



Australian Government

Department of Industry,
Science and Resources

**National
Measurement
Institute**

36 Bradfield Road, West Lindfield NSW 2070

**Supplementary Certificate of Approval
NMI S455**

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.

Gilbarco Model GPU-90 Hydraulic Unit

submitted by Gilbarco Australia Limited
Switchyard, Warehouse 5, Building 2
161 Manchester Rd,
Auburn NSW 2144.

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 117-1, *Measuring Systems for Liquids Other than Water*, dated June 2011.

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	Date
0	Pattern approved – interim certificate issued	05/07/05
1	Pattern approved – certificate issued	11/12/25

CONDITIONS OF APPROVAL

General

Instruments purporting to comply with this approval shall be marked with pattern approval number 'NMI S455' and only by persons authorised by the submitter.

Instruments incorporating a component purporting to comply with this approval shall be marked 'NMI S455' in addition to the approval number of the instrument, 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.

Auxiliary devices used with this instrument shall comply with the requirements of General Supplementary Certificates No S1/0/A or 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

TECHNICAL SCHEDULE NMI S455

1. Description of Pattern

approved on 05/07/05

A Gilbarco model GPU-90 vane pump (Figure 1) for use with compatible (#) approved hydraulics in an approved Gilbarco fuel dispenser for motor vehicles.

(#) 'Compatible' is defined to mean that no additions/changes to the hardware/software specified in this approval are required for satisfactory operation of the complete system.

1.1 Field of Operation

The field of operation for the hydraulics is as follows:

- Maximum flow rate, Q_{max} 90 L/min
- Maximum pressure of the liquid, P_{max} 250 kPa
- Minimum pressure of the liquid, P_{min} 140 kPa
- Range of liquid viscosity (at 20 °C) 0.5 to 20 mPa.s
- Accuracy class Class 0.5

1.2 Controller/Indicator Design/Features

A check valve and a filter/strainer are incorporated upstream of the pump to maintain the unit full of liquid.

A pump, driven by an external motor, is incorporated downstream of the gas/air separator.

A gas/air separator is connected to the outlet of the pump. A sump and float controlled.

Return valve are installed to enable venting of entrained air via a vent check valve and to route any collected liquid back to the pump suction line.

The liquid outlet side of the air separator is connected to a pressure control device with pressure relief that leads to the outlet of the GPU-90, and a pressure activated valve is incorporated, which leads to the inlet of the pump.

An access point for an air test valve (Figure 2 & 4) with provision for sealing, is provided on the GPU-90 for checking the operation of the gas elimination device by allowing air to be introduced to the inlet of the pump during the verification process.

1.3

Sealing

Provision

The access point for the air test valve for the gas elimination device has provision for sealing (Figure 2).

1.4 Descriptive Markings

Instruments are marked with the following data, together in one location on a data plate:

Manufacturer's identification mark or trade mark	Gilbarco Australia Limited
Manufacturer's designation (model number)	GPU-90
Serial number
Year of manufacture
Pattern approval sign	S455
Environmental Class

2.0 Description of Variants

2.1 Variant 1

approved on 11/12/25

Similar to pattern, the variant replaces the vane pump with a gear pump as shown in Figure 3. The GPU 90 gear pump has sealing provision for an Air elimination test valve as shown in Figure 4.

TEST PROCEDURE No S455

Instruments should be tested in accordance with any tests included in the approval documentation for the system in which the pattern is fitted, and in accordance with any relevant tests specified in the National Test Procedures.

Maximum Permissible Errors at Verification

The maximum permissible errors applicable for the gas elimination device are:
 $\pm 0.5\%$ for liquids with dynamic viscosity not exceeding 1 mPa.s, e.g. petrol.
 $\pm 1.0\%$ for liquids with dynamic viscosity exceeding 1 mPa.s, e.g. kerosene.

Air Test

The access point for the air test valve for the gas elimination device should only be opened when the pump is running and closed before the pump is stopped.

FIGURE S455 – 1



Gilbarco Model GPU-90 Vane pump

FIGURE S455 – 2



Showing Typical Sealing of Gas Elimination Device Air Test Valve Access Point

FIGURE S455 – 3



GPU90 Gear Pump

FIGURE S455 – 4



GPU 90 with seal provision for Air elimination test valve

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