



Český metrologický institut

Notifikovaná osoba č 1383, Okružní 31
638 00 Brno

EC-TYPE EXAMINATION CERTIFICATE

Number: TCM 141/07 - 4493

Addition 1

Issued by: Český metrologický institut
Okružní 31
638 00 Brno
Czech Republic

Notified Body No. 1383

In accordance with: point 3 of annex 2 to Government Order No. 464/2005 Coll. (annex B of the Directive 2004/22/EC) from 19 October 2005 that lays down technical requirements on measuring instruments and implements in Czech Republic Directive 2004/22/EC of the European Parliament and of the Council.

Applicant: TATSUNO-BENČ EUROPE a.s.
Pražská 68
678 01 Blansko
Czech Republic

In respect of: fuel dispenser for motor vehicles
type: SHARK BMP 5xx.S/LPG, SHARK BMP 2xxx.S/LPG
manufacturer: TATSUNO-BENČ EUROPE a.s.

Liquids	LPG
Accuracy class	1.0


Valid until: 16 January 2017

Document number: 0115-CS-A006-07

Description: Essential characteristics, approved conditions and special conditions, if any, are described in this certificate. This certificate contains 16 pages.

Date of issue: 26 May 2008




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Notified Body No.1383

1. Measuring device description

The SHARK BMP 5xx.S/LPG and 2xxx.S/LPG LPG dispensers are destined 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. 2004/22/EC of measuring instruments, as amended and are used for the refuelling of motor vehicles.

There is SHARK MOD 2xxx.S/LPG LPG module, the same hydraulic without electronics, to connect to fuel dispensers.

There is LPG module of the type SHARK MOD 2xxx.S/LPG, the same hydraulic without electronics, to connect to SHARK BMP 2xxx.S fuel dispensers certified separately.

The SHARK BMP 5xx.S/LPG and 2xxx.S/LPG LPG dispensers with PDEVOL calculator should not to be used for direct selling to the public.

The SHARK BMP 5xx.S/LPG and 2xxx.S/LPG LPG dispensers consist of an OPF gas separator, non-return valve, MP-02524 measurement transducer, VD-0206 differential valve, PDE or PDEX electronic calculator, 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.

There is conversion ATC function for converse of measurement data to volume at base conditions (15°C) in PDE or PDE.X electronic calculator. There had to be connected temperature transducer Pt 100 of class B at minimum according EN IEC 751.

The SHARK BMP 5xx.S/LPG and 2xxx.S/LPG LPG dispensers could be connected into independent Point of Sale or Paying terminal, which do not influence metrology parameters of measuring system.

1.1. Gas separator

TECHKO, s.r.o. OPF gas separator with nominal volume of 2.5 L with thermometer well.

There are three different models of gas separator. Model OPF 03 is equipped with one input and one output of the liquid phase. Model OPF 04 is equipped with one input and two outputs of the liquid phase. Model OPF 05 is equipped with one input and one output of the liquid phase.

1.2. Measuring transducer

TATSUNO MP-02524 measuring transducer consists of a flow sensor with four pistons and cyclic volume 0.5 L, TATSUNO EK – 1025 two-channel photoelectric transducer with 50 pulses / revolution and adjustment device.

TATSUNO MP-02524 measuring transducer can be adjusted by varying of the strokes of one pair of pistons by the adjustment screw. The regulation is non-continual with steps 0.08 %. Maximum range of adjustment is about ± 1 %. Location of screw is protected by pin.

1.3. Differential valve

TATSUNO VD-0206 differential valve open by differential pressure about 100 kPa.

1.4. Calculator

PDE electronic calculator has three different models. Models PDEVOL can control 1 subsystem only, model PDEDUO can control 2 subsystems and model PDEMPD can control 10 subsystems maximally. PDEVOL calculator do not consist price indicating device.

Software version 2.34

PDE.X electronic calculator has two different models. Models PDEDUO.X can control 2 subsystems and model PDEMPD.X can control 10 subsystems maximally. Calculator PDEX can operate separately or can be controlled by central system of filling station. It communicate by RS485, PumaLAN and ER4.

Software version 1.03 W&M checksum 20260



This counter can be operating by buttons of IR module (remote control). For electronic calibration is necessary to change over value of number of pulses per dm^3 , witch is stored in memory of counter (parameter P 44). Access to electronic calibration is secured by switch SW1 (location OFF – left site) with sealing cover, alternatively in case of model PDEDUO by dip switch SW1-1 (location ON – up) with sealing cover.

1.5. Conversion device

TM module is placed on separate board PDEINP.

1.6. Hose

ELAFLEX LPG DN 16; maximum length 7 m

1.7. Nozzle

OPW BREVETTI NETTUNO T3, NT3, NR1, BN300, BN310, BN320, BN300B-HG
Poličské strojírný a.s. VPP02

2. Basic technical data

Maximum flowrate Q_{\max} [dm^3/min]	30 to 50
Minimum flowrate Q_{\min} [dm^3/min]	5
Min. measured quantity MMQ [dm^3]	5
Maximum unit price (number of digits)	9999 (4)
Maximum price to pay (number of digits):	999999 (6)
Type of display:	electronic
Liquids	LPG
Liquid temperature range	-20 to +50
Maximum pressure [MPa]	1.8
Minimum pressure [MPa]	0.7
Accuracy class	1.0
Ambient temperature range [$^{\circ}\text{C}$]	-25 to +55 -40 to +50 with additional internal heating
Mechanical class	M2
Electromagnetic class	E2
Humidity	Condensing
Location	Open

3. Test

Technical tests of the SHARK BMP 5xx.S/LPG and 2xxx.S/LPG LPG dispensers were performed with conformity to 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*, Test Report No. 6031-PZ-P019-06 from December 21. 2006 and Test Report No. 6015-PZ-P012-08 from April 25. 2008 (PDE.X extension).

