

Australian Government

Department of Industry, Science and Resources

National Measurement Institute

36 Bradfield Road, West Lindfield NSW 2070

Certificate of Approval NMI 14/3/77

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.

Maddalena SJ-PLUS DN20 Water Meter

submitted by Strongcast Pty Ltd 17/1440 New Cleveland Road CHANDLER QLD 4155

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			
0	Pattern approved – certificate issued	09/05/25		

CONDITIONS OF APPROVAL

General

Instruments purporting to comply with this approval shall be marked with pattern approval number 'NMI 14/3/77' 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*.

Darryl Hines Manager Policy and Regulatory Services

TECHNICAL SCHEDULE No 14/3/77

1. Description of Pattern

approved on 09/05/25

A DN20 sized Maddalena SJ-PLUS model water meter (Figure 1) 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 is determined by the following characteristics:

Minimum flow rate, Q1:	0.025 m³/h		
Transition flow rate, Q ₂ :	0.04 m ³ /h		
Maximum continuous flow rate, Q3:	4 m ³ /h		
Overload flow rate, Q4:	5 m³/h		
Flow rate ratio, Q ₃ /Q ₁ :	160		
Temperature class:	T30/90		
Minimum admissible temperature	30 °C		
Maximum admissible temperature:	90 °C		
Maximum admissible pressure:	1600 kPa		
Pressure loss class:	Δр 63		
Accuracy class:	2		
Flow profile sensitivity class:	U0/D0 (see 1.3.1)		
Orientation:	H (indicator on top)		
Flow Direction:	Forward		

1.2 Features/Functions

The pattern consists of a positive displacement flow sensor and mechanical indicating device and has features/functions as listed below:

Threaded
A mechanical indicator allowing for a maximum indication range of 99,999 m^3 in 0.001 m^3 increments.
Not applicable
Meter body: Brass Top cover: Plastic
130 mm
check valve (optional)

1.3 Conditions

1.3.1 Installation Conditions

No flow straightener or flow conditioner is required.

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

The meter is designed such that physical access to the internal components is impossible without causing permanent damage to the meter.

1.6 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				
Serial number				
Pattern approval number	NM	I 14/3/77		
Numerical value of maximum continuous flow rate, Q	3			
Flow rate ratio, Q ₃ /Q ₁				
Unit of measurement	m ³			
Temperature class ⁽¹⁾	T30/90			
Maximum admissible pressure (2)	1600 kPa			
Pressure loss class ⁽³⁾	63	kPa or ∆p 63		
Orientation (4)				
Flow profile sensitive class ⁽⁵⁾				
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				
⁽⁶⁾ Optional for accuracy class 2 meters				

2. Description of Variant 1

approved on 09/05/25

The pattern is approved with a range of different sizes, flowrates and associated characteristics as specified in Table 1 below. The Pattern is shown in **bold** for completeness.

Meter size	DN15	DN15	DN15	DN15	DN20	DN20
Minimum flowrate Q1 (m3/h)	0.0397	0.0313	0.0156	0.050	0.025	0.063
Transitional flowrate Q2 (m3/h)	0.0635	0.050	0.025	0.080	0.04	0.102
Maximum continuous flowrate Q3 (m3/h)	2.5	2.5	2.5	2.5	4	4
Overload flowrate Q4 (m3/h)	3.125	3.125	3.125	3.125	5	5
Ratio Q3/Q1	63	80	160	50	160	63
Minimum meter length (mm)	110	110	110	110	130	130
Orientations	H (ind. on the side)	V (flow top to bottom)	H (ind. on top)	V (flow bottom to top)	H (ind. on top)	V and H (ind. on the side)

Table 1 - Meter sizes, flowrates and related information

TEST PROCEDURE No 14/3/77

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 14/3/77 – 1



Maddalena SJ-PLUS model water meter (the pattern)

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