Australian Government
Department of Industry, Innovation and Science

National Measurement Institute

Certificate of Approval
NMI 14/3/40

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.

Viewshine Model U-WR Water Meter

submitted by Pacific Metering Company Pty Ltd
7 Wheatsheaf Court
Narre Warren North 3804 VIC
AUSTRALIA

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 49-1 Water Meters Intended for the Metering of Cold Potable Water and Hot Water*, Part 1 Metrological and Technical Requirements*, dated September 2015.

This approval becomes subject to review on 1/12/22, and then every 5 years thereafter.

DOCUMENT HISTORY

Rev	Reason/Details	Date
0	Pattern & variant 1 approved – certificate issued	7/11/17

CONDITIONS OF APPROVAL

General

Instruments purporting to comply with this approval shall be marked with pattern approval number 'NMI 14/3/40' 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.

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

D Hines

TECHNICAL SCHEDULE No 14/3/40

1. Description of Pattern approved on 7/11/17

A DN20 sized Viewshine Model U-WR water meter used to measure cold potable water for supply for trade.

1.1 Field of Operation

The field of operation of the measuring system using the DN20 Viewshine Model U-WR water meter is determined by the following characteristics:

Minimum flow rate, Q_1	0.01 m^3/h
Transition flow rate, Q_2	0.016 m^3/h
Maximum continuous flow rate, Q_3:	4.0 m^3/h
Overload flow rate, Q_4	5.0 m^3/h
Flow rate ratio, Q_3/Q_1:	400
Maximum admissible temperature:	50 °C
Maximum admissible pressure:	1600 kPa
Pressure loss class:	Δp 63
Accuracy class:	2
Flow profile sensitivity class:	U0S/D0 – see clause 1.3
Electromagnetic class:	E1 (residential, commercial, light industrial)
Environmental class:	O (outdoor)
Orientation:	All positions
Flow Direction:	Forward
Power supply:	Non-replaceable battery (3.0-3.7 V)

1.2 Features/Functions

The pattern (Figure 1) consists of an ultrasonic flow sensor and an indicating flow computer (calculator/indicator) and has features/functions as listed below:

Connection type:	Threaded end connections type standard G3/4B
Display:	A digital, electronic, liquid crystal display allowing for a maximum indication range of 99,999.999 m^3 in 0.000001 m^3 increments
Communications:	LoRaWan 433 Mhz integrated radio module or wireless MBus or Pulse output.
Materials:	Flow tube: Brass
	Meter casing: Polymer material
Meter length:	154 mm

1.3 Conditions

1.3.1 Installation Conditions:

The flow profile sensitivity class is U0S/D0 (Accuracy Class 2).

The use of a flow conditioner is required for both the DN15 and DN20 sized meters (Figure 2).

1.3.2 Water Quality

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

1.4 Software Version

The pattern is approved for use with software versions:

- V2.2.

1.5 Verification Provision

Provision is made for the application of a verification mark.

1.6 Sealing Provision

The meter is mechanically sealed via the use of tamper-evident seals that connect the components of the meter casing, such that attempts to mechanically access the meter will result in evidence of tampering.

1.7 Descriptive Markings and Notices

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 14/3/40
Numerical value of maximum continuous flow rate, Q_3	...
Flow rate ratio, Q_3/Q_1	...
Unit of measurement	m^3
Maximum admissible pressure	1600 kPa
Maximum pressure loss (1)	63 kPa or Δp 63
Orientation (2)	…
Flow profile sensitive class	U0S/D0
Direction of flow	→ or similar
Accuracy class (3)	2

(1) Optional for Class Δp 63

(2) Optional for meters approved for all orientations

(3) Optional for class 2 meters

For instruments that incorporate electronic devices, the following information can either be physically marked on the instrument or provided electronically via the indicating device or similar means:

Electromagnetic class	E1
Environmental class	O
For meters with an external power supply	the voltage and frequency
For battery powered meters	a replacement date or similar indication of expected battery life

2. Description of Variant 1 approved on 7/11/17

The Viewshine Model U-WR water meter is approved with a range of different sizes, flowrates and associated characteristics as specified in Table 2 below. The Pattern is shown in **Bold** for completeness.

