



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

CROSS TECHNOLOGIES, INC dba CROSS (FORMERLY J.A. KING)  
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CALIBRATION

Valid To: May 31, 2023

Certificate Number: 1741.07

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following calibrations and dimensional inspections<sup>1,8</sup>:

I. Dimensional

Parameter/Equipment	Range	CMC <sup>2,4</sup> (±)	Comments
Hand Tools – Calipers & Micrometers <sup>3</sup>	Up to 8 in	4.2 + 9.2L $\mu$ in + 0.6R	Gage blocks
Cylindrical Sizing Standards – Circumference	Up to 80 mm	0.0027 mm	Beta lasermike, size standard
Diameter	Up to 25.4 mm	0.000 86 mm	
Cylindrical Measuring Equipment <sup>3</sup> – Circumference	Up to 30 mm	0.027 mm	Size standards

## II. Dimensional Testing/Calibration<sup>1</sup>

Parameter/Equipment	Range	CMC <sup>2</sup> (±)	Comments
One Dimensional – Length <sup>3,5</sup>	Up to 8 in	0.0013 in (0.033 mm)	Digital calipers

## III. Mechanical

Parameter/Equipment	Range	CMC <sup>2, 4, 6, 7</sup> (±)	Comments
Scales & Balances <sup>3</sup>	Up to 500 mg Up to 5 g Up to 10 g Up to 20 g Up to 50 g Up to 100 g Up to 200 g Up to 500 g Up to 1000 g Up to 2000 g Up to 4000 g Up to 5000 g	0.0062 mg + 0.6R 0.021 mg + 0.6R 0.031 mg + 0.6R 0.046 mg + 0.6R 0.074 mg + 0.6R 0.16 mg + 0.6R 0.31 mg + 0.6R 0.75 mg + 0.6R 1.6 mg + 0.6R 3.1 mg + 0.6R 6.1 mg + 0.6R 7.4 mg + 0.6R	Ultra-class weights
Force – Measuring Equipment <sup>3</sup>	Up to 12 kg	0.033 %	Ultra-class weights
Pressure Drop <sup>3</sup>	Up to 1000 mm·H <sub>2</sub> O	0.56 %	Manometers & Brooks volumeter
Permeability <sup>3</sup>	Up to 20 000 ml/m	1.0 %	Flow measured @ 4" WG pressure
Non-Contact RPM <sup>3</sup>	(5 to 20 000) RPM	0.024 %	Tachometer

Parameter/Equipment	Range	CMC <sup>2, 4, 6, 7</sup> ( $\pm$ )	Comments
Cigarette Measuring Equipment <sup>3</sup> – Ventilation	Up to 85%	0.52%	Glass capillary ventilation standards
Pressure Drop	200 mm·H <sub>2</sub> O 400 mm·H <sub>2</sub> O	2.3 mm·H <sub>2</sub> O 3.4 mm·H <sub>2</sub> O	Glass capillary pressure drop standards
Filter Measuring Equipment <sup>3</sup> Pressure Drop	200 mm·H <sub>2</sub> O 400 mm·H <sub>2</sub> O 800 mm·H <sub>2</sub> O	2.4 mm·H <sub>2</sub> O 3.5 mm·H <sub>2</sub> O 7.3 mm·H <sub>2</sub> O	Glass capillary pressure drop standards

#### IV. Thermodynamic

Parameter/Equipment	Range	CMC <sup>2, 7</sup> ( $\pm$ )	Comments
Temperature – Measure <sup>3</sup>	(-200 to 500) °C	0.28 °C	Fluke 1523 w/ 5618B
Temperature – Measuring Equipment	(-40 to 140) °C	0.17 °C	Isotech dry block/liquid bath w/PRT probe
Relative Humidity – Measure <sup>3</sup>	(5 to 95) % RH	1.6 % RH	Rotronic HP22-A w/ HC2-S probe

#### V. Time & Frequency

Parameter/Equipment	Range	CMC <sup>2, 6, 7</sup> ( $\pm$ )	Comments
Time Interval – Measure <sup>3</sup>	Up to 1 hr	0.25 %	Stopwatch

<sup>1</sup> This laboratory is available for commercial and field dimensional testing/calibration service.

- <sup>2</sup> 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.
- <sup>3</sup> Field calibration service is available 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.
- <sup>4</sup> In the statement of CMC,  $L$  is the numerical value of the nominal length of the device measured in inches and  $R$  is the numerical value of the resolution of the device.
- <sup>5</sup> This laboratory meets R205 – *Specific Requirements: Calibration Laboratory Accreditation Program* for the types of dimensional tests listed above and is considered equivalent to that of a calibration certificate.
- <sup>6</sup> In the statement of CMC, percentages are percentage of reading, unless otherwise indicated.
- <sup>7</sup> The type of instrument or material being calibrated is defined by the parameter. This indicates the laboratory is capable of calibrating instruments that measure or generate the values in the ranges indicated for the listed measurement parameter.
- <sup>8</sup> This scope meets A2LA's *PI12 Flexible Scope Policy*.



# Accredited Laboratory

A2LA has accredited

**CROSS TECHNOLOGIES, INC DBA CROSS (FORMERLY J.A. KING)**

*Winston-Salem, NC*

for technical competence in the field of

## Calibration

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 *General requirements for the competence of testing and calibration laboratories*. This laboratory also meets the requirements of R205 – Specific Requirements: Calibration Laboratory Accreditation Program. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (*refer to joint ISO-ILAC-IAF Communiqué dated April 2017*).



Presented this 7<sup>th</sup> day of May 2021.

A blue ink signature of the Vice President of Accreditation Services.

Vice President, Accreditation Services

For the Accreditation Council

Certificate Number 1741.07

Valid to May 31, 2023

Revised May 11, 2021

*For the calibrations to which this accreditation applies, please refer to the laboratory's calibration Scope of Accreditation.*