



Australian Government
Department of Industry,
Science and Resources

**National
Measurement
Institute**

36 Bradfield Road, West Lindfield NSW 2070

Certificate of Approval
NMI 14/3/83

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.

GWF Unico4e DN15 model water meter

submitted by GWF AG
119 Obergrundstrasse
Luzern 6005 (Postfach 2770, 6002)
Switzerland

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.

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, Variants 1 and 2 approved – certificate issued	14/10/26

CONDITIONS OF APPROVAL

General

Instruments purporting to comply with this approval shall be marked with pattern approval number 'NMI 14/3/83' 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*.

A handwritten signature in black ink, consisting of a series of loops and a long horizontal stroke extending to the right.

Alex Winchester
Acting Manager
Policy and Regulatory Services

TECHNICAL SCHEDULE No 14/3/83

1. Description of Pattern

approved on 14/10/26

A DN15 sized GWF AG model Unico4e mechanical water meter used to measure cold potable water and hot water supplies for trade.

1.1 Field of Operation

The field of operation of the measuring system using the DN15 sized GWF AG model Unico4e mechanical water meter is determined by the following characteristics:

Minimum flow rate, Q_1 :	0.040 m ³ /h
Transition flow rate, Q_2 :	0.063 m ³ /h
Maximum continuous flow rate, Q_3 :	2.500 m ³ /h
Overload flow rate, Q_4 :	3.130 m ³ /h
Flow rate ratio, Q_3/Q_1 :	63
Temperature class:	T90
Maximum admissible temperature:	90 °C
Maximum admissible pressure:	1600 kPa
Pressure loss class:	Δp 63
Accuracy class:	2
Flow profile sensitivity class:	U0/D0
Electromagnetic class:	E1 (residential, commercial & light industrial)
Environmental class:	B (building)
Orientation:	H, V
Flow Direction:	Forward only
Power supply:	Non-replaceable battery 1.7 – 3.0 V

1.2 Features/Functions

The pattern (Figure 1) consists of a single-jet impeller mechanical meter, an electronic flow computer and electronic indicating device and has features/functions as listed below:

Connection type:	Threaded end connections.
Display:	A digital, electronic, liquid crystal display (Figure 2) allowing for a maximum indication range of 99,999.999 m³ in 0.001 m³ increments. The meter may be placed into a test mode that provides for a verification scale interval of 0.0001 m³ increments.
Communications ⁽¹⁾ :	MBus, wMBus, LoRaWAN, NFC
Materials:	Inlet/Outlet connections and flow tube: brass Meter housing: Composite material
Meter length:	110 mm
Non-return device(s):	None

(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

For Accuracy Class 2 (NMI R 49-1) the flow profile sensitivity class is U0/D0 for DN15 size meters.

1.3.2 Water Quality

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

1.4 Software Version

The meter is approved with the metrology firmware/software version 1.1.26 and checksum 0x6B1DD74D.

The software version number and checksum are accessible via the display and shown sequentially approximately every three minutes.

1.5 Verification Provision

Provision is made for the application of a verification mark.

1.6 Sealing Provision

The meter is mechanically sealed. The indicating device and flow computer are protected by means of a retaining ring and secured to the housing via the snap-on hood. The snap-on hood and the retaining ring cannot be removed without causing damage. See Figure 3.

In addition to mechanical sealing, the Unico4e is electronically sealed via password which is not accessible without breaking the mechanical sealing. NFC is accessible but only with authorised passwords.

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 2):

Manufacturer's name or mark	...
Serial number	...
Pattern approval number	NMI 14/3/83
Numerical value of maximum continuous flow rate, Q_3	...
Flow rate ratio, Q_3/Q_1	...
Unit of measurement	m^3
Temperature class ⁽¹⁾	T90
Maximum admissible pressure ⁽²⁾	1600 kPa
Pressure loss class ⁽³⁾	63 kPa or Δp 63
Orientation ⁽⁴⁾	H, V
Flow profile sensitive class ⁽⁵⁾	U0/D0
Direction of flow	→ or similar
Accuracy class ⁽⁶⁾	2

⁽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
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 14/10/26

The Pattern and Variants are approved with a range of different flowrates and characteristics as specified in Table 1 and Table 2 below. The Pattern is shown in **bold** for completeness.

