OIML Member State Czech Republic	**OIML Certificate No.** R139/2014-B-CZ1-2020.01

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

Name: **Adast Systems, a.s.**
Address: Adamov 496
679 04 Adamov
Czech Republic

Manufacturer

Name: **Adast Systems, a.s.**
Address: Adamov 496
679 04 Adamov
Czech Republic

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

Dispenser for compressed natural gas (CNG)
type V-line 47xx.xxx/CNG

Designation of the module

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

For accuracy class: 1,5

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:

- OIML type evaluation report No. 003_20 dated 23 September 2020 that includes 1 page,
- Test report No. 6052-PT-P5007-20 issued by CMI dated 22 December 2020 that includes 10 pages.

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

- No. 037_18 dated 5 December 2018.

OIML Certificate History

Revision No.	Date	Description of the modification
Revision 0		Issuing of Certificate

The OIML Issuing Authority
RNDr. Pavel Klenovský
Director General

Date: 28 December 2020

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 characteristics:

CNG dispenser consists of shut off valves, solenoid valve(s) with non-return valve(s), strainer(s), measurement transducer(s), electronic calculator, pressure transducer(s), manometer(s), temperature transmitter, hose(s) with break away coupling, delivery nozzle(s) with three-way valve and indicating device(s).
CNG dispenser type V-line 47xx.xxx/CNG is assembled from body, dispensing module V-line 8690.xxx/CNG and electronic calculator with indicating device. Dispensing module V-line 8690.xxx/CNG can be built in liquid fuel dispenser and/or LPG dispenser. In this case electronic calculator with indicating device of the CNG dispensing module are moved beside the electronic calculator with indicating device of liquid fuel dispenser. Indicating device of the CNG dispensing module and fuel dispenser are clearly identified by label.
CNG dispenser may be designed for one to three sequential filling and one-sided or double-sided design.
CNG dispenser is equipped with an ambient temperature transmitter to compensate maximum filling pressure, which doesn't affect the metrological characteristics of measuring system.

1.1. Measurement transducer

Into CNG dispenser can be installed 2 different measurement transducers. In the double-sided dispenser the both measurement transducers should be the same type.

The Micro Motion measurement sensor type CNG050 and core processor types 700 or 800. Basic technical data of Micro Motion measurement transducer:

Type of flow sensor:	CNG050
Diameter [mm]:	15
Flow rate [kg/min]:	1.20 – 77.00
Maximum pressure [bar]:	345
Gas temperature range [°C]:	-25 to +55
Ambient temperature range [°C]:	-40 to +55
Environment classes:	M3 / E3
SW versions 700 / 800:	See actual Evaluation certificate TC7057

The Endress + Hauser measurement sensor type CNGmass. Basic technical data of CNGmass measurement transducer:

Type of flow sensor:	CNGmass
Diameter [mm]:	15
Flow rate [kg/min]:	0.8 – 80.0
Maximum pressure [bar]:	350
Gas temperature range [°C]:	-50 to +125
Ambient temperature range [°C]:	-40 to +55
Environment classes:	M2 / E2
SW version:	01.01.00 / CRC 0X13BD2D46

1.2. Electronic calculator

The Beta Control electronic calculator type ADP2/T-CNG V2. Communication with measurement transducer is realized by MODBUS communication. Basic technical data of ADP2/T-CNG V2 electronic calculator:

Type of electronic calculator:		ADP2/T-CNG V2
Display type:		Electronic LCD
Scale interval:		0,01
Minimum measured quantity [kg]:		2
Ambient temperature range [°C]:		-40 to +70
Environment classes:		M2 /E2
SW version:		
	ADP2/T-CNG V2	22.65 / 755E
	CNGT module	3.D.15 / ----
	DISPLCD/N-BL/PW V3	02.50 / ----

1.3. Delivery hose

Delivery hose with maximum length 6 m.

1.4. Delivery nozzle

STÄUBLI, type GMV 06 (NGV1), GMV09 (NGV1), GMV12 (NGV2),
WEH, type TK16 (NGV1), TK17 (NGV1), TK26 (NGV2),
OPW, types CT1000 (NGV1), CT5000 (NGV2), PG32P30 (NGV1)
or other corresponding type.