4. The measuring device data

There are following data on the measurement transducer:

- Measuring device manufacturer and type
- Serial number and year of manufacture

There are following data on the electronic calculator:

- Measuring device manufacturer and type
- Serial number and year of manufacture

There are following data on the LPG dispenser:

- The "CE" marking and supplementary metrology marking
- Number of EC-type examination certificate
- Measuring device manufacturer and type
- Serial number and year of manufacture
- Accuracy class 1.0
- Minimum measured quantity (MMQ)
- Maximum flowrate (Q_{max})
- Minimum flowrate (Q_{min})
- Maximum pressure (P_{max})
- Minimum pressure (P_{min})
- Liquids
- Liquid temperature range
- Ambient temperature range
- Mechanical class
- Electromagnetic class

There are following data on each face of indicating device:

- Near price indication unit €
- Near volume indication unit ℓ or L or word Litre
- Near unit price indication unit € / L or € / Litre
- information regarding the minimum measured quantity (MMQ)

5. Verification

The SHARK BMP 5xx.S/LPG and 2xxx.S/LPG LPG dispensers are verified according to OIML R 117. In case of PDE calculator model PDEMPD the switch SW1 has to be set to position OFF (left site), in case of PDE calculator model PDEDUO the dip switch SW1-1 has to be set to position ON (up) and LPG dispenser has to be sealed after the tests with positive result:

On the measurement transducer:

- | | |
|--|----|
| a) Conjunction body of transducer with pistons covers | 1× |
| b) Conjunction pin of adjustment device with piston cover and data plate | 1× |
| c) Conjunction upper cover with transducer or counter | 1× |

On the differential valve:

- | | |
|---------------------------|----|
| d) The differential valve | 1× |
|---------------------------|----|

On the calculator:

- | | |
|--|----|
| e) Not dissembling of calculator and cover of SW1 switch | 1× |
| f) Cover of conversion device | 1× |
| g) The data plate of calculator | 1× |

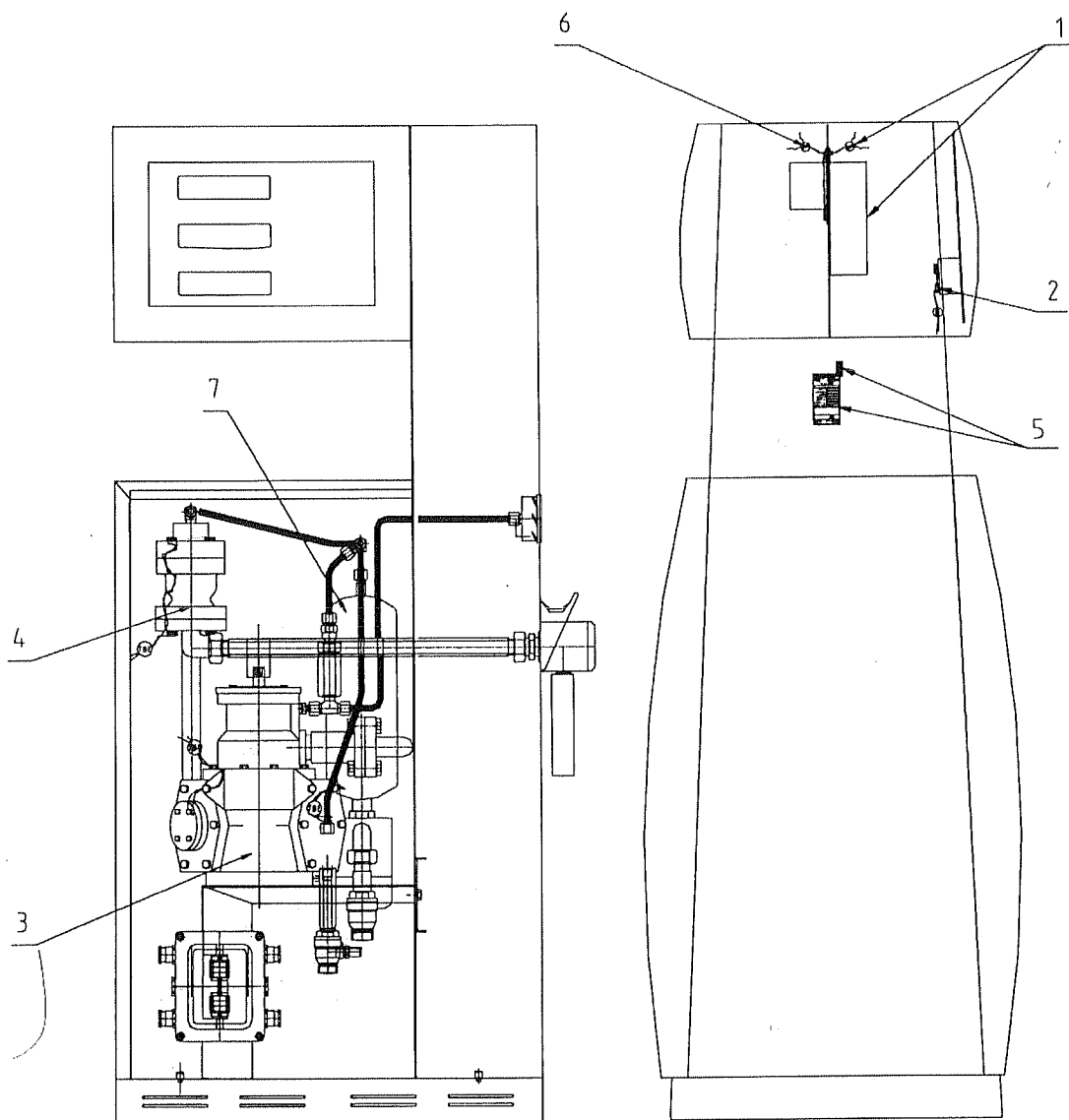
On temperature sensor (Just if ATC conversion function is activated):

