



Australian Government  
Department of Industry and Science

## National Measurement Institute

# Certificate of Approval

## NMI 14/3/18

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.

Elster Model V100 40 mm Water Meter

submitted by Elster Metering Pty Ltd  
55 Northcorp Boulevard  
Broadmeadows VIC 3047

**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 for Cold Potable Water and Hot Water, Part 1 Metrological and technical requirements*, dated September 2015.

This approval becomes subject to review on 01/04/23, and then every 5 years thereafter.

### DOCUMENT HISTORY

Rev	Reason/Details	Date
0	Pattern & variant 1 approved – certificate issued	26/08/11
1	Variant 2 approved – certificate issued	26/06/15
2	Pattern updated, Variant 2 amended – certificate issued	16/03/18

## CONDITIONS OF APPROVAL

### General

Instruments purporting to comply with this approval shall be marked with pattern approval number 'NMI 14/3/18' 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*.



**D Hines**  
**Manager, Pattern Approval,**  
**Policy and Licensing**

TECHNICAL SCHEDULE No 14/3/18

**1. Description of Pattern** **approved on 26/08/11**

An Elster model V100 40 mm class 2 positive displacement meter (Figures 1 and 2) used to measure water for potable supply for trade.

**1.1 Field of Operation**

The field of operation of the Elster model V100 40 mm water meter is determined by the following characteristics:

Minimum flow rate, $Q_1$ :	0.08 kL/h
Transitional flow rate, $Q_2$ :	0.64 kL/h
Maximum continuous flow rate, $Q_3$ :	16.0 kL/h
Overload flow rate, $Q_4$ :	20.0 kL/h
Flow rate ratio, $Q_3/Q_1$ :	200
Maximum admissible temperature:	30°C
Limiting condition (water temperature):	50°C
Maximum admissible pressure:	1600 kPa
Pressure loss class:	$\Delta p$ 63
Accuracy class:	2
Flow profile sensitivity class:	U0/D0
Electromagnetic class:	E1 (residential, commercial, light industrial)
Environmental class:	O (outdoor)
Orientation:	All positions

**1.2 Features/Functions**

A positive displacement piston-type class 2 water meter of a size which is normally connected to a 40 mm pipe and is approved for metering potable supply and has features/functions as listed below:

- Oval flanged end connections as normally used in ACT, NSW, QLD, VIC, TAS, WA and NT.
- A mechanical digital indicator having a series of eight aligned digits giving a maximum display of 99999.999 kL in 1 L increments.
- Meter length: 231 mm.
- Provision for pulse output of 5 litre per pulse.

**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 Use conditions:**

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

Instruments shall include one or more devices which can be sealed so as to prevent dismantling or modification of the instrument without damaging the device(s).

The device(s) may incorporate the verification mark.

## 1.6 Descriptive Markings

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	NMI (or NSC) 14/3/18
Numerical value of maximum continuous flow rate, $Q_3$	.....
Flow rate ratio, $Q_3/Q_1$	.....
Unit of measurement	kL
Maximum admissible pressure	1600 kPa
Maximum pressure loss <sup>(1)</sup>	63 kPa or $\Delta p$ 63
Orientation <sup>(2)</sup>	.....
Flow profile sensitivity	U0/D0
Direction of flow	→ or similar
Accuracy class <sup>(3)</sup>	2

<sup>(1)</sup> Optional for Class  $\Delta p$  63

<sup>(2)</sup> Optional for meters approved in all orientations

<sup>(3)</sup> 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 26/06/15**

With alternative connections as normally used in SA.

- threaded end connections (Figures 3 and 4) – meter length of 200 mm; and
- round flanged end connections (Figures 5 and 6) – meter length of 311 mm.