Table 1 – Meter Characteristics

Model no.:	Unico4e		
Meter size	DN15		
Minimum flow rate, Q ₁ (m ³ /h)	0.040	0.050	0.063
Transitional flow rate, Q ₂ (m ³ /h)	0.063	0.080	0.100
Maximum continuous flow rate, Q ₃ (m ³ /h)	2.5000		
Overload flow rate, Q ₄ (m ³ /h)	3.1300		
Ratio Q ₃ /Q ₁	63	50	40
Temperature classes	T30; T50; T90; T30/90		
Maximum admissible pressure (kPa)	1600		
Pressure loss class	Δp 63		
Accuracy class	2		
Flow profile sensitivity class	U0/D0		
Orientation	Horizontal (H)	Vertical (V)	
Flow direction	Forward only		
Verification scale interval (m ³)	0.0001		

Table 2 – Meter Characteristics

Model no.:	Unico4e							
Meter size	DN15							
Minimum flow rate, Q_1 (m ³ /h)	0.0125	0.016	0.020	0.025	0.031	0.040	0.050	0.063
Transitional flow rate, Q_2 (m ³ /h)	0.0200	0.025	0.032	0.040	0.050	0.063	0.080	0.100
Maximum continuous flow rate, Q_3 (m ³ /h)	2.5000							
Overload flow rate, Q_4 (m ³ /h)	3.1300							
Ratio Q_3/Q_1	200	160	125	100	80	63	50	40
Temperature classes	T30; T50; T90; T30/90							
Maximum admissible pressure (kPa)	1600							
Pressure loss class	Δp 63							
Accuracy class	2							
Flow profile sensitivity class	U0/D0							
Orientation	Horizontal – indicating device positioned at the top only H↑							
Flow direction	Forward only							
Verification scale interval (m ³)	0.0001							

3. Description of Variant 2

approved on 14/10/26

The Pattern and Variants are approved with the alternative model name, GWF Unico4coder MP (Figure 4). In this case, the water meter is approved with a mechanical flow computer and mechanical indicating device. The display and communications options of the mechanical indicating device are as follows:

Display: A mechanical display (Figure 5) allowing for a maximum indication range of 99,999.9999 m³ with a verification scale of 0.0001 m³.

Communications⁽¹⁾: wired wMBus

⁽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.

The GWF Unico4coder MP is approved with the range of different flowrates and characteristics as specified in Table 3 below.

Table 3 – Meter Characteristics

Model no.:	Unico4coder MP						
Meter size	DN15						
Minimum flow rate, Q_1 (m ³ /h)	0.016	0.020	0.025	0.031	0.040	0.050	0.063
Transitional flow rate, Q_2 (m ³ /h)	0.025	0.032	0.040	0.050	0.063	0.080	0.100
Maximum continuous flow rate, Q_3 (m ³ /h)	2.5000						
Overload flow rate, Q_4 (m ³ /h)	3.1300						
Ratio Q_3/Q_1	160	125	100	80	63	50	40
Temperature classes	T30; T50; T90; T30/90						
Maximum admissible pressure (kPa)	1600						
Pressure loss class	Δp 63						
Accuracy class	2						
Flow profile sensitivity class	U0/D0						
Orientation	Horizontal – indicating device positioned at the top only H↑						
Flow direction	Forward only						
Verification scale interval (m ³)	0.0001						

TEST PROCEDURE No 14/3/83

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

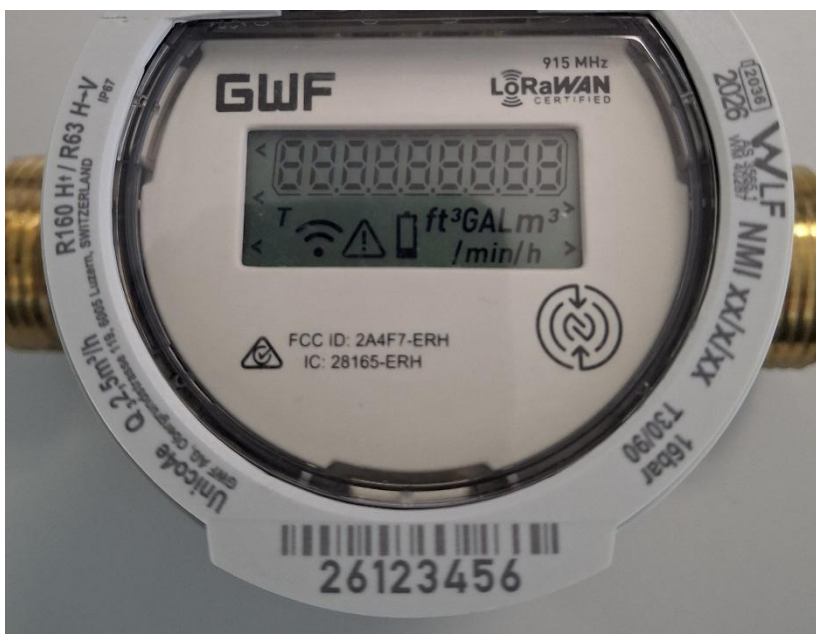
NOTE: NMI reserves the right to vary this procedure. Any such variation shall be notified in writing by NMI.

