

OIML Member State

The Netherlands

Number R117/2019-A-NL1-21.08

Project number 2502536

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Issuing authority
Person responsible: NMI Certin B.V.
M.Ph.D. Schmidt

Applicant and
Manufacturer CZAR Metric System Private Limited
Plot No. A-451 MIDC Industrial Area, Mahape
Navi Mumbai 400710
Maharashtra, India

Identification of the
certified type A **fuel dispenser** (liquids other than water)
Type: CZF-*****^[1]

Characteristics See page 2 and further

This OIML Certificate is issued under scheme A.

This Certificate attests the conformity of the above identified type (represented by the samples identified in the OIML Type Evaluation Report) with the requirements of the following Recommendation of the International Organization of Legal Metrology (OIML):

R 117:2019 "Dynamic measuring systems for liquids other than water"

Accuracy class 0,5

This Certificate relates only to the metrological and technical characteristics of the type of measuring instrument covered by the relevant OIML International Recommendation identified above. This Certificate does not bestow any form of legal international approval.

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^[1] Where "*" can be a number or a letter for representing different configurations of the dispenser.

Issuing Authority

NMI Certin B.V., OIML Issuing Authority NL1

27 October 2021

Certification Board

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The conformity was established by the results of tests and examinations provided in the associated report(s):

- No. NMI-2502536-01 dated 27 October 2021 that includes 118 pages.

Fuel Dispenser CZF-***** series

Characteristics of the fuel dispenser

In Table 1 the general characteristics of the fuel dispenser are presented.
The construction of the fuel dispenser is recorded in the Documentation folder no. DF2502536-1.

Table 1 General characteristics of fuel dispenser

Manufacturer's trademark	CZAR Metric System Private Limited
Type designation	CZF-*****
Accuracy class	0,5
Instrument Type	Fuel dispenser (Liquid other than water)
Essential parts of the dispenser	<p>Electronic calculating and indicating device</p> <ul style="list-style-type: none"> - CZ series - Pulser CZ-MGE-XX <p>Measurement transducer</p> <ul style="list-style-type: none"> - Piston meter CZ-FM120 (for fuel and AdBlue) <p>Gas separator in combination with the pumping unit</p> <ul style="list-style-type: none"> - Vane suction pump CZ-VP080
Approved for liquid products	Gasoline; Blended Gasoline with up to 100% ethanol or 20% methanol or 20% MTBE; Diesel, Biodiesel (up to 100% fame B100); Blended Bio-Diesel 10%~60%, Kerosene and AdBlue/DEF (Diesel Exhaust Fuel).
Maximum number of nozzles	8
Maximum number of main indicating device	4
Maximum number of nozzles connected to each indicating device	4
Environment classes	E1 / H3 / M2
Flow characteristics	refer table 2 for details.
Ambient temperature range	- 25 °C ... + 55 °C
Liquid temperature range	- 5 °C ... + 35 °C
Approved density range	710 ... 1200 kg/m ³
Maximum pressure	3,5 bar(g)

Electrical power	230 VAC / 50 Hz
Identification of software	refer table 4 for details.

Table 2 Flow characteristics of fuel dispenser

Model type	Q _{min} [L/min]	Q _{max} [L/min]	MMQ [L]
Fuel dispenser Standard duty – Single CZ-FM120 flowmeter	2	40	2
Fuel dispenser Heavy duty – Single CZ-FM120 flowmeter	2	80	2
Fuel dispenser Ultra-Heavy duty – two parallel CZ-FM120 flowmeter ^[1]	5	130	5
AdBlue dispenser Standard duty – Single CZ-FM120 flowmeter	4	40	2

^[1] The Q_{min} flowrate through each individual flow meters in the parallel configuration shall not be smaller than the Q_{min} of the individual meter (2 L/min);
The Q_{max} flowrate through each individual flow meters in the parallel configuration shall not be greater than the Q_{max} of the individual meter (80 L/min).

Each CZF-***** dispenser consists at least of:

- One combined vane pump and gas eliminator device (CZ-VP080);
A gas separator is not essential if submersible pump is used, in this case measures should be taken on the supply tank to make sure that air or gas is not introduced in the system.
- One measurement transducer (piston meter (CZ-FM120)) with magnetic encoder (pulser (CZ-MGE-XX)).
- One electronic calculating/indicating device (CZ series calculator).
- Optionally, a printer may be connected to the dispenser.
The Printer, if connected is a non-mandatory ancillary device and thus not subject to control. Each printout of transaction intended for the customer should bear the legend "Legally not relevant" on it.

The fuel dispenser has an option for vapour recovery.

Optionally, an electro-magnetic totaliser (maximum volume indication 9999999 L) is also present on the dispenser.

The same housing of the dispenser can comprise of one or more measuring systems. When more than one measuring systems are in one housing, one calculating/indicating device may be a common part of the measuring systems.

The calculating/indicating device can have a maximum of 4 main displays, allowing it to configure and control 8 nozzles (meters), out of which 4 nozzles (meters) can be simultaneously operated. A maximum of four nozzles (meters) can be connected to each calculating/indicating device's main display, only one nozzle out of the four connected to a single display can be simultaneously operated.

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Approved input – Pulser communication cable via RS-485
Approved output – POS communication cable via RS-485
All communication cables (POS and Pulser) should be shielded cables.