### **3. Description of Variant 2**

**approved on 26/06/15**

Elster 40mm V200 series of class 2 water meter having the same technical characteristics as the DN 40 mm V100 series (as described for the pattern and variant 1) with the following differences:

- Certain shroud designs and mechanical indicator layout with eight (8) aligned digits and one (1) sub-wheel (Figures 7 & 8).
- Provision for e-sens inductive pulse output of 1 or 10 litres per pulse or AMR-AMI transmitter.
- An alternative shroud design, with an electronic indicator (Figures 7 and 8) incorporating an encoder, pulse or AMR interface utilised by radio modules, with a maximum display of 999999.99999 kL.
- Flanged end connections as normally used for NSW, ACT, QLD, VIC, TAS, WA and NT.
- Meter length 231mm.
- With single check valve (Reverse flow restrictor).

Meters with mechanical registers are factory assembled with a tamper-proof register and are wire sealed between the body and sealing ring.

Meters with electronic registers are sealed on the periphery of the shroud and wire sealed between the body and sealing ring.

## TEST PROCEDURE

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.

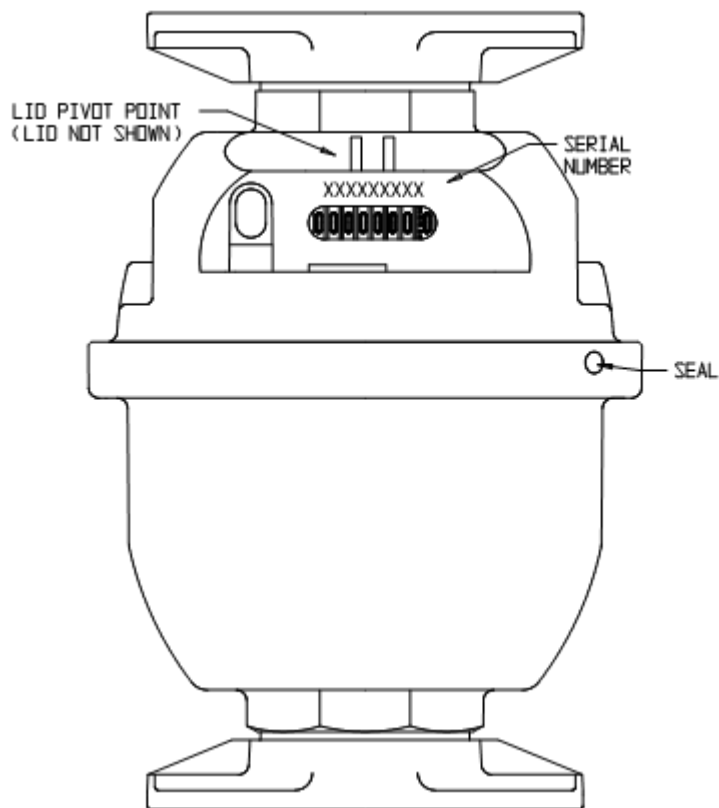
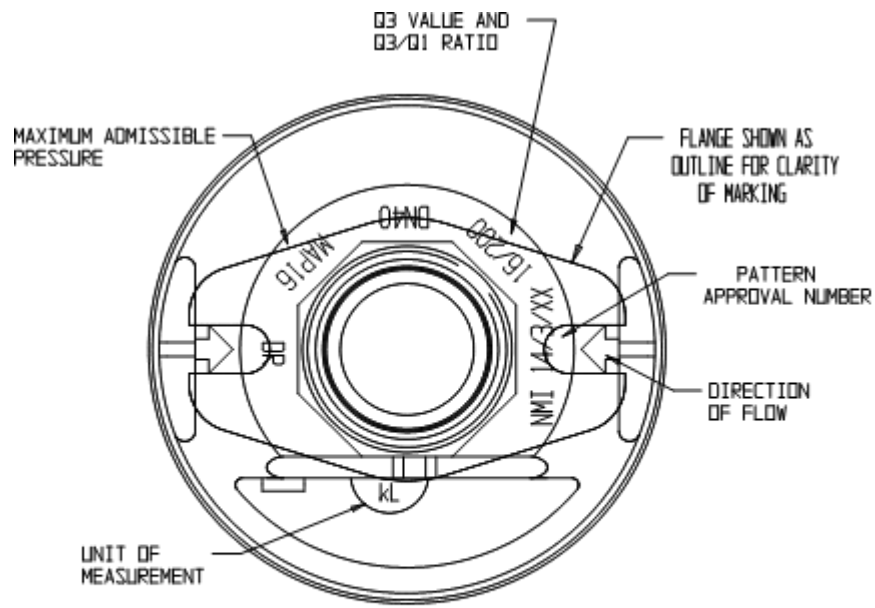
FIGURE 14/3/18 – 1



