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V 3112

EU-TYPE EXAMINATION CERTIFICATE

Number: TCM 141/07 - 4506

Addition 9

This addition replaces all previous versions of this certificate in full wording.

In accordance: with Directive 2014/32/EU of the European Parliament and of the Council on the harmonisation of the laws of the Member States relating to the making available on the market of measuring instruments (implemented in Czech Republic by Government Order No. 120/2016 Coll.).

Manufacturer: Adast Systems, a.s.
Adamov 496
679 04 Adamov
Czech Republic

For: LPG dispensers

type: V-line 899x.xxx/LPG and V-line 47xx.xxx/LPG

liquids: LPG

accuracy class: 1.0

ambient temperature range: -40°C to +55°C

Valid until: 27 February 2027

Document No: 0115-CS-A011-07

Description: Essential characteristics, approved conditions and special conditions, if any, are described in this certificate.

Date of issue: 27 October 2020

Certificate approved by:

Český metrologický institut
-3-

V.z.
RNDr. Pavel Klenovský

1 Measuring device description

The V-line 899x.xxx/LPG and V-line 47xx.xxx/LPG LPG dispensers are designed for measurement of liquefied petroleum gas volumes as a legal measuring device in the sense of the Directive of the European Parliament and of the Council no. 2014/32/EU of measuring instruments, as amended and are used for the refuelling of motor vehicles.

There is LPG module of the type 8690.xxx/LPG and V-line 8690.xxx/LPG, the same hydraulic without electronics, to connect to V-line 46xx.xxx and V-line 47xx.xxx fuel dispenser which have been certified separately in the EC-type examination certificate No. TCM 141/07 – 4505 issued by CMI, Notified Body 1383.

The fuel dispensers fitted with the V-line 8690.xxx/LPG module are designated as V-line 46xx.xxx/LPG and V-line 47xx.xxx/LPG types.

There is special version V-line 899x.xxx/LPG Hybrid which is combination of Fuel dispenser and LPG dispenser installed in one housing. Both measuring systems (fuel and LPG) are controlled by common calculator.

The Fuel dispenser was certified separately in the EC-type examination certificate No. TCM 141/07 – 4505 issued by CMI, Notified Body 1383.

The LPG module type series 8690.xxx/LPG and V-line 8690.xxx/LPG and the LPG dispenser V-line 47xx.xxx/LPG can be made in the „H" – high – version of the hose module with the hoses freely suspended (type marking 8690.Hxx/LPG, V-line 8690.Hxx/LPG and V-line H 47xx.xxx/LPG) or in the „R" – low – version of hose module with a hose drawing-in system (type marking 8690.Rxx/LPG, V-line 8690.Rxx/LPG and V-line R 47xx.xxx/LPG).

The V-line 899x.xxx/LPG and V-line 47xx.xxx/LPG measuring systems consist of an gas separator, non-return valve, measuring transducer, differential valve, electronic calculator with electronic or electromechanical totalizing indicating device, electromagnetic valve, safety valve, manometer, break away coupling and house with delivery nozzle. These LPG dispensers can be equipped with pre-setting device. The sight glass is not required to be installed.

Electronic calculator of the fuel dispenser is equipped with a ATC conversion function that converts the measured volume to the volume at base conditions of 15 °C. This function can be enabled or disabled. A temperature sensor of the type stated in point 1.5 has to be connected in case of active ATC function.

The dispenser containing ADP1/L el. calculator can be installed on mobile devices powered by battery.

The V-line 899x.xxx/LPG and V-line 47xx.xxx/LPG LPG dispensers could be connected into independent Point of Sale or Paying terminal, which do not influence metrology parameters of measuring system.

The V-line 8662.xx/LPG LPG dispensers (metrological part identical with V-line 899x.xxx/LPG) could be installed into dispensing systems e.g. container dispensing system.

1.1. Gas separator

N821.20 or N821.20/1 gas separator with nominal volume of 2.4 L with thermometer well.

1.2. Measuring transducer

These measuring transducers may be used alternatively.

1.2.1 M 406.25xP and M 406.25xP/1 measuring transducers consist of a flow sensor with four pistons and cyclic volume 0.48 L and one of the following two-channel magnetic pulse transmitters with 2 × 48 pulses per revolution:

- Eltomatic ME01-05,
- Eltomatic ME01-05-05,
- METRA MTX 075,
- ADAST 40.

Version "P" is equipped with mechanical adjustment device, version "EP" can be used with electronic adjustment only.

M406.25P and M406.25xP/1 measuring transducer can be adjusted by varying of the stroke of both pair of pistons by the adjustment screws. The regulation is non-continual with steps 0.08 %. Maximum range of adjustment is about ± 8 %. Location of screws is protected by pin.

1.2.2 Endress+Hauser Flowtec AG LPGmass measurement transducer consists of a coriolis sensor DN 15 and transmitter directly mounted to it.

Flow rate [dm^3/min]	2.4 to 130
Minimum measured quantity [dm^3]	5
Liquid temperature range [°C]	-10 to 80
Ambient temperature range [°C]	-40 to 55
Nominal diameter	15

Endress+Hauser Flowtec AG LPGmass measurement transducer has been separately certified by NMI Evaluation certificate No TC7286. The identification of approved software and checking procedure is published in TC7286 Chapter 1.1.2.2.

1.2.3 Micro Motion F050 measurement transducer consists of a F050 type coriolis sensor DN 12.5 and MVD type transmitter directly mounted on it.

Flow rate [dm^3/min]	2.3 to 68
Minimum measured quantity [kg]	5
Liquid temperature range [°C]	-10 to 50
Ambient temperature range [°C]	-40 to 55
Nominal diameter	15

The applicable values for Qmax, Qmin and MMQ in volume units are defined as:
Q_{max} volume = Q_{max} mass / maximum product density;
Q_{min} volume = Q_{min} mass / minimum product density;
MMQ volume = MMQ mass / minimum product density.

Micro Motion F 050 measurement transducer was separately certified by NMI Evaluation certificate No. TC7050 and TC7057.

1.3. Differential valve

V860.20/LPG differential valve opened by differential pressure about 100 kPa (1 bar).

1.4. Calculator

These types of calculators can be used alternatively:

The Beta Control calculator type ADP was separately certified by Czech Metrology Institute in Evaluation Certificate ZR 141/10 – 0072 rev. 4. On the front of the dispenser there can be installed multimedia display which is connected directly to Beta Control's calculator. This multimedia display is informative only and up of the display there has to be notice. Basic technical data:

	ADPx/T family	**ADP1/L**
Max. flowrate Q_{max} [L/min]	680	500
Min. measured quantity MMQ [L]	2	
Maximum unit price (no. of digits)	9999 (4)	
Maximum price to pay (no. of digits)	999999 (6)	
Scale interval- quantity display [L]	0.01	
Type of display	Electronic	
Software version	See the ZR 141/10 – 0072	
Accuracy class	0.5	
Mechanical class	M2	
Electromagnetic class	E2	
Humidity class	H3	
Ambient temperature range [°C]	-40 to +70	-25 to +70

The UNIDATAZ calculator type CDC was separately certified by Czech Metrology Institute in Evaluation Certificate ZR 141/10 – 0073 rev. 7. Calculator type CDC is also approved as Self-service Device. Basic technical data:

Min. measured quantity MMQ [L]	2
Maximum unit price (no. of digits)	9999 (4)
Maximum price to pay (no. of digits)	999999 (6)
Scale interval, volume display [L]	0.01
Type of display	Electronic
Software version	See the ZR 141/10 – 0073
Accuracy class	0.5
Mechanical class	M1
Electromagnetic class	E1
Humidity class	E3
Ambient temperature range [°C]	-40 to +55

1.5. Self-service device

ALX TECHNOLOGIES EUROPOLE has been separately certified in Evaluation certificate No. LNE-17492, issued by LNE.
The fuel dispenser equipped by electronic calculators from table below may be connected to a self-service device which is described in Evaluation certificate No, LNE-17492 issued by a notified Body LNE (NB 0071) which is notified body for MID module B according to annex MI-005.

