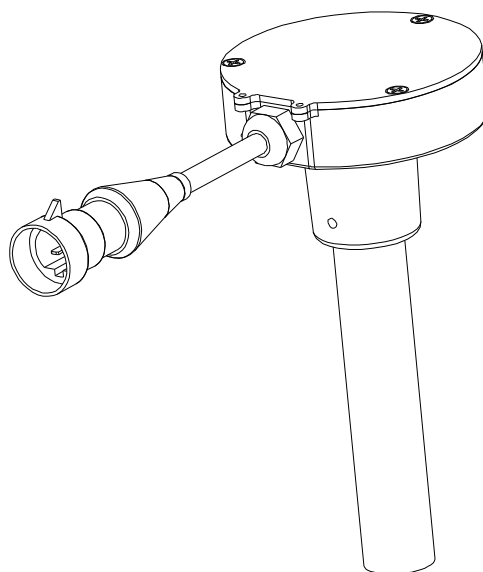




FUEL LEVEL SENSOR CAPACITIVE
DUT-E-A5
DUT-E-A10



TICKET
Version 6



AM50

1 BASIC FACTS ABOUT PRODUCT & SPECIFICATION

1.1 Purpose

1.1.1 Fuel level sensor capacitive DUT-E-A5/A10 (further DUT-E) is designed for diesel fuel level measurement in fuel tank of vehicles and aggregates as well as stationary units (further vehicles).

N.B. IT IS PROHIBITED TO USE DUT-E for level measurement of electrically conducting liquids (for example, water).

1.2 Specification

1.2.1 Power supply of DUT-E is performed from on-board supply line of the vehicle it is installed on.

1.2.2 Critical parameters of DUT-E are resulted in chart 1.

Chart 1

Name of product characteristic, unit of measurement symbolic representation	Value
Limits of allowable reduced error of conversion, %	±1,0
Length of sensor measuring part, mm	
Nominal supply voltage, V	12/24
Supply voltage range, V	10 - 50
Protection from pulses interferences, V	up to 100
Current consumption (own), mA, no more than	50 for 12V 25 for 24V
Readiness time after power-up, sec, no more than	10
Operating temperature range, °C	-40 - +85
Overall dimensions, mm, no more than	Annex A
Level sealing protection, no less than	IP54
Weight, kg, no more than	

2 DELIVERY SET

DUT-E delivery set includes the following articles and documents:

Chart 2

Article name	Quantity, pcs.	Serial No	Note
Fuel level sensor capacitive DUT-E_____	1		
Mounting kit:			
Screw M5-16	5		
Self-threading screw	5		
Harness	1		
Seal ring	1		
Plate adapter	1		
Seal	1		
Rubber gasket	1		
Prop DUT-E	1		From 500 mm and more
Ticket	1		
Package	1		

3 RESOURCES, SERVICE LIFE AND STORAGE TIME, MANUFACTURER’S WARRANTY

3.1 Warranty lifetime is 24 months from the vintage.

3.2 Mean Time Between Failures (MTBF) of DUT-E in modes and under conditions allowed by design documentation is 10000 hours.

3.3 DUT-E service life is 10 years.

3.4 Warranty shall not cover DUT-E with defects (cracks and shears, hollows, impact marks, etc.) originated through the customer’s fault as a result of breach of the service, storage and transportation conditions.

3.5 As grounds for denial of after-sale (warranty) servicing may also serve:

- absence of any warranty seals and labels
- independently performed repair works or a repair performed by side organizations within the warranty period
- presence of marks of electrical and/or other damages which occurred in the result of illegal parameter changes of the outer electric power line, unskillful or improper usage
- mechanical damage of the body or plane or wires break
- damages caused by getting of foreign objects, substances, liquids, insects inside the device
- damages caused by high temperatures or intensive impact of microwave radiation

3.6 The manufacturer guarantees that DUT-E corresponds to the requirements of technical normative legal acts on conditions that the service, storage and transporting conditions as well as the operation instructions specified in the Ticket are followed.

3.7 The Manufacturer reserves the right to introduce amendments to the design and delivery set of DUT-E which do not influence its operation without prior notification of the customer.

4 ACCEPTANCE & TESTING CERTIFICATE

Fuel level sensor capacitive DUT-E _____ No _____
serial No

has been manufactured and accepted in accordance with obligatory requirements of technical documentation currently in force and has been recognized serviceable.

