SCOPE 18 ЛК

**DENEV-D LTD**

**LABORATORY FOR CALIBRATION OF MEASUREMENT INSTRUMENTS**

**Management address:** 6000, Stara Zagora, 27 Tsar Ivan Shishman Str.

**Laboratory address:** 6000, Stara Zagora, 27 Tsar Ivan Shishman Str.

**To perform calibration of:**

| **Type of the scope:** *fixed* |
| --- |
| **№** | **Measuring instrument** | **Measured value,****unit of measure** | **Measurement Range** | **Measurement uncertainty** | **Calibration method** |
| **1** | **2** | **3** | **4** | **5** | **6** |
| 1. | Instruments for volume measurements-Horizontal and vertical tanks, stationary and mounted on movable platforms, with different geometric shapes | Volume,m3 | up to 10 m³ | 0,15% | МК № К-01-15:2020Geometric and volumetric methodМК БДС ISO 7507-1:2017Tape method |
| from 10 m³to 50 m³ | 0,1% |
| from 50 m³tо 50 000 m³ | 0,1% | МК № К-01-15:2020Geometric methodМК БДС ISO 7507-1:2017Tape method |
| -Volume instruments: pipettes, automatic pipettes, dosimeters, dispensers, test tubes, burettes and laboratory glassware | Volume, l | from 0,1 ml tо 50 ml | from 0,008 ml to 0,016 ml | МК № МО-06:2019Weight method |
| Flasks, cylinders, pycnometers | from 50 mltо 2 000 ml | from 0,016 ml tо 0,13 ml |
| Made of metal and non-metal | from 2 l tо 50 l | 0,03 % |
| from 1 l to 2500 l | 0,04% | МК № К-05-19:2024Volume method |
| 2. |  Thermometers liquid, digital, analogue | Temperature, oC | from negative 30 oСtо 300 oС | from 0,06 oCto 0,12 oC | МК № Т-01:2016Comparative method |
| 3. | Calipers, caliper depth gauges and caliper altimeters | Length, mm |  |  | МК № Д-04:2016Direct method |
| Digital; | from 0,5 mm tо 1 000 mm | from 0,030 mmtо 0,032 mm |
| Vernier  | from 0,5 mm tо 1 000 mm | from 0,033 mm tо 0,034 mm |
| 4. | Micrometers with flat measurement surface, Micrometer depth gauges | Length, mm |  |  | МК № Д-05:2016Direct method |
| Digital | from 0,5 mm to 1 000 mm | from 0,0058 mm to 0,0070 mm |
| Mechanical  | from 0,5 mm to 1 000 mm | from 0,0082 mm to 0,0097 mm |
| 5. | Scale marks measures of length: -tape measures-tapes | Length, mm | from 0 mm tо 30 000 mm | from 0,15 mm tо 0,50 mm | МК № Д-03:2016Comparative method |
| -Measuring lines; | from 0 mm to 3000 mm |  0,15 mm  |
| -tape measures with tensioning weight and sinker | from 0 mm tо 310 mmfrom 310 mm tо 30 000 mm | 0,06 mm from 0,21 mm tо 0,60 mm | МК № Д-03-01:2016Comparative method |
| 6. | Gauge blocks | Length, mm | from 0,5 mm tо 100 mm | from 0,22 µmtо 0,36 µm | МК № Д-06:2016Comparative contact method |
| 7. | Vacuum and Pressure measuring instruments | Pressure,p, bar | from negative 0,9 bar tо 35 bar | from 3.10-3 bar tо 6.10-3 bar | МК № Н-01:2019Comparative method |
| 8. | Flow meters for water and liquids other than water | Volume, m³, volumetric flow rate, m³/h | from 0,001 m³/h tо 150 m³/h | 0,1% | МК № Razhod-01:2019Comparative method |

**Notes:**

1. The calibration of measurement instruments, position 1 is conducted on site with the customer and in the premises of the laboratory. The volume instruments calibrated using the volumetric method are done in the premises of the laboratory and on site with the customer. The volume instruments calibrated using the weight method are done in the premises of the laboratory.

2. The calibration of measurement instruments, position 2 is done in the premises of the laboratory and on site with the customer.

3. The calibration of measurement instruments, positions 3, 4, 5, 6 and 7 is done in the premises of the laboratory.

4. The calibration of measurement instruments, position 8 is done on site with the customer.

**References:**

1. МК No К-01-15:2020 Methodology for calibration of horizontal tanks using geometric and volumetric method (based on ISO 12917-1 и EURAMET cg-21).
2. МК according БДС ISO 7507-1:2017 for calibration of vertical tanks using tape method (based on ISO 7507-1).
3. МК No К-05-19:2024 Methodology for calibration of reference metal instruments using a volumetric method (based on EURAMET cg-21).
4. МК No МО-06:2019 Methodology for calibration of instruments for volume of liquids using a weight method (based on EURAMET cg-19).
5. МК No Т-01:2016 Methodology for calibration of thermometers.
6. МК No Д-04:2016 Methodology for calibration of calipers.
7. МК No Д-05:2016 Methodology for calibration of micrometers.
8. МК No Д-03:2016 Methodology for calibration of scale marks measures of length.
9. МК No Д-03-01:2016 Methodology for calibration of scale marks measures of length with tensioning weight or sinker.
10. МК No Д-06:2016 Methodology for calibration of gauge blocks (based on ISO 3650).
11. МК No Н-01:2019 Methodology for calibration of vacuum and pressure measuring instruments (based on EURAMET cg-17).
12. МК No Razhod-01:2019 Methodology for calibration of flow meters for water and liquids other than water.