Weight Calibration Certificate Options

Precision & Balance Matched Only By Nature.

Troemner's calibration and certificate options are designed to provide the customer a range of choices in measurement precision, quantity of data, and compliance to calibration and quality standards. The choices are as follows:

NVLAP Weight Calibration

NVLAP®

Accredited by the National Voluntary Laboratory Accreditation Program for the specific scope of Accreditation under Lab Code 105013.

The NVLAP Weight Calibration provides compliance in both measurement process and data reported to the customer to meet a variety of standards including NVLAP Handbook 150-2, ISO 9000, ISO/IEC 17025, FDA, GMP, GLP, DOD, ANSI/NCSL Z540-1, and nuclear requirements. **Troemner's NVLAP Laboratory Code is 105013-0.** The NIST administered National Voluntary Laboratory Accreditation Program (NVLAP) approves through periodic audits, all processing and weighing procedures, as well as certificate format and content. Calibration procedures vary by tolerance class requested. For example, higher accuracy Classes such as Troemner UltraClass, ANSI/ASTM Classes 0 and 1, OIML Classes E1, E2, and F1, Troemner performs a multiple weighing procedure utilizing multiple standards to determine the mass of a customer weight.

The NVLAP Weight Calibration Certificate includes:

- Date of weight calibration
- Equipment and standards used during the weight calibration and their calibration due dates
- Accuracy class
- True mass value (mass in a vacuum)
- Conventional mass value ("as found" and "as left" for recalibration)
- Conventional mass correction ("as found" and "as left" for recalibration)
- Uncertainty of the measurement process for each weight
- Environmental conditions during test
- Construction and assumed density of weights
- Weight calibration procedures used
- Statement of traceability to NIST
- Helpful list of terms and definitions

UKAS Calibration

No. 0516

Similar to the NVLAP Calibration the UKAS Weight Calibration meets the requirements of the United Kingdom Accreditation Service (UKAS) which encompass ISO/IEC 17025, and EN450001 requirements. **Troemner's UKAS Calibration Laboratory Number is 0516.** UKAS approves through periodic audits, all processing and weighing procedures, as well as certificate format and content. Calibration procedures vary by tolerance class requested. The contents of the UKAS Certificate of Calibration are very similar to the contents of the NVLAP Calibration Certificate.

Traceable Certificate

The Traceable Certificate is designed for those laboratories and companies that require traceability, but do not need to meet any stringent regulatory requirements. The Traceable Weight Certificate measurement process is based on a single standard and utilizes one series of comparisons. Information includes:

- The nominal value of the weight
- Mass correction, tolerance and uncertainty
- Date of calibration
- Accuracy class
- NIST statement of traceability

Statement of Accuracy

Every Troemner weight and weight set (except Brass Weights) is supplied with a Statement of Accuracy that contains both the date of calibration and the class of each weight. Please note the Statement of Accuracy does not provide NIST traceability and is not suitable for strict quality or regulatory requirements. This statement verifies that the product has been manufactured to meet all specifications for its class and has been calibrated using standards traceable to NIST.

Troemner Mass Code Report of Mass Values

Troemner Mass Code Report of Mass Values is the same report one would receive if weights were calibrated directly by NIST. Troemner utilizes a calibration software program provided by NIST to perform a calibration that involves a series of interdependent comparisons and several standards. Troemner's primary standards are used for this calibration procedure. The calibration provides a high level of confidence that the measurements are in statistical control. The multi-page report of mass values is very detailed and includes statistical analysis including all measurement results, uncertainty calculations, as well as F and T test values.

See the chart on the next page for a comparison of these certificates.

Troemner Mass Calibration Services also include the following:

NVLAP Density Determination Calibration

Troemner's mass metrology laboratory can determine the actual density of one-piece mass standards that range in size from 1 g to 5 kg. Troemner is the only private NIST/NVLAP accredited laboratory in the United States for this mass calibration service. Troemner provides this service to reduce the uncertainty of calibrating one-piece precision ANSI/ASTM Class 0 and OIML Class E1 and E2 weights. The process is highly recommended for one-piece weights used as reference standards. Utilizing a state of the art balance immersed in a fluorinated

Weight Calibration Certificate Options

TROEMNER CERTIFICATES COMPARISON TABLE					
	NIST/NVLAP Calibration Certificate	**UKAS Certificate of Calibration**	**Traceable Certificate**	**Statement of Accuracy**	**Troemner MMAP Report of Mass Values**
Name, address, purchase order number	•	•	•		•
Date of calibration	•	•	•	•	•
Serial number	•	•	•	•	•
Equipment and standards used:					
Balance – calibration due dates	•	•			
Standards – calibration due dates	•	•			
Standards – corrections					•
Accuracy Class	•	•	•	•	•
Nominal value	•	•	•	•	•
Conventional mass value:					
"As found data" *	•	•			•
"As left data"	•	•			•
Conventional mass correction:					
"As found data" *	•	•	•		•
"As left data"	•	•	•		•
True mass value: (mass in a vacuum)					
"As found data" *	•	•			•
"As left data"	•	•			•
Uncertainty of measurement process	•	•	•		•
Environmental conditions during test	•	•			•
Construction and density of weights	•	•	•	•	•
Calibration procedures used	•	•			•
Statement of traceability to NIST	•	•	•		•
Measurement assurance data					•
Helpful list of terms and definitions	•	•			•
Use only one series of comparisons using a single standard	ANSI/ASTM Classes 2, 3, 4, 5, 6 OIML Classes F2, M1, M2 NIST Class F		All Classes		
Multiple comparisons using a check standard	ANSI/ASTM Classes 0, 1 Troemner UltraClass OIML Classes E1, E2, F1				All Classes
Meets ISO, FDA, GMP, DOD, ANSI/NCSL Z540-1, NCR 10CFR50 Appendix B	•	•			•

*As found data is not provided with new weights

fluid, a series of measurements are compared to a NIST traceable density standard to determine the density value. The data found in this certificate will enable you to make the proper buoyancy corrections when performing calibrations on other weights. This certificate provides you with the information you need for working in true mass.

NVLAP Magnetic Susceptibility Determination Calibration

Troemner has the capability of measuring the magnetic field intensity and the potential magnetic susceptibility of stainless steel one-piece mass standards between 1 g and 10 kg. Troemner is the only private accredited laboratory in the United States for this mass calibration service. This process is recommended for one-piece weights used as reference standards to demonstrate the weights meet the required specifications for magnetism.

Please visit our website at www.troemner.com to view samples of all of our certificate options.

TROEMNER
Calibration Technologies & Precision Weights