Approved software versions:

	Version of legally relevant software	**Checksum or alternative method**
Electronic calculators:		
ADP2/T	22.65	2633
ADP1/L	30.62	630A
ADPMPDx/T-PWM	10.62	FA02
DISPLCD/N-BL/PW V3	02.50	Error message: F70-F73
Self-service device:		
InterfaceUtilisateur.exe	1.0.4	21289
GestionTPI.exe	1.0.3	38954
GestionCalculateur.exe	2.0.1	42678
ApplicationTPI.exe	1.0.2	10416
TPI V3.exe	1.0.2	54219

1.6. Temperature sensor

ZPA Nová Paka 112 70 Pt100 temperature sensor
TRESTON TAB-01-Ex Pt100 temperature sensor

1.7. Hose

ELAFLEX LPG 16; maximum length 7 m
SEMPERIT TM3-D DN 19; maximum length 5 m

2 Basic technical data

Max. flowrate Q_{max} [dm^3/min] *	30 to 50
Min. flowrate Q_{min} [dm^3/min] *	5 to 10
Min. measured quantity MMQ [dm^3]	5
Maximum unit price (no. of digits)	9999 (4)
Maximum price to pay (no. of digits):	999999 (6)
Type of display:	electronic

Software version:	ADP1/L – V30.62 ADP1/T, ADP2/T – V20.62 ADP2/T-LPG – V25.62 ADPMPDx/T – V10.62 ADPMPDx/T-PWM – V10.62 UNIDATAZ CDC – See the Evaluation certificate mentioned in chapter 1.3.
Liquids	LPG
Liquid temperature range [°C]	-20 to +50 -10 to 50 with coriolis sensors
Maximum pressure [MPa]	1.8
Minimum pressure [MPa]	0.7
Accuracy class	1.0
Ambient temperature range [°C]	-40 to +55
Mechanical class	M2 with ADPxxx el.calculator M1 with UNIDATAZ CDC el. calculator

Electromagnetic class	E3 with ADP1/L e. calculator, E2 with other ADPxxx el.calculators, E1 with UNIDATAZ CDC el. calculator
Humidity	Condensing
Location	Open
Location	Open
Measurement unit	Volume [L] or volume at 15 °C [L]

* Note: Ratio between Q_{max} and Q_{min} has to be at least 5:1 or higher

3 Test

Technical tests of the V-line 899x.xxx/LPG and V-line 47xx.xxx/LPG LPG dispensers were performed in conformity with International Recommendation OIML R 117-1 *Dynamic measuring systems for liquids other than water* and International Recommendation OIML D 11 *General requirements for electronic measuring instruments*. Examinations of the device and test results are to be found in the following documents: Test Report No. 6031-PT-P033-06, Test Report No. 6015-PT-P022-09, Test Report No. 6015-PT-P0032-13, Test Report No. 6015-PT-P0020-17, Test Report No. 6015-PT-P0015-20, Test Report No. 6015-PT-P0053-20.

4 The measuring device data

There are at least following data on the measurement transducer, the multimedia display, the electronic calculator and the temperature sensor:

- Manufacturer's name, mark or trademark
- Type designation
- Serial number

There are following data on the LPG dispenser:

- The "CE" marking and supplementary metrology marking
- Number of EU-type examination certificate
- Manufacturer's name, mark or trademark and post address
- Type designation
- Serial number and year of manufacture
- Accuracy class 1.0
- Minimum measured quantity (MMQ)
- Maximum flow rate (Q_{max})
- Minimum flow rate (Q_{min})

- Maximum pressure (p_{max})
- Minimum pressure (p_{min})
- Liquids to be measured
- Liquid temperature range
- Ambient temperature range
- Mechanical class
- Electromagnetic class

There are following data on each face of indicating device:

- Unit of national currency near to price indication (e.g. €)
- Unit of volume near to volume indication (ℓ or L or word Litre)
- Unit price per litre near to unit price indication (e.g. € / L or € / Litre)
- Information regarding the minimum measured quantity (MMQ)
- Information regarding base temperature (e.g. Tb = 15 °C) in case of active ATC conversion function

5 Conditions for approval and sealing

Accuracy test at whole flow range is to be performed. All measured errors have to be in range of tolerance +/- 1.0%.
Access to electronic calibration function is protected by sealed switch.
In case of using ADPxxx electronic calculator DIP switches No. 2 and 3 have to be set to position OFF according to picture No. 9.
In case of using UNIDATAZ CDC electronic calculator S3 switch on CPU body has to be set to position OFF (position up) according to picture No.11.

In case of active ATC conversion function a certified temperature sensor has to be connected. Maximum permissible error of the temperature measurement is ± 0.4 %.

The measuring system has to be sealed after the tests with positive result according to pictures No. 1 to 16:

On the M406.25P, M406.25P/1 measuring transducer:
- Connection of transducer body with upper part and transducer (pulser) 1×
- Connection of transducer body with pistons covers and pin of adjustment device 4×
- Connection of transducer body with type plate 1×

On the M406.25EP, M406.25EP/1 measuring transducer:
- Connection of transducer body with upper part and transducer (pulser) 1×
- Connection of transducer body with pistons covers 4×
- Connection of transducer body with type plate 1×

On the LPG mass coriolis measuring transducer:
- Cover of the transmitter 1×

On the Micro Motion coriolis measuring transducer:
- Cover of the transmitter 1×

On the ADP1/T, ADP2/T, ADP2/T-LPG, ADPMPDx/T and ADPMPDx/T-PWM calculator:
- Not dissembling of calculator 1×
- The cover of DIP switches 1×
- Connection of electromechanical totalizing indicating device to the frame 1×
- The type plate of calculator 1×

On the ADP1/L calculator:
- Not dissembling of calculator 1×
- Connection of electromechanical totalizing indicating device to the frame 1×
- The type plate of calculator 1×

On the Multimedia display:

- Not dissembling of multimedia display	1×
- The type plate of multimedia display	1×

On the UNIDATAZ CDC electronic calculator:

- Connection of S3 switch cover with CPU unit	1×
- Connection of CPU unit with calculator console	1×
- Connection of electromechanical totalizing indicating device to the frame	1×
- The type plate of calculator	1×

On the self-service device:

- According to the Evaluation Certificate No. LNE-17492

On the differential valve

- differential valve	1×

On the temperature sensor (only if ATC conversion function is activated):

- Connection of temperature sensor to the pipe	1×
- The type plate if separate	1×

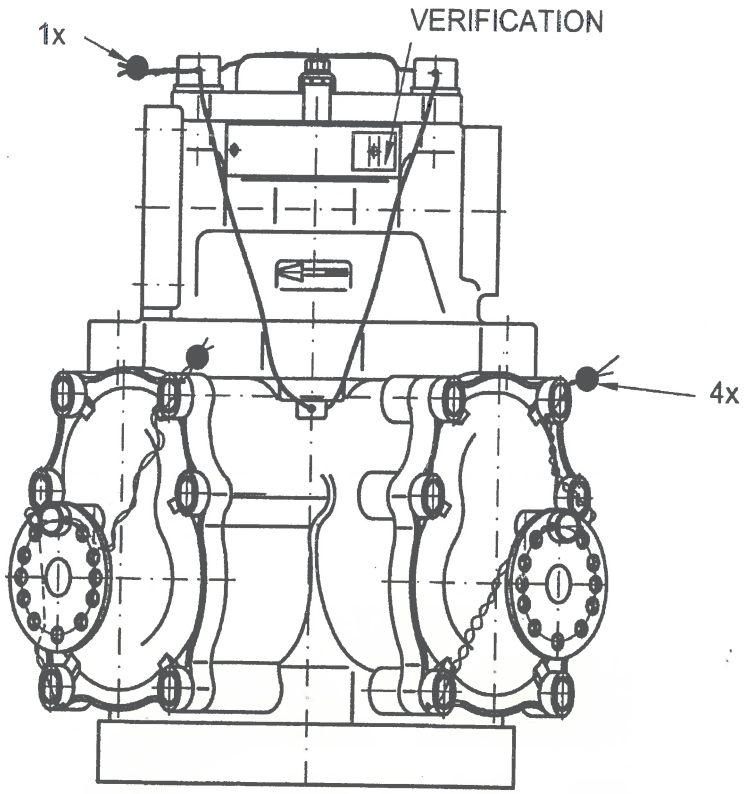
On the CNGT module and safety barrier (part of the ADP2/T-LPG calculator):