2 Basic technical data

Used measurement transducer:	CNG050	CNGmass
Max. flowrate: Q_{max} [kg/min]	30 / 70	30 / 70
Min. flowrate: Q_{min} [kg/min]	1.2	0.8
Gas temperature range [°C]:	-25 to +55	-50 to +80
Ambient temperature range [°C]:	-40 to +55	
Min. measured quantity: MMQ [kg]	2 / 5	
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]:	2.0	
Max. filling pressure of the gas P_v [MPa]:	20.0 @ 15 °C / 26.5	
Environment classes:	M2 / E2	
Accuracy class	1.5	

3 The measuring device data

The measuring transducer and electronic calculator shall bear a permanent, non-transferable, and easily readable identification plate or label giving the following information:

- Manufacturer's trade mark / corporate name;
- Type designation / model number;
- Serial number and year of manufacture.

The measuring system shall bear a permanent, non-transferable, and easily readable identification plate or label giving the following information:

- Manufacturer's trade mark / corporate name;
- Type designation / model number;
- Serial number and year of manufacture;
- Type approval number and area allowed for verification marks;
- Measuring range ($Q_{min} - Q_{max}$);
- Maximum pressure of the gas in the refueling station gas storage P_{st};
- Maximum fast fill pressure of the gas-fuelled vehicle P_v;
- Minimum pressure of the gas P_{min};
- Maximum pressure of the gas, P_{max};
- Type of the measured gas;
- Temperature range of the gas;
- Ambient temperature range;
- Nominal mains voltage and frequency;
- Identification of software (shall be provided on demand on the indicating device);
- Presence of a sequential control device and operational mode;
- Environment class.

Each face indicating device shall bear by the following information:

- Indication of price to be paid;
- Near indication of mass either sign **kilogram** or unit **kg** (for other specific units of measurement check OIML R139-1 e14 in chapter 5.1.1);
- Indication of price per unit;
- Information about minimum measured quantity.

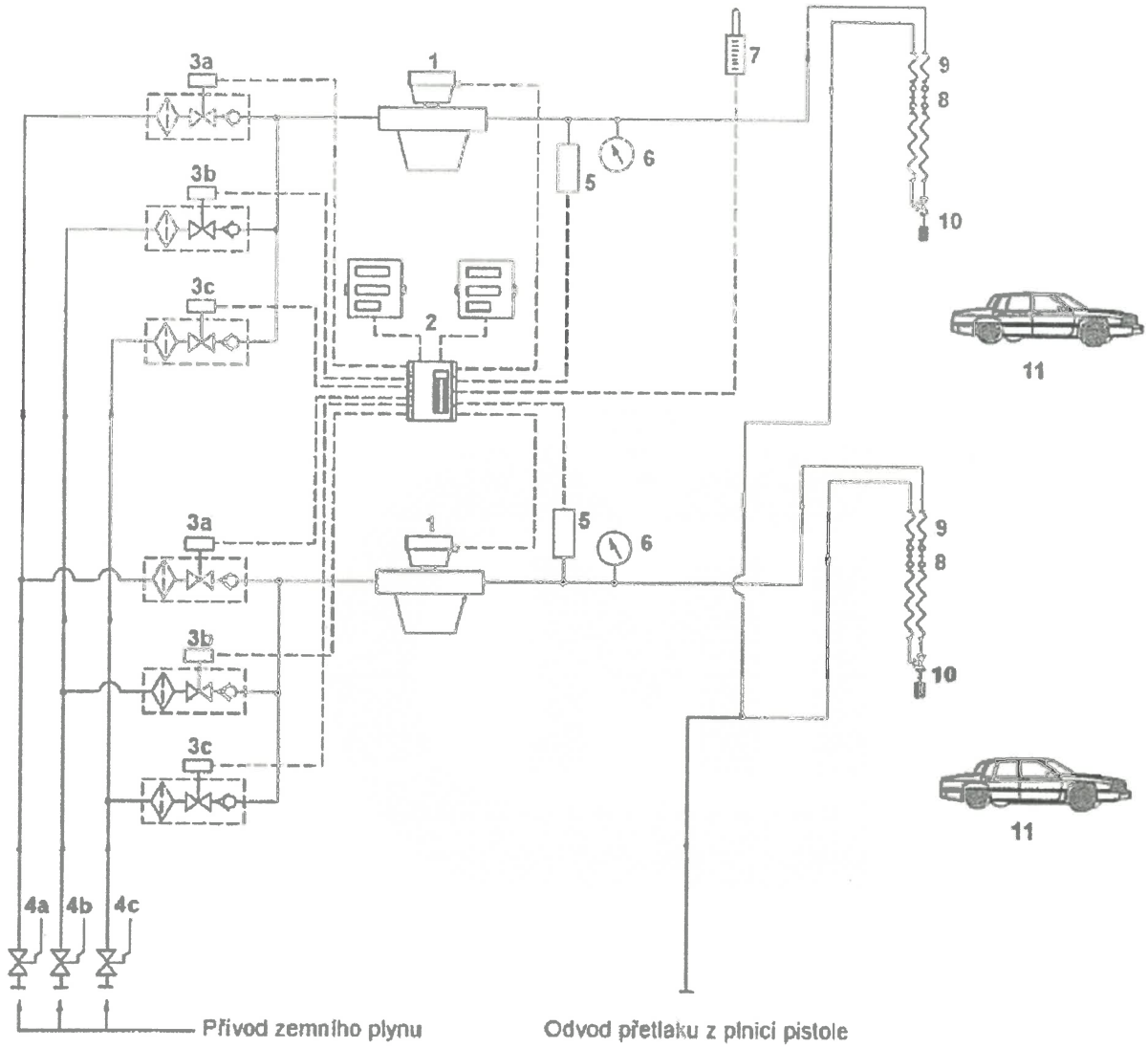
All information must be presented in national language where CNG dispenser operates or in English language.

