PERRY JOHNSON LABORATORY ACCREDITATION, INC.

Certificate of Accreditation

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

Third Coast Gage & Calibration

702 County Road 129, Alvin, Texas 77511

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

ISO/IEC 17025:2005

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):

Dimensional and Mechanical 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:	*Issue Date:*	*Expiration Date:*
June 9, 2016	June 9, 2016	August 31, 2018

Accreditation No.:	*Certificate No.:*
81020	L16-258

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.pjlabs.com

Certificate of Accreditation: Supplement

Third Coast Gage & Calibration

702 County Road 129, Alvin, Texas 77511
Cabe Naylor Phone: 832-569-2046

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

Dimensional

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE OR NOMINAL DEVICE SIZE AS APPROPRIATE	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
OD Micrometer[F]	0.05 in to 1 in (5 µin res)	(9.73 + 4.67L) µin	Gage Blocks
	0.05 in to 1 in (50 µin res)	(41.55 + 3.38L) µin	Gage Blocks
	0.05 in to 4.5 in (0.0001 in res)	(42.43 + 22.58L) µin	Gage Blocks
	5 in to 12 in (0.0001 in res)	(25.89 + 14.55L) µin	Gage Blocks
	0.05 in to 4.5 in (0.001 in res)	(573.8 + 3.93L) µin	Gage Blocks
	5 in to 12 in (0.001 in res)	(563.19 + 3.67L) µin	Gage Blocks
ID Micrometer[F]	1 in to 40 in	(571 + 2.75L) µin	Labmaster, Gage Blocks
Caliper[F]	Depth & Step 1 in	290 µin	Gage Blocks, Surface Plate
	OD & ID 1 to 12 in	(288.3 + 0.45L) µin	Gage Blocks
Height Gage[F]	1 in to 30 in	(35.54 + 13.88L) µin	Gage Blocks, Surface Plate
Gage Blocks[F]	0.05 in	2.3 µin	Labmaster, Gage Blocks
	0.1 in to 4 in	(0.4 + 15.7L) µin	Labmaster, Gage Blocks
Thread Plugs – Pitch Diameter[F]	0.001 in to 2.5 in	52 µin	Labmaster, Gage Blocks, Force System, Thread Wires
Thread Plugs – Major Diameter[F]	0.001 in to 2.5 in	43 µin	Labmaster, Gage Blocks, Force System
API Rotary Shouldered Gage Standoff[F]	0.1 in to 1 in	59 µin	Master Thread Gage, Surface Plate, Height Gage
Ring Gage - Plain[F]	0.1 in to 8 in	(16.71 + 17.78L) µin	Labmaster, Gage Blocks Class X only
Thread Wires[F]	0.001 in to 0.5 in	(4.17 + 15.46L) µin	Labmaster, Gage Blocks
Micrometer Setting Standards[F]	1 in to 12 in	(0.37 + 15.77L) µin	Labmaster, Gage Blocks

Mechanical

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE OR NOMINAL DEVICE SIZE AS APPROPRIATE	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Hydraulic Pressure Gage[F]	1 000 psi to 10 000 psi	$(8.252 \times 10^{-2} + 5.35 \times 10^{-5} P)$ psig	Dead-weight tester
Brinell Hardness Tester[F]	3 000 kgf	0.7 kgf	Load Cell
Torque Wrench[F]	20 lbf·ft to 1 000 lbf·ft	$(1.11 + 5.09 \times 10^{-3} T)$ lbf·ft	Nobar 50682.LOG Transducer.

Certificate of Accreditation: Supplement

Third Coast Gage & Calibration
702 County Road 129, Alvin, Texas 77511
Cabe Naylor Phone: 832-569-2046

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

1. 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.

2. 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.

3. The presence of a superscript F means that the laboratory performs calibration of the indicated parameter at its fixed location. Example: Outside Micrometer^{F} would mean that the laboratory performs this calibration at its fixed location.

4. 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.

5. The term L represents length in inches or millimeters as appropriate to the uncertainty statement.

6. The term P represents pressure in units appropriate to the uncertainty statement.

7. The term T represents torque in lbf•ft.