



Bulletin

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Subject: **Sealing Requirements for Liquid Volumetric Proving Standards**

1. Scope

The purpose of this bulletin is to outline the sealing requirements for liquid volumetric proving standards that are calibrated and certified by Measurement Canada.

2. Background

In an effort to monitor the calibration of liquid volumetric proving standards, and to ensure better metrological control, the following sealing requirements will come into force the effective date of this bulletin and will be applied upon the recalibration due date of the proving standard.

3. Policy

3.1 Sealing Requirements

Measurement Canada will affix seals to the identified components of the proving standard at the time of calibration (water draw). Since seal integrity can deteriorate due to environmental conditions and everyday use, new seals will be affixed at each subsequent calibration. For all liquid volumetric proving standards the following components must be sealed at the time of calibration so as to prevent their adjustment and/or removal:

3.2 Pipe Provers

For pipe provers all signalling detector switches, which define the calibrated volume, must be sealed.

3.3 Small Volume Provers

In addition to sealing of signalling switches the following components must also be sealed on small volume provers:

- signalling detector switch cover/tube/housing assembly, and,
- any calibration access switch(es) on the controller.

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3.4 Open Neck Volumetric Provers

For open neck volumetric provers the following components, if applicable, must be sealed:

- gauge plate
- all flanged or connections which make up part of the calibrated volume; displacers, valves, drop tubes, thermal well(s) and or thermometers without wells.

3.5 Variations From The Sealing Requirements

Some provers are designed so that component parts need to be removed for various reasons. For example:

- some open neck volumetric provers have removable necks for transportation purposes
- sanitary provers have butterfly valves which come apart for easy cleaning
- large provers have access hatches for visual inspections etc.

These provers in general are required to meet the same requirements as those for open neck provers with the exception of components which may need to be removed for sanitary, transportation, and/or inspection purposes. These unique components that make up part of the calibrated volume do not need to be sealed but each must be uniquely identified. In addition to the markings, Measurement Canada will affix inspection markings (plates) to the components to ensure inspection traceability. This approach allows for the removal of components for the reasons mentioned and ensures the proper components are used with the appropriate standard.

4. Documentation

A valid Measurement Canada inspection certificate must accompany the volumetric standard at all times if it is intended to be used by Measurement Canada inspectors for inspection purposes. The certificate shall identify the reference conditions of the calibration, the essential construction data for the prover, and the number and location of all inspection seals (including non-sealed component list if applicable).

5. Missing Seals

If it is determined during an inspection that inspection seal(s) are missing and/or an improper component is being used, the Measurement Canada inspector will either continue on with the inspection holding back the inspection certificate or discontinue the inspection. In either case a confirmation water draw is required to ensure that the certified base volume has not changed. If such an event should occur, Measurement Canada will notify the owner of the standard, owner of the measurement device and all other Measurement Canada offices of the missing seals and the requirement for a confirmation water draw.

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6. Breaking Seals

Should the owner of a standard wish to break seal(s) and/or encounters a broken seal, a report must be submitted to the nearest Measurement Canada office within 5 days of the removal or discovery of the broken seal(s). The regional Measurement Canada Volumetric Specialist should be notified of such an occurrence. Where Measurement Canada has witnessed the breaking of a seal(s) and is confident that the base volume of the prover has not been altered and the calibration has not expired, may affix a new seal(s) without requiring a confirmation water draw.

7. Replacing Switches

If the owner of a standard wishes to demonstrate that the removal and replacement of switches does not affect the calibration of their standard they can do so at the time of calibration. Results of any additional testing will be documented on the inspection certificate. This additional testing may allow for the replacing of switches during a calibration cycle without requiring a confirmation water draw. However, all of the sealing, documentation and reporting requirements remain applicable.

8. Additional Information

For additional information regarding this bulletin, please contact the Program Officer responsible for volumetric measurement. Further information regarding Measurement Canada can be found on our web site located at <http://mc.ic.gc.ca>.

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