



Australian Government
**Department of Industry, Science,
Energy and Resources**

**National
Measurement
Institute**

36 Bradfield Road, West Lindfield NSW 2070

**Certificate of Approval
NMI 5/6B/218**

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.

Alfons Haar Model PreciPURE C 1350 Liquid-Measuring System

submitted by HAAR Australia Pty Ltd
U1/2 East Circuit
Sunshine West VIC 3020

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 117, *Measuring Systems for Liquids Other than Water*, dated June 2011.

DOCUMENT HISTORY

Rev	Reason/Details	Date
0	Pattern provisionally approved – interim certificate issued	7/02/14
1	Pattern amended (validity date) – interim certificate issued	2/05/14
2	Pattern amended (validity date) – interim certificate issued	21/07/14
3	Pattern & variants 1 & 2 approved – certificate issued	17/11/14
4	Pattern & variants reviewed – Variant 3 approved – certificate issued	17/12/19
5	Variant 4 approved – certificate issued	13/10/20

CONDITIONS OF APPROVAL

General

Instruments purporting to comply with this approval shall be marked with pattern approval number 'NMI 5/6B/218' and only by persons authorised by the submitter.

Instruments purporting to comply with this approval and currently marked 'NMI P5/6B/218' may be re-marked 'NMI 5/6B/218' but 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.

Auxiliary devices used with this instrument shall comply with the requirements of General Supplementary Certificate of Approval No S1/0B.

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

(ii) Pump

A positive displacement pump is installed in a flooded suction configuration. The pump is required to have sufficient capacity to allow flow rates at least three times the minimum flow rate specified for the flowmeter. If the pump is not for the exclusive use of the flowmeter, the pump shall be of sufficient capacity to ensure that flow rate through each meter is maintained above its respective specified minimum flow rate and the pressure is maintained above the minimum backpressure recommended for each meter for all combinations of alternative uses of the pump.

(iii) Non-return Valve

A non-return valve between the pump and the hose reels keeps the hoses (up to the transfer point) full of liquid at all times.

(iv) Gas Elimination Device

An Alfons Haar model PreciNODE SME 'bubble detector' for sensing gas in the system (Figure 3). The discharge manifold provides the primary gas elimination.

(v) Measurement Transducer

The measurement transducer is Alfons Haar model TU100 A2/3.5 100 mm (4") turbine flowmeter (Figure 4) with dual pick-off coils producing an electrical output signal proportional to volume throughput. The pick-off signal is conditioned by a dual signal pre-amplifier to produce a 0 to 5 V square wave output signal.

- Input supply voltage is 15 to 32 V DC
- Nominal k-factor for the turbine meter is 4.77 pulses/litre per channel
- Maximum pulse output is 119.25 Hz per channel (nominal)
- Cyclic volume is 0.419 L

(vi) Calculator/Indicator

For use with an Alfons Haar model X-master 4 calculator/indicator (Figure 5) which has a graphics display and numerical/function soft keys housed in an aluminium enclosure.

(vii) Transfer Device

A transfer device is located downstream of the meter to define the start and finish of volume measured by the flowmeter and may be in the form of a shut-off valve or a decoupling valve fitted to the end of a loading arm.

The transfer device may also be designed to control the flow rate, or a separate flow control valve may be fitted between the meter and the transfer device, provided that the flow control system maintains the operation of the meter within the approved field of operation.

1.3 Sealing and Verification Provision

Refer to Figure 6 for sealing requirements.

Provision is also made for a verification mark to be applied.

1.4 Descriptive Markings and Notices

Each measuring system shall bear the following information, placed together either on the indicating device or on a data plate:

Pattern approval number	NMI No 5/6B/218
Manufacturer's identification mark or trade mark	.....
Meter model	.....
Serial number of the instrument	.....
Year of manufacture	.....
Maximum flow rate, Q_{max}	..... L/min
Minimum flow rate, Q_{min}	..... L/min
Maximum pressure of the liquid, P_{max}	..... kPa (#1)
Minimum pressure of the liquid, P_{min}	..... kPa
Liquid temperature range	... to ... °C (#2)
Nominal k-factor	..... L/pulses
Type of liquid for which the system is verified	..... (#3)
Environmental class	class C, I
Accuracy class	0.5

(#1) Required for systems with flexible outlet pipework.

