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-01-15:2020  Geometric and volumetric method  МК БДС ISO 7507-1:2017  Tape method |
| from 10 m³  to 50 m³ | 0,1% |
| from 50 m³  tо 50 000 m³ | 0,1% | МК № К-01-15:2020  Geometric method  МК БДС ISO 7507-1:2017  Tape 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-06:2019  Weight method |
| Flasks, cylinders, pycnometers | from 50 ml  tо 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-05-19:2024  Volume method |
| 2. | Thermometers  liquid, digital, analogue | Temperature, oC | from  negative 30 oС  tо 300 oС | from 0,06 oC  to 0,12 oC | МК № Т-01:2016  Comparative method |
| 3. | Calipers, caliper depth gauges and caliper altimeters | Length, mm |  |  | МК № Д-04:2016  Direct method |
| Digital; | from 0,5 mm  tо 1 000 mm | from 0,030 mm  tо 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-05:2016  Direct 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-03:2016  Comparative method |
| -Measuring lines; | from 0 mm  to 3000 mm | 0,15 mm |
| -tape measures with tensioning weight and sinker | from 0 mm  tо 310 mm  from 310 mm  tо 30 000 mm | 0,06 mm  from 0,21 mm  tо 0,60 mm | МК № Д-03-01:2016  Comparative method |
| 6. | Gauge blocks | Length, mm | from 0,5 mm  tо 100 mm | from 0,22 µm  tо 0,36 µm | МК № Д-06:2016  Comparative 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-01:2019  Comparative 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-01:2019  Comparative 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.