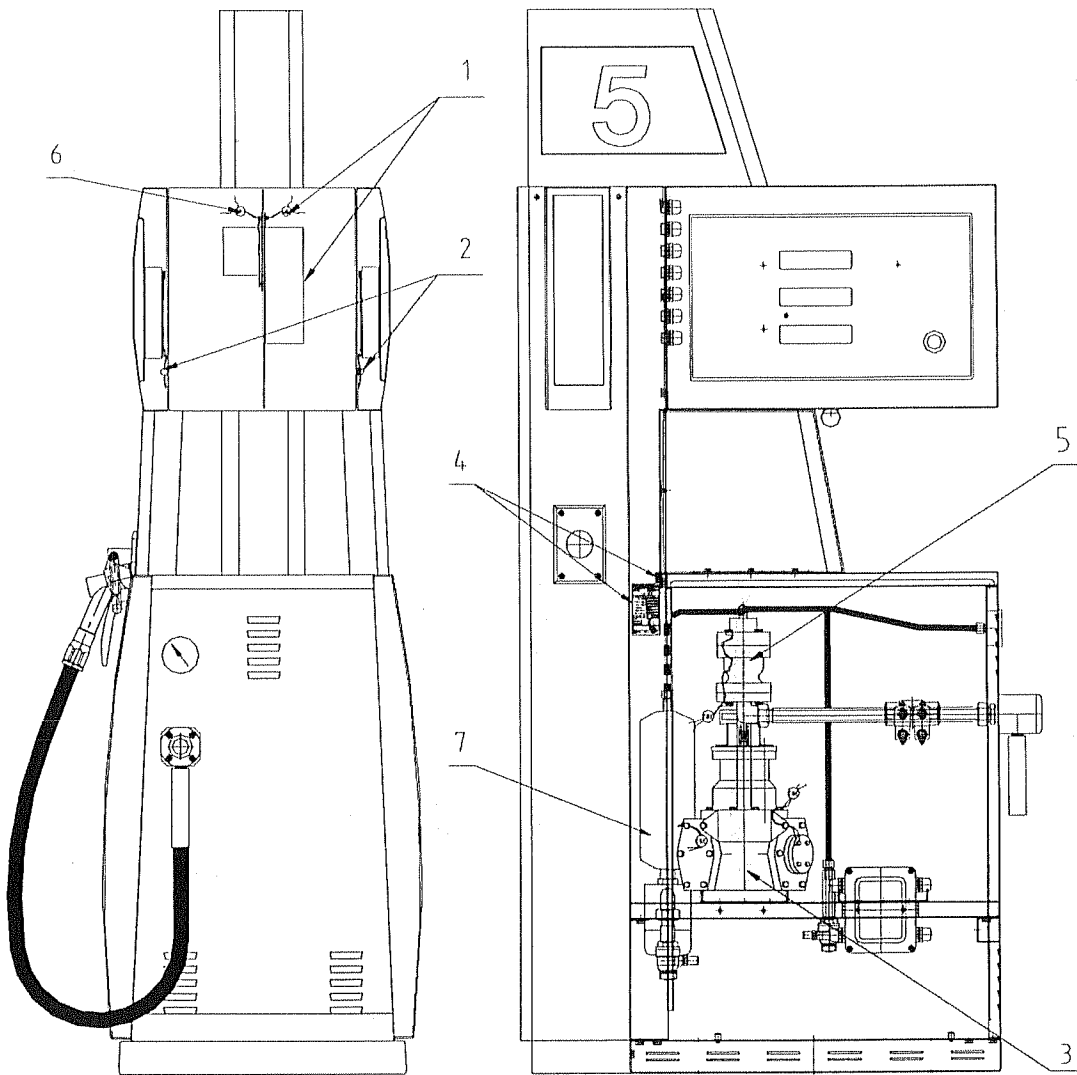
- | | |
|---|----|
| h) Connection of temperature sensor to the pipe | 1× |
| i) The data plate if separate | 1× |

On the LPG dispenser:

