Australian Government
Department of Industry, Innovation and Science

National Measurement Institute

Certificate of Approval
NMI 14/3/34

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.

Sensus Model WP-Dynamic Water Meter

submitted by Bermad Water Technologies
23 Brand Drive
Thomastown VIC 3074

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 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 becomes subject to review on 1/11/21, and then every 5 years thereafter.

DOCUMENT HISTORY

Rev	Reason/Details	Date
0	Pattern & variants 1 to 3 approved – certificate issued	10/10/16

TECHNICAL SCHEDULE No 14/3/34

1. Description of Pattern approved on 10/10/16

A Sensus model WP-Dynamic water meter intended for the metering of cold potable water supplies for trade.

1.1 Field of Operation

The field of operation of the measuring system using the Sensus model WP-Dynamic DN40 water meter is determined by the following characteristics:

Maximum continuous flow rate, Q_3:	25 m^3/h
Flow rate ratio, Q_3/Q_1:	63
Maximum admissible temperature:	30°C
Limiting condition (water temperature):	50°C
Maximum admissible pressure:	1600 kPa
Pressure loss:	4 kPa
Accuracy class:	2.5
Flow profile sensitivity classes:	(refer to Tables 1 to 3)
Orientation:	Horizontal only
Flow Direction:	Forward only

1.2 Features and Functions

The pattern (Tables 1 to 3, and Figures 1 to 3) consists of an inferential turbine type class 2.5 water meter of a size which is normally connected to a 40 mm pipe and is approved for metering water supplies, and has features/functions as listed below:

Connection type: Flanged end connections.

Display: The meter incorporates a mechanical indicating device (Figure 4) having a series of 6 aligned digits (indicating kL or m^3) and 3 dials (indicating sub-multiples of kL) giving a maximum display of 999999.999 kL in 0.001 kL increments.

Materials: Meter body: cast iron
Measuring element: composite material
Indicating device: composite material

Meter length: 220 mm

1.3 Conditions:

a) Installation conditions:

No flow straightener or flow conditioner is required.

The meter is approved for use in the installation arrangement shown in Figure 1.

1.5 Sealing Provision

Provision is made for the instrument to be sealed by the application of one or more mechanical seals (Figures 2 & 5).

1.6 Descriptive Markings

Instruments shall be marked with the following data, either grouped or distributed on the casing (Figure 4), the indicating device dial or an identification plate:

Manufacturer's name or mark	Sensus
Serial number	...
Pattern approval number	NMI 14/3/34
Numerical value of maximum continuous flow rate, Q_3	...
Flow rate ratio, Q_3/Q_1	...
Unit of measurement	kl or m^3
Maximum pressure loss	kPa
Maximum admissible pressure	... kPa
Direction of flow	→ or similar
Orientation	H
Accuracy class	2.5

2. Description of Variant 1 approved on 10/10/16

A Sensus WP-Dynamic water meter with the characteristics as described in the following tables: (The pattern, DN40, is shown in **bold** text.)

Table 4 Approved meter models (sizes): DN40-DN125 meters

Meter size	**DN40**	DN50	DN65	DN80	DN100	DN125
Minimum flow rate Q1 (m^3/h)	**0.4**	0.63	0.79	1.11	1.90	3.65
Maximum continuous flow rate Q3 (m^3/h)	**25**	40	50	70	120	230
Overload flow rate Q4 (m^3/h)	**40**	50	62.50	87.50	150	287.5
Ratio Q3/Q1	**63**	63	63	63	63	63
Meter length (mm)	**311**	311	311	225	483	300
Verification scale interval (kL or m^3)	**0.001**	0.001	0.001	0.001	0.001	0.001

Table 5 Approved meter models (sizes): DN150-DN400 meters

Meter size	DN150	DN200	DN250	DN300	DN400
Minimum flow rate Q1 (m^3/h)	3.97	7.14	12.70	15.87	31.75
Maximum continuous flow rate Q3 (m^3/h)	250	450	800	1000	2000
Overload flow rate Q4 (m^3/h)	312.5	562.5	1000	1250	2500
Ratio Q3/Q1	63	63	63	63	63
Meter length (mm)	500	350	450	500	500
Verification scale interval (kL or m^3)	0.01	0.01	0.01	0.01	0.1

Note: for meter sizes DN200 and above, the position of the turbine within the flow tube is different to those meters sizes DN150 and below.

3. Description of Variant 2 approved on 10/10/16

The Sensus model WP-Dynamic water meters approved herein with the meter body made of either brass or stainless steel.

