NMO	OIML Certification System
OIML Member State United Kingdom of Great Britain and Northern Ireland	**OIML Certificate No.** **R117/2007-B-GB1-19.01**

OIML CERTIFICATE ISSUED UNDER SCHEME B

OIML Issuing Authority	**NMO** **Stanton Avenue** **Teddington** **TW11 0JZ** **United Kingdom**
Person responsible:	**Mannie Panesar – Head of Technical Services**
Applicant	**Gilbarco Veeder-Root** **Crompton Close** **Basildon** **Essex SS14 3BA** **United Kingdom**
Manufacturer	**Gilbarco Veeder-Root India Pvt. Ltd.** **Coimbatore Campus** **Coimbatore Ind. Estate** **Coimbatore 641021** **Tamil Nadu, India**
Identification of the certified type	**Orion Fuel Dispenser** *(the detailed characteristics are defined in the Descriptive Annex)*

This OIML Certificate attests the conformity of the above identified type (represented by the sample(s) identified in the OIML type evaluation report) with the requirements of the following Recommendation of the International Organization of Legal Metrology (OIML):

OIML R117-1, Edition: 2007

For accuracy class: 0.5

Issue date: 17 April 2019

The OIML Issuing Authority

Marek Bokota
Technical Manager
For and on behalf of the Head of Technical Services

This OIML Certificate relates only to metrological and technical characteristics of the type of measuring instrument covered by the relevant OIML Recommendation identified above.

This OIML Certificate does not bestow any form of legal international approval.

The conformity was established by the results of tests and examinations provided in the associated OIML type evaluation report:

No. P02581 dated 17 April 2019 that includes 61 pages

The technical documentation relating to the identified type is contained in documentation file:

No. P02581-D dated 17 April 2019

OIML Certificate History

Revision No.	**Date**	**Description of the modification**
0	17 April 2019	OIML Certificate first issued.
-	-	-

No revisions have been issued.

Important note:
Apart from the mention of the Certificate's reference number and the name of the OIML Member State in which the Certificate is issued, partial quotation of the Certificate and of the associated OIML type evaluation report(s) is not permitted, although either may be reproduced in full.

DESCRIPTIVE ANNEX

Characteristics of the instrument:

Minimum flowrate (Q_{min})	1.6 L/min
Maximum flowrate (Q_{max})	80 L/min
Minimum measured quantity $Q_{max} \leq 40$ L/min	1, 2 or 5 litres
Minimum measured quantity $40 < Q_{max} \leq 60$ L/min	2 or 5 litres
Minimum measured quantity $Q_{max} > 60$ L/min	2, 5 or 10 litres
Accuracy class	0.5
Environmental classes	M1/E1/H3
Ambient temperature range	-10°C to +40°C
Product temperature range	-10°C to +40°C
Intended for the measurement of	Petroleum, ethanol blends, methanol blends, diesel, heating oil, biodiesel and biodiesel blends

Model variants and designation:

Liquid fuel dispenser type **Orion**. Alternative name Frontier II or Frontier F2.

Construction:

Each hydraulic module consists of:

- One or two measurement sensors types C+, V or V+ from the C series family of positive displacement meters
- One GPU90 pump and gas separator, except for use in pressurized systems.

The dispenser chassis is primarily manufactured from sheet steel, with glass or plastic windows providing visibility of the indicators.

Two dispenser chassis sizes are available. The smaller housing may contain one or two hydraulic modules (1 to 4 measuring systems) and the larger housing may contain up to four hydraulic modules (1 to 8 measuring systems). Fuel is transferred by a hose and nozzle assembly.

All measuring transducers share a common calculator, type Apollo-2. Indicators allow a maximum of 7 digits for price to pay, 7 digits for volume, and 6 digits for unit price. Decimal positions are programmable.

When temperature compensation is used, the temperature probe shall meet the requirements in R117-1 (2007) clause 3.7.7, and be located in close viscinity of the sensors.

Optional features and functions:

- communications (remote automation)
- temperature conversion (ATC)
- keypads for preset control or use by site attendents
- delivery speed selection either by pushbutton or nozzle selection
- electronic or electromechanical totalizers

- 4 active hose dispenser allowing dispensing from 4 transfer points simultaneously and having 4 associated indicators (displays)

Devices:

General characteristics of the measurement sensors (positive displacement meters) from the C family including types C+, V and V+

Q_{min}	1.6 L/min
Q_{max}	80 L/min
Environmental class	M2
Ambient temperature range	-10°C to +40°C
Product temperature range	-10°C to +40°C
Viscosity range	0.4 mPa.s to 17 mPa.s
Cyclic volume	0.47 litres nominal

General characteristics of the GPU90 gas separator

Q_{max}	80 L/min
Environmental class	M2
Ambient temperature range	-10°C to +40°C
Product temperature range	-10°C to +40°C
Viscosity range	0.4 mPa.s to 17 mPa.s
P_{max} diesel/gasoil/biodiesel.biodiesel blends	2.5 bar
P_{min} diesel/gasoil/biodiesel.biodiesel blends	1.9 bar
P_{max} petrol/ethanol blends	1.9 bar
P_{min} petrol/ethanol blends	1.4 bar

General characteristics of the Apollo-2 calculator

Environmental class	M1/E1/H3
Ambient temperature range	-25 °C to +55 °C
Maximum volume indication	7 digits
Maximum price to pay indication	7 digits
Maximum unit price indication	6 digits

Rated operating conditions:

Power supply voltage	230 Vac nominal, 50/60 Hz (Optionally 400 V nominal motors)

Software:

Version	Checksum
A31.1.01 (displayed as A31101)	8564

The version number and checksum is displayed during the dispenser power up sequence.

Interfaces:

Communications to payment or remote automation systems may be by one of the following communication protocols:

- Gilbarco Two-Wire protocol

Sealing:

The following items are mechanically sealed either by wire seals or sticker seals:

- Measuring sensor C+/V/V+ cylinder covers and top cover.
- Measuring transducer (pulser) to the measuring sensor.
- Calibration switch on the measuring sensor.
- Access to gas separator assembly and GPU90 control valve.
- Access to the CPU board of the calculator.
- Access to the " W&M switch" enables access to setting or modifying legally relevant parameters within the calculator, and which enables software download.
- Any circuit board connectors associated with the transmission of non encrypted measuring transducer data signals or non-encryted indicator data signals.
- Temperature probe and calculator.

The following items are mechanically sealed either by wire seals or sticker seals, or may be sealed by the use of a datasheet recording serial numbers:

- Measuring sensors to the dispenser frame.
- Gas separators to the dispenser frame.
- Calculator CPU and indicators to the dispenser frame.

Alternatives:

None.