- Cover of the CNGT module and safety barrier – option 1	1×
- CNGT module and safety barrier – option 2	5×

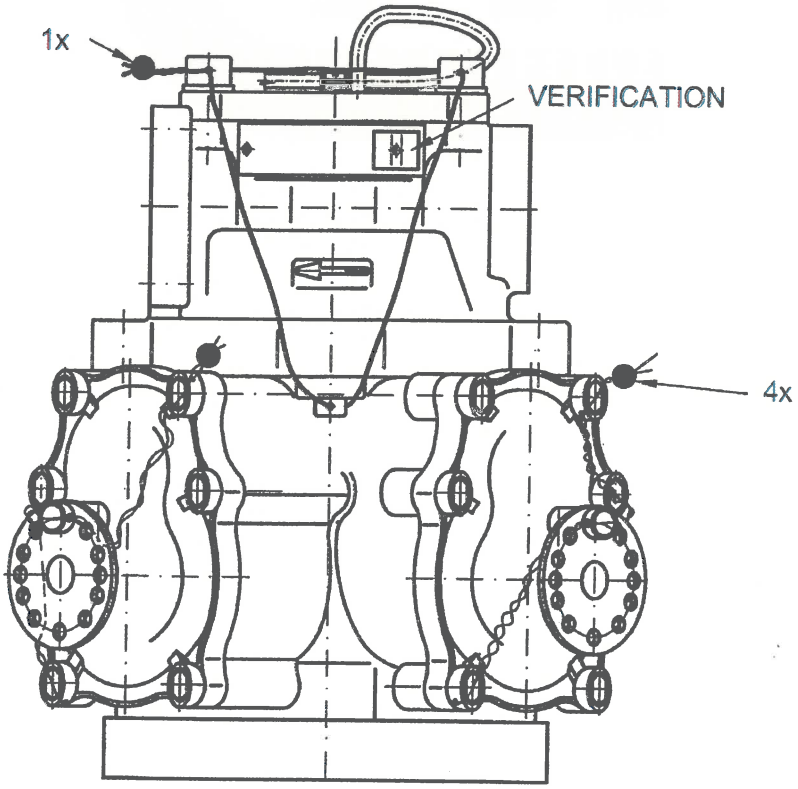
On the dispenser:

- The name plate of dispenser	1×
- The symbol of relevant measurement transducer on the data plate	1×
- The fuel dispenser data sheet (identification of data on document)	1×

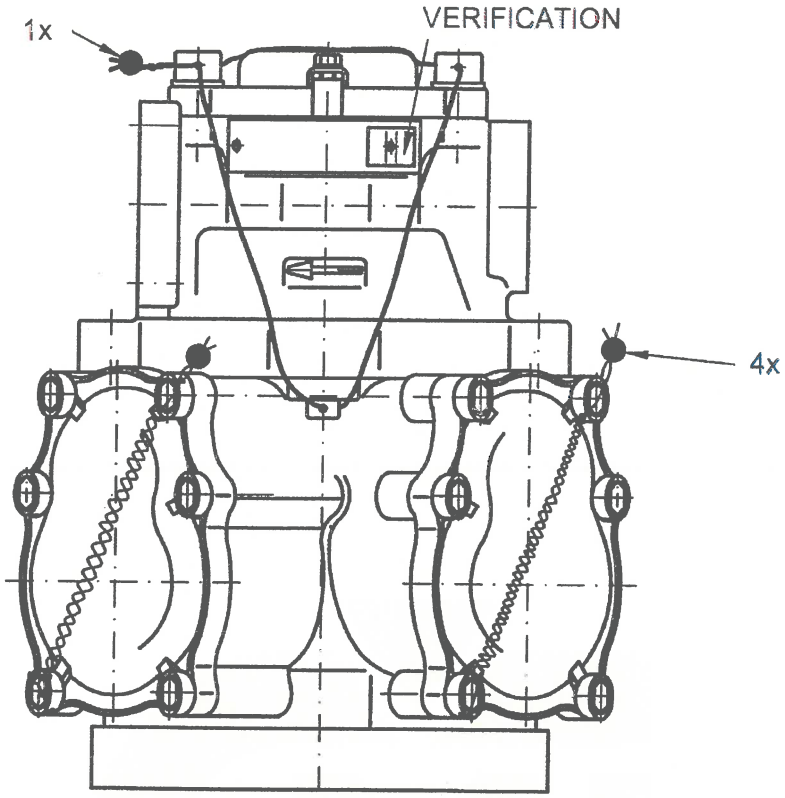
Picture No. 1: The sealing of M406.25P measuring transducer



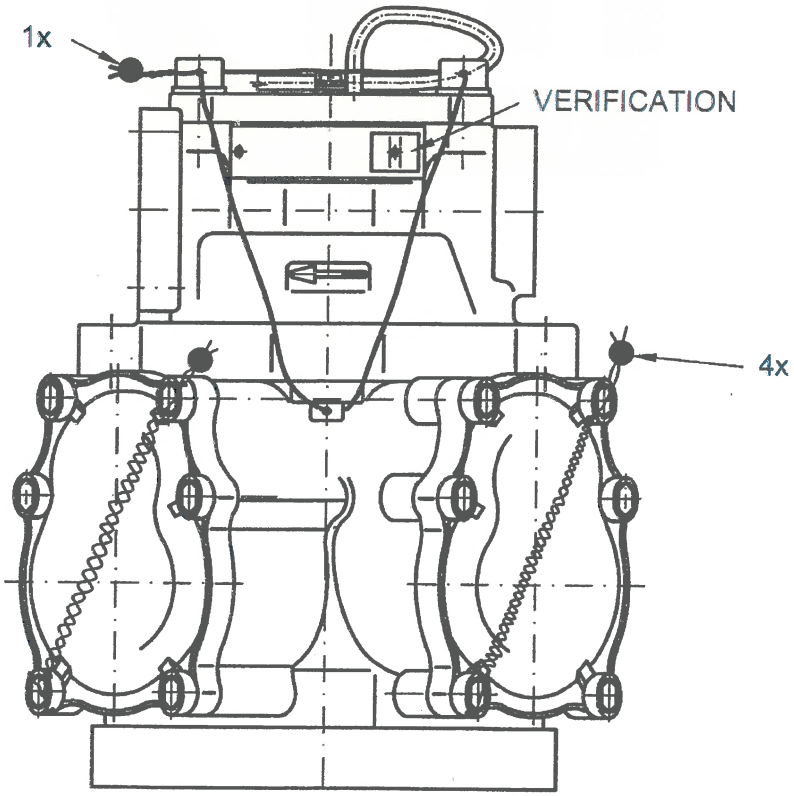
Picture No. 2: The sealing of M406.25P/1 measuring transducer



