OIML Member State Czech Republic	**OIML Certificate No.** R139/2014-B-CZ1-2019.01

OIML CERTIFICATE ISSUED UNDER SCHEME B

OIML Issuing Authority

Name: **Czech Metrology Institute**
Address: Okružní 31
        638 00 Brno
        Czech Republic
Person responsible: Jan Kalandra

Applicant

NPS Service AB
Rönnhagsvägen 13
311 44 Falkenberg
Sweden

Manufacturer

NPS Service AB
Rönnhagsvägen 13
311 44 Falkenberg
Sweden

Identification of the certified type *(the detailed characteristics will be defined in the additional pages)*

Dispenser for compressed natural gas
type: OTD20

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 R 139, Edition: 2014

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 and test reports:

OIML type evaluation report No. 009_19 that includes 1 page

OIML test report No. 6015-PT-P5006-19 that includes 9 pages and 6 annexes

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

009_19 dated 13. June 2019

OIML Certificate History

Revision No.	Date	Description of the modification

The OIML Issuing Authority
RNDr. Pavel Klenovský
Director General

Date: 30 September 2019

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.

1 Dispenser characteristic:

Model	N° of meters	N° of sides	N° of nozzles	Max. flow rate [kg/min]
OTD20 R Single sided dispenser, nozzle to the right side of the display.	1	1	1	80
OTD20 L Single sided dispenser, nozzle to the left side of the display.	1	1	1	80
OTD20 D Double sided dispenser, two simultaneous fillings.	2	2	2	80
OTD20 R2 Single sided dispenser with two nozzles to the right side of the display. (only one nozzle can be used under ongoing filling)	1	1	2	80
OTD20 L2 Single sided dispenser with two nozzles to the left side of the display. (only one nozzle can be used under ongoing filling)	1	1	2	80
OTD20 D2 Double sided dispenser with two nozzles per side, two simultaneous fillings. (two nozzles per meter which of only one nozzle can be used under ongoing filling)	2	2	4	80

The CNG dispenser may be designed for sequential filling from one to three storage banks and consists of ball valves for shut off, check valves, solenoid valves, pressure relief valves, measuring devices, pressure transducers, temperature transducer, hoses with break away couplings, delivery nozzles with three-way valve, electronic calculator and indicating devices (Figure 1 and 2: Hydraulic scheme).

The CNG dispenser is equipped with a programmable logic controller (PLC). This PLC (Siemens Simatic S7-1200 system) controls the filling process and to the PLC there are connected associated measuring sensors for temperature, pressure and flow together with digital inputs and outputs for push buttons, switches and solenoid valves, etc. Two important parameters are stored in PLC – Q_{min} and Q_{max}. During initial verification these two parameters should be checked.

The CNG dispenser is also equipped with an electronic calculator, the PDEX5. The calculator receives pulses from mass flow transmitter(s) and converts them to the data for the display. Details about connections and communication are shown on Figure 3.

The CNG dispenser can be equipped up to two measurement systems. Each measuring system has its own measuring device (mass flow meter) but are connected to one PDEX5 calculator. The CNG dispenser can fill up to two cars simultaneously.

The CNG dispenser is equipped with a sensor for ambient temperature to compensate maximum filling pressure (200 bars @ 15 °C), which doesn't affect the metrological characteristics of measuring system.

CNG dispenser can be connected to the Payment terminal for local and public credit card or independent point of sale system (POS), which doesn't affect the metrological characteristics of the measuring system. POS only read the displayed data from the dispenser, status of the dispenser and change the price per unit displayed on the dispenser.

