



PERRY JOHNSON LABORATORY ACCREDITATION, INC.

Certificate of Accreditation

Perry Johnson Laboratory Accreditation, Inc. has assessed the Laboratory of:

Re-Sol Reliable Solutions & Services
1760 Opdyke Court, Auburn Hills, MI 48326

(Hereinafter called the Organization) and hereby declares that Organization is accredited in accordance with the recognized International Standard:

**ISO/IEC 17025:2005
& Meets the Requirements of ANSI/NCSI Z540-1-1994
& ANSI/NCSI Z540.3-2006 sub-clause 5.3**

This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (as outlined by the joint ISO-ILAC-IAF Communiqué dated January 2009):

Electrical, Mechanical, Thermodynamic Calibration
(As detailed in the supplement)

Accreditation claims for such testing and/or calibration services shall only be made from addresses referenced within this certificate. This Accreditation is granted subject to the system rules governing the Accreditation referred to above, and the Organization hereby covenants with the Accreditation body's duty to observe and comply with the said rules.

For PJLA:

Initial Accreditation Date:

May 30, 2014

Issue Date:

August 2, 2017

Expiration Date:

October 31, 2019

Accreditation No.:

55952

Certificate No.:

L17-409

Tracy Szerszen
President/Operations Manager

Perry Johnson Laboratory
Accreditation, Inc. (PJLA)
755 W. Big Beaver, Suite 1325
Troy, Michigan 48084

The validity of this certificate is maintained through ongoing assessments based on a continuous accreditation cycle. The validity of this certificate should be confirmed through the PJLA website: www.pjllabs.com



Certificate of Accreditation: Supplement

Re-Sol Reliable Solutions & Services

1760 Opdyke Court, Auburn Hills, MI 48326
Contact name: Peter Kaub Phone: 248-270-7777

Accreditation is granted to the facility to perform the following calibrations:

Electrical

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE OR NOMINAL DEVICE SIZE AS APPROPRIATE	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (\pm)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Pressure Transducers ^{FO}	1 V to 20 V	0.003 5 V	Heise PTE-1
	1 mA to 20 mA	0.007 mA	

Mechanical

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE OR NOMINAL DEVICE SIZE AS APPROPRIATE	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (\pm)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Mechanical Liquid Flow ^{FO}	0.001 L/min to 0.01L/min	0.0017 mL/min	Class F1 Weights XP8002S Balance Mercury OC14T5A Timer
	0.01 L/min 0.15 L/min	0.017 mL/min	
	0.15 L/min to 10 L/min	0.62 mL/min	
	1 g/min to 10 g/min	0.003 8 g/min	
	10 g/min to 100 g/min	0.009 g/min	
	100 g/min to 10 000 g/min	0.1 g/min	
Pressure Transducers ^{FO}	20 psi to 200 psi	0.063 psi	Heise PTE-1 HQS-2 200 psi
Liquid Fluids ^{FO}	500 g/L to 1 000 g/L	170 mg/L	Gravimetric Method Weights Volumetric Flask, Balance, Temperature Meter
Fluid Density Sensor ^{FO}	500 g/L to 1 000 g/L	260 mg/L	Reference Fluids

Thermodynamic

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE OR NOMINAL DEVICE SIZE AS APPROPRIATE	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (\pm)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Fluid Temperature ^{FO}	0 °C to 50 °C	0.22 °C	Omega HH40 Series thermistor thermometer

- The CMC (Calibration and Measurement Capability) stated for calibrations included on this scope of accreditation represents the smallest measurement uncertainty attainable by the laboratory when performing a more or less routine calibration of a nearly ideal device under nearly ideal conditions. It is typically expressed at a confidence level of 95 % using a coverage factor k (usually equal to 2). The actual measurement uncertainty associated with a specific calibration performed by the laboratory will typically be larger than the CMC for the same calibration since capability and performance of the device being calibrated and the conditions related to the calibration may reasonably be expected to deviate from ideal to some degree.
- Measurement uncertainties obtained for calibrations performed at customer sites can be expected to be larger than the measurement uncertainties obtained at the laboratories fixed location for similar calibrations. This is due to the effects of transportation of the standards and equipment and upon environmental conditions at the customer site which are typically not controlled as closely as at the laboratories fixed location.



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Accreditation is granted to the facility to perform the following calibrations:

3. The laboratories range of calibration capability for all disciplines for which they are accredited is the interval from the smallest calibrated standard to the largest calibrated standard used in performing the calibration. The low end of this range must be an attainable value for which the laboratory has or has access to the standard referenced. Verification of an indicated value of zero in the absence of a standard is common practice in the procedure for many calibrations but by its definition it does not constitute calibration of zero capacity.
4. The presence of a superscript FO means that the laboratory performs testing of the indicated parameter both at its fixed location and onsite at customer locations. Example: Outside Micrometer^{FO} would mean that the laboratory performs this testing at its fixed location and onsite at customer locations.

