



Australian Government  
Department of Industry,  
Science and Resources

**National  
Measurement  
Institute**

36 Bradfield Road, West Lindfield NSW 2070

**Interim  
Provisional  
Certificate of Approval  
NMI P12/2/1**

**VALID FOR VERIFICATION PURPOSES UNTIL 1 October 2025**

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.

Fuel Measuring Device Model DPB-M 700bar Hydrogen Dispenser for Fuel Measuring Systems

submitted by Linde Hydrogen FuelTech GmbH  
Erdbergstrasse 197-199  
1030 Vienna, Austria

**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 139-1 *Compressed gaseous fuel measuring systems for vehicles, Part 1: Metrological and technical requirements*, dated October 2023.

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**

<b>Rev</b>	<b>Reason/Details</b>	<b>Date</b>
0	Pattern provisionally approved – interim certificate issued	02/11/23
1	Extension of provisionally approved – Interim certificate issued	01/10/24

## CONDITIONS OF APPROVAL

### General

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 No S1/0B.

### Special Conditions of Approval: (Provisional Approval)

This approval is limited to five (5) sites only, the locations of which may be obtained from the National Measurement Institute. The submitter shall advise the **National Measurement Institute – Pattern Approval Unit** in writing of the proposed location and serial number of each instrument prior to it being initially verified.

Instruments purporting to comply with this approval shall be marked with approval number 'NMI P12/2/1' and only by persons authorised by the submitter. (Note: The 'P' in the approval number may be a temporary marking.)

The approval will remain provisional pending completion of satisfactory testing and evaluation.

The submitter shall provide NMI with copies of test results from the initial verification and all subsequent tests.

In the event of unsatisfactory performance, the approval may be cancelled, altered or withdrawn.

The submitter shall implement such modifications as required by NMI. In the event that such modifications (if any are required by NMI) are not made to the satisfaction of NMI, this approval may be withdrawn.

### 1. Description of Pattern **provisionally approved on 02/11/23**

Hydrogen Fuel Measuring Device model DPB-M 700 bar for refuelling motor vehicles using gaseous Hydrogen 3.0 fuel. Instruments are approved for attendant-operated mode, or in attended self-service mode when interfaced to a compatible (#) approved fuel dispenser controller.

(#) "Compatible" is defined to mean that no additions/changes to hardware/software are required for satisfactory operation of the complete system including.

#### 1.1 Field of Operation

The field of operation of the measuring system is determined by the following characteristics:

- Minimum measured quantity,  $M_{\min}$  1.0 kg
- Maximum flow rate,  $Q_{\max}$  3.6 kg/min
- Minimum flow rate,  $Q_{\min}$  0.6 kg/min
- Maximum pressure in the refuelling station gas storage,  $P_{St}$  87.5 MPa
- Maximum fast fill pressure of the gas,  $P_v$  5 MPa
- Minimum pressure of the gas (if critical) 57.5 MPa
- Gas temperature range -20 °C to 45 °C
- Ambient temperature range -25 °C to 55 °C

- Accuracy Class 2.0
  - Nature of fuels to be measured ..... (#1)
- (#1) e.g. Hydrogen.

## 1.2 Components of the Measuring System

The Fuel Measuring Device Model DPB-M 700 bar single mass fuel measuring system includes:

- **Measurement Transducer**

A Coriolis flowmetering system consisting of a Rheonik mass flow meter model RHM04 sensor and a Rheonik measurement transducer model RHE27.

- (\*) Basic model number only – the full model number may have a variety of additional alphanumeric characters, which designate non-metrological features.

- **Calculator/Indicator**

A Tokheim calculator model WWC v4, WWC v7 electronic price-computing calculator/indicator compatible to receive electrical signals from a Rheonik measurement transducer model RHE27, which gets the signals from Rheonik mass flow meter model RHM04. The unit of measurement for measured quantities is kilograms (kg).

The unit of measurement for price and unit price is dollars (\$) or cents (c).

Software of a measuring system and/or its constituents shall be clearly identified with the software version or any other token.

- **Outlet Piping**

The pipework from each meter to its hose includes isolating valves.

- **Hose, Nozzle and Transfer Point**

The delivery hose has a nominal bore of approximately 6.3 mm and may have a return vent line having a nominal bore of approximately 6.3 mm. Note: The delivery hose and the vent line are the same.

The delivery hose and the return vent line are fitted with hose-break couplings.

The transfer point is in the form of a Nozzle, supplier WEH model TK17 70MPa fill coupling, fitted with an integral fill/vent valve which starts and stops the flow of gas. A bleed valve is also fitted to vent the gas between the hose-break coupling and the transfer point.

## 2. Sealing

Sealing shall be provided on all parts of the measuring system which cannot be materially protected in any other way against operations liable to affect the measurement accuracy, sealing shall, in all cases, be easily accessible.

Sealing devices shall prohibit the changing of any parameter that participates in the determination of measurement results. Sealings shall at least be applied on the electronics box of the sensor for flow measurements, at the electronics of the transducer and the connections of the housing, where all the measuring system is integrated. At detailed sealing description can be provided shortly if necessary.

## 3. Markings

Instruments are marked with the following data, together in one location, in the form shown at right:

Pattern approval number	NMI P12/2/1
Manufacturer's identification mark or trade mark	.....
Model number	.....
Serial number	.....
Year of manufacture	.....
Gaseous temperature range	-20 °C to +45 °C
Maximum Delivered Quantity	9.99 kg
Minimum Measured Quantity	1.0 kg (^)
Accuracy class	class 2.0
Environmental class	.... class (*)

(^) In addition, the minimum measured quantity ( $M_{\min}$ ) shall be clearly visible on any indicating device visible to the user during measurement, in the form 'Minimum delivery 1 kg'.

(\*) Determined at verification.

#### 4. Maximum Permissible Errors

For class 2.0:

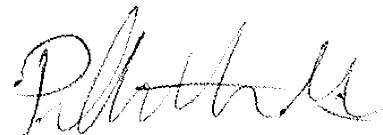
$\pm 1.5\%$  for the meter,

$\pm 2\%$  for the system at verification and

$\pm 3\%$  for in-service.

The MPE for the MMQ is 0.03 kg for the meter, 0.04 kg for the system at verification and 0.06 kg for in-service.

Signed by a person authorised by the Chief Metrologist to exercise their powers under Regulation 60 of the *National Measurement Regulations 1999*.



**Dr Phillip Mitchell**  
A/g Manager  
Policy and Regulatory Services

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