4. Description of Variant 3 approved on 10/10/16

The Sensus model WP-Dynamic water meters approved herein with the meter lengths (in mm) as listed in Table 6 below:

Table 6 Approved meter lengths

Size	40	50	65	80	100	125	150	200	250	300
ISO Short	220	200	200	200	250	250	300	350	450	500
ISO Long	300	300	300	350	350	250	500	350	450	500
Aust STD	311	311	-	413	483	-	500	520	450	500

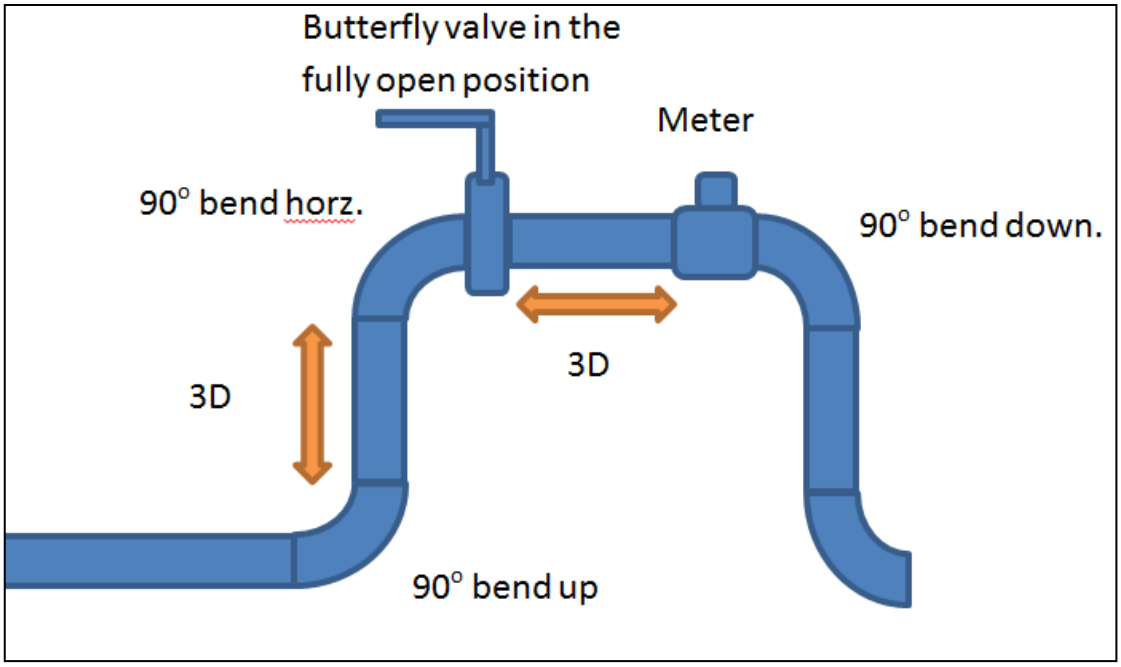
TEST PROCEDURE

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 14/3/34 – 1



Sensus Model WP-Dynamic Water Meter Installation

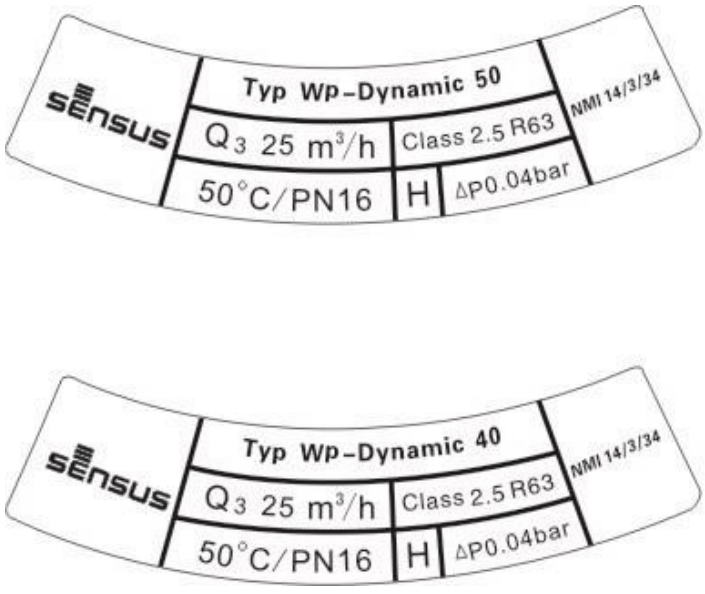
FIGURE 14/3/34 – 2

Sensus Model WP-Dynamic Water Meter Including Some Typical Sealing

FIGURE 14/3/34 – 3

Showing Indicating Face

FIGURE 14/3/34 – 4



Showing Typical Markings – Note that pressure markings should be in kPa (not ‘bar’)

FIGURE 14/3/34 – 5

Some Additional Typical Sealing

~ End of Document ~