ELSTER MODEL 40mm V100 WATER METER  
OVAL FLANGED VERSION

Elster Model V100 40 mm Water Meter (the pattern)

FIGURE 14/3/18 – 2



Elster Model V100 40 mm Water Meter (the pattern)



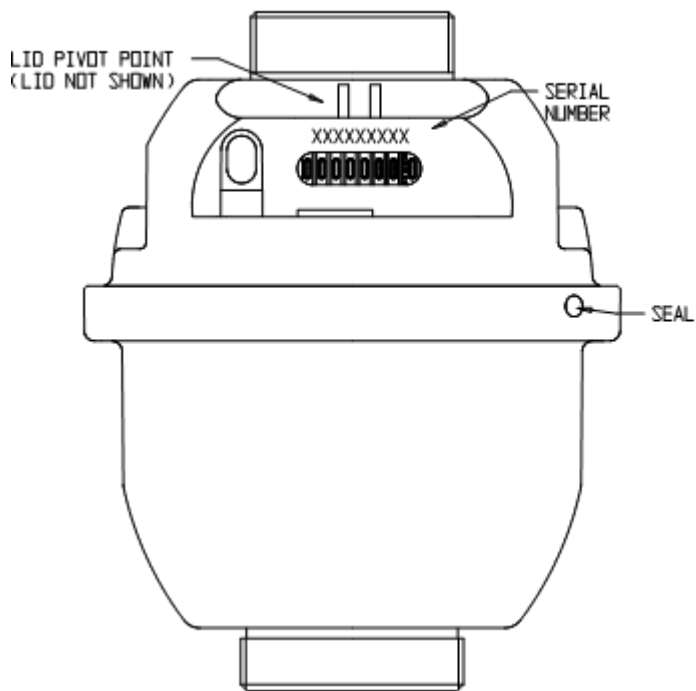
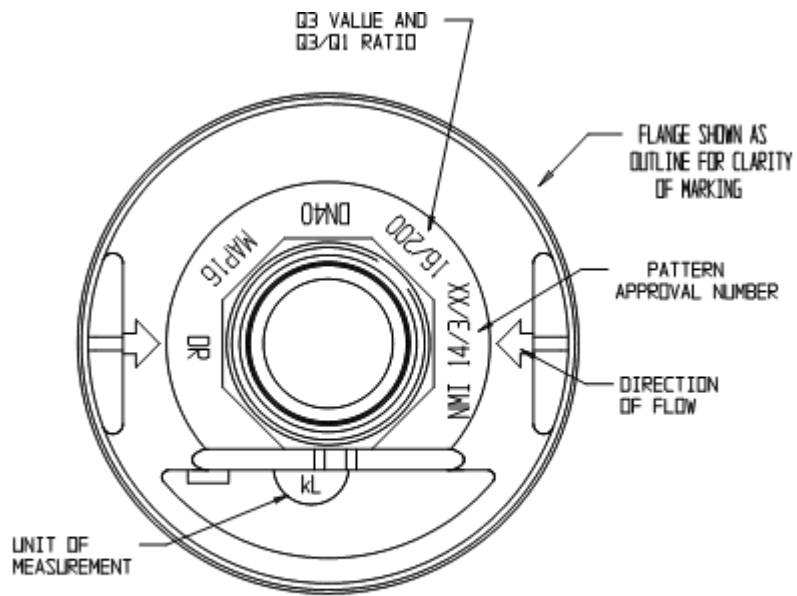
FIGURE 14/3/18 – 3



ELSTER MODEL 40mm V100 WATER METER  
SA SCREWED VERSION

Elster Model V100 40 mm Water Meter (variant 1)