(#2) Required if temperature converted volume to 15°C is reported.

(#3) This may be located separately, e.g. on a metal tag sealed to the instrument.

The minimum measured quantity (V_{min}) is clearly visible on the indicating device, e.g. "Minimum Delivery 200 L", or the pre-set of the controller is limited to deliveries equal to or greater than the minimum delivery specified for the flowmeter.

2. Description of Variant 1 approved on 17/11/14

An Alfons Haar model PreciTURBO C 1000 dry hose measuring system (Figure 7) for road tankers or stationary operations.

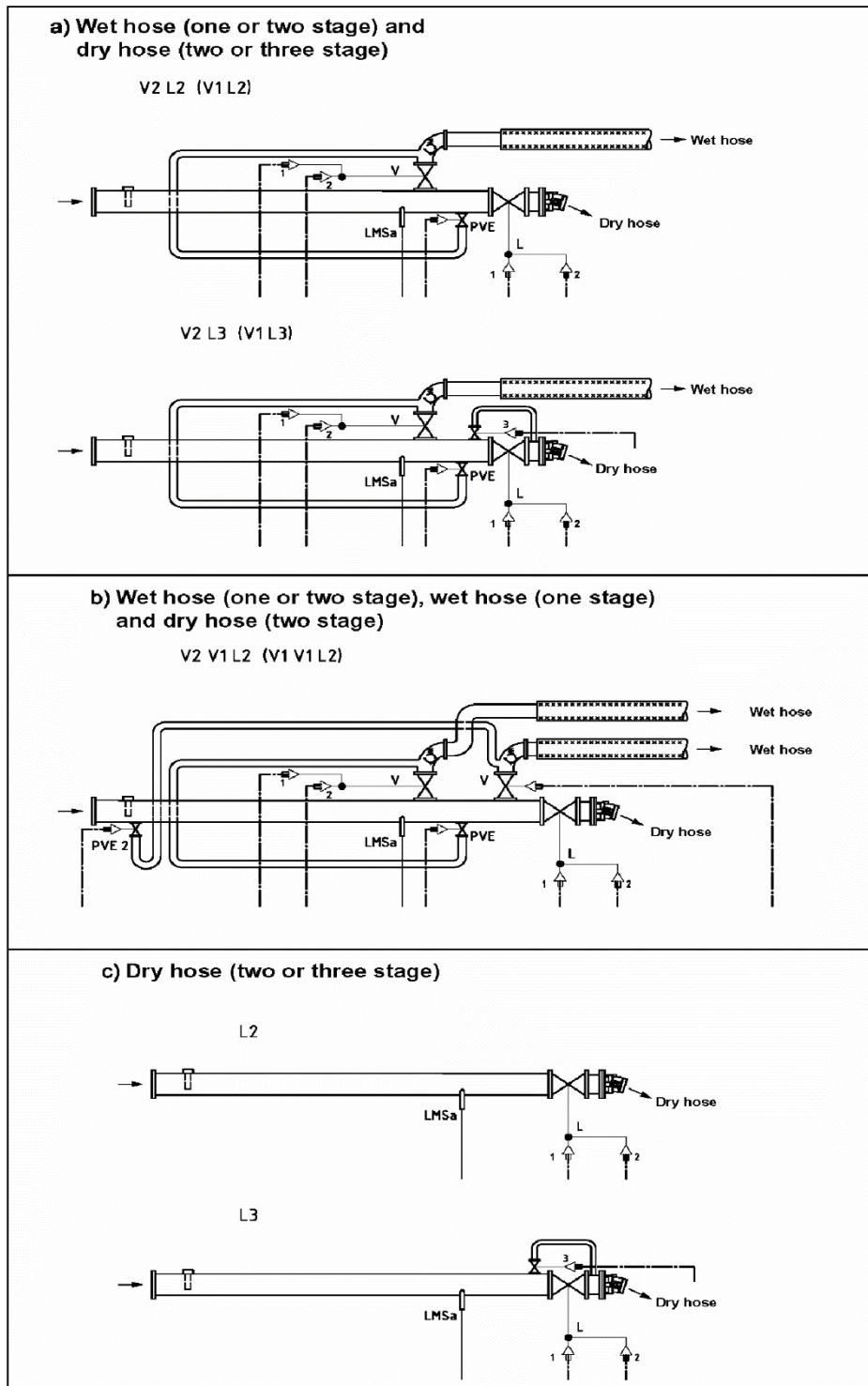
3. Description of variant 2 approved on 17/11/14