Measuring device (mass flow meter, measuring transducer)

The Endress+Hauser Coriolis measuring device type CNGmass DN15 is used. Basic technical data of CNGmass measuring device:

Type of measuring sensor	CNGmass
Diameter [mm]	15
Flow rate [kg/min]	0,8 – 80,0
MMQ [kg]	1
Maximum pressure [bar]	350
Gas temperature range [°C]	-50 to +125
Ambient temperature range [°C]	-40 to +55
Environment classes	M2 / E2
Software version	01.01.00 / 0X13BD2D46

Electronic calculator

The Tatsuno Europe electronic calculator type PDEX5 is used. Basic technical data of PDEX5 electronic calculator:

Type of electronic calculator	PDEX5
Min. measured quantity MMQ [kg]	2
Max. quantity indication	19900.00 (7)
Max. unit price (no. of digits)	99999 (5)
Max. price to pay (no. of digits)	9999999 (7)
Scale interval, quantity display [kg]	0.01 or 0.001
Type of display	Electronic LCD
Mechanical class	M2
Electromagnetic class	E2
Humidity class	H3
Ambient temperature range [°C]	-40 to +70
Software versions (CRC W&M checksum)	01.01 / 4493

Delivery / Fueling nozzle

Nozzles designed and manufactured specifically for CNG fueling, so called types NGV1, NGV2 (in accordance with ISO 14469:2017). Other types of nozzles may be used on customer demand.

Delivery / Fueling hose

Hose designed and manufactured specifically for CNG fueling, according to ISO 16923:2018 with maximum length 6 m.

Breakaway device

Breakaway designed and manufactured specifically for CNG fueling, according to ISO16923:2018.

2 Basic technical data of the CNG dispenser

Max. flowrate Q_{max} [kg/min]	80
Min. flowrate Q_{min} [kg/min]	1
Gas temperature range [°C]	-40 to +60
Ambient temperature range [°C]	-40 to +55
Min. measured quantity MMQ [kg]	2
Scale interval, mass display [kg]	0,01
Max. storage pressure of the gas P_{st} [MPa]	30,0
Max. pressure of the gas P_{max} [MPa]	30,0
Min. pressure of gas P_{min} [MPa]	0,3
Max. filling pressure of the gas P_v [MPa]	20,0 @ 15 °C / 23,0
Environment classes	M2 / E2
Accuracy class	1,5

3 Sealing
Basic sealing points:
- Measuring device according to Figure 1 including data label;
- Electronic calculator PDEX5 according to Figure 2 including data label;
- Display PDEDIL 6 according to Figure 3;
- Terminal blocks according to Figure 4 – pulse's way from measuring device to electronic calculator PDEX5 (optionally);
- PLC Simatic S7-1200 have to be protected by electronic password;
- The type plate of the CNG dispenser.

Additional sealing points beyond the requirements of OIML R 139:2014 can be used on special request of the local metrology authority.

