Hellenic Accreditation System S.A.

Annex F2/22 to the Certificate No. **196**-8

SCOPE of ACCREDITATION

of the

Calibration Laboratory

of the

‘CQS S.A. – Calibration and Quality Services’

Calibration Item / Parameter	Range of Measurement	Expanded measuring uncertainty (k=2)*	Remarks
Mass measurements			
Standards weights			Calibration capability of standard weights up to (including) OIML R 111-1:2004 Class:
	1 mg	0,015 mg	F2
	2 mg	0,015 mg	F2
	5 mg	0,015 mg	F2
	10 mg	0,015 mg	F2
	20 mg	0,015 mg	F2
	50 mg	0,015 mg	F2
	100 mg	0,016 mg	F1
	200 mg	0,020 mg	F1
	500 mg	0,025 mg	F1
	1 g	0,03 mg	F1
	2 g	0,04 mg	F1
	5 g	0,05 mg	F1
	10 g	0,06 mg	F1
	20 g	0,08 mg	F1
	50 g	0,10 mg	F1
	100 g	0,16 mg	F1
	200 g	0,3 mg	F1
	500 g	2,5 mg	F2
	1 kg	1,6 mg	F1
	2 kg	30 mg	M1
	5 kg	80 mg	M1
	10 kg	160 mg	M1
	20 kg	300 mg	M1
	50 kg	2500 mg	M2
	100 kg	5000 mg	M2

Calibration Item / Parameter	Range of Measurement	Expanded measuring uncertainty (k=2)*	Remarks
	200 kg	10 g	M2
	500 kg	25 g	M2
	1.000 kg	50 g	M2
	2.000 kg	100 g	M2
Non-automatic weighing instruments (including weighbridges)	1 mg	0,0086 mg	According to guide EURAMET cg18 v.4.0 :2015 Available standards weights OIML R 111-1:2004: E2: 1 mg to 200 g, max grouped load 610g F1: 1 mg to 1 kg, max grouped load 2,1kg F2: 1 mg to 5 kg max grouped load 22,2 kg M1: 5 kg to 1000 kg max grouped load 3.120 kg M2: 2 x 1.000 kg, 10 x 2.000 kg standards max grouped load 22.000 kg Calibration is performed on-site.
	2 mg	0,0086 mg	
	5 mg	0,0086 mg	
	10 mg	0,0087 mg	
	20 mg	0,0092 mg	
	50 mg	0,0098 mg	
	100 mg	0,011 mg	
	200 mg	0,012 mg	
	500 mg	0,014 mg	
	1 g	0,016 mg	
	2 g	0,021 mg	
	5 g	0,023 mg	
	10 g	0,028 mg	
	20 g	0,040 mg	
	50 g	0,043 mg	
	100 g	0,07 mg	
	200 g	0,14 mg	
	500 g	0,35 mg	
	1 kg	2,4 mg	
	[2 to 10] kg	$7 \cdot 10^{-6}$	
	20 kg	0,42 g	
	[50 to 3.120] kg	$8{,}6 \cdot 10^{-5}$	
	(3.120 to 20.000] kg d = 1 kg	$2{,}7 \cdot 10^{-4}$	
	20.000 kg d = 1 kg d = 10 kg	 5,4 kg 9,6 kg	According to guide EURAMET cg18 v4.0 : 2015, using substitution loads. Calibration is performed on-site.
	40.000 kg d = 1 kg d = 10 kg	 10 kg 18 kg	
	60.000 kg d = 1 kg d = 10 kg	 17 kg 25 kg	