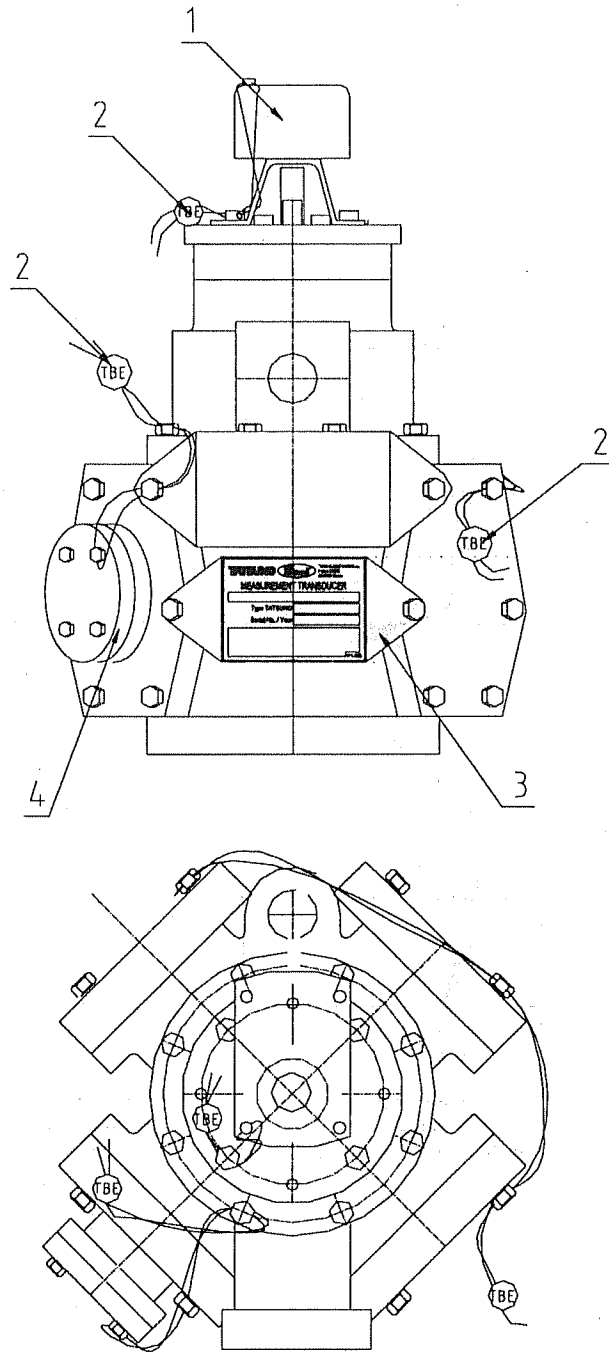
- | | |
|---|----|
| j) The data plate of dispenser | 1× |
| k) The symbol of relevant measurement transducer on the data plate of
SHARK BMP 2000.S/LPG | 1× |