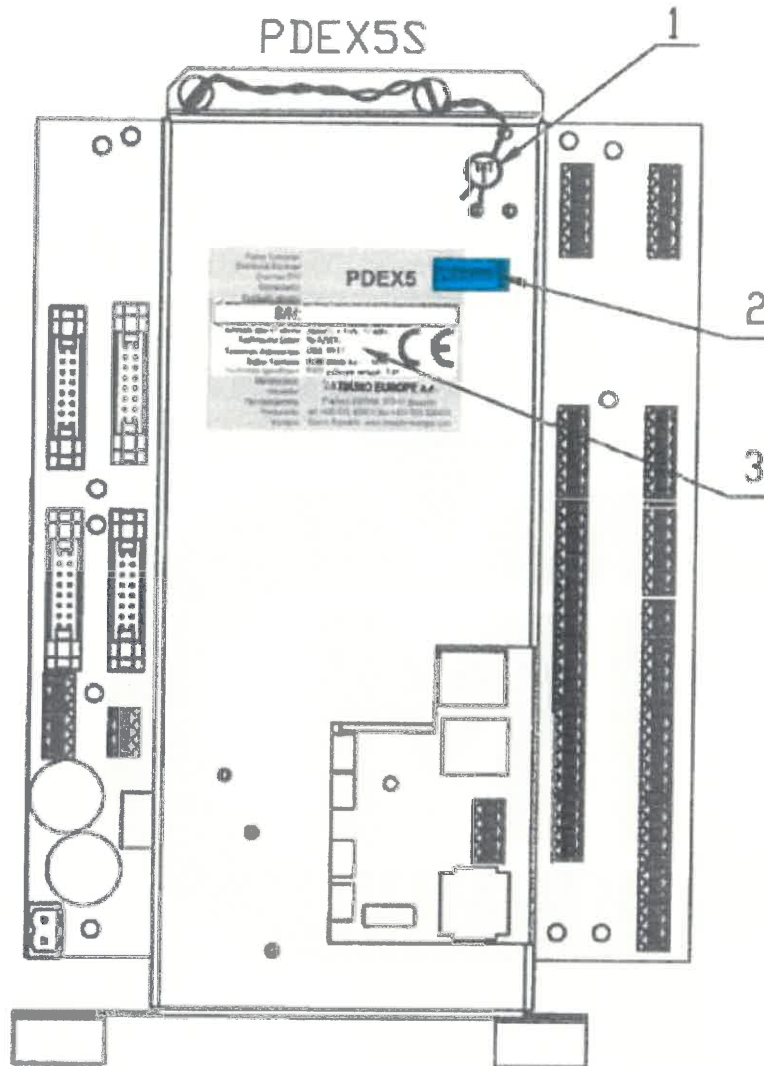Figure 1: Sealing points of the measuring device
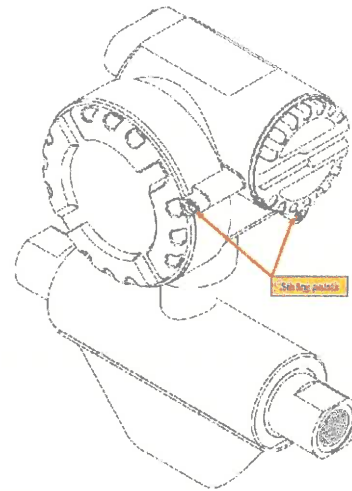
The flowmeter must be locked for custody transfer measurement (in this status, no parameters can be changed, i.e. all settings must have been configured first according to the application. An exception is the totalizer 3, whose parameter remains writable also in the custody transfer mode, i.e. it can be reset also in the custody transfer mode). For this purpose, the switch 1 is moved to the position shown below (1). You receive confirmation from the status LED (→ 🕮 39). Then, fit the cover and have the safety claw sealed by a person authorized to do so (2).
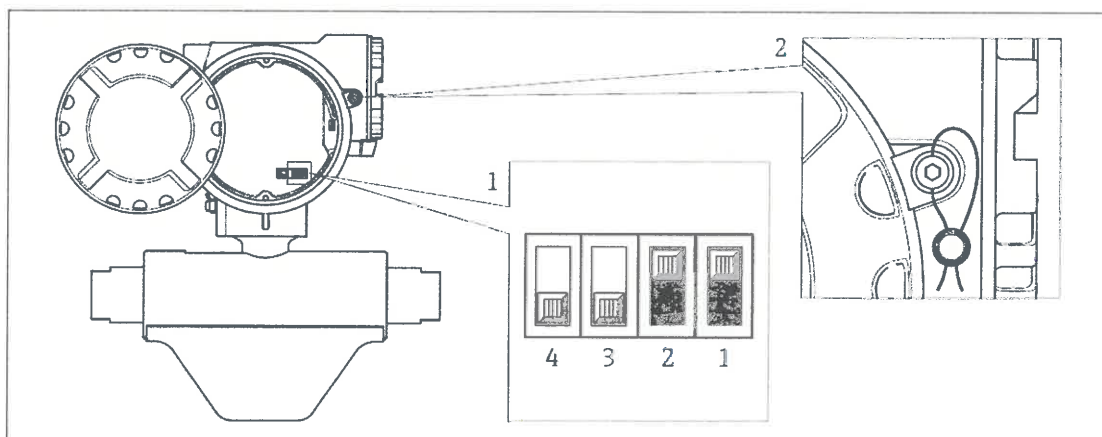
Figure 2: Sealing points of the calculator PDEX5

Figure 3: Sealing points of the Display PDEDIL 6.

Figure 4: Sealing of terminal blocks X5 (optionally)