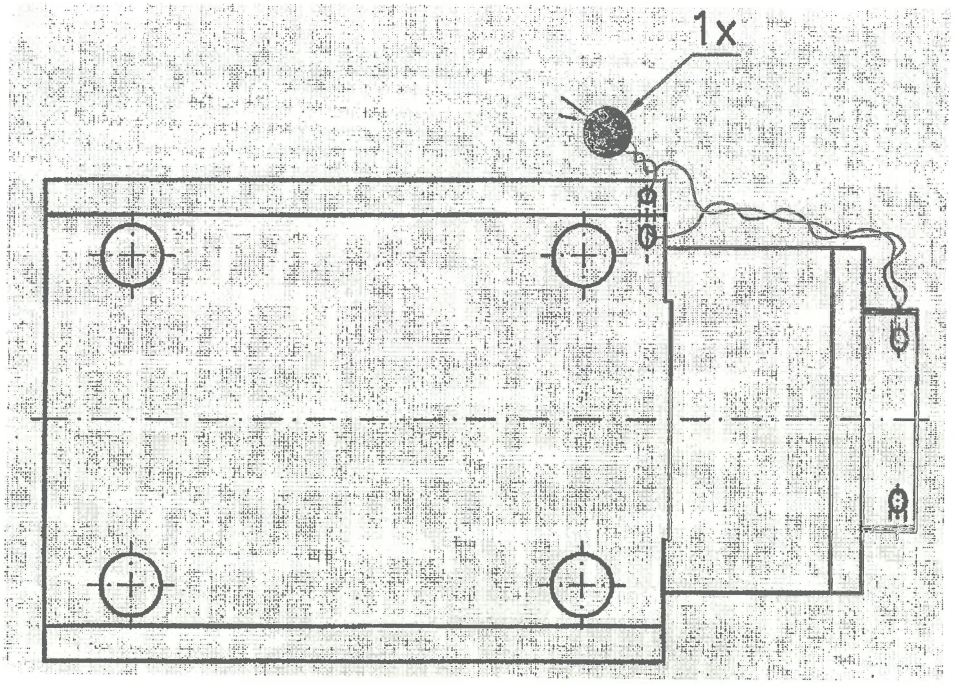
Picture No. 3: The sealing of M406.25EP measuring transducer



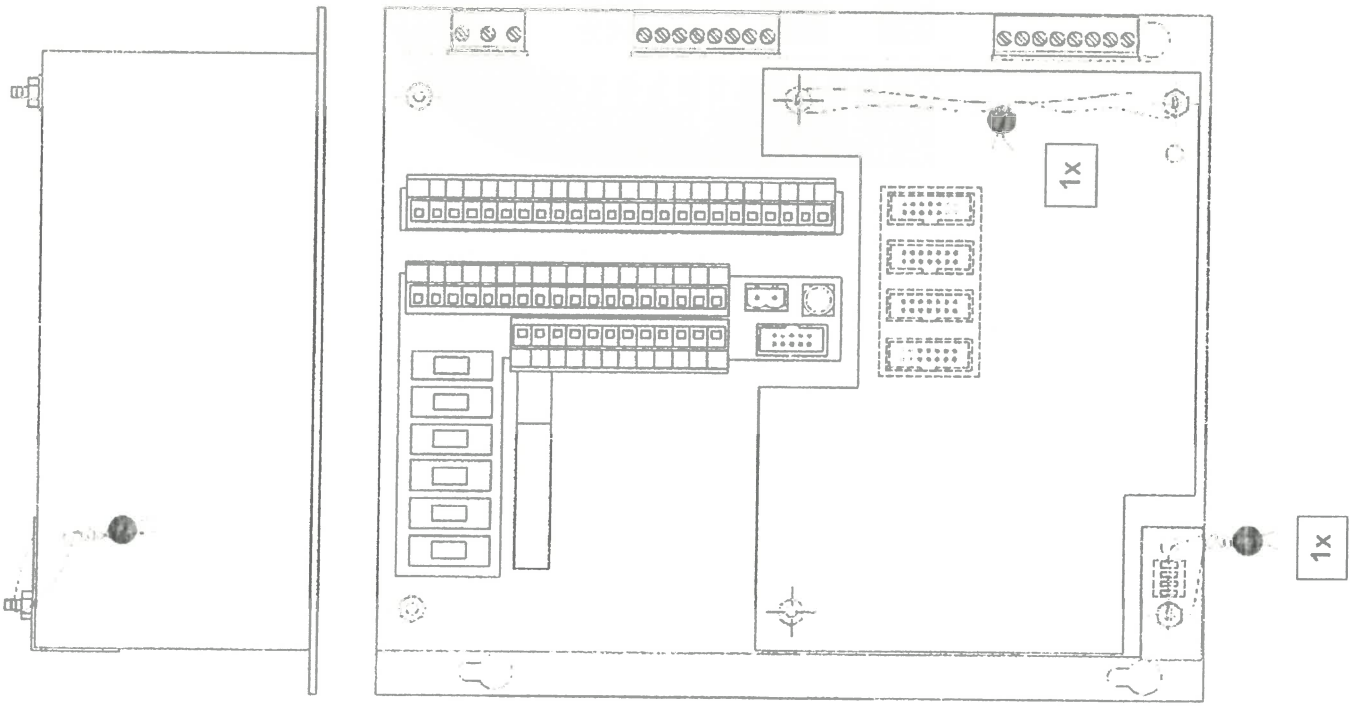
Picture No. 4: The sealing of M406.25EP/1 measuring transducer



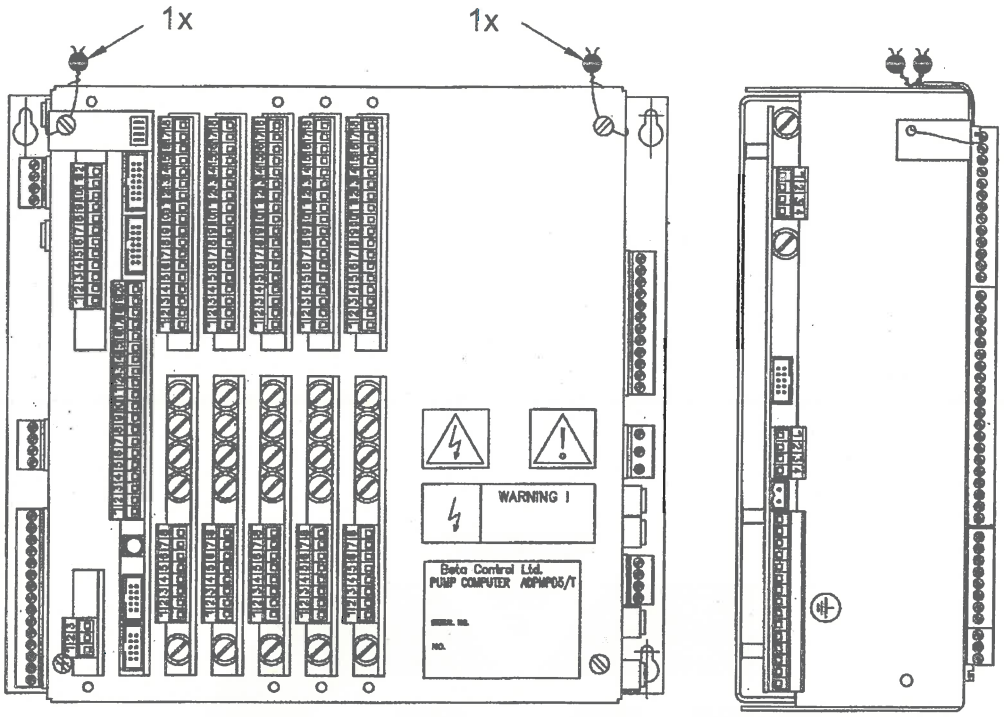
Picture No. 5: The sealing of V860.20/LPG differential valve