4 Sealing

Basic sealing points:

- The measuring transducer's lid(s).
- Non-removable of the measuring transducer.
- The type plate of measurement transducer.
- Cover of the electronic calculator.
- The type plate of the electronic calculator.
- Cover of CNGT module including safety barrier(s) (safety barrier(s) for CNG050 only)
- The type plate of the CNG dispenser.

Figure 1: Hydraulic scheme for CNG dispenser with 3 banks in double-sided design:



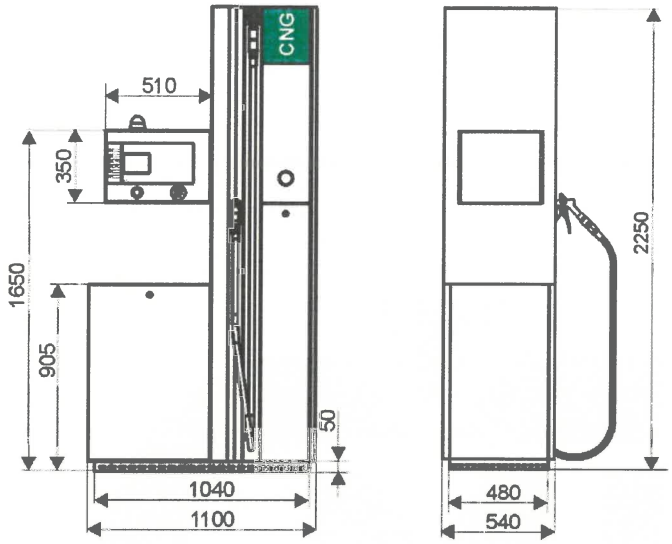
Legenda:

1 - Hmotnostní průtokoměr
2 - Elektronické počítadlo ADP/T CNG s displejí
3a - Elektromagnetický ventil s filtrem a zpětným ventilem 1. stupně
3b - Elektromagnetický ventil s filtrem a zpětným ventilem 2. stupně
3c - Elektromagnetický ventil s filtrem a zpětným ventilem 3. stupně
4a - Uzavírací ventil 1. stupně
4b - Uzavírací ventil 2. stupně
4c - Uzavírací ventil 3. stupně
5 - Snímač tlaku
6 - Manometr
7 - Snímač teploty
8 - Plnicí hadice
9 - Bezpečnostní trhací spojky
10 - Plnicí pistole
11 - Plnicí koncovka
12 - Tankovaný automobil

Figure 2: CNG dispenser looks:

CNG MONO

V-line H 4701.010/CNG
V-line H 4701.100/CNG

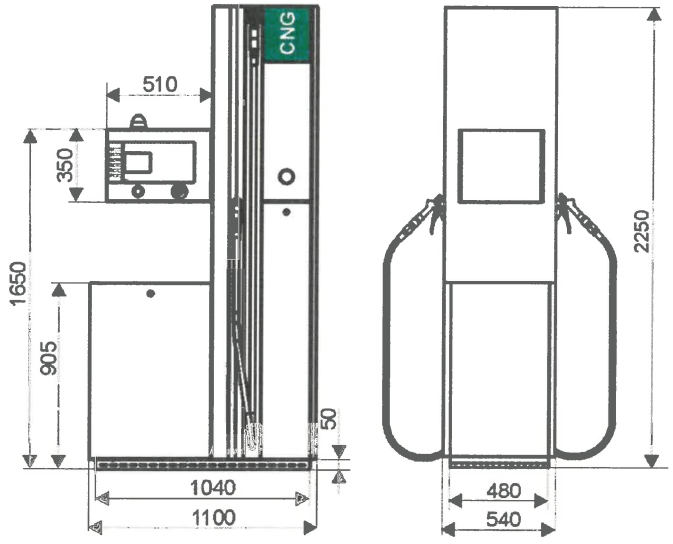


CNG DUO

V-line H 4701.020/CNG
V-line H 4701.110/CNG
V-line H 4701.200/CNG

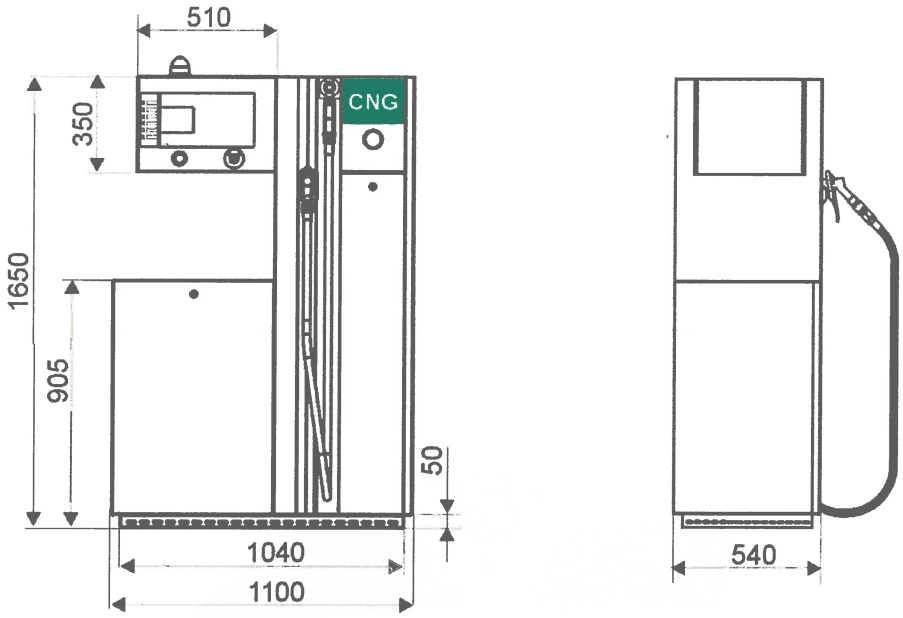
CNG DUPLEX

V-line H 4702.020/CNG
V-line H 4702.110/CNG
V-line H 4702.200/CNG



CNG MONO

V-line R 4701.010/CNG
V-line R 4701.100/CNG

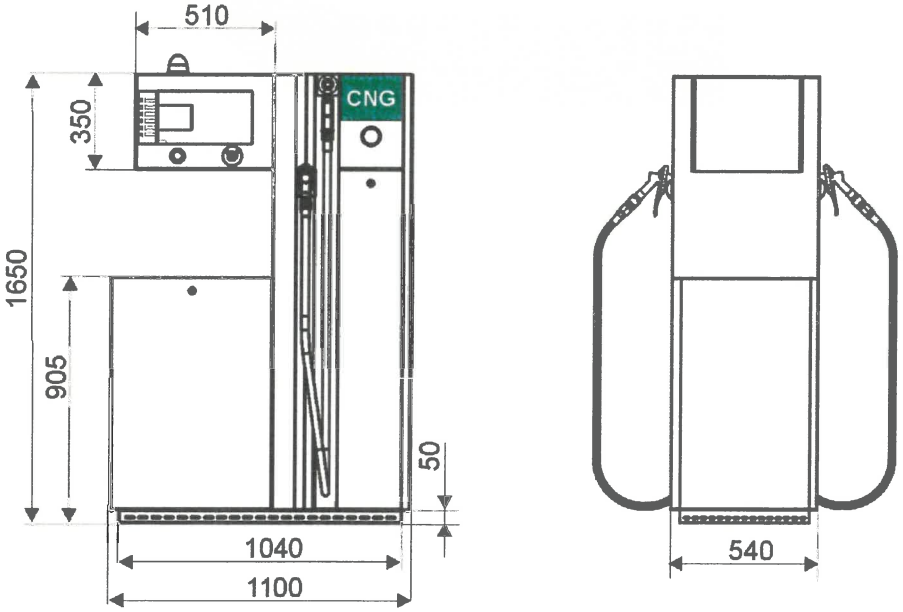


CNG DUO

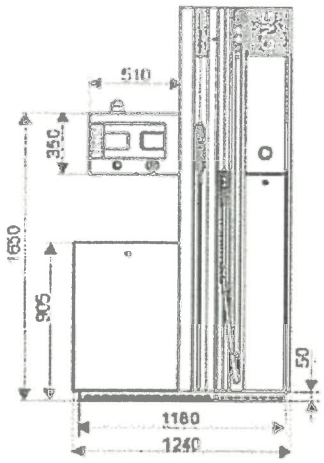
V-line R 4701.020/CNG
V-line R 4701.110/CNG
V-line R 4701.200/CNG