Head of quality control department

L.S. _____
signature full name date, month, year

5 INSTALLATION CERTIFICATE

Fuel level sensor capacitive DUT-E _____ No _____
serial No

has been installed on a vehicle in accordance with technical documentation currently in force.

Installer

_____ ID signature full name year, month, date

6 DIRECTIONS FOR USE & UTILIZATION

6.1 General recommendations

6.1.1 DUT-E is installed as a rule in the standard hole of the fuel tank.

6.1.2 Marking-out of the fastening for DUT-E installation must be performed in compliance with Annex A.

6.1.3 Electric connection of DUT-E to electronic devices of visualization and recording of fuel volume in the tank must be carried out in compliance with the service manuals of the corresponding devices and harness of DUT-E (Annex B).

6.1.4 Fuel tank calibration (normalization) is required for fuel measurement. Fuel tank calibration (normalization) is carried out in accordance with Operations manual of the corresponding device of visualization and recording.

6.1.5 Calibration table should be placed in the device of visualization and recording.

6.1.6 It is recommended to use terminals and data-loggers CKPT of JV "Technoton" production as devices for visualization and recording of fuel volume in the tank.

6.1.7 Installation of DUT-E in a tank is carried out in compliance with Annex C.

6.1.8 It is allowed to cut off the measuring tube of DUT-E from the bottom by no more than 30% of the nominal length of the measuring part.

6.2 Operating limitations

6.2.1 During operation it is prohibited to:

- disconnect and connect DUT-E when the power of the vehicle is on;
- connect DUT-E to devices which interface does not correspond to the characteristics specified in the present ticket;
- apply supply voltages exceeding the values specified in the present ticket to DUT-E;
- use DUT-E for the purpose it is not designed.

6.2.2 It is prohibited to expose DUT-E to hostile environment, electromagnetic fields, mechanical and climatic loads that exceed those recommended in technical documentation in order to prevent DUT-E failure.

6.2.3 After transportation of DUT-E under winter conditions it is necessary to keep it at room temperature within 2 hours to allow the condensate vapour.

6.2.4 During welding procedure on-board a vehicle DUT-E should be dismantled.

7 MAINTENANCE

7.1 Maintenance and repairs of DUT-E is carried out by the personnel who passed out training courses.

7.2 It is recommended to make periodically visual examination and performance check of DUT-E.

7.3 If DUT-E does not function it is necessary to address Service Center or manufacturer.

7.4 Defect elimination should be performed with switched off power supply.

8 STORAGE

8.1 It is recommended to store DUT-E in enclosed spaces or in other spaces with natural ventilation, without artificially adjusted climatic conditions, in non-heated storages.

8.2 It is recommended to store DUT-E in the manufacturer's package.

8.3 It is not allowed to store DUT-E together with substances that cause corrosion of metal and contain aggressive mixes.

8.4 It is not allowed to store DUT-E without package.

8.5 Storage time of DUT-E should not exceed 24 months.

9 TRANSPORTATION

9.1 It is recommended to convey DUT-E in any kind of enclosed transport ensuring protection of DUT-E from mechanical damages and excluding penetration of atmospheric precipitation on DUT-E surface.

9.2 While air transportation it is necessary to place DUT-E in heated leakproof compartments.

9.3 Air in transport facilities should not contain acid, alkaline and other aggres-

sive mixes.

