SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

TA INSTRUMENTS-WATERS LLC – ELECTROFORCE SYSTEMS GROUP
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CALIBRATION

Valid until: February 28, 2019 Certificate Number: 4120.01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following calibrations[1]:

I. Dimensional

Parameter/Equipment	Range	CMC[2] (±)	Comments
Linear Displacement[3]			ASTM E2309
	(0.25 to 60) mm	0.016 mm	LVDT
	(0.25 to 100) mm	0.020 mm	Dial Indicator

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II. Mechanical

Parameter/Equipment	Range	CMC[2] (±)	Comments
Force Transducers[3]			ASTM E4
	(8.89 to 222.4) N	0.18 N	Load cells
	(22.2 to 444.8) N	0.25 N	
	(89 to 2224) N	0.87 N	
	(222.4 to 4448) N	2.9 N	
	(444.8 to 8896) N	6.1 N	
	(100 to 5000) g	0.1% of indicated value	Deadweight

[1] This laboratory does not offer commercial calibration service except to customers of its products.

[2] Calibration and Measurement Capability Uncertainty (CMC) is the smallest uncertainty of measurement that a laboratory can achieve within its scope of accreditation when performing more or less routine calibrations of nearly ideal measurement standards or nearly ideal measuring equipment. CMCs represent expanded uncertainties expressed at approximately the 95 % level of confidence, usually using a coverage factor of $k = 2$. The actual measurement uncertainty of a specific calibration performed by the laboratory may be greater than the CMC due to the behavior of the customer's device and to influences from the circumstances of the specific calibration.

[3] Field calibration service is available for this calibration and this laboratory meets A2LA *R104 – General Requirements: Accreditation of Field Testing and Field Calibration Laboratories* for these calibrations. Please note the actual measurement uncertainties achievable on a customer's site can normally be expected to be larger than the CMC found on the A2LA Scope. Allowance must be made for aspects such as the environment at the place of calibration and for other possible adverse effects such as those caused by transportation of the calibration equipment. The usual allowance for the actual uncertainty introduced by the item being calibrated, (e.g. resolution) must also be considered and this, on its own, could result in the actual measurement uncertainty achievable on a customer's site being larger than the CMC.