Picture No. 1: The sealing of SHARK BMP 5xx.S/LPG and 2xxx.S/LPG LPG dispenser

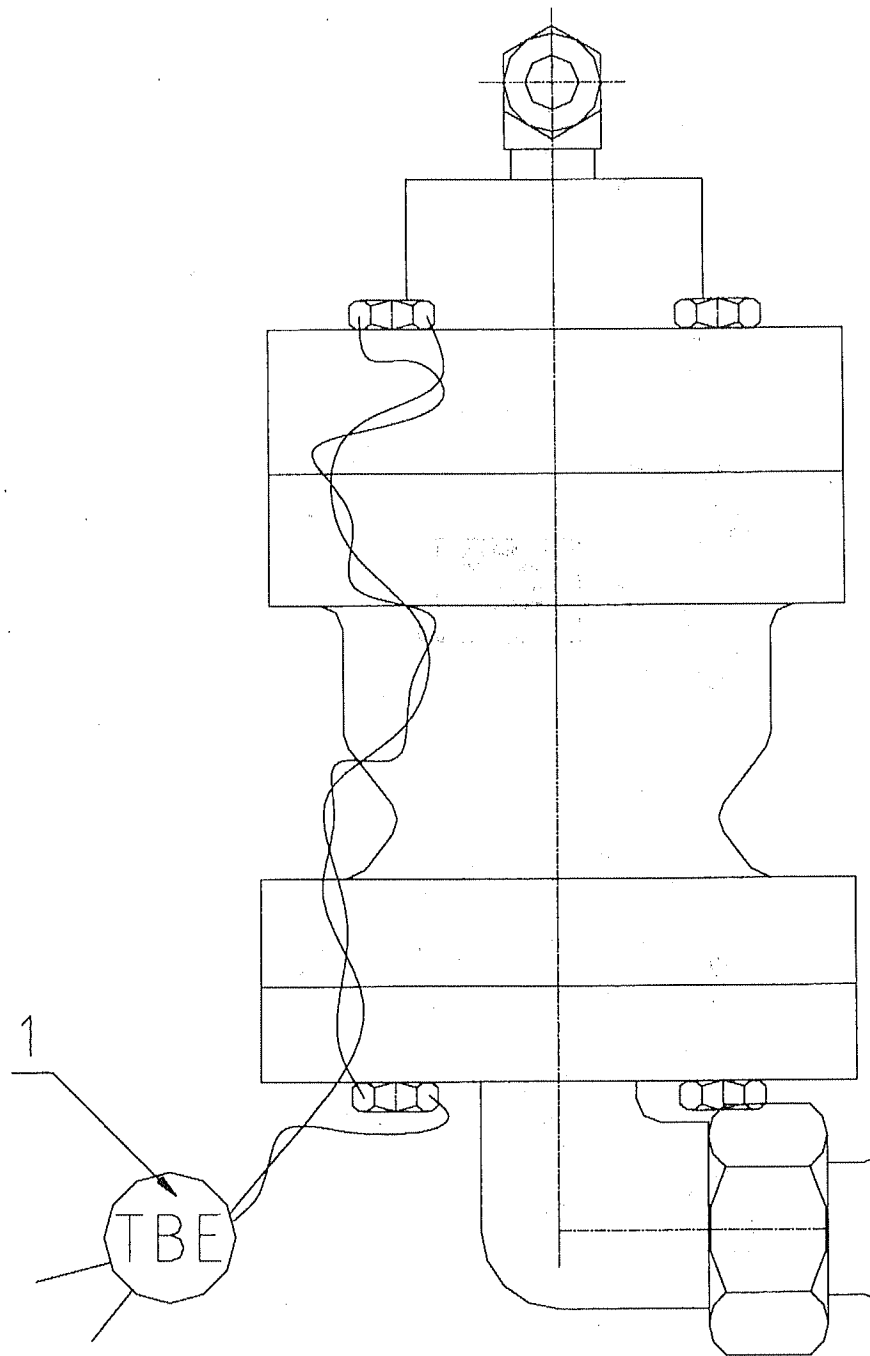




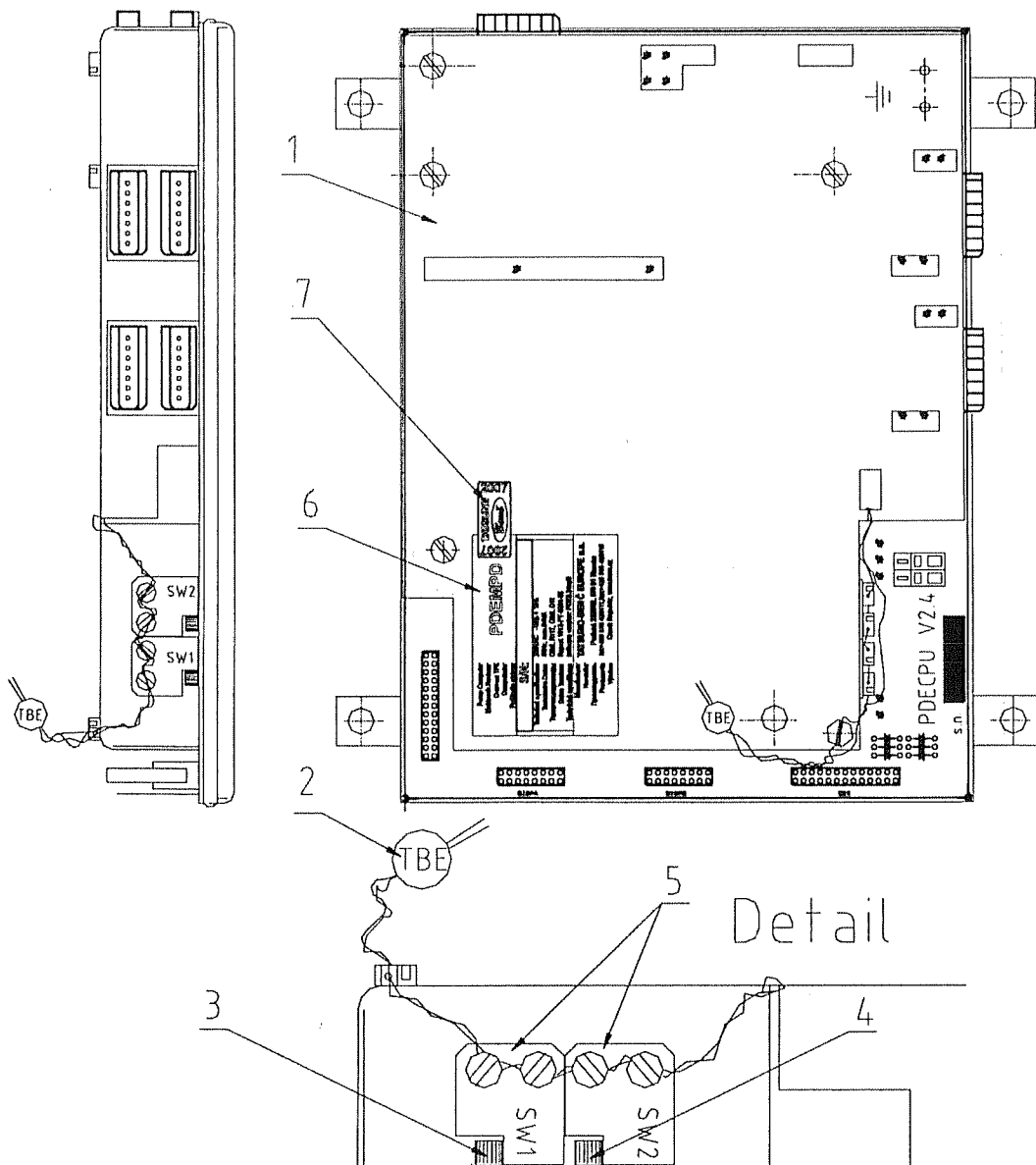
Picture No. 2: The sealing of MP-02524 measuring transducer



