on separate components will be considered. This means that submitters for approval must discuss this matter with type approval authorities when submitting. In all cases the mechanical self-contained (possibly with an electronic indicator) water meter shall fully conform to and be verified according to SABS 1529-1.

## 4. End of Line System

4.1 Identify the batch of shut off valves to be used. Assemble complete systems (as they will be sold and not in a test rig) equal in number to 5% of the batch of valves received from a supplier and test for accuracy of shut off according to B.4.5.1 using a calibrated reference device.

4.2 If the 5% sample in 1.1 passes, test the remaining 95% of valves according to B.4.5.2. These may be done in a system used as a test rig if needs be (see B 4.7.2).

If the 5% sample in 1.1 fails the remaining 95% of the batch shall be tested according to B.4.5.1 in the meter system in which they will be used (see 1.1).

4.3 If not already assembled (ie the 95%) for the tests in 1.1 and 1.2 assemble the complete hydraulic system and carry out the hydraulic pressure test in B3.
Note: The electronic components need not be connected at this stage and a simulated means may be used to keep the shut off valve closed, if necessary.

4.4 Assemble all electronic components of the electronic indicator in the correct design configuration and simulate one minute's flow at $q_s$ by introducing a signal and starting and stopping the simulation by means of the normal operating mechanism e.g. inserting and removing a card or token with sufficient credit on it.

- Check the accuracy of the indication according to B 4.7 by comparing with the known simulated input.
- Check the accuracy of monitory calculations according to B 4.6.

Note: Simulators to be accurate and calibrated (traceable).

4.5 Check the operation of a sufficient number of signal generators (e.g. reed switches) in the normal laboratory quality control process, to ensure correct operation.

## 5. In-Line Systems

5.1 Test all shut off valves to be used in in-line systems according to B.4.5.2. These may be done in a system used as a test rig if required.

5.2 Assemble the complete hydraulic system and carry out the hydraulic pressure test in B3.
Note: The electronic components need not be connected at this stage and a simulated means may be used to keep the shut off valve open, if necessary.

5.3 Assemble all electronic components of the electronic indicator in the correct design configuration and simulate one minute's flow at $q_s$ by introducing a signal and starting and stopping the simulation by means of the normal operating mechanism e.g. inserting and removing a card or token with sufficient credit on it.
- Check the accuracy of the indication according to B 4.7 by comparing with the known simulated input.
- Check the accuracy of monitory calculations (prepayment systems) according to B 4.6.

Note: Simulators to be accurate and calibrated (traceable).

Check the operation of a sufficient number of signal generators e.g. reed switches in the normal laboratory quality control process, to ensure correct operation.

## 6. Sealing

This will depend on the design and requirements set at the time of type approval. If any adjustments can be made by means of the electronics, these will need to be sealed. The verification officer will need to attach seals specified in type approval documentation and affix the verification mark to indicate that the whole system has been verified.

## 7. Certificates

Besides the standard requirements for certificates the certificate shall include at least the following:

7.1 Traceability of verification of the mechanical meter fitted to the system. A certificate number and date of issue or the serial number of the mechanical meter or both as well as the name of the verifying laboratory will be sufficient.
Note: The certificate for the mechanical meter shall be kept on record for the same duration as the copy of the verification certificate being issued.

7.2 An indication of whether or not the system has been verified as an in-line or end of line system.

7.3 An indication that the tests in B.3, B.4.5.1 or B.4.5.2, as applicable, B.4.6 and B.4.7 have been passed.

## 8 Registration of Verification officers

For registration there will be three categories for verification officers to accommodate the various scenarios.

8.1 Category 1: Verification officers registered to verify mechanical water meters complying with SABS 1529-1. This is the current category and there will be no changes in the status of currently registered

verification officers or in requirements for future registrations. Examinations on the Trade Metrology Act and SABS 1529-1 are written.

8.2 Category 2: Verification officers registered to verify water meters with electronic indicators and prepay systems. These verification officers will be entitled to fully verify meters with mechanical or electronic indicators and examinations on the Trade Metrology Act, SABS 1529-1 and SABS 1529-9 are written.

8.3 Category 3: Verification officers registered to verify electronic components (prepay systems or electronic indicators) added to previously verified water meters having mechanical indicators. These verification officers will be entitled to partially verify meters in accordance with clauses 1 to 4 above. Examinations on the Trade Metrology Act, and applicable sections of SABS 1529-9 are written. SABS 1529-9 refers to test rig requirements in SABS 1529-1 and verification officers must also have a knowledge of these as they may form part of the exam.