National Voluntary Laboratory Accreditation Program

CALIBRATION LABORATORIES

NVLAP LAB CODE 200596-0
Scope Revised: 2013-01-31

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

Norbar Torque Tools Inc., Torque Specialist	**Parameter(s) of Accreditation**
36400 Biltmore Place Willoughby, OH 44094 Mr. James L. Wallace Phone: 440-953-1180 Fax: 440-953-9336 E-mail: jwallace@norbar.com	Mechanical This laboratory is compliant to ANSI/NCSL Z540-1-1994; Part 1. (NVLAP Code: 20/A01)

CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) [Notes 1,2]

Measured Parameter or Device Calibrated	Range	Uncertainty (k=2) [Note 3,5]	Remarks
MECHANICAL			
NVLAP Code: 20/E05 **DC RESISTANCE AND CURRENT** Electric Torque Indicator Displays ETS 40320 series[Note 10]	10 mA to 22 mA	0.014 %	Calibrations may be given in units of torque,
NVLAP Code: 20/E06 Electric Torque Indicator Displays 43228 series[Note 9] ETS 40320 series[Note 10]	0.5 mV 1.0 mV 2.0 mV to 16.5 mV 5 V 0.05 V 0.10 V 0.2 V to 2.0 V	0.13 % 0.08 % 0.07 % 0.0014 % 0.35 % 0.18 % 0.11 %	Calibrations may be given in units of torque,
NVLAP Code: 20/M15 **TORQUE** Mechanical and Electronic Torque Calibration Equipment	10 ozf-in to 1000 lbf-ft 500 lbf-ft to 5000 lbf-ft	0.02 % [Note 8] 0.03 % [Note 8]	Torque Arms and Weights

2012-07-01 through 2013-06-30
Effective dates

For the National Institute of Standards and Technology

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CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) [Notes 1,2]

Measured Parameter or Device Calibrated	Range	Uncertainty (*k*=2) [Note 3,5]	Remarks
Calibration of Torque Wrenches	10 ozf-in. to 1100 lbf-ft	0.60 %	ASME B107.300-2010 Units may be reported in other units of torque
END			

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Notes
Note 1: A Calibration and Measurement Capability (CMC) is a description of the best result of a calibration or measurement (result with the smallest uncertainty of measurement) that is available to the laboratory's customers under normal conditions, when performing more or less routine calibrations of nearly ideal measurement standards or instruments. The CMC is described in the laboratory's scope of accreditation by: the measurement parameter/device being calibrated, the measurement range, the uncertainty associated with that range (see note 3), and remarks on additional parameters, if applicable. **Note 2:** Calibration and Measurement Capabilities are traceable to the national measurement standards of the U.S. or to the national measurement standards of other countries and are thus traceable to the internationally accepted representation of the appropriate SI (Système International) unit. **Note 3:** The uncertainty associated with a measurement in a CMC is an expanded uncertainty using a coverage factor, $k = 2$, with a level of confidence of approximately 95 %. Units for the measurand and its uncertainty are to match. Exceptions to this occur when marketplace practice employs mixed units, such as when the artifact to be measured is labeled in non-SI units and the uncertainty is given in SI units (Example: 5 lb weight with uncertainty given in mg). **Note 3a:** The uncertainty of a specific calibration by the laboratory may be greater than the uncertainty in the CMC due to the condition and behavior of the customer's device and specific circumstances of the calibration. The uncertainties quoted do not include possible effects on the calibrated device of transportation, long term stability, or intended use. **Note 3b:** As the CMC represents the best measurement results achievable under normal conditions, the accredited calibration laboratory shall not report smaller uncertainty of measurement than that given in a CMC for calibrations or measurements covered by that CMC. **Note 3c:** As described in Note 1, CMCs cover calibrations and measurements that are available to the laboratory's customers under *normal conditions.* However, the laboratory may have the capability to offer special tests, employing special conditions, which yield calibration or measurement results with lower uncertainties. Such special tests are not covered by the CMCs and are outside the laboratory's scope of accreditation. In this case, NVLAP requirements for the labeling, on calibration reports, of results outside the laboratory's scope of accreditation apply. These requirements are set out in Annex A.1.h. of NIST Handbook 150, Procedures and General Requirements. **Note 4:** Uncertainties associated with field service calibration may be greater as they incorporate on-site environmental contributions, transportation effects, or other factors that affect the measurements. (This note applies only if marked in the body of the scope.) **Note 5:** Values listed with percent (%) are percent of reading or generated value unless otherwise noted. **Note 6:** NVLAP accreditation is the formal recognition of specific calibration capabilities. Neither NVLAP nor NIST guarantee the accuracy of individual calibrations made by accredited laboratories. **Note 7:** See NIST Handbook 150 for further explanation of these notes. **Note 8:** The uncertainty quoted is for the application of Calibration Torque and does not take into account the characteristics of the device being calibrated.

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Notes
Note 9: The uncertainties quoted are for the Norbar Torque Tool Tester 43228 series of display instruments when used with a device which has a nominal output of 2 mV/V. The uncertainties may be increased if the Torque Tool Tester 43215 is used with devices whose nominal output is less than 2 mV/V. The uncertainties may also be increased for other types of electrical torque indicator displays. The uncertainties quoted are for the Norbar Torque Tool Tester 43228 series of display instruments when used with a device which has a nominal output of 2 mV/V. The uncertainties may be increased if the Torque Tool Tester 43215 is used with devices whose nominal output is less than 2 mV/V. The uncertainties may also be increased for other types of electrical torque indicator displays. **Note 10:** The uncertainties quoted are for the Norbar ETS 40320 series of display instruments. The uncertainties maybe increased for other types of electrical torque indicator displays.

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