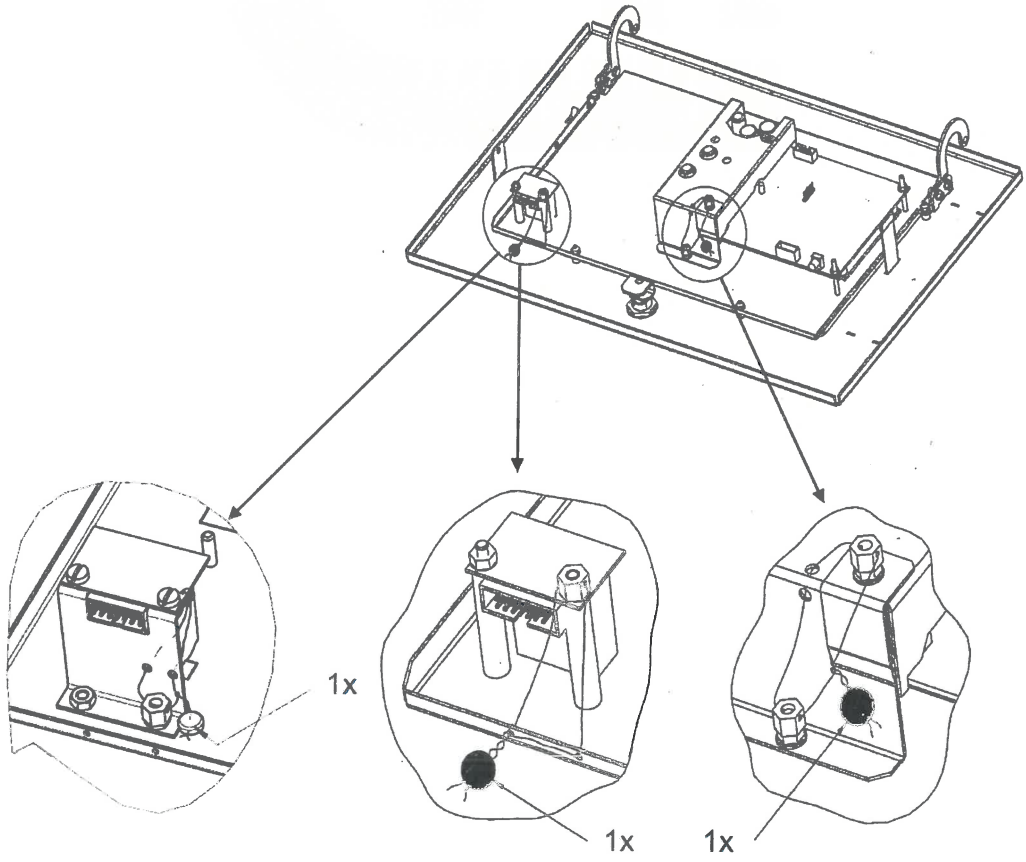
Picture No. 6: The sealing of ADP1/T, ADP2/T and ADP2/T –LPG calculator



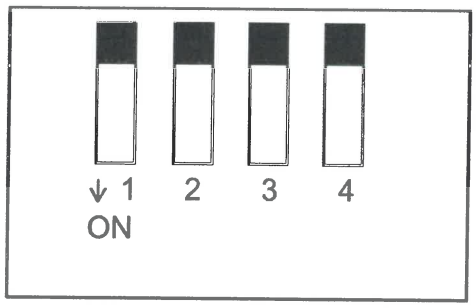
Picture No. 7: The sealing of ADPMPDx/T, ADPMPDx/T-PWM calculator



Picture No. 8: The sealing of ADP1/L calculator



Picture No. 9 The calibration DIP switch

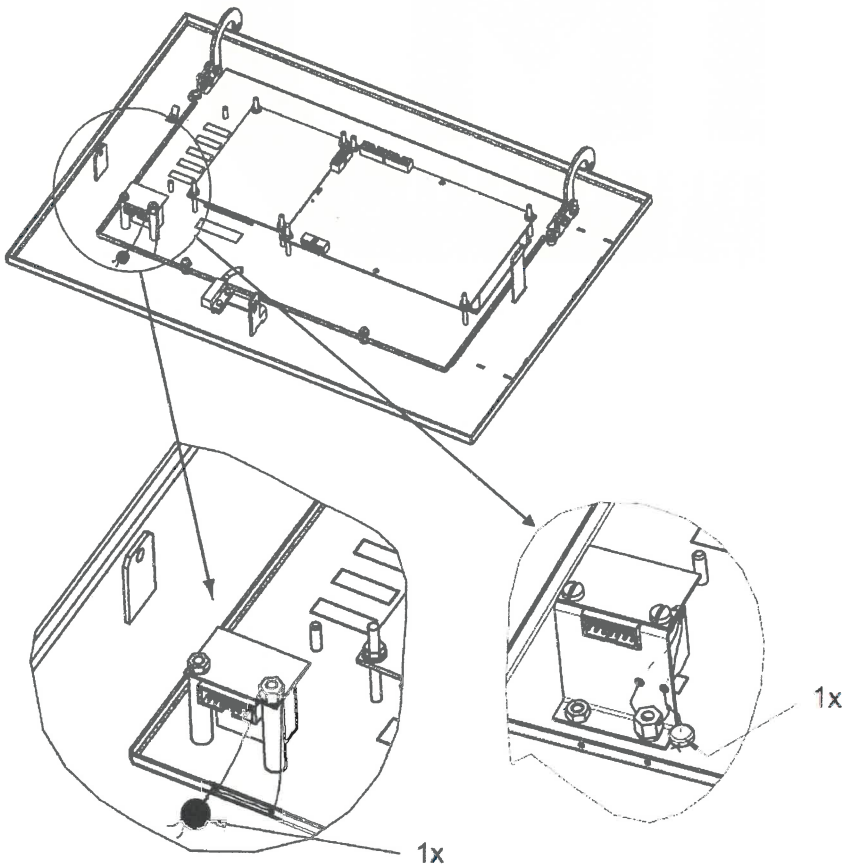


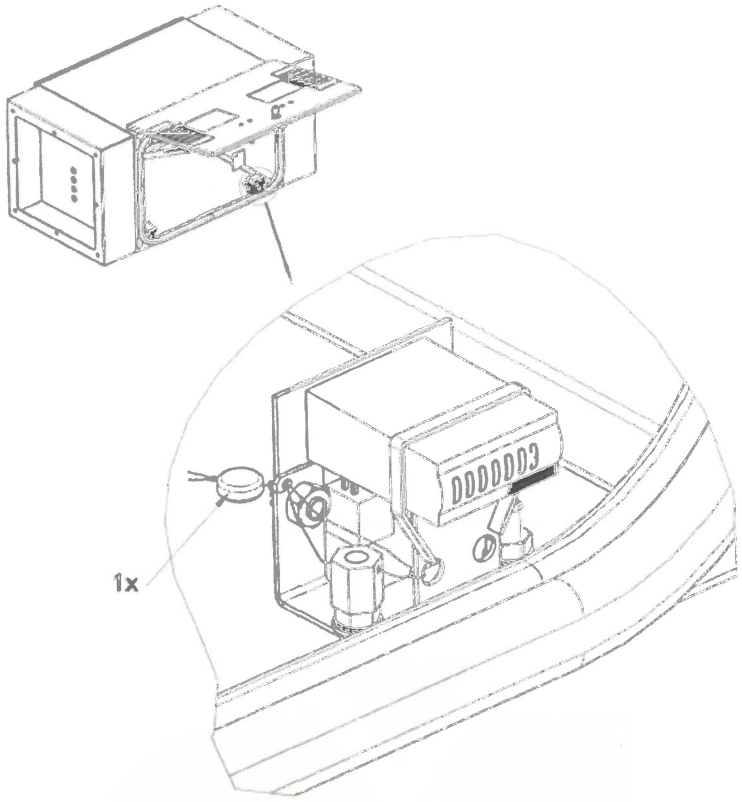
Description of DIP switches

DIP-1	Setting of the number of channel pulsers
ON	2–channel
OFF	3–channel

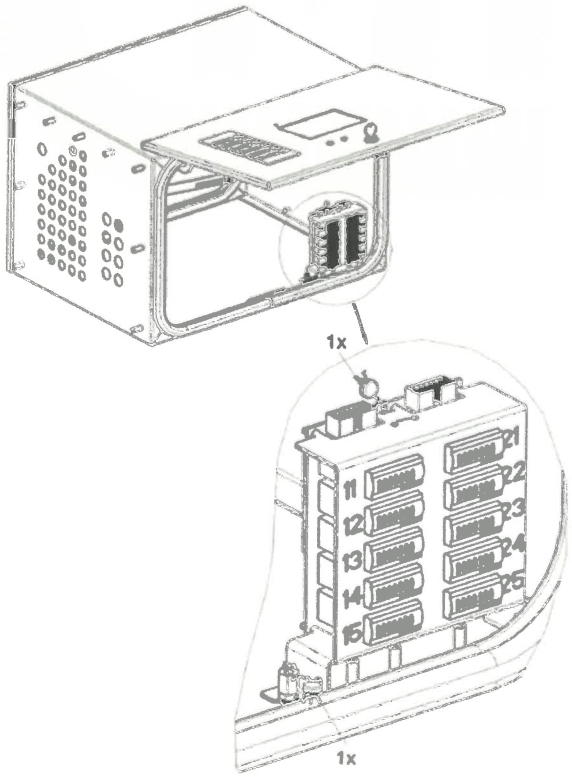
DIP-2 ON	Enable EC setting
DIP-3 ON	Enable ATCsetting
DIP-4	reserved