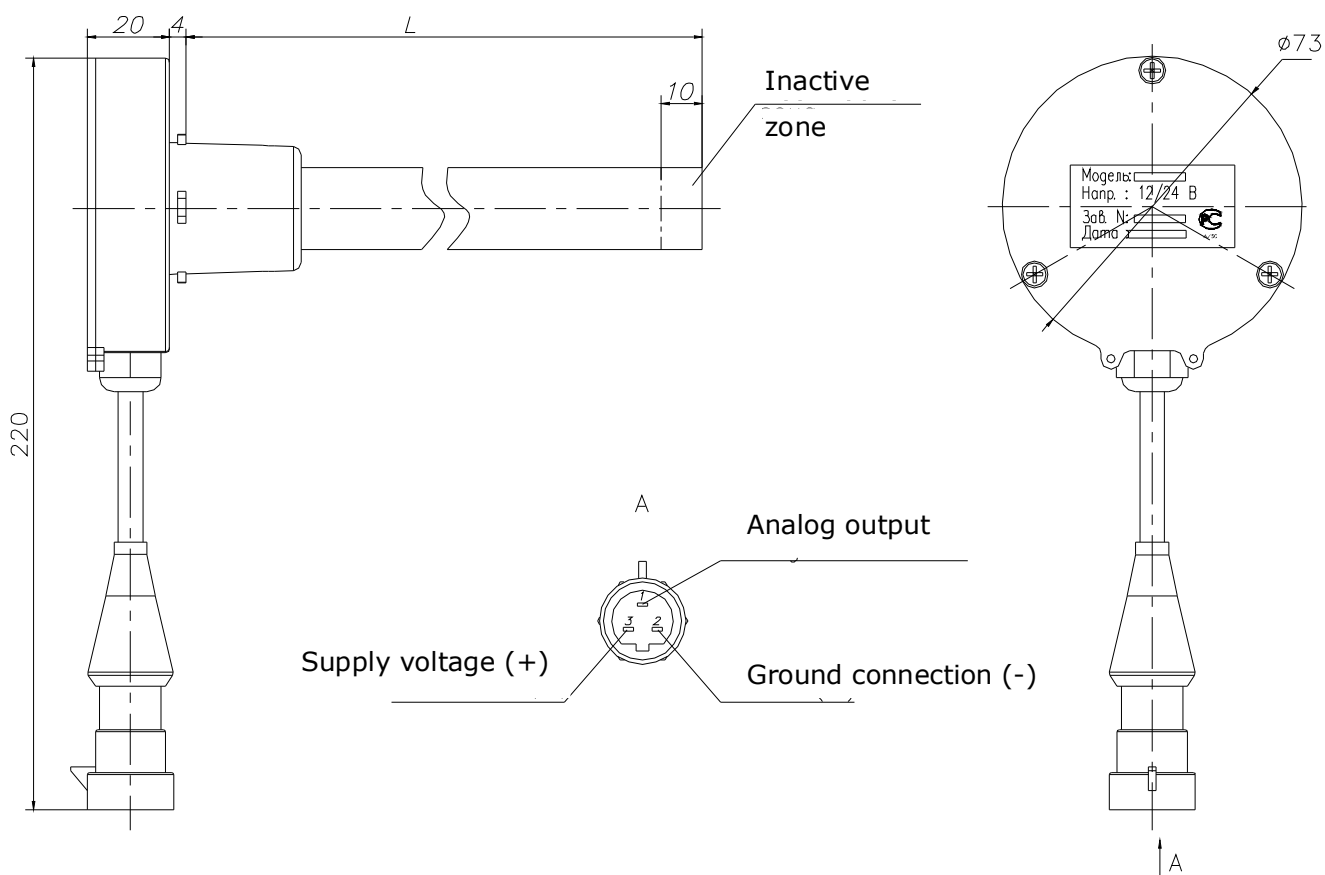
9.4 Shipping container with packed DUT-E should be sealed.

10 UTILIZATION

10.1 DUT-E does not contain any harmful substances and components that may be hazardous for people’s health and environment in the process and after service life and in the process of utilization.

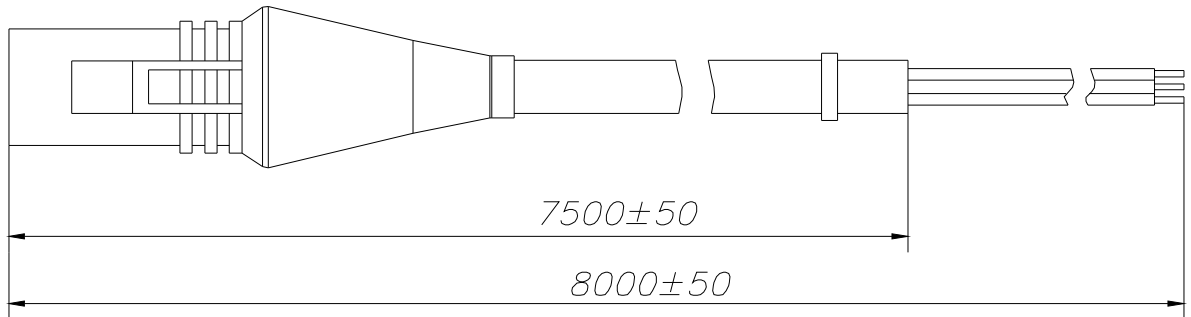
10.2 DUT-E does not contain any precious metals in a quantity subject to accounting.

