



Australian Government  
Department of Industry,  
Science and Resources

## National Measurement Institute

36 Bradfield Road, West Lindfield NSW 2070

# Certificate of Approval

## NMI 14/3/19

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 instruments herein described.

Global Valve Technology Model TPWM Water Meter

submitted by Global Valve Technology Ltd  
Suite 1B, 4-10 Bridge Street  
Pymble NSW 2073

**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 and Hot Water, Part 1: Metrological and Technical Requirements*, dated April 2009.

This approval is subject to review at the decision of the Chief Metrologist in accordance with the conditions specified in the document NMI P 106.

### DOCUMENT HISTORY

Rev	Reason/Details	Date
0	Pattern & variant 1 approved – certificate issued	03/02/12
1	Pattern & variant 1 (Test Procedure) amended – certificate issued	18/04/12
2	Pattern amended (sealing), Figure 3 amended – certificate issued	02/04/26

## CONDITIONS OF APPROVAL

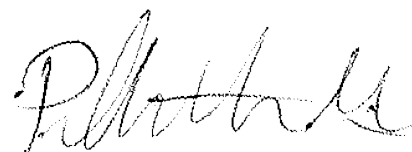
### General

Instruments purporting to comply with this approval shall be marked with pattern approval number 'NMI 14/3/19' and only by persons authorised by the submitter.

It is the submitter'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.

Auxiliary devices used with this instrument shall comply with the requirements of General Supplementary Certificates No S1/0/A or No S1/0B.

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



**Phillip Mitchell**  
A/g Manager  
Policy and Regulatory Services

TECHNICAL SCHEDULE No 14/3/19

**1. Description of Pattern** **approved on 03/02/12**  
**amended on 02/04/26**

A Global Valve Technology model TPWM 20 mm class 2 positive displacement meter (Figures 1, 2 and 3) used to measure water for potable supply for trade. May also be known as GVT instruments of the same model.

**1.1 Field of Operation**

The field of operation of the measuring system is determined by the following characteristics:

- Minimum flow rate,  $Q_1$ : 0.020 kL/h
- Transition flow rate,  $Q_2$ : 0.032 kL/h
- Maximum continuous flow rate,  $Q_3$ : 4.0 kL/h
- Overload flow rate,  $Q_4$ : 5.0 kL/h
- Flow rate ratio,  $Q_3/Q_1$ : 200
- Temperature class T30
- Maximum admissible temperature: 30 °C
- Limiting condition (water temperature): 50 °C
- Maximum admissible pressure: 1400 kPa
- Pressure loss class:  $\Delta p$  63
- Accuracy class: 2
- Flow profile sensitivity class: U0/D0
- Orientation: Any
- Flow Direction: Forward only

## 1.2 Features/Functions

A plastic body, positive displacement volumetric rotary piston-type class 2 water meter of a size which is normally connected to a 20 mm pipe and is approved for metering domestic supplies and has features/functions as listed below:

Connection type: Threaded end connections as normally used in ACT, NSW, QLD, VIC, TAS, WA and NT.

Display: A mechanical digital indicator having a series of eight aligned digits giving a maximum display of 9999.9999 kL in 0.1 L increments.

Communications<sup>(1)</sup>: Provision for pulse output sensory device of 0.5 litre per pulse.

Materials: Composite material

Meter length: 154 mm

Non-return device(s): Dual check valves

<sup>(1)</sup> The pattern and variants may be fitted and/or configured with the communication options listed in this Certificate. However, the primary indication of volume displayed by the indicating device of the meter is the approved indication of volume.

## 1.3 Conditions

### 1.3.1 Installation Conditions

For Accuracy Class 2 (NMI R 49-1) the flow profile sensitivity class is U0/D0.

### 1.3.2 Water Quality

The meter is approved for use in the metering of potable water supplies.

## 1.4 Verification Provision

Provision is made for the application of a verification mark.

## 1.5 Sealing Provision

Instruments shall include one or more devices which can be sealed (Figure 2 and Figure 3) so as to prevent dismantling or modification of the instrument without damaging the device(s).

The device(s) may incorporate the verification mark.

## 1.6 Descriptive Markings

Instruments are marked with the following data, either grouped or distributed on the casing, the indicating device dial or an identification plate (Figure 3):

Manufacturer's name or mark	...
Serial number	...
Pattern approval number	NMI 14/3/19
Numerical value of maximum continuous flow rate, $Q_3$	...
Flow rate ratio, $Q_3/Q_1$	...
Unit of measurement	kL
Temperature class <sup>(1)</sup>	T30
Maximum admissible pressure <sup>(2)</sup>	1400 kPa
Pressure loss class <sup>(3)</sup>	63 kPa or $\Delta p$ 63
Orientation <sup>(4)</sup>	Any
Flow profile sensitive class <sup>(5)</sup>	U0/D0
Direction of flow	→ or similar
Accuracy class <sup>(6)</sup>	... (#)

