Australian Government
Department of Industry, Innovation and Science

National Measurement Institute

36 Bradfield Road, West Lindfield NSW 2070

Interim Provisional

Certificate of Approval

NMI P14/3/44

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

VALID FOR VERIFICATION PURPOSES UNTIL 01 FEBRUARY 2020

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

Arad WSTsb model water meter

submitted by Arad Ltd
Kibutz Dalia 19239
Israel

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 September 2015.

This approval becomes subject to review on 01/08/2024, and then every 5 years thereafter.

DOCUMENT HISTORY

Rev	Reason/Details	Date
0	Pattern & variant 1 provisionally approved – certificate issued	10/07/19

CONDITIONS OF APPROVAL

General

Instruments purporting to comply with this approval shall be marked with pattern approval number 'NMI P14/3/44' 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.

Special Conditions of Approval

The approval will remain provisional pending completion of satisfactory testing and evaluation. In the event of unsatisfactory performance the approval may be cancelled (or altered).

The submittor shall implement such modifications as required by the Chief Metrologist (or their authorised delegate). In the event that such modifications (if any are required) are not made to the satisfaction of the Chief Metrologist, this approval may be cancelled or withdrawn.

The submittor shall provide the Chief Metrologist with copies of relevant test results within 6 (six) months of the issue date of this Interim Provisional Certificate.

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

Mario Zamora
A/c Manager
Policy and Regulatory Services

TECHNICAL SCHEDULE No P14/3/44

1. Description of Pattern approved on 10/07/19

A DN50 sized Arad WSTsb model water meter used to measure cold potable water supplies for trade.

1.1 Field of Operation

The field of operation of the measuring system using the DN50 Arad WSTsb model water meter is determined by the following characteristics:

Minimum flow rate, Q_1:	0.63 m^3/h
Transition flow rate, Q_2:	1.01 m^3/h
Maximum continuous flow rate, Q_3:	63.00 m^3/h
Overload flow rate, Q_4:	78.75 m^3/h
Flow rate ratio, Q_3/Q_1:	100
Maximum admissible temperature:	50 °C
Temperature Class:	T50
Maximum admissible pressure:	1600 kPa
Pressure loss class:	Δp40
Accuracy class:	2
Flow profile sensitivity class:	U10S/D6
Electromagnetic class:	E1 and E2
Environmental class:	O
Orientation:	Horizontal only
Flow Direction:	Forward only
Power supply:	NA

1.2 Features/Functions

The pattern consists of a Woltman type mechanical water meter incorporating an impeller flow sensor and a mechanical indicating flow converter (calculator/indicator) and has features/functions as listed below:

Connection type:	Flanged
Display:	A mechanical display allowing for a maximum indication range of 9,999,999 m^3 in 0.0005 m^3 increments
Materials:	Meter body: Epoxy coated stainless steel and brass
	Indicator housing: Polymer material
Meter length:	200 mm

1.3 Conditions

1.3.1 Installation Conditions:

The flow profile sensitivity class is U10S/D6 (Accuracy Class 2).

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

The meter is sealed using lead and plastic seals connecting the upper and lower part of the meter body to the indicator housing such that attempts to access metrologically significant components is made evident.

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:

Manufacturer's name or mark	Arad
Serial number – according to customer requirements	...
Pattern approval number	NMI P14/3/44
Numerical value of maximum continuous flow rate, Q_3	...
Flow rate ratio, Q_3/Q_1	...
Unit of measurement	m^3
Temperature class (1)	T50
Maximum admissible pressure (2)	1600 kPa
Maximum pressure loss (3)	40 kPa or Δp40
Orientation (4)	H
Flow profile sensitive class (5)	U10S/D6
Direction of flow	→ or similar
Accuracy class (6)	2

(1) Optional for Class T30

(2) Optional for meters with MAP of 1400 kPa or 600 kPa for DN ≥ 500

(3) Optional for Class Δp63

(4) Optional for meters approved for all orientations

(5) Optional for 0U/0D meters

(6) Optional for class 2 meters

2. Description of Variant 1 approved on 10/07/19

The Arad WSTsb model water meter is approved with a range of different sizes, flowrates and associated characteristics as specified in Table 1 and Table 2 below. The Pattern is shown in **Bold** for completeness.

Table 1 Meter sizes, flowrates and related information

Meter size	DN50	DN65	DN80	DN100
Minimum flowrate Q_1 (m^3/h)	**0.63**	0.63	1.00	1.60
Transitional flowrate Q_2 (m^3/h)	**1.01**	1.01	1.60	2.56
Maximum continuous flowrate Q_3 (m^3/h)	**63**	63	100	160
Overload flowrate Q_4 (m^3/h)	**78.75**	78.75	125	200
Ratio Q_3/Q_1	**100**			
Meter length	**200**	200	225/230	250
Pressure loss class	**Δp40**	Δp25	Δp40	
Verification scale interval (m^3)	**0.0005**			

Table 2 Meter sizes, flowrates and related information

Meter size	DN150	DN200	DN250	DN300
Minimum flowrate Q_1 (m^3/h)	2.50	12.60	20.00	20.00
Transitional flowrate Q_2 (m^3/h)	4.00	20.16	32.00	32.00
Maximum continuous flowrate Q_3 (m^3/h)	250	630	1000	1000
Overload flowrate Q_4 (m^3/h)	312.50	787.5	1250	1250
Ratio Q_3/Q_1	100	50		
Meter length	300	350	450	500
Pressure loss class	Δp16		Δp25	Δp16
Verification scale interval (m^3)	0.005		0.05	

TEST PROCEDURE No P14/3/44

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*.

For accuracy class 2.5 meters:

- The maximum permissible errors for initial verification shall be ±2.5% from Q_1 to Q_4.
- The flow rates specified for initial verification in NMI M 10-2 may replace the flow rates specified in NITP 14.

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

~ End of Document ~