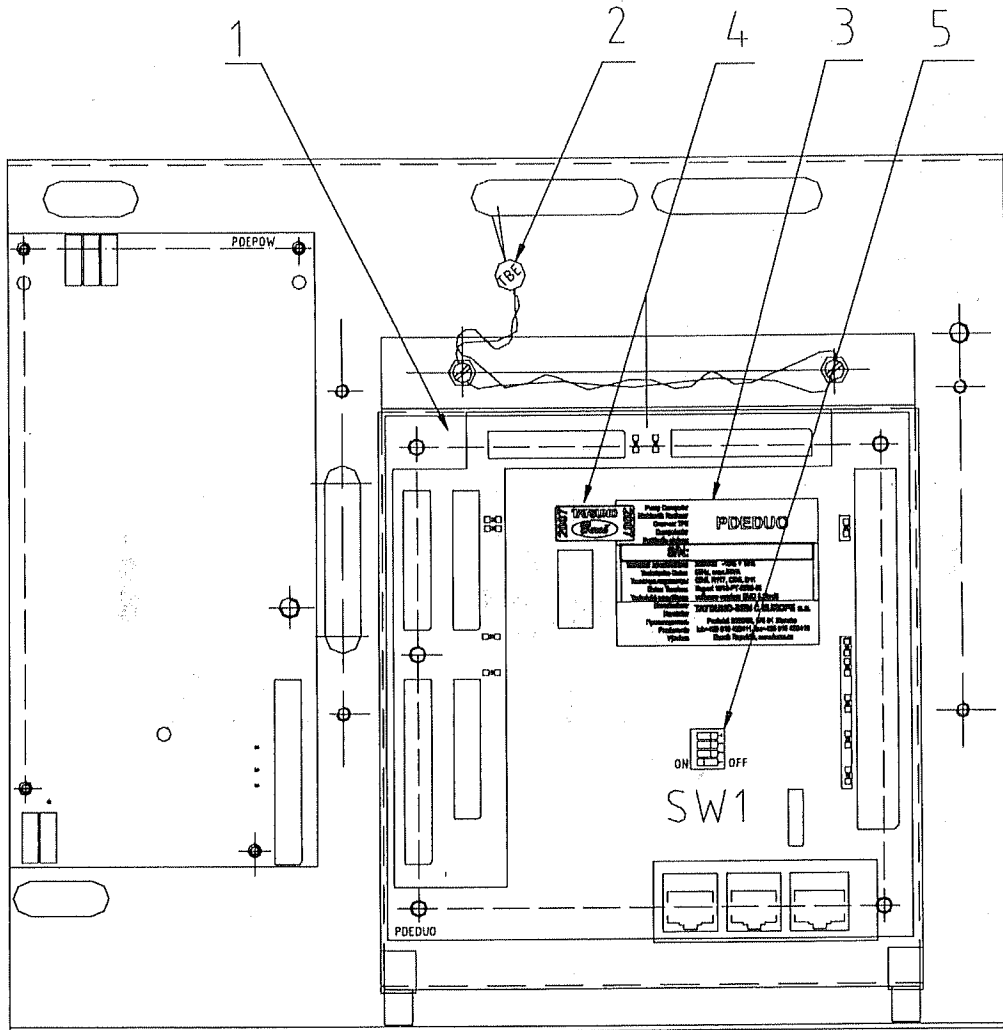
Picture No. 3: The sealing of differential valve:



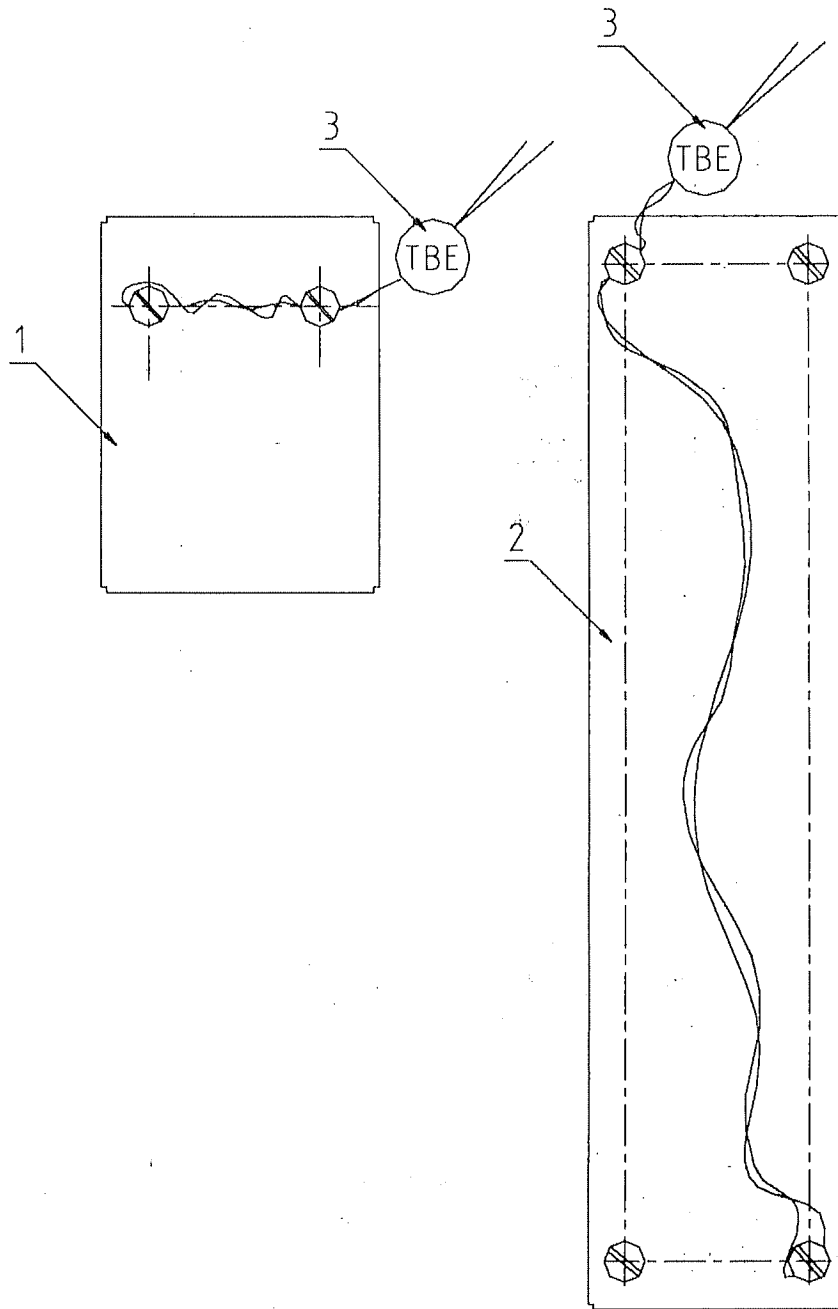
Picture No. 4: The sealing of PDEMPD calculator