Annex A
Overall and connecting dimensions



Designation: Fuel level sensor capacitive DUT-E-L, where L – length of measuring part, mm, takes values of 180, 250 350, 500, 700, 1000 1400, 2000.

Annex B
Harness



Name of circuits and colour of harness wires

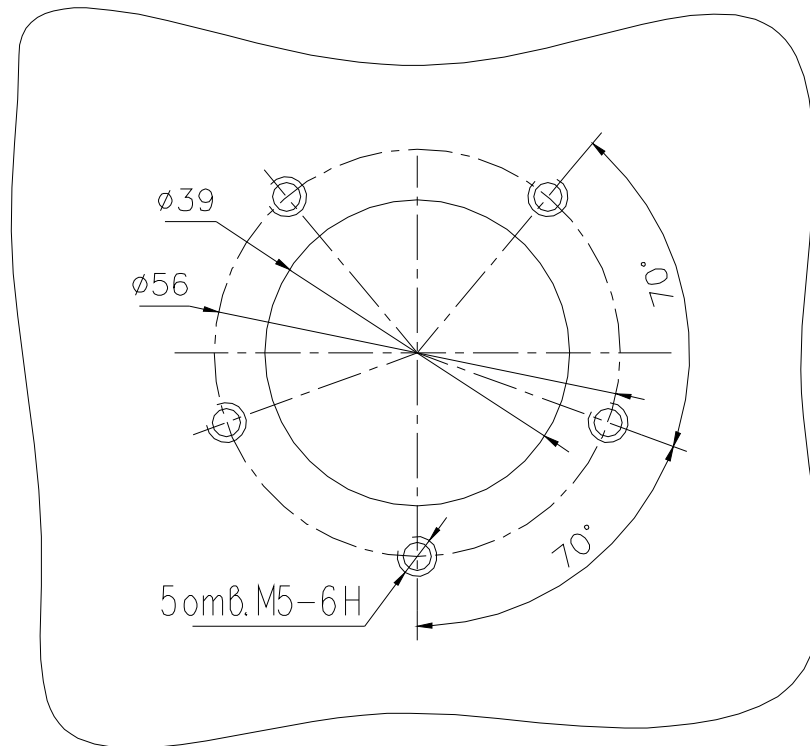
Contact number	Circuit name	Colour of wire	Note
1	T701/T034	White	Analog output
2	GND/T734	Brown	Ground connection
3	VBATT	Orange	Supply voltage

Note – Wires may be of other colour with the circuits names marked on them.