CNG DUPLEX

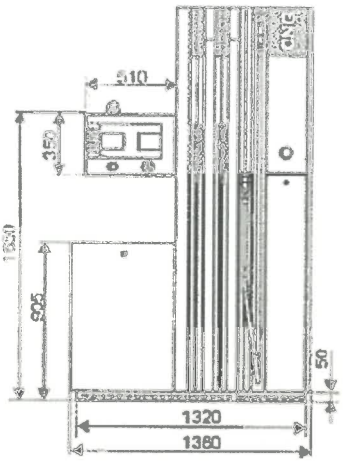
V-line R 4702.020/CNG
V-line R 4702.110/CNG
V-line R 4702.200/CNG

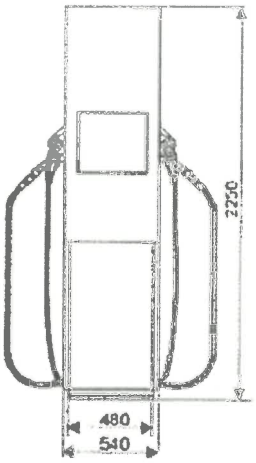


V-line H 4602.xxx/CNG
V-line H 4702.xxx/CNG

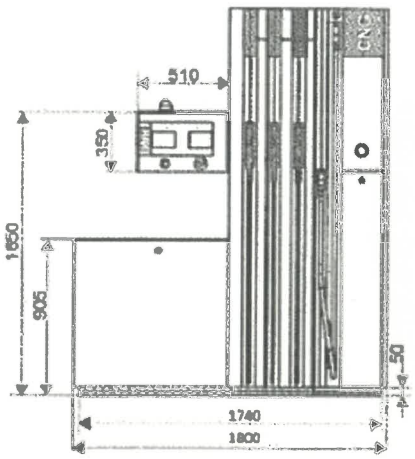


V-line H 4603.xxx/CNG
V-line H 4703.xxx/CNG

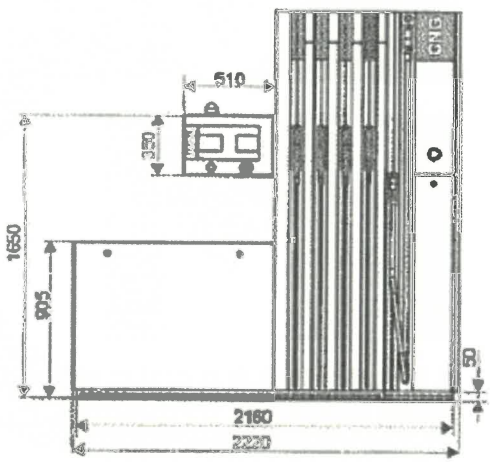


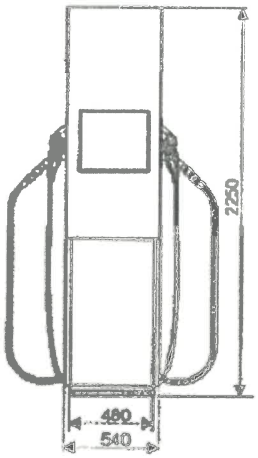


V-line H 4604.xxx/CNG
V-line H 4704.xxx/CNG

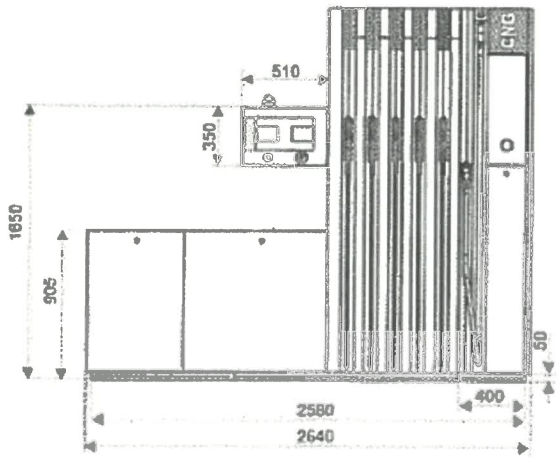


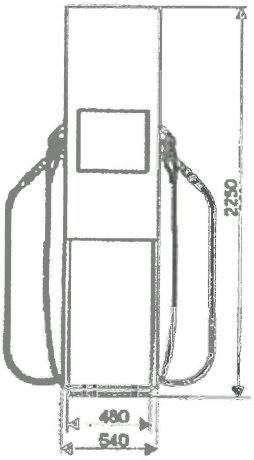
V-line H 4605.xxx/CNG
V-line H 4705.xxx/CNG