Calibration Item / Parameter	Range of Measurement	Expanded measuring uncertainty (k=2)*	Remarks
Force measurements			
Compression testing machines	[1 kN to 10 kN]	0,08 % to 0,05 %	Class 0,5 machines
	[5 kN to 50 kN]	0,05 %	Class 0,5 machines
	[10 kN to 100 kN]	0,07 % to 0,04 %	Class 0,5 machines
	[200 kN to 2000 kN]	0,16 % to 0,10 %	Class 1 machines
	[400 kN to 2.000 kN]	0,10 %	Class 0,5 machines
			According to standard ELOT EN ISO 7500-1: 2015. Calibration is performed on-site.
Tension testing machines	[1 kN to 10 kN]	0,07 % to 0,05 %	Class 0,5 machines
	[5 kN to 50 kN	0,13 % to 0,05 %	Class 0,5 machines
			According to standard ELOT EN ISO 7500-1: 2015. Calibration is performed on-site.
Compression testing machines			According to standard EN 12390-4:2025. Calibration is performed on-site.
- Force transfer	200 kN	0,02	
	400 kN to 2.000 kN	0,01	
- Force application rate	1 kN/s to 100 kN/s	1,0 %	
- Flatness of plates	-	4 μm	
- Hardness of plates	520 HLD to 800 HLD	26 HLD	
- Roughness of plates	0,6 μm to 4 μm (Ra)	0,18 μm (Ra)	
Load Rings, CBR, Marshall Loading Machines	1 kN to 100kN	0,12%	According to standard ELOT ISO 7500-1: 2015. Calibration is performed on-site.
Torque measurements			
Toque tools, Torque wrenches (adjustable, fixed,with indication)	[6 Nm to 60 Nm]	0,2 %	According to standards ISO 6789-1:2017 ISO 6789-2: 2017 using standard torque measuring transducer.
	(60 Nm to 200 Nm]	0,3 %	
	(200 Nm to 1000 Nm]	0,4 %	
Hardness measurements			
Hardness meters: Leeb D	520 HLD to 800 HLD	7 HLD to 10 HLD	Internal Procedure TO 68-0 based on: ASTM A956-22 ISO 16859-1/2:2015 Calibration is also performed on-site.
Pressure measurements			
Analog and digital gauge pressure measuring instruments of direct reading	[-0,09 MPa to 0,15 MPa]	0,06 kPa	Medium: gas.
	(0,15 MPa to 4 MPa]	0,45 kPa to 0,60 kPa	
	0 MPa to 60 MPa	2,0 kPa to 13,1 kPa	Medium: oil.
			According to guide DKD-R 6-1 03 :2014 Calibration is also performed on-site.

Calibration Item / Parameter	Range of Measurement	Expanded measuring uncertainty (k=2)*	Remarks
Dimensional measurements			
Digital & analog Calipers	0 mm to 1000 mm / d = 10 µm d = 20 µm d = 50 µm d = 100 µm	 6 µm 12 µm 29 µm 58 µm	According to guide VDI/VDE/DGO 2618, part 9.1: 2006
Digital & analog external axis micrometers	0 mm to 25 mm / d = 1 µm d = 10 µm	 0,6 µm 6 µm	According to guide VDI/VDE/DGO 2618, part 10.1:2001, using standard gauge blocks and horizontal measuring instrument TRIMOS.
	25 mm to 125 mm / d = 1 µm d = 10 µm	 0,7 µm 6 µm	
	125 mm to 500 mm / d = 10 µm d = 100 µm	 7 µm 58 µm	
Horizontal length measuring instrument (TRIMOS)	0 mm to 500 mm / d = 1µm	1 µm to 3 µm	Internal Procedure TO 05-0 based on guide VDI/VDE/DGO 2618, part 9.1:2006 &10.1: 2001
Dial gauge and digital indicators for linear measurement, displacement transducers	0 mm to 100 mm / d = 1 µm d = 10 µm d = 100 µm	 3,5 µm 7 µm 58 µm	Internal Procedure TO 04-0 based on guide VDI/VDE/DGO 2618, part 9.1:2006 &10.1: 2001, using horizontal measuring instrument TRIMOS
	0 mm to 100 mm / d = 1 µm d = 10 µm d = 100 µm	 1 µm 6 µm 58 µm	Internal Procedure TO 04-0 based on guide VDI/VDE/DGO 2618, part 9.1:2006 &10.1: 2001, using standard gauge blocks. Calibration is also performed on-site.
Moulds for concrete specimens (Cubic, cylindrical, prismatic)	Internal dimensions Perpendicularity Flatness	9 µm 7 µm 4 µm	EN 12390-1: 2021 Check pass / fail Check pass / fail
Cylinder moulds (Proctor)	Internal diameter Height	9 µm 9 µm	EN 13286-2:2010, ASTM D1883:2021
Cylinder moulds (CBR)	Internal diameter Height	9 µm 9 µm	EN 13286-47: 2021, ASTM D1883:2021
Cylinder moulds (Marshall)	Internal diameter	9 µm	EN 12697-30:-2018
Measuring rulers, level measuring rod, measuring tapes	up to 3 m Meas. tapes up to 100 m d = 1mm d ≥ 2mm	 0,12 mm + $1{,}6 \cdot 10^{-5} \cdot l$ (l in mm) 0,6·d	Internal Procedure TO 10-0 based on guide OIML R35-2 §7.5, §7.6
Magnetostrictive level gauges	0 m to 3,5-m / d = 0,1 mm d = 1 mm	 0,13 mm 0,6 mm	Internal Procedure TO 37-0 based on guide based on guide OIML R35-2 §7.5, §7.6
Measuring projectors, Scale microscopes	0 mm to 300 mm / d=0,0001 mm d=0,001 mm	 1,7 µm 7,5 µm (x10 < lens < x100)	Internal Procedure TO 11-0, using standard scales. Calibration is also performed on site.
	0 mm to 2 mm / d=0,0001 mm d-0.001 mm	 0,95 µm 7,5 µm (x10 < lens < x100)	