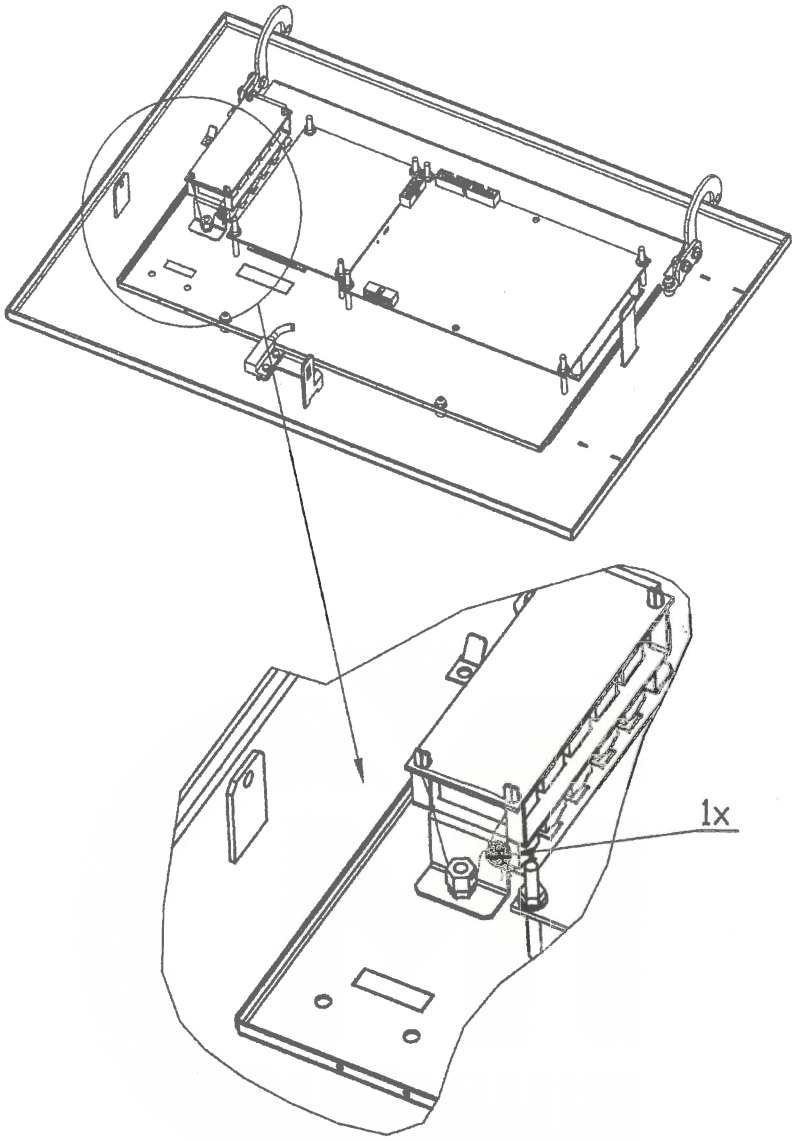
Picture No. 10: The sealing of totalizing indicating device of the ADPx/T el. calculator (two options)



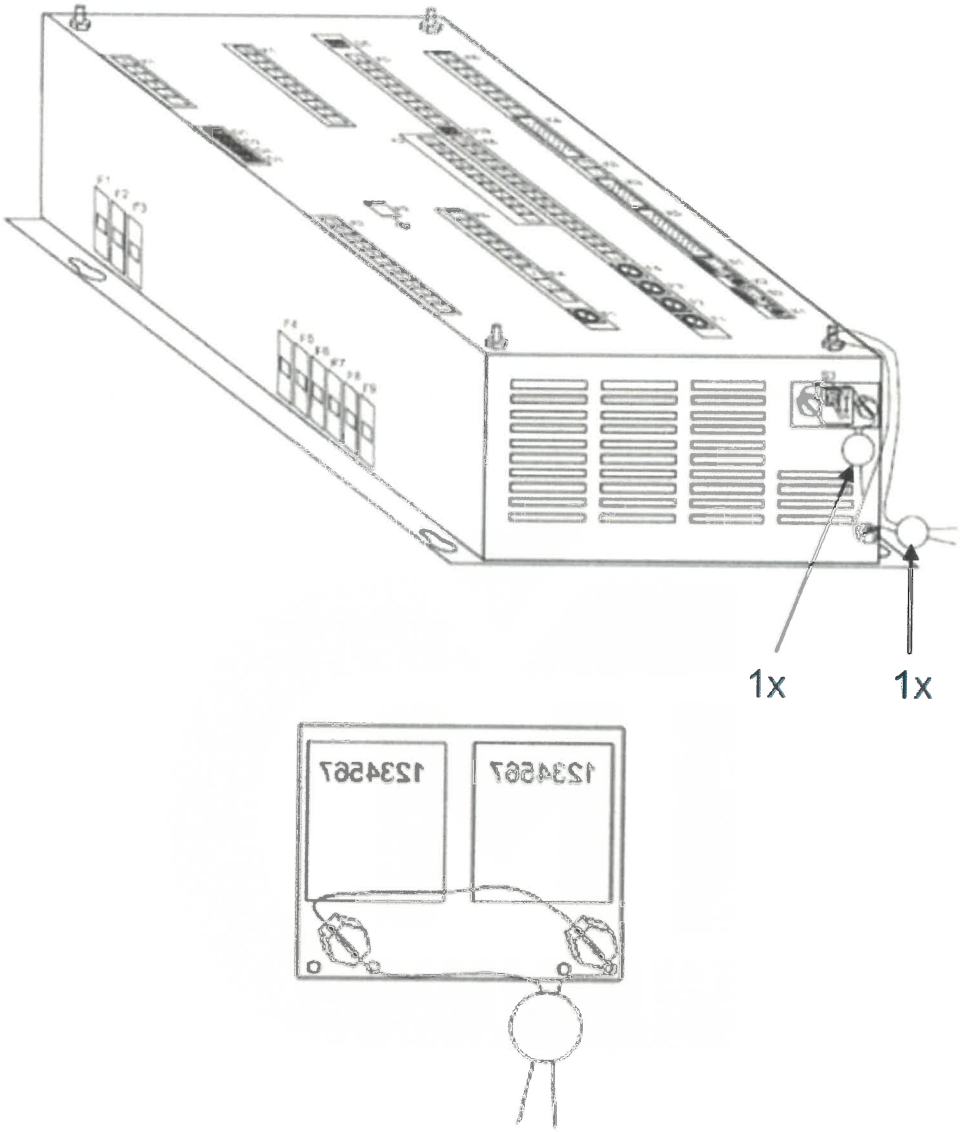


Picture No. 10a: The sealing of totalizing indicating device of the ADPMPDx/T(PWM) el. calculator (two options)