An Alfons Haar model PreciPURE C 1350 with dry or wet hose measuring system on road tankers or stationary operation for fluids with gravity discharge (Figure 8).

4. Description of variant 3 approved on 17/12/19

An Alfons Haar model PreciPURE C 1200 (Figure 9) which utilizes the same components as the C1350 in a more compact design.

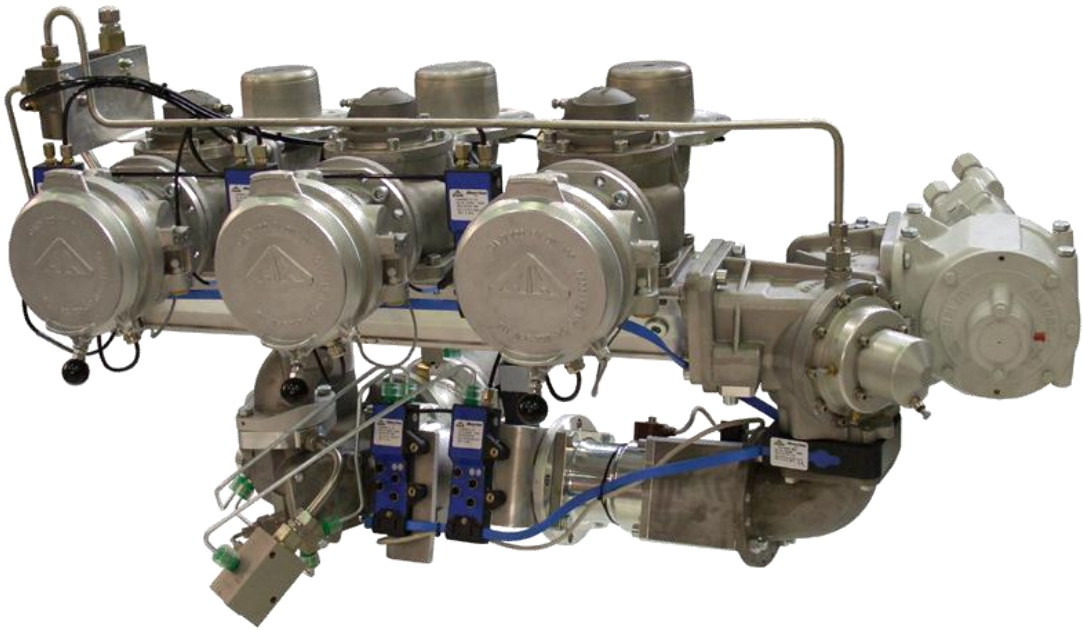
Figure 5/6B/218 – 1



a) & b) is the pattern, c) is variant 1

Alfons Haar Model PreciPURE C 1350 Bulk Flowmetering System

Figure 5/6B/218 – 2



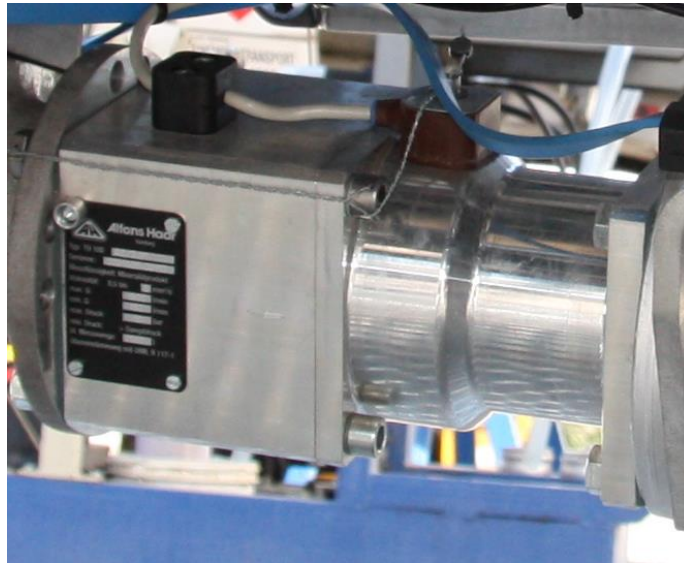
Alfons Haar Model PreciPURE C 1350 Bulk Flowmetering System Hydraulics