Calibration Item / Parameter	Range of Measurement	Expanded measuring uncertainty (k=2)*	Remarks
Sieves	45 μm to 2.000 mm 1 mm to 125 mm	1,3 μm (with lens x100) 11 μm (with lens x10)	ISO 3310-1:2016 ISO 3310-2:2013 ASTM E11-17:2024 EN 933-3:2012 ISO 5223:1995, Amd 1:1999
Frequency / Time measurements			
Centrifuges, extractors, mixers, shakers, vibrating tables / Rotation or reciprocating movement frequency	[50 rpm to 1000 rpm)	0,1 rpm	Internal method TO 39-0, using standard tachometer. Calibration can also be performed on-site
	[1000 rpm to 5000 rpm)	0,6 rpm	
	[5000 rpm to 60000 rpm)	1,8 rpm + 0,01% x f f: rotation frequency in rpm	
Digital and analog stopwatches / timers	Up to 10 h	0,32 s	Comparative calibration method TO 40-0, using standard chronometer. Calibration is also performed on site.
Temperature measurements			
Analog, digital thermometers of direct reading, data loggers	[-30 °C to 0 °C)	0,062 °C	Internal Procedure TO 16-0, using liquid bath and-platinum resistance thermometer. Calibration can also be performed on-site.
	0 °C	0,040 °C	
	(0 °C to 150 °C]	0,046 °C	
	(150 °C to 250 °C]	0,050 °C	
	(250 °C to 400 °C]	0,28 °C	Internal Procedure TO 16-0, using dry block calibrator and-platinum resistance thermometer Calibration is also performed on-site
	(400 °C to 500 °C]	0,31 °C	
	(500 °C to 600 °C]	0,35 °C	
Total and Partial immersion liquid-in-glass thermometers	[-30 °C to 0 °C)	0,062 °C	Internal Procedure TO 16-0, using liquid bath and-platinum resistance thermometer.
	0 °C	0,040 °C	
	(0 °C to 150 °C]	0,046 °C	
	(150 °C to 250 °C]	0,050 °C	
Thermometers of digital depth meters	[5 °C to 50 °C]	0,08 °C	Internal Procedure TO 16-0, using isothermal configuration and platinum resistance thermometer
Analog, Digital thermometers of direct reading, data loggers	[-40 °C to 0 °C)	0,17 °C	Internal Procedures TO 16-0, using climatic chamber and platinum resistance thermometer.
	(0 °C to 180 °C]	0,29 °C	
Climatic and isothermal chambers, ovens, incubators, refrigerators, freezers, autoclaves, isothermal liquid baths, with volume up to 2000 L	[-20 °C to 150 °C)	0,19°C	According to guides: DKD-R 5-7: 01/2025 ΕΛΟΤ EN 60068-3-5:-2018, using platinum temperature resistance probes Calibration is performed on-site.
	(150 °C to 200 °C]	0,6 °C	
Climatic and isothermal chambers, Ovens, Incubators, Refrigerators, Freezers, Autoclaves, High Temperature Furnaces, Isothermal liquid baths, with volume up to 2000 L	(200 °C to 500 °C]	1,2°C	According to guides: DKD-R 5-7: 01/2025 ΕΛΟΤ EN 60068-3-5:-2018, using thermocouples type K Calibration is performed on-site.
	(500 °C to 600 °C]	1,3°C	
	(600 °C to 1200 °C]	1,3 °C	