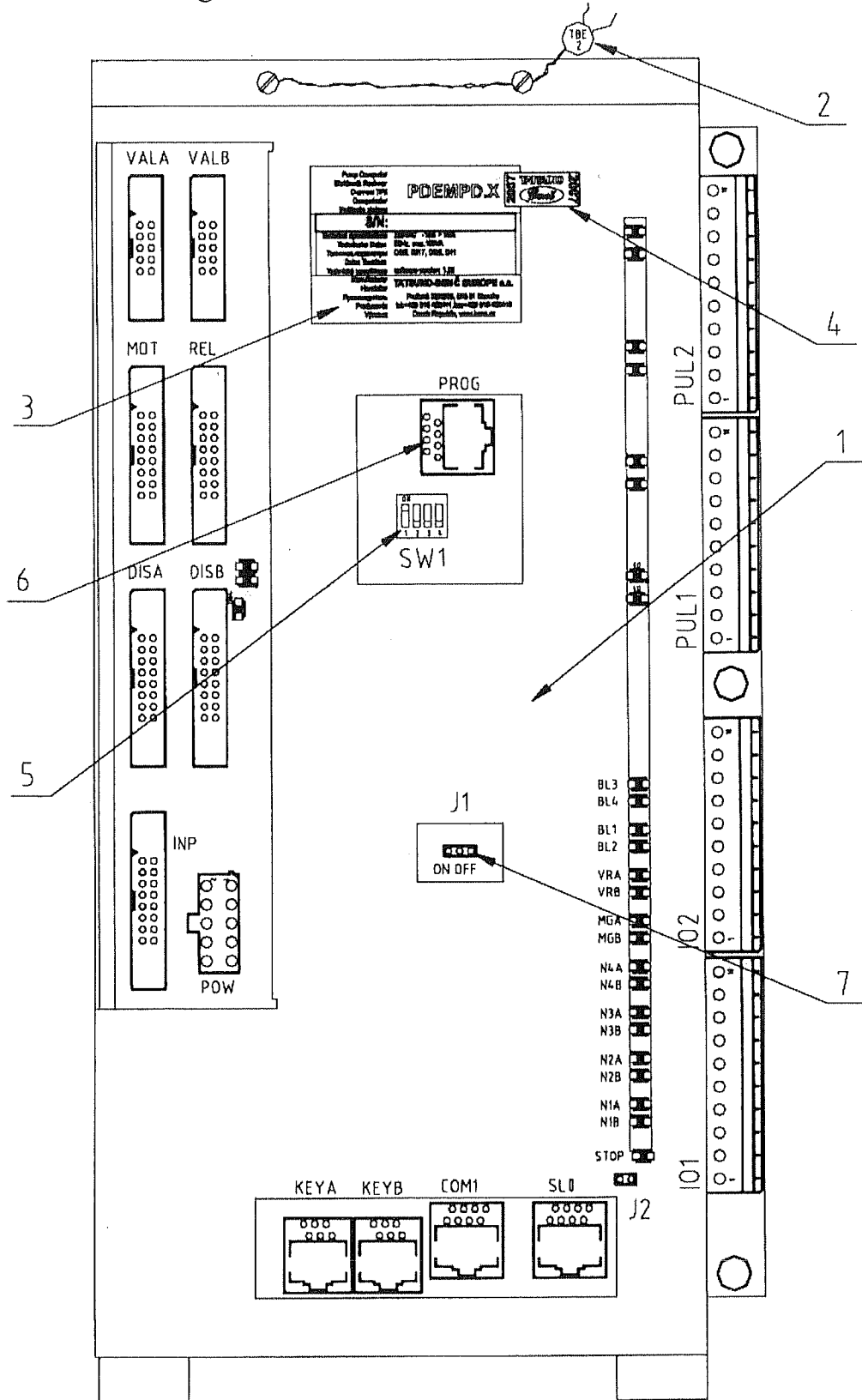
Picture No. 5: The sealing of PDEDUO calculator



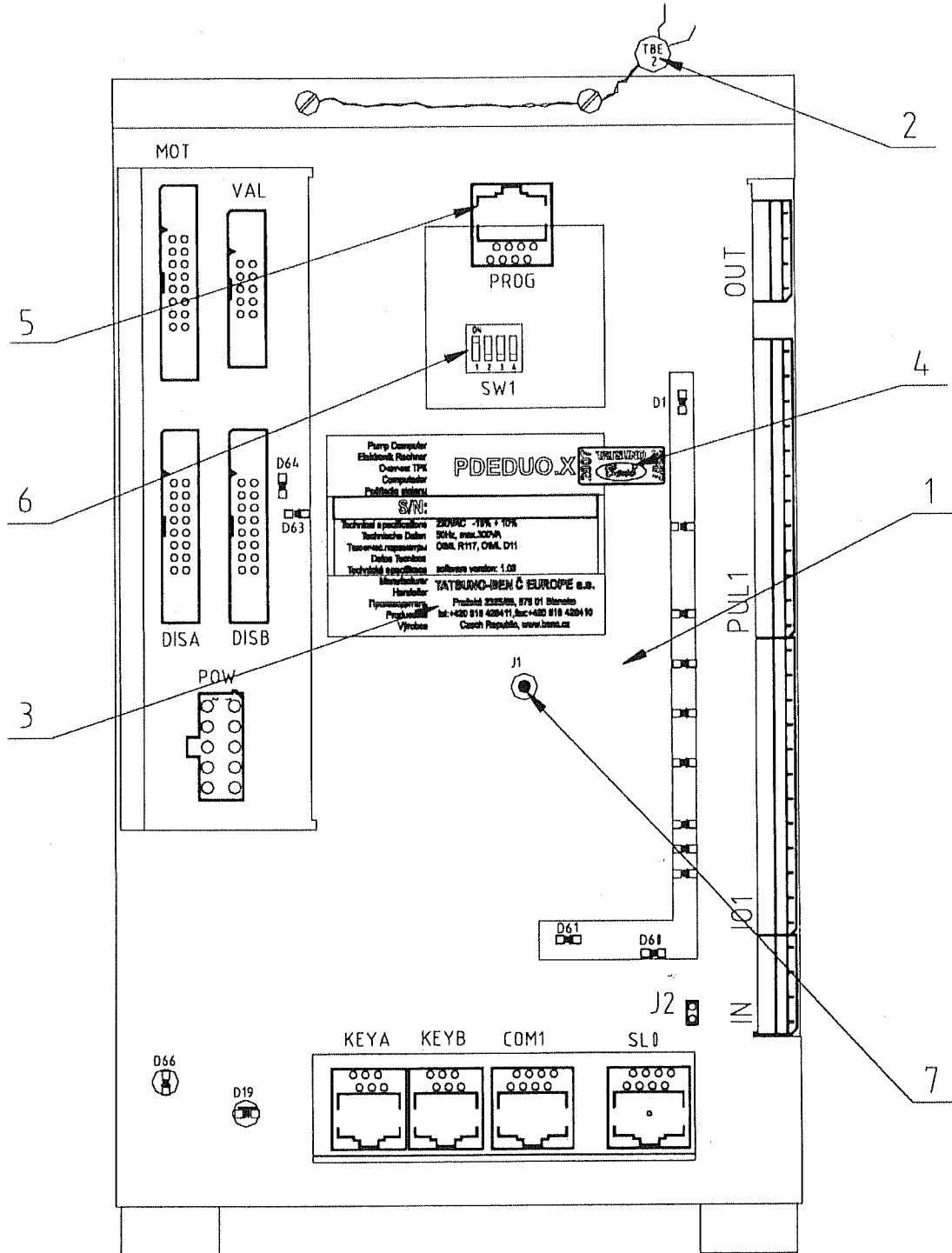
Picture No. 7: The sealing of totalizing indicating device