Table 2 Meter sizes, lengths, flowrates and related information

Meter size	**DN15**	**DN20**
Minimum flowrate Q_1 (m^3/h)	0.00625	**0.01**
Transitional flowrate Q_2 (m^3/h)	0.01	**0.016**
Maximum continuous flowrate Q_3 (m^3/h)	2.5	**4.0**
Overload flowrate Q_4 (m^3/h)	3.125	**5.0**
Ratio Q_3/Q_1	400	**400**
Meter Length (mm)	110 / 130 / 165 / 190	110 / **154** / 165 / 190 / 220
Pressure loss class	Δp 63	**Δp 63** or Δp 40
Verification scale interval (m^3)	0.000001	0.000001

TEST PROCEDURE No 14/3/40

Water meters tested for initial verification shall comply with the Certificate of Approval, Technical Schedule, and the maximum permissible errors for initial and subsequent verifications 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 in the *National Trade Measurement Regulations 2009* (Cth).

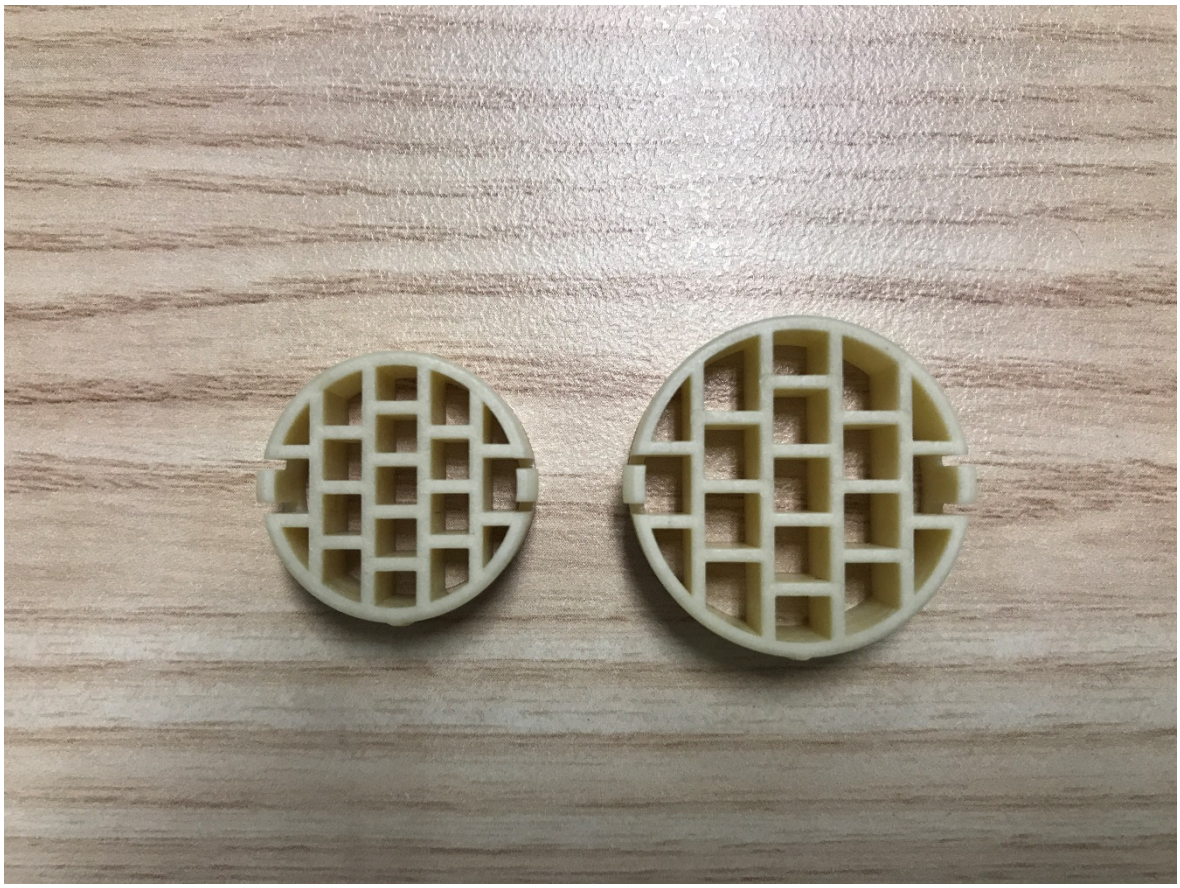
Water meters shall be verified in accordance with NITP 14 *National Instrument Test Procedures for Utility Meters*.