Annex C
Installation procedure of DUT-E

1. Marking-out of the tank for installation of DUT-E

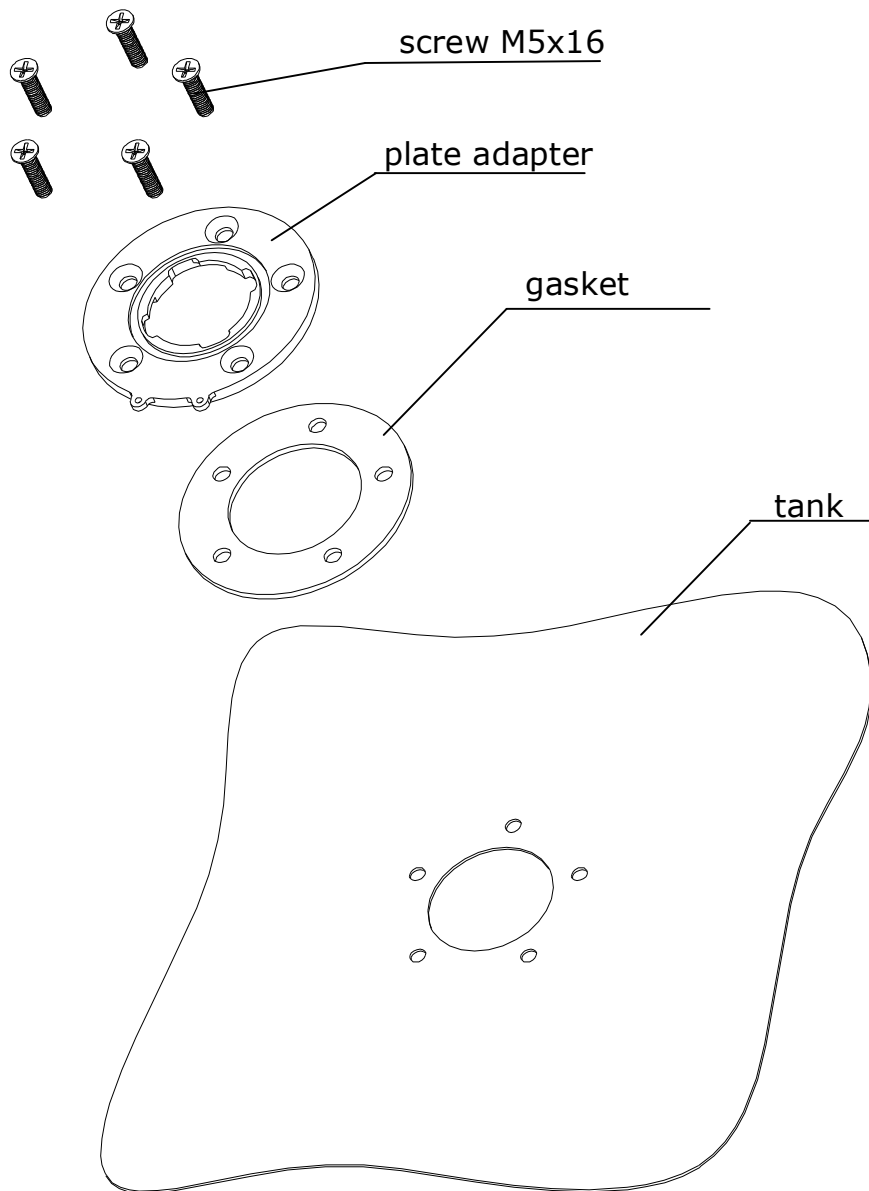
Make (if necessary) a hole in the tank in compliance with Picture C1



Picture C1 - Marking-out of the tank

2. Installation of the plate adapter

Place gasket and plate adapter on the prepared hole, fasten with screws from the delivery set.