<sup>(1)</sup> Optional for temperature class T30 meters

<sup>(2)</sup> Optional for meters with MAP = 1400 kPa

<sup>(3)</sup> Optional for pressure loss class  $\Delta p$  63

<sup>(4)</sup> Optional for meters approved for all orientations

<sup>(5)</sup> Optional for U0/D0 class meters

<sup>(6)</sup> Optional for accuracy class 2 meters

## 2. Description of Variant 1

approved on 03/02/12

With certain alternative features/functions as listed below:

- Threaded end connections as normally used for recycled water.
- Brass end connections.
- A maximum display of 99999.999 kL in 1 L increments.
- Single check valve.
- Test ports to allow water connection for testing purposes.

## TEST PROCEDURE No 14/3/19

Water meters tested for verification shall comply with the Certificate of Approval, Technical Schedule, and the maximum permissible errors for verification at the operating conditions in effect at the time of verification. Maximum permissible errors for the verification of water meters are given in the *National Trade Measurement Regulations 2009* (Cth).

Water meters shall be verified in accordance with the following national instrument test procedures:

- NITP 14.0 – Utility meters – general requirements
- NITP 14.3 – Utility meters – water meters

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

FIGURE 14/3/19 – 1

Serial number applied here



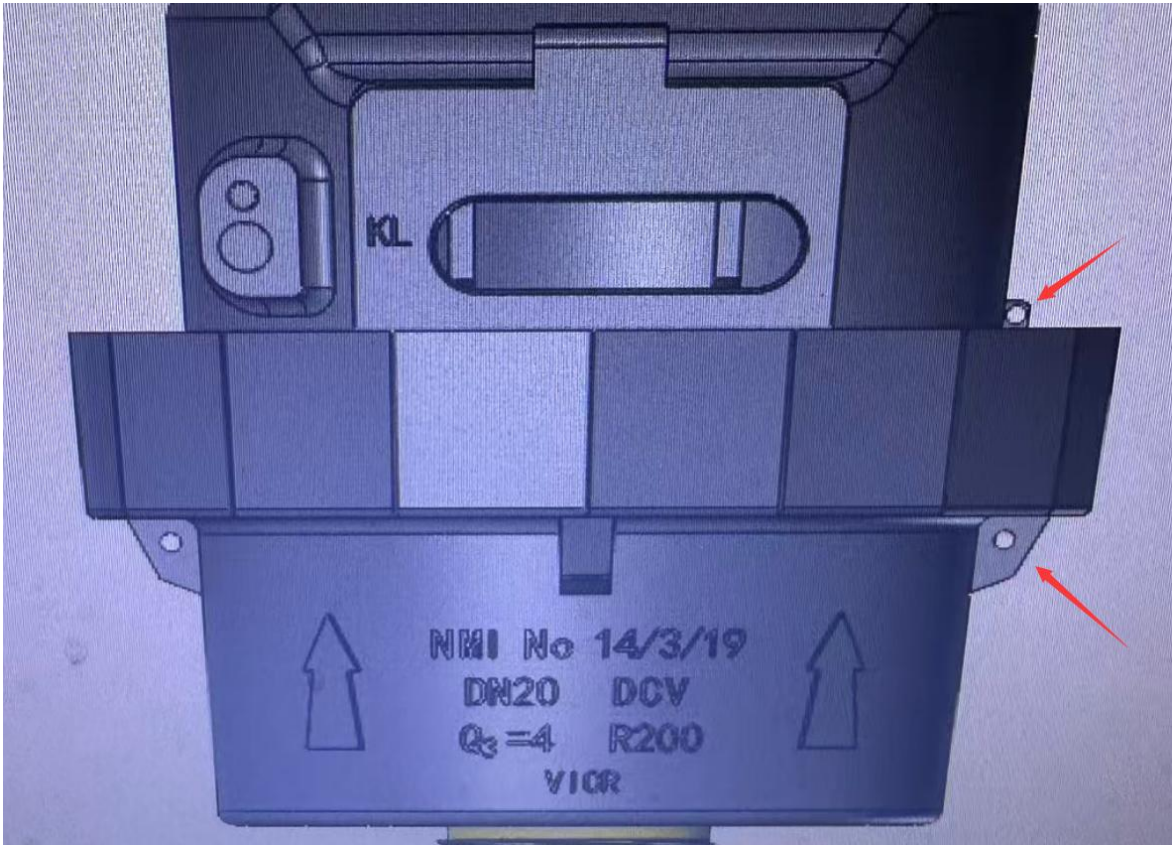
Global Valve Technology (GVT) model TPWM 20 mm Water Meter (the pattern)

FIGURE 14/3/19 – 2



Showing Sealing

FIGURE 14/3/19 – 3



Showing Descriptive Markings and Alternative Lead Wire Mechanical Sealing

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