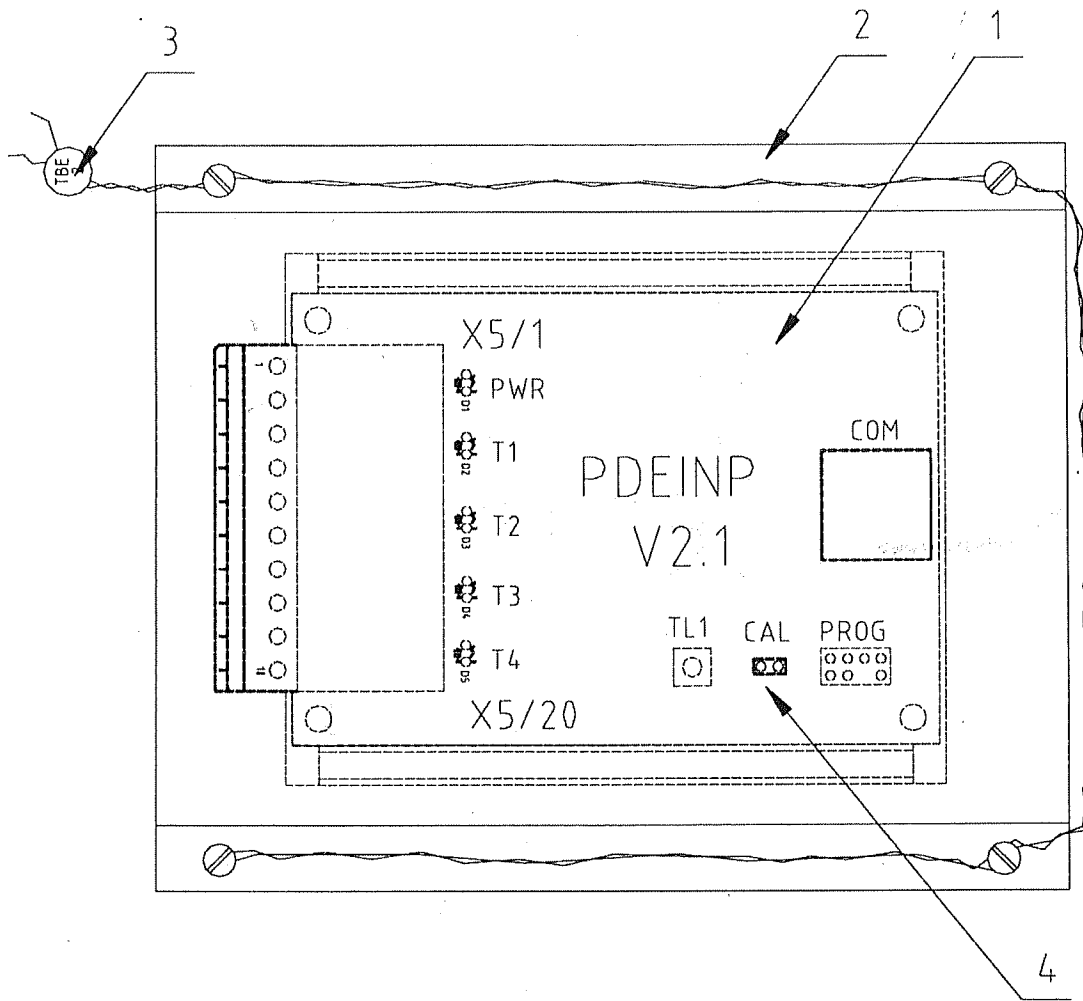
Picture No. 7: The sealing of PDEMPD.X calculator



Picture No. 8: The sealing of PDEDUO.X calculator



Picture No. 9: The sealing of PDEINP.X conversion device



Picture No. 10: The sealing of Pt100 (in gas separator OPF 05)