FIGURE 14/3/18 – 4



Elster Model V100 40 mm Water Meter (variant 1)

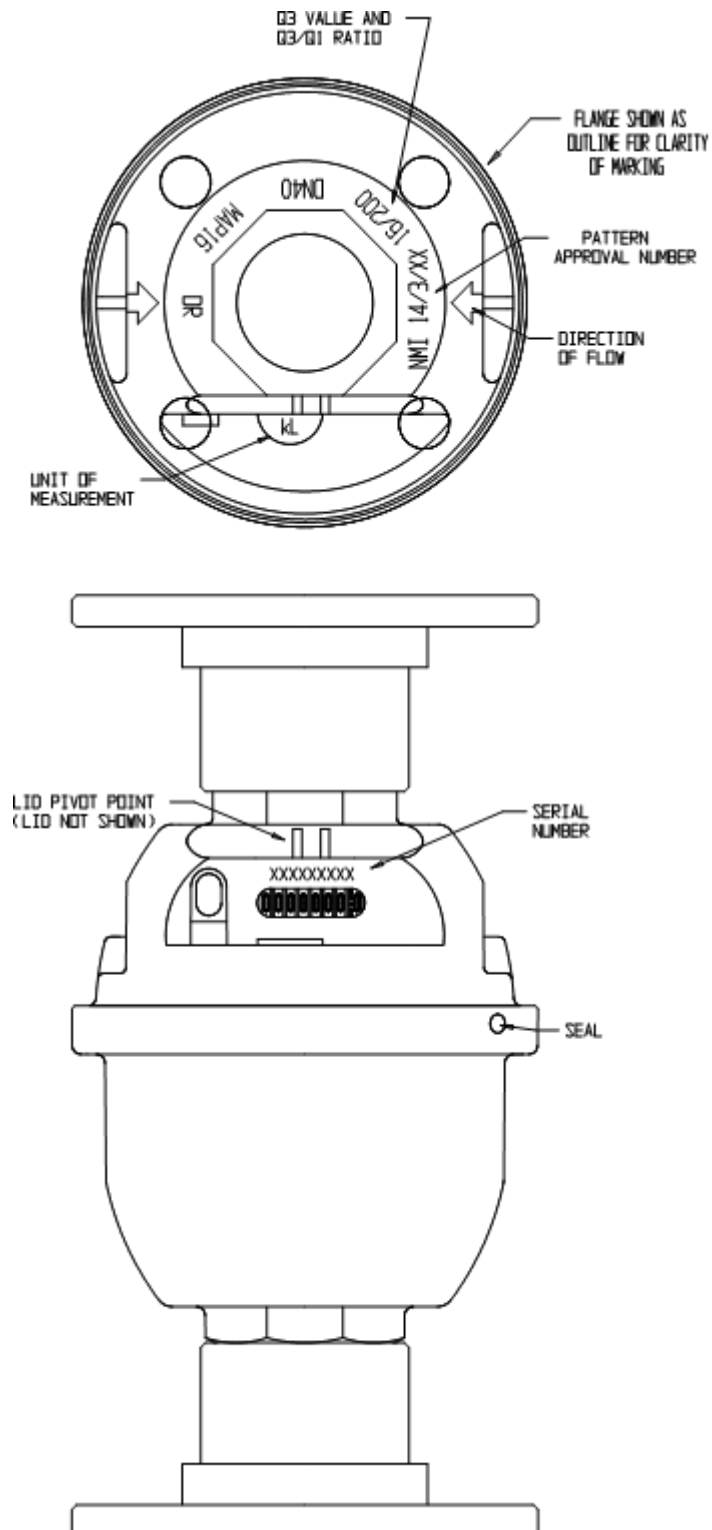
FIGURE 14/3/18 – 5



ELSTER MODEL 40mm V100 WATER METER  
SA ROUND FLANGE VERSION

Elster Model V100 40 mm Water Meter (variant 1)

FIGURE 14/3/18 – 6



Elster Model V100 40 mm Water Meter (variant 1)