FIGURE 14/3/83 – 1



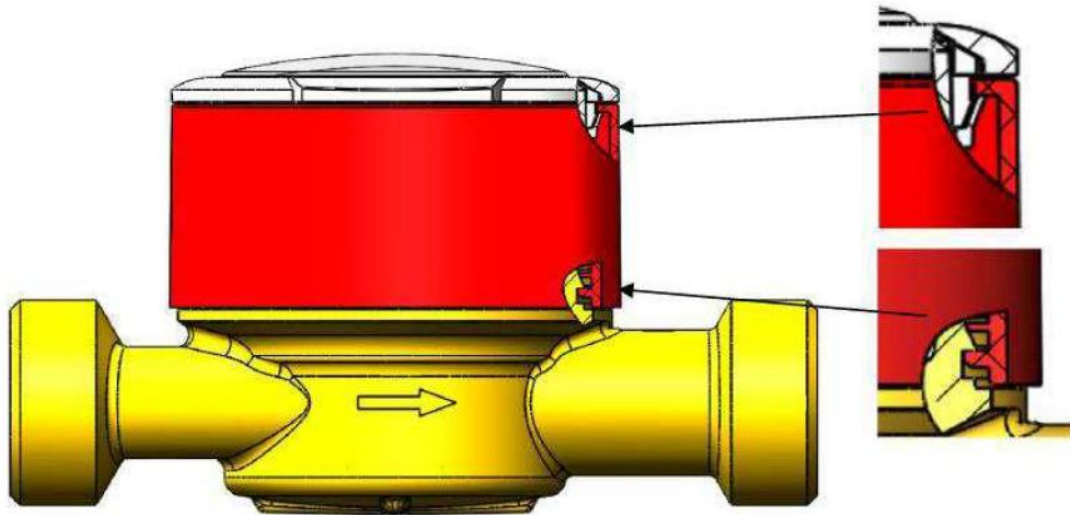
The Pattern and Variant 1 – GWF Unico4e Model Water Meter

FIGURE 14/3/83 – 2



GWF Unico4e – Indicating device and required markings

FIGURE 14/3/83 – 3



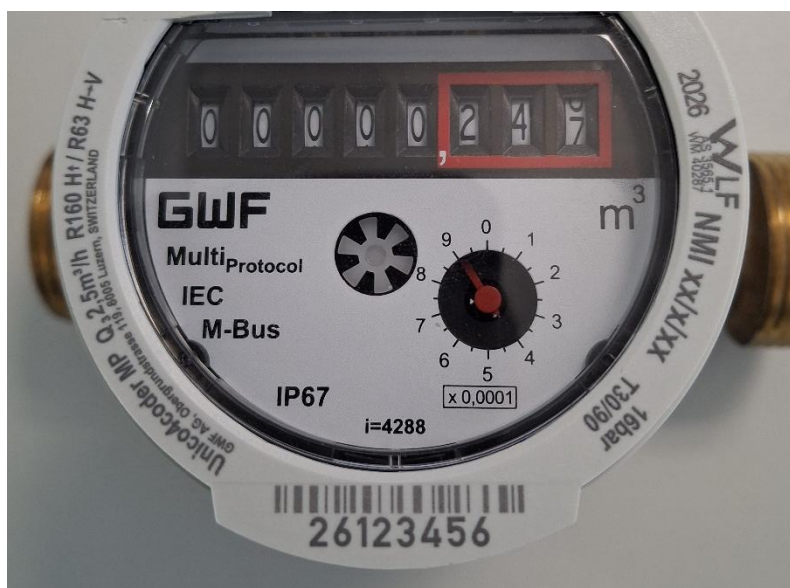
Sealing Provisions

FIGURE 14/3/83 – 4



Variant 2 – GWF Unico4coder MP Model Water Meter

FIGURE 14/3/83 – 5



GWF Unico4coder MP – Indicating device and required markings

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