



Australian Government

Department of Industry,
Science and Resources

**National
Measurement
Institute**

36 Bradfield Road, West Lindfield NSW 2070

Certificate of Approval

NMI 14/3/79

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.

Bermad MUT7000 Water Meter

submitted by Bermad Australia Pty Ltd
 26 Brand Drive
 Thomastown VIC 3074
 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 R 49-1 Water Meters Intended for the Metering of Cold Potable Water and Hot Water, *Part 1 Metrological and Technical Requirements*, dated May 2022 and NMI M 10-1 Meters Intended for the Metering of Water in Full Flowing Pipes, *Part 1: Metrological and Technical Requirements*, dated July 2010.

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 and Variants 1 & 2 approved – certificate issued	16/01/26

CONDITIONS OF APPROVAL

General

Instruments purporting to comply with this approval shall be marked with pattern approval number 'NMI 14/3/79' 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.

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



Phillip Mitchell
Acting Manager
Policy and Regulatory Services

TECHNICAL SCHEDULE No 14/3/79

1. Description of Pattern

approved on 16/01/26

A DN50 sized Bermad MUT7000 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 sized water meter is determined by the following characteristics:

Minimum flow rate, Q_1 :	0.1 m ³ /h
Transition flow rate, Q_2 :	0.16 m ³ /h
Maximum continuous flow rate, Q_3 :	40 m ³ /h
Overload flow rate, Q_4 :	50 m ³ /h
Flow rate ratio, Q_3 / Q_4 :	400
Temperature class:	T50
Maximum admissible temperature:	50 °C
Maximum admissible pressure:	1600 kPa
Pressure loss class:	Δp 16
Accuracy class:	2
Flow profile sensitivity class:	U0/D0
Electromagnetic class:	E1 (residential, commercial & light industrial)
Environmental class:	B or O (indoors or outdoors)
Orientation:	Horizontal
Flow Direction:	Forward & reverse
Power supply:	12 V DC / Replaceable battery (3.6 V)

1.2 Features/Functions

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

Connection type:	Roll grooved allowing for various fitting types
Display:	A digital, electronic, liquid crystal display (Figure 2) allowing for a maximum indication range of 99,999,999.999 m ³ in 0.001 m ³ increments
Communications ⁽¹⁾ :	Pulse output, Modbus, Bluetooth
Materials:	Meter body: Glass fibre reinforced plastic
Meter length:	200 mm

⁽¹⁾ 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

No flow straightener or flow conditioner is required.

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

For Accuracy Class 2.5 (NMI M 10-1) the installation conditions by flow disturbance type are specified in Table 1.

Table 1 - Minimum pipe lengths required by flow disturbance type

Disturbance Type ⁽¹⁾	Minimum upstream pipe length (mm)	Minimum downstream pipe length (mm)
1	0 x DN ⁽²⁾	0 x DN
2	0 x DN	0 x DN
3	0 x DN	0 x DN

⁽¹⁾ For information on the different types of flow disturbances which are examined as part of pattern approval, refer to NMI M 10-2.

⁽²⁾ DN (Nominal Diameter) is the alphanumeric designation of size for components of a pipework system, including water meters. It comprises the letters DN followed by a dimensionless whole number that is directly related to the physical size, in millimetres (mm), of the bore or outside diameter of the end connections.

1.3.2 Specified Installations and Open Channel Emplacements

The meter (pattern and variants) has not been tested or evaluated for performance in specified installations or open channel emplacements as part of this approval.

More information regarding specified installation and open channel emplacement testing may be found in NMI M 10-1 and NMI M 10-2.

1.3.3 Water Quality

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

The meter is approved for use in the metering of non-potable water supplies of an unspecified quality.

1.4 Software Version

The pattern and variants are approved with software version 1.08 (CRC checksum AC406F7C).

1.5 Verification Provision

Provision is made for the application of a verification mark.

1.6 Sealing Provision

The Bermad MUT7000 water meter is supplied with a bracket to facilitate an anti-tamper seal to be fitted (Figure 3) so that any unauthorised tampering of the meter internals and battery pack is clearly 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	...
Model	...
Serial number	...
Pattern approval number	NMI 14/3/79
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
Pressure loss class ⁽³⁾	16 kPa or Δp 16
Orientation ⁽⁴⁾	...
Flow profile sensitive class ⁽⁵⁾	...
Direction of flow	→ or similar
Accuracy class ⁽⁶⁾	2 or 2.5

⁽¹⁾ Optional for temperature class T30 meters

⁽²⁾ Optional for meters with MAP = 1400 kPa

⁽³⁾ Optional for pressure loss class Δp 63

⁽⁴⁾ Optional for meters approved for all orientations

⁽⁵⁾ Optional for U0/D0 class meters and accuracy class 2.5 meters

⁽⁶⁾ Optional for accuracy 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	B or 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
IP rating	IP68

2. Description of Variant 1

approved on 16/01/26

The Bermad MUT7000 water meter is approved as Accuracy Class 2 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, flowrates and related information

Meter size	DN50	DN80	DN100
Minimum flowrate Q ₁ (m ³ /h)	0.1	0.25	0.4
Transitional flowrate Q ₂ (m ³ /h)	0.16	0.4	0.64
Maximum continuous flowrate Q ₃ (m ³ /h)	40	100	160
Overload flowrate Q ₄ (m ³ /h)	50	125	200
Ratio Q ₃ /Q ₁	400		
Meter Length (mm)	200	225	250

3. Description of Variant 2

approved on 16/01/26

The Bermad MUT7000 water meter is approved as Accuracy Class 2.5 with a range of different sizes, flowrates and associated characteristics as specified in Table 3 below.

Table 3 - Meter sizes, flowrates and related information

Meter size	DN50	DN80	DN100
Minimum flowrate Q ₁ (m ³ /h)	0.1	0.25	0.4
Maximum continuous flowrate Q ₃ (m ³ /h)	40	100	160
Overload flowrate Q ₄ (m ³ /h)	50	125	200
Ratio Q ₃ /Q ₁	400		
Meter Length (mm)	200	225	250

TEST PROCEDURE No 14/3/79

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 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 14/3/79 – 1



Water Meter Technologies Bermad MUT7000 water meter (the pattern) fitted with flanged end connections

FIGURE 14/3/79 – 2



Indicating device

FIGURE 14/3/79 – 3



Sealing

~ End of Document ~