Calibration Item / Parameter	Range of Measurement	Expanded measuring uncertainty (k=2)*	Remarks
Climatic and isothermal chambers, Ovens, Incubators, Refrigerators, Freezers, with volume greater than 2000 L	-20 °C to 60 °C	0,35 °C	Internal Procedure TO 17-0 based on guide ELOT EN 60068-3-5:2018, using digital temperature recorders. Calibration is performed on-site.
Apparatus for determining COD	100 °C to 200 °C	0,4 °C	Internal Procedure TO 28-0 using platinum temperature resistance probes. Calibration can also be performed on-site.
Heating blocks	[0 °C to 100 °C]	0,2 °C	Internal ProcedureTO 28-0 using platinum temperature resistance probes. Calibration can also be performed on-site.
	(100 °C to 200 °C]	0,4 °C	
	(200°C to 400 °C]	0,9 °C	Internal ProcedureTO 28-0 based on guide EURAMET cg 13 v.4.0 2017 using type K thermocouples. Calibration can also be performed on-site.
	(400 °C to 600 °C]	1,3 °C	
Kjeldahl devices	(100 °C to 250 °C] °C	1,0 °C	Internal Procedure TO 29-0 using type K thermocouples. Calibration is performed on-site.
	(250 °C to 400 °C]	1,1 °C	
	(400 °C to 600 °C]	1,3 °C	
Thermal cyclers (PCR)	[0 °C to 100 °C]	0,2 °C	Internal Procedure TO 24-0 based on standard ISO 20836:2021, using temperature recording system with appropriate number type K thermocouples for a given instrument. Calibration is also performed on-site.
Relative Humidity measurements			
Relative humidity chambers with volume up to 2000 L	30 %rh to 98 %rh at 23 °C	0,8 %rh to 1,2 %rh	According to guide DKD-R 5-7: (01/2025).
Analog and digital instruments measuring and logging relative humidity of direct reading.	[30 %rh to 70 %rh] at 23°C	1,5 %rh	Internal Procedure TO 09-0, using climatic chamber and reference hygrometer.
	(70 %rh to 98 %rh] at 23°C	2,0 %rh	
Spectrophotometric measurements			
Absorption (A) / UVVis spectrophotometers in the range 235 to635 nm	visible spectrum (A ≤ 0,5 AU)	2,8 mAU **	ASTME 275:08(2022) Calibration is performed on-site.
	visible spectrum (0,5 AU< A ≤ 1,0 AU)	3,3 mAU **	
	UV spectrum (A ≤ 0,5 AU)	3,8 mAU **	
	UV spectrum (0,5 AU <A ≤ 1,5 AU)	6,0 mAU **	
Volume measurements			

Calibration Item / Parameter	Range of Measurement	Expanded measuring uncertainty (k=2)*	Remarks
Piston operated measuring pipettes	[2 μL to 10 μL]	2,5 % to 0,6 %	Internal Procedure TO 20-0 based on guides: EURAMET cg-19 v 3.0 (09/2018) ISO 8655:2022
	[10 μL to 20 μL]	0,6 % to 0,35 %	
	[20 μL to 100 μL]	0,35 % to 0,14 %	
	[100 μL to1000 μL]	0,14 %	
	[1 mL to 10 mL]	0,12 %	
Measuring syringes	[2 μL to 25 μL]	2,5 % to 0,4 %	
	(25 μL to 10 mL]	0,35 %	
Piston operated volume measuring instruments – Dispensers, Dilutors, Piston burettes	[0,5 mL to 2 mL]	0,12 % to 0,1 %	
	(2 mL to 5 mL]	0,1 % to 0,08 %	
	(5 mL to 10] mL	0,08 % to 0,06 %	
	(10 mL to 100 mL]	0,06 % to 0,04 %	
	(100 mL to 200 mL]	0,04 %	
Burettes	1 mL to 100 mL	0,20 % 0,02 %	Internal Procedure TO 20-0 based on guides EURAMET cg-19 v 3.0 (09/2018) ISO 4784:2021
Volumetric flasks	[5 mL to 25 mL]	0,18 % έως 0,07 %	
	[25 mL to 50 mL]	0,07 % έως 0,04 %	
	[50 mL to 100 mL]	0,04 %	
	(100 mL to 2.000 mL]	0,02 %	
Volumetric Cylinders	[0,5 mL to 2 mL]	0,22 % to 0,12 %	
	[50 mL to 250 mL]	0,12 % to 0,08 %	
	[250 mL to 500 mL] l	0,08 %	
	[500 mL to 2000 mL]	0,08 % to 0,05 %	
Bulb pipettes	0,5 mL to 100 mL	0,16 % to 0,02 %	
Volumetric vessels of “slicker plate” and “neck scale” type	[2 L to 20 L]	0,14 % to 0,05 %	Internal Procedure TO 25-0 based on guide EURAMET cg-19 v3.0 (09/2018)
	[20 L to 100 L]	0,05 %	

** Where uncertainty (with a probability of 95% coverage)is accompanied by the corresponding unit, it is absolute, while where it is not accompanied by a unit, it is relative*.

*** Uncertainty values were estimated assuming a spectrophotometer having a resolution of 0,1 mAU.*

The Calibration & Measurement Capability (CMC), includes the measured quantity, measurement range and measurement uncertainty and expresses the smallest measurement uncertainty that can be achieved during a calibration.

Address of permanent laboratory premises : **44 Ag.Triados Str., Pefka, 57010 Thessaloniki, Greece.**
Approved Signatories: **A. Kougioumtzidis, C. Vratmiras, S. Fotiadis, A. Kyriazos.**

This Scope of Accreditation replaces the previous one dated September 21st, 2025.
The Accreditation Certificate No. **196-8**,to ELOT EN ISO/IEC 17025:2017, is valid until 22.03.2030.

Athens, October 10th, 2025

Konstantinou Evangelos Apostolos
CEO of ESYD