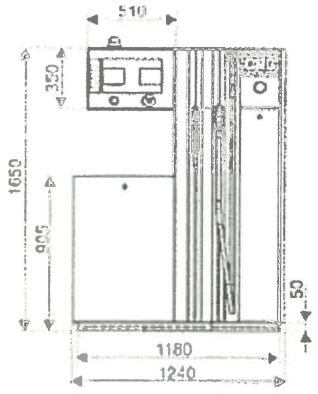


V-line H 4606.xxx/CNG
V-line H 4706.xxx/CNG

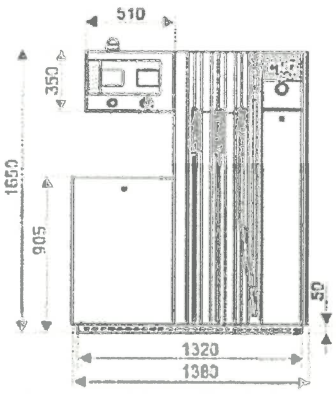


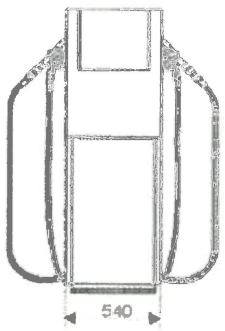


V-line R 4602.xxx/CNG
V-line R 4702.xxx/CNG

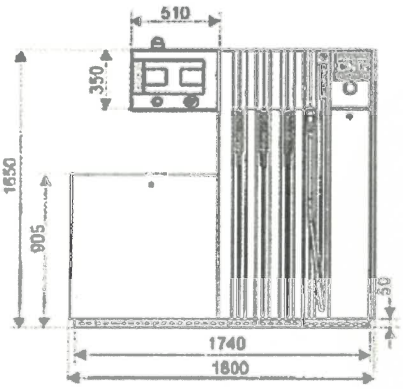


V-line R 4603.xxx/CNG
V-line R 4703.xxx/CNG

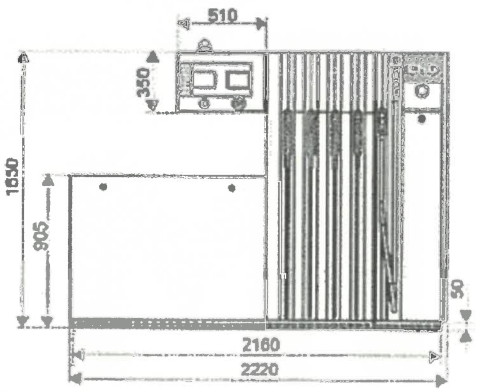


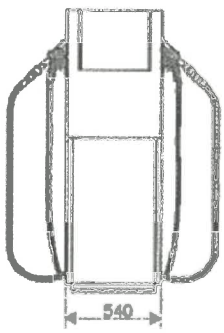


V-line R 4604.xxx/CNG
V-line R 4704.xxx/CNG

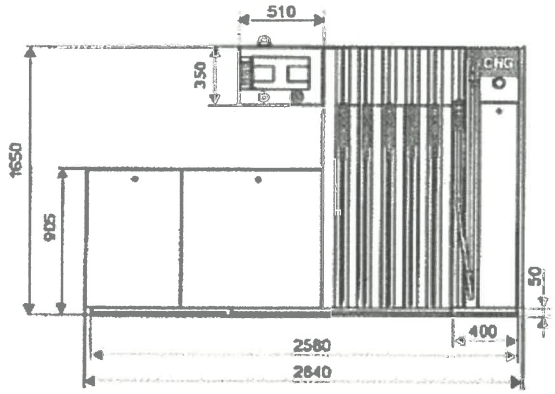


V-line R 4605.xxx/CNG
V-line R 4705.xxx/CNG





V-line R 4606.xxx/CNG
V-line R 4706.xxx/CNG



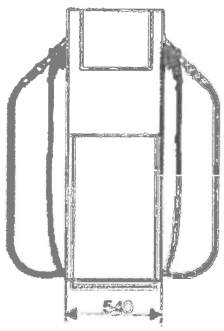


Figure 3: Sealing of the CNG050:

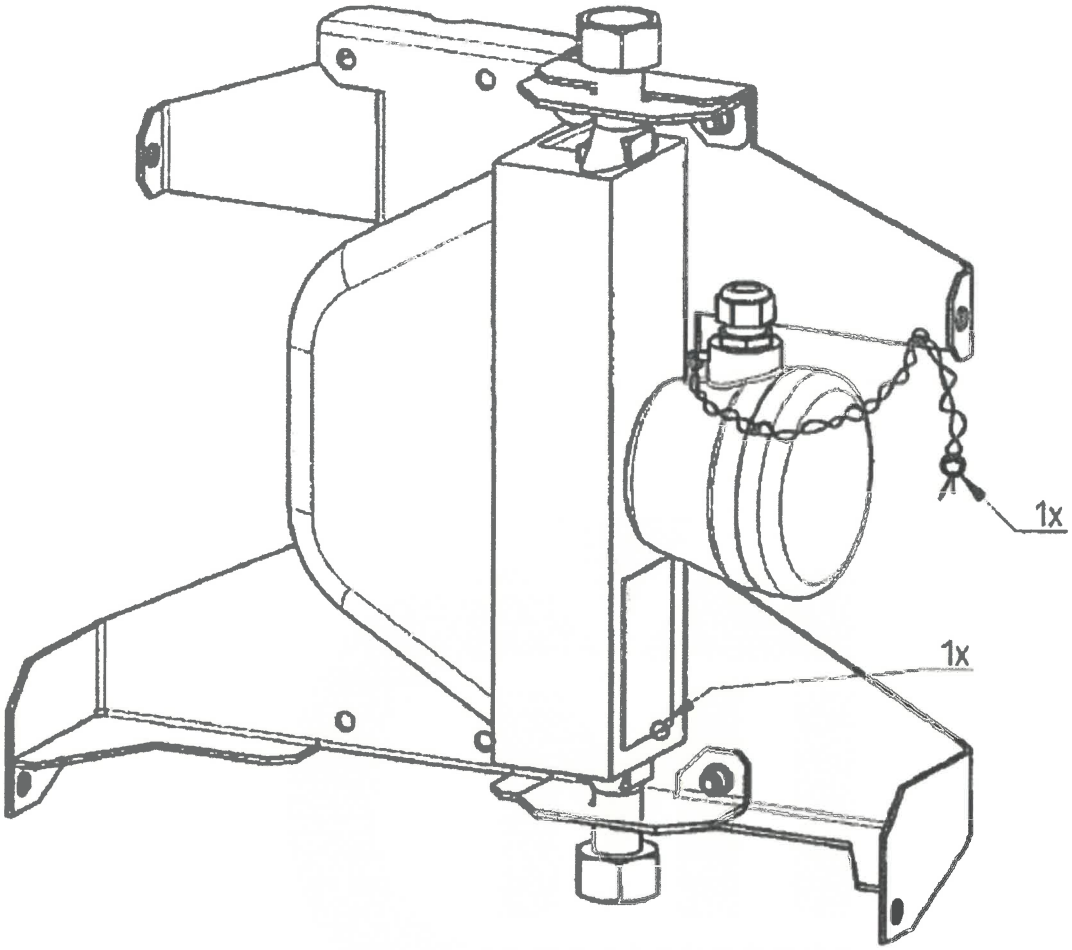


Figure 4: Sealing of the CNGmass:

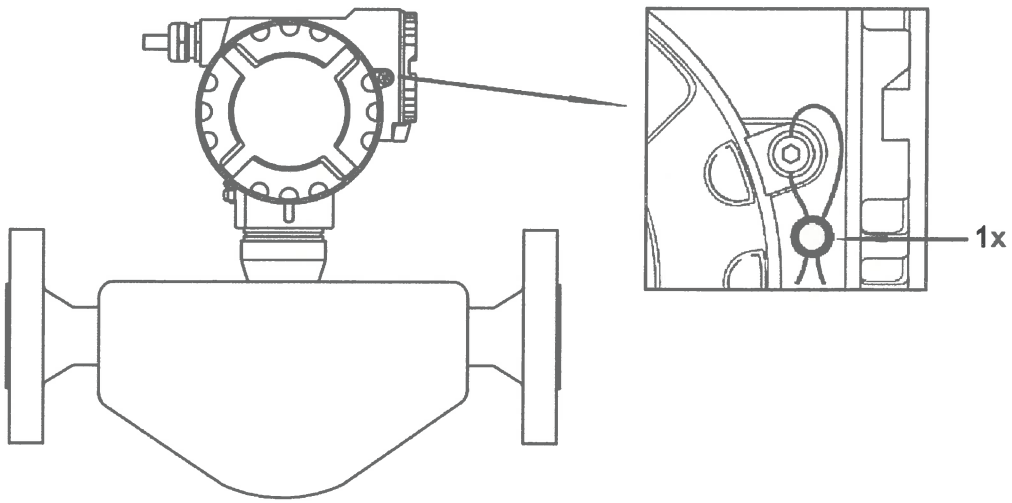


Figure 5: Sealing of the electronic calculator ADP2/T-CNG V2:

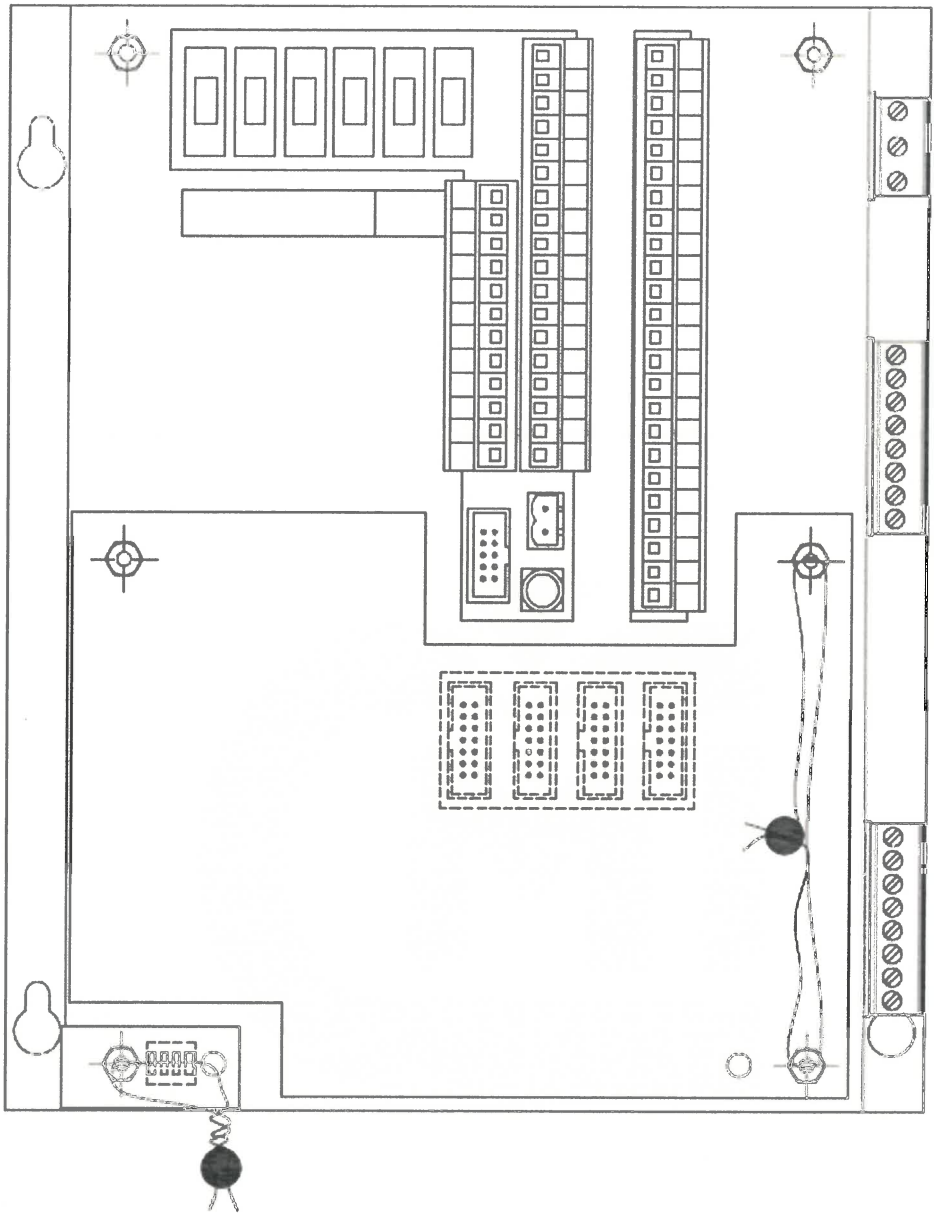


Figure 6: Sealing of the CNGT module and safety barrier(s):