

# ACCREDITATION DOCUMENT

**Accreditation no. CAL 027**

**NEMKO SpA  
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20046 BIASSONO  
MILAN  
ITALY**

The scope of accreditation is dimension (K04) temperature (K10) in accordance with the specifications on the following pages in this document.

The accreditation was first time granted 19.11.2001 and given according to Parliamentary Proposition no. 106 (1989/90) and the Statutes of Norwegian Accreditation established by Royal Decree of 7 October 1993.

The laboratory complies with the requirements in NS-EN ISO/IEC 17025 (2005).

The accreditation requires regular surveillance,  
and is valid until 13.05.2010

The decision of accreditation made by Norwegian Accreditation implies that the organisation has been found to fulfil the requirements for accreditation within the scope.

The organisation itself is responsible for the results of performed measurements.

NORWEGIAN ACCREDITATION

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Date

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Norwegian Accreditation

Calibration in permanent location and on site, accreditation area K10 – Temperature

Measured Quantity	Measurement Range / Value	Best Measurement Capability (1)	Reference / Internal Procedure
Digital Thermometers with resolution $\leq 0.1$ K (calibration in centre)	from -80 °C to -40 °C	0.15 K	ITS-90 / WML0040
	from -40 °C to 550 °C	0.1 K	
	from 550 °C to 1100 °C	1.2 K	
Digital Thermometers with resolution = 1K (calibration in centre)	from -80 °C to 550 °C	1.0 K	
	from 550 °C to 1100 °C	1.4 K	
Digital Thermometers with resolution $\leq 0.1$ K (calibration on site)	from -20 °C to 150 °C	0.3 K	
	from 150 °C to 550 °C	1.3 K	
Digital Thermometers with resolution = 1K (calibration on site)	from -20 °C to 150 °C	1.0 K	
	from 150 °C to 550 °C	1.5 K	
Resistance Thermometers (calibration in centre)	from -80 °C to -40 °C	0.15 K	ITS-90 / WML0042
	from -40 °C to 550 °C	0.1 K	
Thermocouples Type J, K, N, T (calibration in centre)	from -80 °C to 550 °C	0.25 K	ITS-90 / WML0043
	from 550 °C to 1100 °C	1.2 K	
Thermocouple Type S (calibration in centre)	from -80 °C to 550 °C	0.5 K	
	from 550 °C to 1100 °C	1.2 K	
Resistance Thermometer Indicators and Simulators (calibration in centre)	from -200 °C to 600 °C	0.05K (2)	ITS-90 / WML0044
Thermocouple Type B Indicators and Simulators (calibration in centre)	from 200 to 800 °C	2.0 K (2)	
	from 800 to 1800 °C	0.6 K (2)	
Thermocouple Type E Indicators and Simulators	from -200 to -50 °C	0.2 K (2)	
	from -50 to 1000 °C	0.1 K (2)	
Thermocouple Type J Indicators and Simulators (calibration in centre)	from -200 to -50 °C	0.2 K (2)	
	from -50 to 1200 °C	0.1 K (2)	
Thermocouple Type K Indicators and Simulators (calibration in centre)	from -200 to -50 °C	0.2 K (2)	
	from -50 to 1300 °C	0.1 K (2)	
Thermocouple Type N Indicators and Simulators (calibration in centre)	from -200 to -50 °C	0.4 K (2)	
	from -50 to 1300 °C	0.2 K (2)	

Thermocouple Type S/R Indicators and Simulators (calibration in centre)	from -50 to 200 °C	0.7 K (2)	ITS-90 / WML0044
	from 200 to 1700 °C	0.4 K (2)	
Thermocouple Type T Indicators and Simulators (calibration in centre)	from -200 to -50 °C	0.2 K (2)	
	from -50 to 400 °C	0.1 K (2)	
Digital Thermometers Resistance Thermometers Thermocouple Type J, K, N, T, S (calibration in centre)	0.01K	0.05K	ITS-90 / PT_T06
Temperature Block Calibrators	from -50 to 140 °C	0.4 K	ITS-90 / PT_T05
	from 140 to 550 °C	0.6 K	

Note 1 Unless otherwise stated: Best measurement capability declared as an uncertainty of measurement and stated as standard uncertainty of measurement multiplied by the coverage factor  $k=2.3$

Note 2 Best measurement capability declared as an uncertainty of measurement and stated as standard uncertainty of measurement multiplied by the coverage factor  $k=2$

Calibration in permanent location and on site, accreditation area K04 – Dimension

Measured Quantity	Measurement Range / Value	Best Measurement Capability (1)	Reference / Internal Procedure
Vernier and Digital Callipers (calibration in centre and on site)	From 0 mm to 300 mm Resolution 10 µm	14 µm	PT_L01 UNI 9052 (1987)
	From 0 mm to 300 mm Resolution 5 µm	8 µm	
	From 0 mm to 300 mm Resolution 2 µm	5 µm	
Micrometers (calibration in centre)	From 0 mm to 100 mm Resolution 10 µm	8.5 µm +7·10 <sup>-6</sup> L (2)	PT_L02 UNI 9191 (1988)
	From 0 mm to 100 mm Resolution 1 µm	2.0 µm +7·10 <sup>-6</sup> L (2)	
	Flatness	0.4 µm	
	Parallelism	0.8 µm	
Micrometers (calibration on site)	From 0 mm to 100 mm Resolution 10 µm	8.5 µm +14·10 <sup>-6</sup> L (2)	
	From 0 mm to 100 mm Resolution 1 µm	2.0 µm +14·10 <sup>-6</sup> L (2)	
	Flatness	0.4 µm	
	Parallelism	0.8 µm	
Dial Indicators (calibration in centre)	From 0 mm to 100 mm Resolution 10 µm	8.5 µm +7·10 <sup>-6</sup> L (2)	PT_L03 UNI 9954 (1992)
	From 0 mm to 100 mm Resolution 1 µm	2.5 µm +7·10 <sup>-6</sup> L (2)	
Dial Indicators (calibration in centre)	From 0 mm to 100 mm Resolution 10 µm	8.5 µm +14·10 <sup>-6</sup> L (2)	
	From 0 mm to 100 mm Resolution 1 µm	2.5 µm +14·10 <sup>-6</sup> L (2)	

Note 1 Best measurement capability declared as an uncertainty of measurement and stated as standard uncertainty of measurement multiplied by the coverage factor k=2

Note 2 L is the length of measurement point