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

FIGURE 14/3/40 – 1

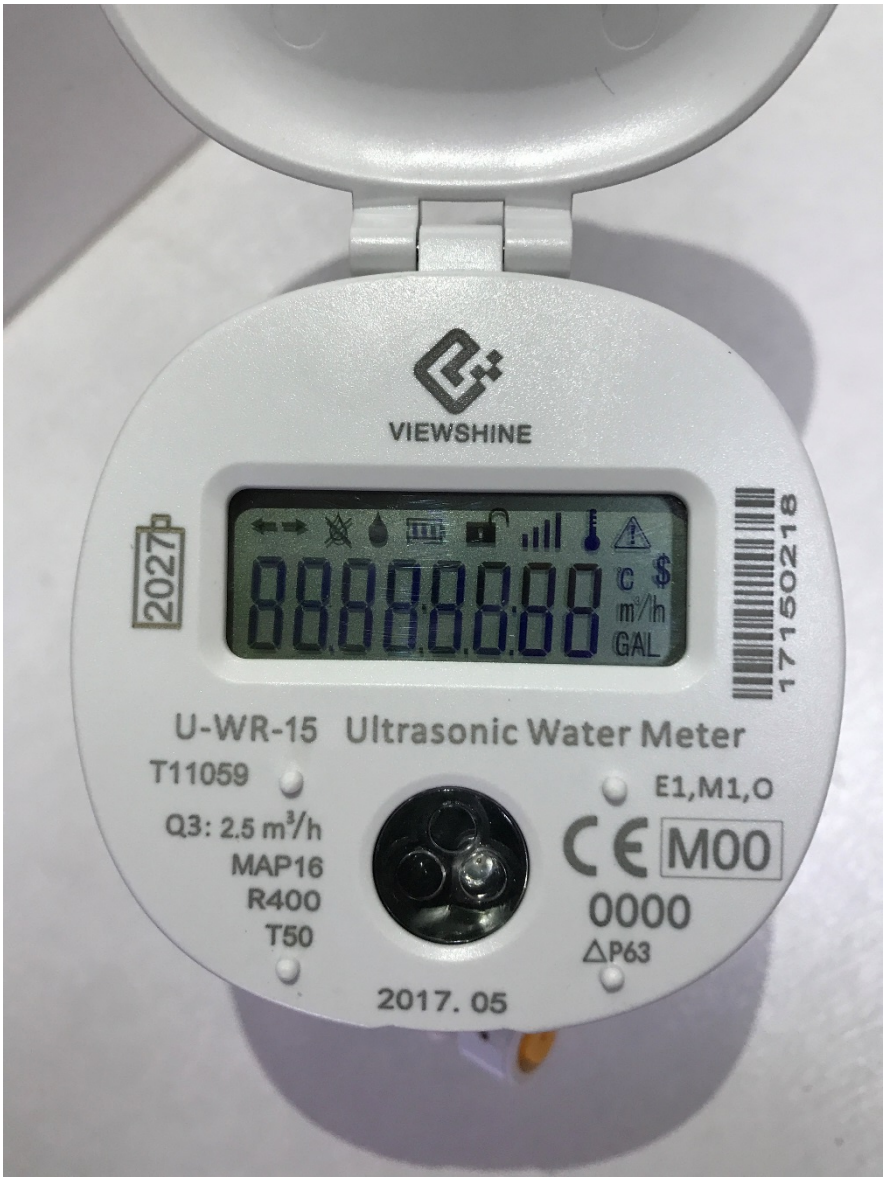
The Pattern - Viewshine Model U-WR Water Meter

FIGURE 14/3/40 – 2



Flow straighteners for the DN15 (left) and DN20 (right)

FIGURE 14/3/40 – 3



Indicating device and example markings

~ End of Document ~