Figure 5/6B/218 – 3



Alfons Haar Model PreciNODE SME 'Bubble Detector' Gas Detection Device

Figure 5/6B/218 – 4



Measurement Transducer – Alfons Haar Model TU100 A2/3.5 Turbine Flowmeter

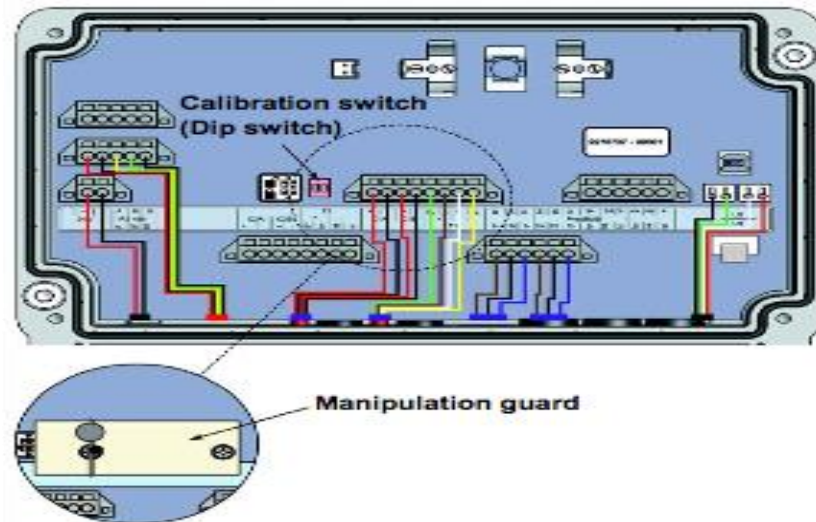
Figure 5/6B/218 – 5



Alfons Haar Model X-master 4 Calculator/Indicator

Figure 5/6B/218 - 6

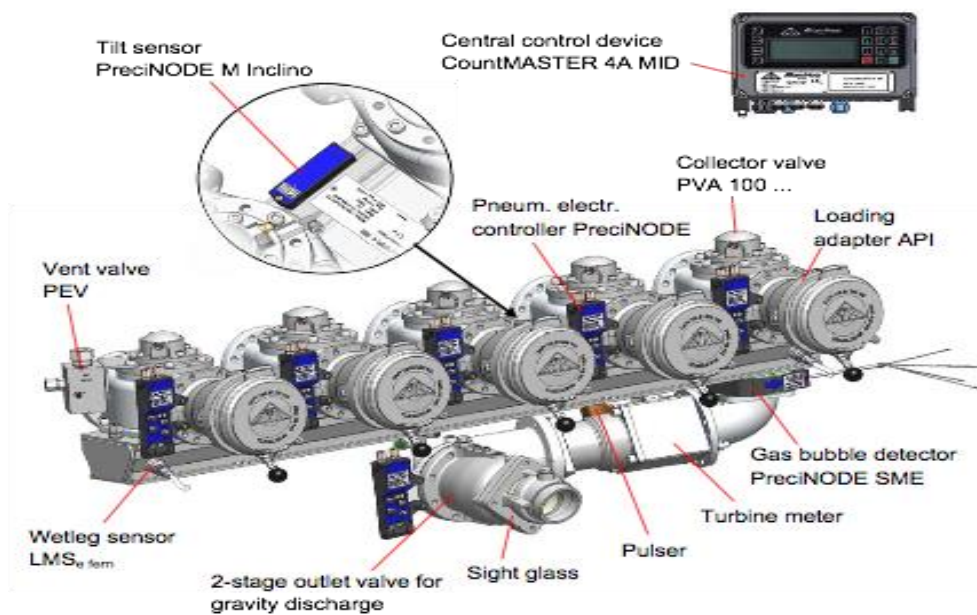
Manipulation guard Cover (part no. S001141) to protect the pulser connections and the calibration switch against manipulations. The manipulation guard has to be lead sealed after successful calibration of X-MASTER.