For standard and heavy-duty application, a single meter is used to deliver fuel through the hydraulic path for each nozzle.
For ultra-heavy-duty applications two meters are connected in parallel to deliver fuel through a single nozzle.

Essential parts of the CZF-***** series fuel dispensers

The conformity of the following parts was established by the results of tests and examinations provided in the associated report:

Part: Calculating/indicating device
Producer: CZAR Metric System Private Limited
Type: CZ Series
Documentation folder: DF2502536-1
Reports: No. NMI-2502536-01 dated 27 October 2021 that includes 118 pages.

Table 3 General characteristics of the calculating/indicating device type CZ series

Maximum volume indication	6 digits (4 integers and 2 decimals)
Maximum unit price	5 digits (3 integers and 2 decimals)
Maximum price to pay	7 digits (5 integers and 2 decimals)
Environmental classes	E1 / M2 / H3 (condensing humidity)
Ambient temperature range	-25 °C / +55 °C
Power supply	230 VAC 50 Hz
Maximum number of nozzles	8
Maximum number of main indicating device	4
Maximum number of nozzles connected to each indicating device	4
Approved input	Pulser communication cable via RS-485 (shielded)
Approved output	POS communication cable via RS-485 (shielded)
Pulser	Magnetic encoder CZ-MGE-XX RS-485 communication protocol Output signal 256 pulse/revolution

Table 4 Software identification of the calculating/indicating device type CZ series

Board	Firmware version	Hash code
CPU Board	CZ-CPU_V1.1	10f85e8d0d3add237df9c1066014cc550fcfb5 3174ae3e446ab6c116ab504a9f
Main Display Board	CZ-DIS_V1.1	1f2eda31bcef24f9427819d38460d1c47b0f43 10f1227aae18c823b4d8634f3
Pulser Board	CZ-MGE_V1.1	48680bb9633709cc27e18822df23f5b762831e 83d946893fab5382aec716363c
Keypad Display Board	CZ-DKP_V1.1	8d0ea94278cafd43a4d949c8b1431c02d89665 af02090496e4a3b7760181034a

Software version verification of the calculating/indicating device type CZ series

The software versions and checksums can be displayed on the LCD display by following the below procedure:

- On the alphanumeric keypad on the dispenser press **SETUP** → **P2** → enter unique password by a user with sufficient rights → **ENTER** this puts the dispenser in maintenance mode.
- Then press **5** → **1** → **1** → **1** for CPU board
- or **5** → **1** → **1** → **2** for Main Display board
- or **5** → **1** → **1** → **3** for Pulser board
- or **5** → **1** → **1** → **4** for Keypad Display board

Table 5 Legally relevant parameter list of the calculating/indicating device type CZ series

Process code	Process code name	Value / range
122	Unit Rate	5 digits (XXX.XX)
212	Product Grade	3 Characters (XXX)
24521	Pre-Mask Value	60 (mL)
2412	Decimal Setting	0~3 (digits)
24511	High Flow Cutoff	250 (mL)
243	No Pulse No Fuel	30 (sec)
51	Log	Transaction, Calibration Change, Unit Rate Change, Density Change, Error
311	View Last Cal	View K Factor
214	Date & Time	dd:mm:yy , hh:mm:ss
511	PCBA Soft Detail	View board details
52	Model Info	View model details
521	Serial Number	View serial number of Dispenser

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Part: Measurement transducer
 Producer: CZAR Metric System Private Limited
 Type: CZ-FM120
 Documentation folder: DF-2502536-1
 Reports: No. NMI-2502536-01 dated 27 October 2021 that includes 118 pages.

Table 6 General characteristics of the measurement transducer type CZ-FM120

Flow meter type	Mechanical 2-piston meter
Flow rate range [L/min]	2 – 80 L/min
MMQ	2 L
Maximum pressure	3,5 bar
Product temperature range	-5 °C / +35 °C
Intended for the measurement of	Gasoline; Blended Gasoline with up to 100% ethanol or 20% methanol or 20% MTBE; Diesel, Biodiesel (up to 100% fame B100); Blended Bio-Diesel 10%~60%, Kerosene and AdBlue/DEF (Diesel Exhaust Fuel).
Approved density range	710 ... 1200 kg/m ³
Pulser	Magnetic encoder CZ-MGE-XX RS-485 communication protocol Output signal 256 pulse/revolution

Part: Gas elimination device
 Producer: CZAR Metric System Private Limited
 Type: CZ-VP080
 Documentation folder: DF-2502536-1
 Reports: No. NMI-2502536-01 dated 27 October 2021 that includes 118 pages.

Table 7 General characteristics of the gas elimination device type CZ-VP080

The gas separator is in combination with the pumping unit.
 The pump type CZ-VP080 is a vane suction pump.
 The attached gas separator to the pumping unit is a float type mechanical device.

Maximum flow rate	80 L/min
Maximum pressure	3,5 bar
Product temperature range	-5 °C / +35 °C



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Production location

The fuel dispenser is produced at one of the following production locations:

- CZAR Metric System Private Limited, Plot No. A-451, Central Road, MIDC Industrial Area, Mahape Pin code 400710, Maharashtra India.
- CZAR Metric System Private Limited, Plot No.C-541, MIDC Industrial Area, Pawne, Navi Mumbai 400705, Maharashtra, India.