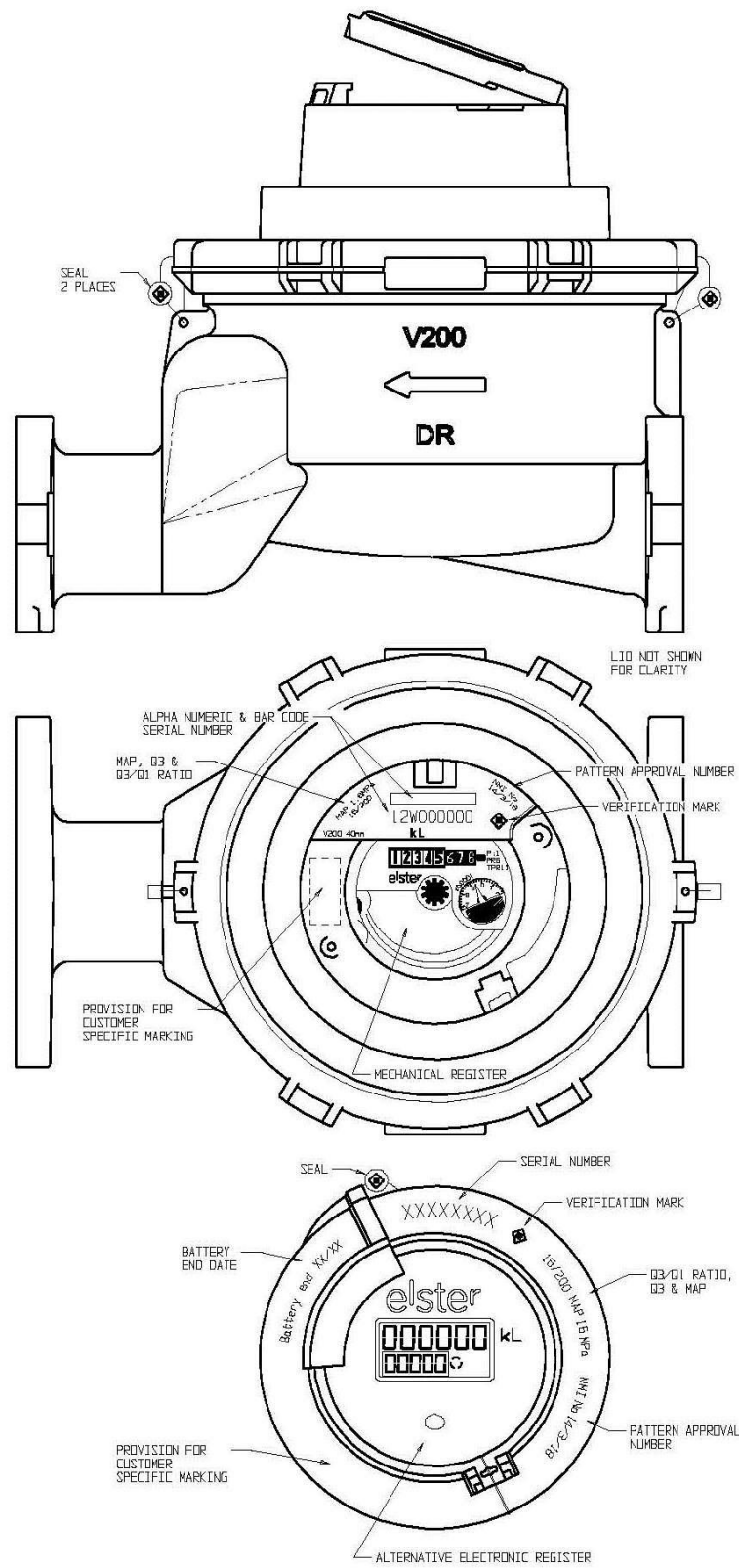
FIGURE 14/3/18 – 7



Alternative electronic  
register

Elster Model V200 40 mm Water Meter (Variant 2)

FIGURE 14/3/18 – 8



Elster Model V200 40 mm Water Meter (Variant 2)

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