Sealing For Calibration For Calculator/Indicator

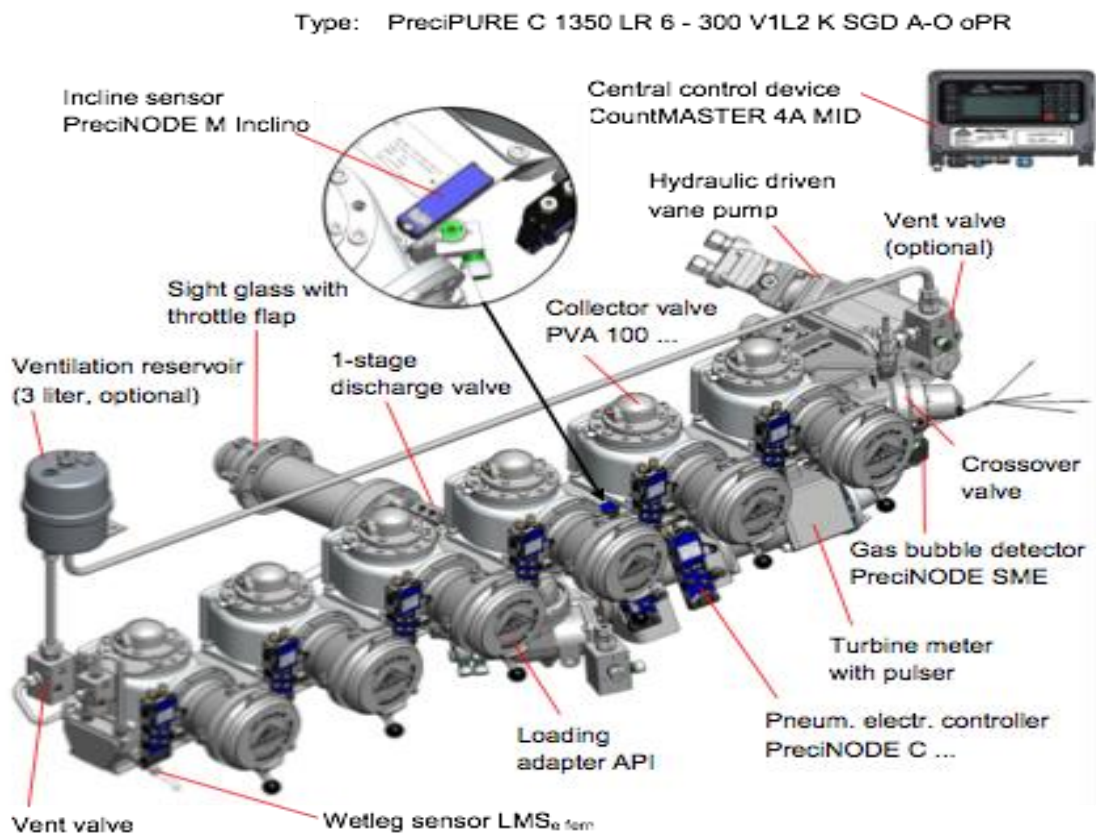
Figure 5/6B/218 – 7

Type: PreciTURBO C 1000 LL 5 - 300 SG



Alfons Haar Model PreciTURBO C 1000 Dry Hose Measuring System (Variant 1)

Figure 5/6B/218 – 8



Alfons Haar Model PreciPURE C 1350 Dry or Wet Hose Measuring System
(Variant 2)

Figure 5/6B/218 – 9



Alfons Haar Model PreciPURE C1200 Dry Measuring System (Variant 3)

~ End of Document ~