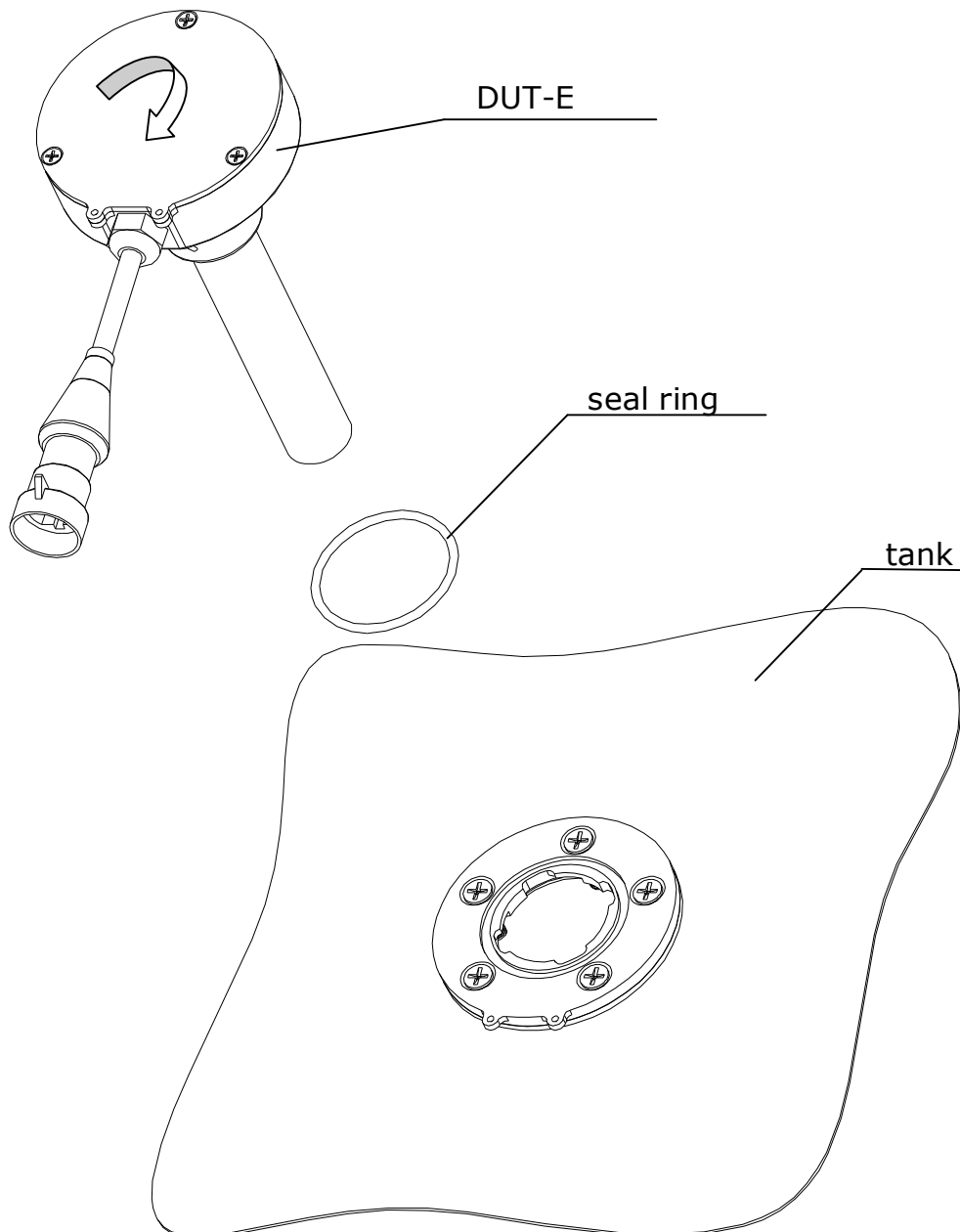


Picture C2 - Installation of plate adapter

3. Installation of DUT-E in the tank

3.1. Install and fix prop DUT-E in accordance with its label.

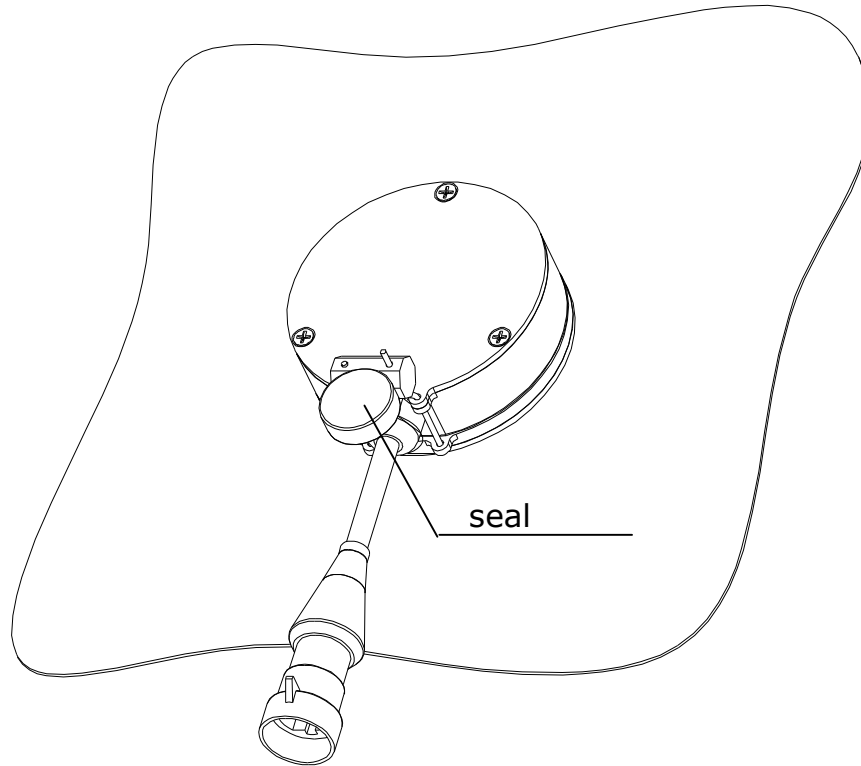
3.2. Place seal ring on plate adapter, put DUT-E-F in the hole, press and turn right as far as it would go.



Picture C3 – Installation of DUT-E

4. Sealing DUT-E

After installation seal DUT-E.



Picture C4 – Sealing DUT-E

N.B. Seal line should not touch with the tank.