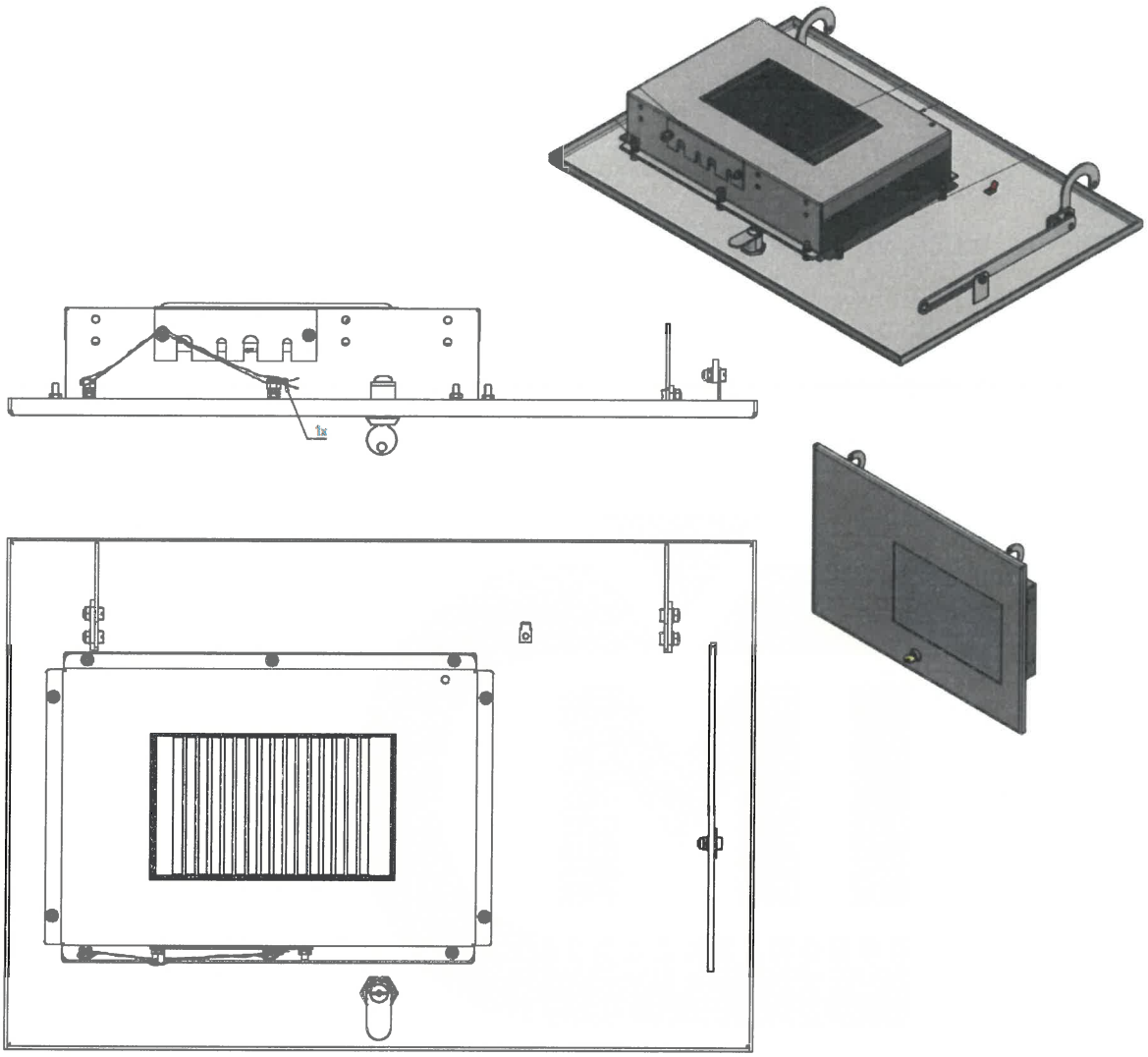




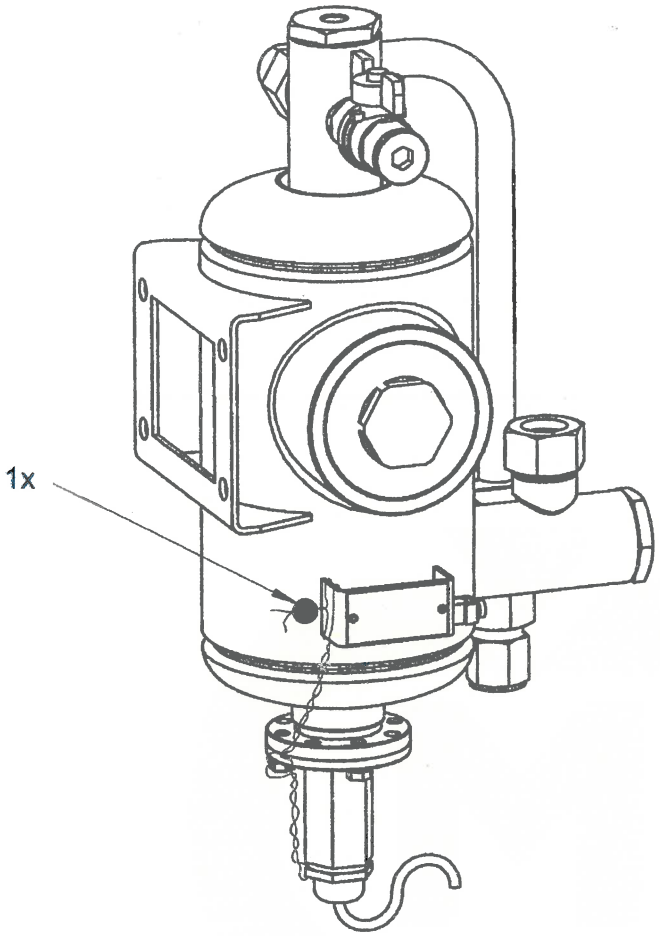
Picture No. 11: The sealing of UNIDATAZ CDC electronic calculator (CPU unit with S3 switch and totalizer)



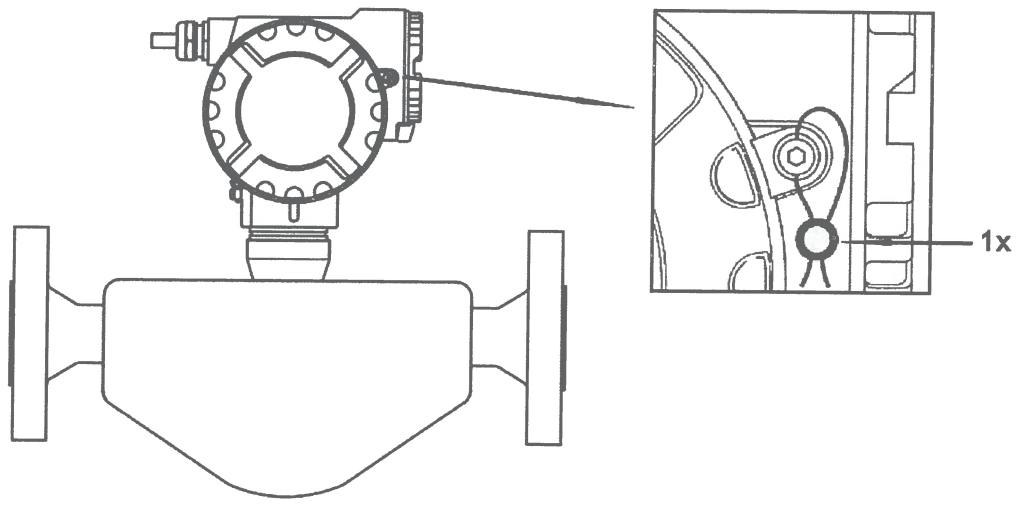
Picture No. 12: Sealing of the multimedia display



