Australian Government
National Measurement Institute

Bradfield Road, West Lindfield NSW 2070

# Certificate of Approval

# No 14/3/13

Issued by the Chief Metrologist under Regulation 60
of the
*National Measurement Regulations 1999*

This is to certify that an approval for use for trade has been granted in respect of the

Sensus Model 220C 15 mm Water Meter

submitted by Sensus GmbH Ludwigshafen
Industriestr 16
67063 Ludwigshafen
GERMANY.

**NOTE:** This Certificate relates to the suitability of the pattern of the instrument for use for trade only in respect of its metrological characteristics. This Certificate does not constitute or imply any guarantee of compliance by the manufacturer or any other person with any requirements regarding safety.

This approval has been granted with reference to document NMI R 49-1, *Water Meters Intended for the Metering of Cold Potable Water, Part 1: Metrological and Technical Requirements*, March 2009.

CONDITIONS OF APPROVAL

This approval becomes subject to review on 1 September 2014, and then every 5 years thereafter.

Instruments purporting to comply with this approval shall be marked with approval number 'NMI 14/3/13' and only by persons authorised by the submittor.

It is the submittor's responsibility to ensure that all instruments marked with this approval number are constructed as described in the documentation lodged with the National Measurement Institute (NMI) and with the relevant Certificate of Approval and Technical Schedule. Failure to comply with this Condition may attract penalties under Section 19B of the National Measurement Act and may result in cancellation or withdrawal of the approval, in accordance with document NMI P 106.

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The National Measurement Institute reserves the right to examine any instrument or component of an instrument purporting to comply with this approval.

DESCRIPTIVE ADVICE

**Pattern:** approved 12 August 2009

- A Sensus model 220C 15 mm class 2 positive displacement meter used to measure cold potable water for domestic supply for trade.

Technical Schedule No 14/3/13 describes the pattern.

FILING ADVICE

The documentation for this approval comprises:

Certificate of Approval No 14/3/13 dated 23 November 2009
Technical Schedule No 14/3/13 dated 23 November 2009 (incl. Test Procedure)
Figure 1 dated 23 November 2009

Signed by a person authorised by the Chief Metrologist to exercise his powers under Regulation 60 of the *National Measurement Regulations 1999*.

# TECHNICAL SCHEDULE No 14/3/13

**Pattern:** Sensus Model 220C 15 mm Water Meter

**Submittor:** Sensus GmbH Ludwigshafen
Industriestr 16
67063 Ludwigshafen GERMANY

## 1. Description of Pattern

A Sensus model 220C 15 mm class 2 positive displacement meter (Figure 1) used to measure cold potable water for domestic supply for trade.

### 1.1 Field of Operation

The following characteristics determine the field of operation of the measuring system:

- Maximum continuous flow rate, $Q_3$ — 2.5 kL/h
- Flow rate ratio, $Q_3/Q_1$ — 200
- Maximum admissible temperature — 30°C
- Limiting condition (water temperature) — 50°C
- Maximum working pressure — 1600 kPa
- Accuracy class — 2

### 1.2 Features/Functions

A positive displacement volumetric rotary piston-type class 2 water meter of a size which is normally connected to a 15 mm pipe and is approved for metering domestic supply and has features/functions as listed below:

- Connection type: Screw thread (type G ¾ B).
- A mechanical digital indicator having a series of eight aligned digits giving a maximum display of 9999.9999 kL or $m^3$ in 0.1 L increments.
- Provision for the attachment of a supplementary device for data transmission.
- Meter length of 115 mm.

### 1.3 Descriptive Markings

Instruments are marked with the following data, either grouped or distributed on the casing, the indicating device dial or an identification plate:

| | |
|---|---|
| Manufacturer's name or mark | Sensus |
| Serial number | ... |
| Pattern approval mark | 14/3/13 |
| Numerical value of maximum continuous flow rate, $Q_3$ | ... |
| Flow rate ratio, $Q_3/Q_1$ | ... |
| Unit of measurement | kL or $m^3$ |
| Direction of flow | → or similar |
| Accuracy class | ... (#) |

(#) Optional for class 2 meters.

### 1.4 Verification/Certification

Provision is made for the application of a verification/certification mark.

### 1.5 Sealing Provision

Instruments shall include one or more devices which can be sealed so as to prevent dismantling or modification of the instrument without damaging the device(s). The device(s) may incorporate the verification/certification mark.

## TEST PROCEDURE

### Verification requirements

Instruments tested for initial verification shall comply with the Certificate of Approval, Technical Schedule, and the maximum permissible errors for initial and subsequent verifications/certifications at the operating conditions in effect at the time of verification. Maximum permissible errors for the initial and subsequent verification of water meters are given under Schedule 12, Part 4 of the *National Measurement Regulations 1999* (Cth). If permissible in the country of origin, the facility may employ the use of ISO 2859 (1995) as part of the verification procedure.

Upon construction/assembly in the country of origin, all meters shall be tested at the following flow rates:

(a) between $Q_1$ and 1.1 $Q_1$;

(b) between $Q_2$ and 1.1 $Q_2$; and

(c) between 0.9 $Q_3$ and $Q_3$.

Testing shall be performed in a facility with third party accreditation to ISO/IEC 17025 which has reference standards traceable to primary national standards of the country of origin. In this case, third party accreditation must be performed by an organisation that is a signatory to the International Laboratory Accreditation Cooperation (ILAC) Mutual Recognition Agreement (MRA).

Upon or prior to importation into Australia, the details of each lot of meters (including lot size, serial numbers and manufacturing details) and the results of the tests of these meters shall be supplied to an Australian verifying authority appointed by the Chief Metrologist under Regulation 73 of the *National Measurement Regulations 1999* (Cth). The verifying authority shall draw sample meters from the lot of meters supplied. The properties of the lot and sampling methodology shall be in accordance with the relevant National Measurement Institute (NMI) document.

All sample meters drawn shall be tested at the following flow rate:

- between $Q_2$ and 1.1 $Q_2$.

A sub-sample of the sample meters, drawn using the same sampling methodology, shall be tested at the following flow rates:

- between $Q_1$ and 1.1 $Q_1$; and
- between 0.9 $Q_3$ and $Q_3$.

NOTE: NMI reserves the right to vary this procedure. Any such variation shall be notified in writing by NMI.

FIGURE 14/3/13 – 1



(Top View)


(Side View)

Sensus Model 220C 15 mm Water Meter