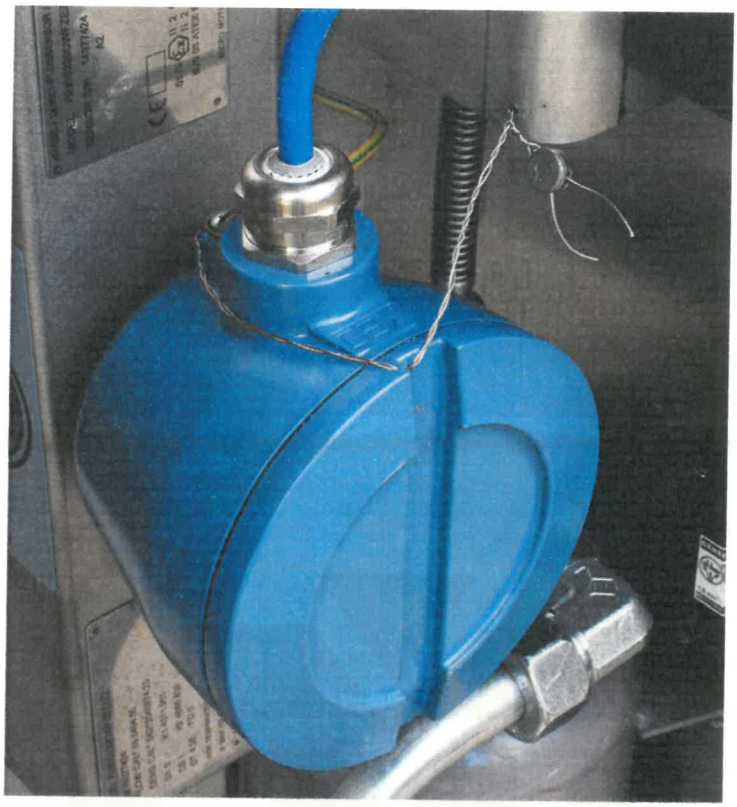
Picture No. 13: The sealing of temperature sensor (Just if ATC conversion function is activated)

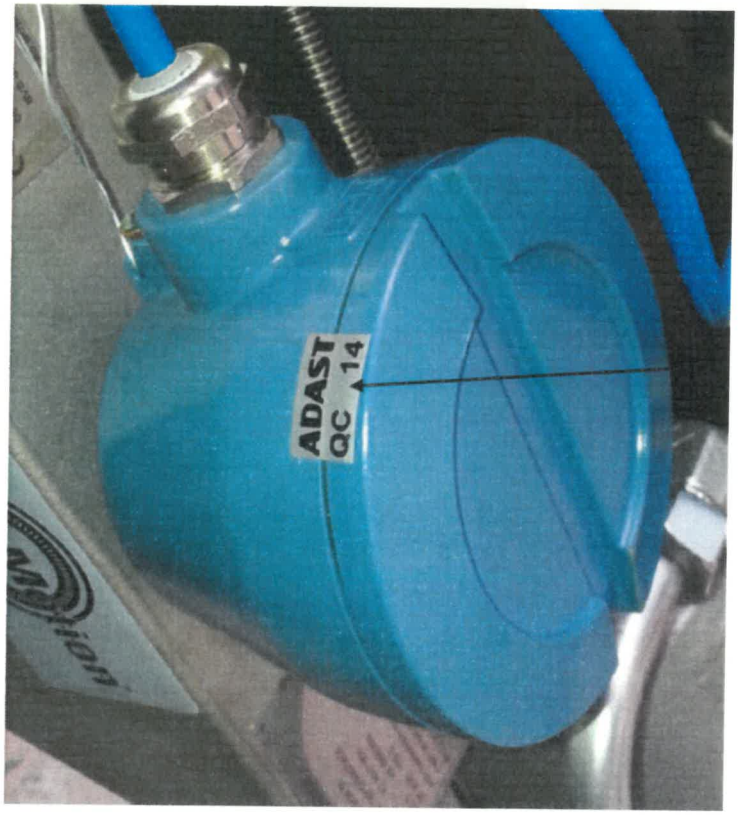


Picture No. 14: Sealing of the LPG mass coriolis measuring transducer

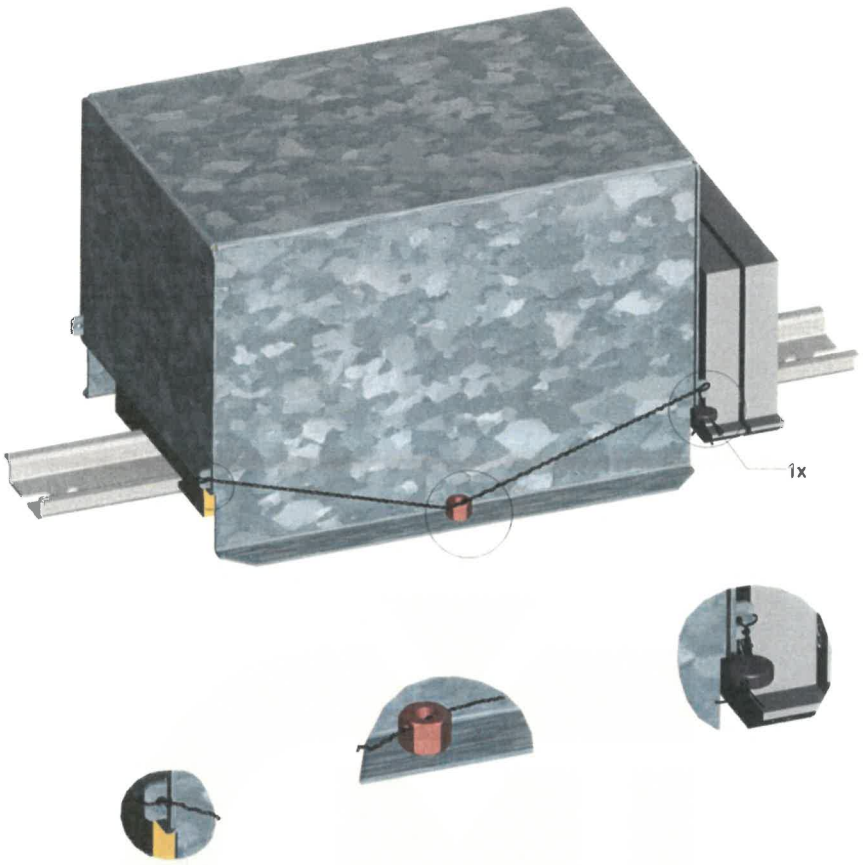


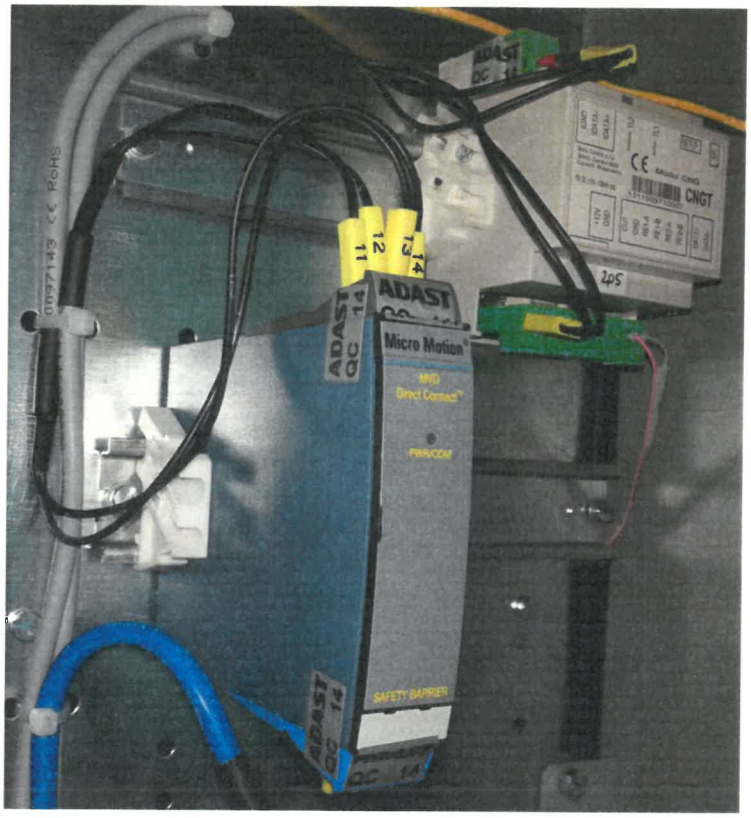
Picture No. 15: Sealing of the Micro Motion F050 coriolis measuring transducer (two options)





Picture No. 16: Sealing of the CNGT module and safety barrier (two options)





Picture No. 17: Example of dispenser's appearance equipped by multimedia display