

## PERRY JOHNSON LABORATORY ACCREDITATION, INC.

# Certificate of Accreditation

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

Pi Tape Texas, LLC 10235 Robinson Drive, Tyler, TX 75703

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

#### ISO/IEC 17025:2017

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 April 2017):

Calibration of Dimensional Tapes (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:

Jeacy Szuszen

Tracy Szerszen President

Perry Johnson Laboratory Accreditation, Inc. (PJLA) 755 W. Big Beaver, Suite 1325 Troy, Michigan 48084 Initial Accreditation Date: Issue Date: Expiration Date: April 2, 2019 July 30, 2021 July 30, 2023 Accreditation No.: Certificate No.: 99092 L21-466

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: <u>www.pjlabs.com</u>





10235 Robinson Drive, Tyler, TX 75703 Contact Name: Skip Phillips Phone: 760-815-3961

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

Dimensional

Dimensional	DANCE OF NOVEMAL DEVICE		
MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE OR NOMINAL DEVICE SIZE AS APPROPRIATE	CALIBRATION AND MEASUREMENT	CALIBRATION EQUIPMENT
		CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	AND REFERENCE STANDARDS USED
Length <sup>F</sup>	Up to 67 858 mm	$(1.0 + 0.000 47L) \mu m$	Laser Measurement System
-	(Up to 2 714 in)	$[37 + 0.47L) \mu in]$	PT Calibration Procedure 14
Master Tapes <sup>F</sup>	Up to 75 in	$(10 + 0.67L) \mu in$	Laser Measurement System
(Diameter)	(Up to 1 905 mm)	$[(0.26 + 0.000 \ 67L) \ \mu m]$	PT Calibration Procedure 16
Ring Gauges <sup>F</sup>	Up to 75 in	(280 + 0.39L) µin	Master Tapes
	(Up to 1 905 mm)	$[(7.2 + 0.000 \ 39L) \ \mu m]$	PT Calibration Procedure 16
Linear Machines marked for	Up to 72 in	$(81 + 0.62L) \mu in$	Gage Blocks
Diameter Measurements <sup>F</sup>	(Up to 1 800 mm)	$[(0.45 + 0.000 \ 62L) \ \mu m]$	PT Calibration Procedure 6
	Up to 84 in	$(13 + 0.37L) \mu in$	Laser Measurement System
	(Up to 2 100 mm)	$[(0.34 + 0.000 \ 37L) \ \mu m]$	PT Calibration Procedure 15
Linear Machines marked for	Up to 72 in	(63 + 0.88L) µin	Gage Blocks
Linear Measurements <sup>F</sup>	(Up to 2 000 mm)	$[(1.0 + 0.000  68L)  \mu m]$	PT Calibration Procedure 7
	Up to 192 in	(47 + 0.33L) μin	Laser Measurement System
	(Up to 5 000 mm)	$[(1.0 + 0.000 38L) \mu m]$	PT Calibration Procedure 17
Precision Diameter Tapes <sup>F</sup>	Up to 75 in	(430 + 0.78L) µin	Ring Gages, Gage Blocks
	(Up to 1 905 mm)	[(11 + 0.000 78L) μm]	PT Calibration Procedures 1, 8 & 10
	Up to 144 in	(580 + 1.1L) μin	Linear Measuring Machine
	(Up to 3 658 mm)	$[(2.6 + 0.002 5L) \mu m]$	PT Calibration Procedures 2, 5 & 10
Digital Diameter Tapes <sup>F</sup>	Up to 75 in	$(380 + 0.78L) \mu in$	Ring Gauges calibrated with
R = 0.0005 in	1		Laser Measurement System
			PT Calibration Procedure 1
	Up to 72 in	(120 + 0.33L) μin	Linear Machine calibrated with
	72 in to 144 in	$(120 + 0.28L) \mu in$	Laser Measurement System PT Calibration Procedures 2 & 5
	144 in to 216 in	(100 + 0.42L) µin	Calibration Procedures 2 & 3
	216 in to 288 in	(99 + 0.42L) μin	
	288 in to 360 in	(59 + 0.56L) µin	
	360 in to 432 in	(58 + 0.56L) µin	
	432 in to 504 in	(1.9 + 0.69L) µin	
	504 in to 576 in	(0.83L - 68) µin	
	576 in to 648 in	(13 + 0.69L) µin	
	648 in to 720 in	(1.1L – 250) µin	
	720 in to 792 in	(1.1L – 250) µin	
	792 in to 864 in	(1.4L – 490) µin	
	864 in to 936 in	(1.7L – 750) µin	
	936 in to 1 008 in	(1.7L – 750) µin	
	1 008 in to 1 080 in	(1.9L – 1 000) µin	



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

Dimensional

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Dimensional		1	
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
Digital Diameter Tapes <sup>F</sup>	1 080 in to 1 152 in	(2.8L – 1 900) µin	Linear Machine calibrated with
R = 0.0005 in	1 152 in to 1 224 in	(2.8L - 1 900) µin	Laser Measurement System PT Calibration Procedures 2 &
	1 224 in to 1 296 in	(4.2L - 3 600) µin	5
	1 296 in to 1 368 in	(2.8L – 1 800) µin	
Outside Diameter Tapes, Inside Diameter Tapes, Belt Diameter Tapes,	Up to 75 in	(430 + 0.39L) μin	Ring Gauges calibrated with Laser Measurement System PT Calibration Procedure 1
O-ring Diameter Tapes, &	Up to 72 in	(230 + 0.17L) µin	Linear Machine calibrated with
Wide Diameter Tapes O.D. & I.D. <sup>F</sup>	72 in to 144 in	(220 + 0.28L) µin	Laser Measurement System PT Calibration Procedures 2 &
Vernier = $25$ in	144 in to 216 in	(220 + 0.28L) µin	5
R = 0.001 in	216 in to 288 in	(220 + 0.28L) µin	
	288 in to 360 in	(180 + 0.42L) µin	
	360 in to 432 in	(180 + 0.42L) µin	
	432 in to 504 in	(120 + 0.56L) µin	
	504 in to 576 in	(52 + 0.69L) µin	
	576 in to 648 in	(0.83L – 28) µin	
	648 in to 720 in	(0.97L – 120) μin	
	720 in to 792 in	(0.97L – 120) μin	
	792 in to 864 in	(1.4L – 460) µin	
	864 in to 936 in	(1.5L – 550) µin	
	936 in to 1008 in	(1.7L – 730) µin	
	1 008 in to 1 080 in	(1.7L – 700) µin	
	1 080 in to 1 152 in	(2.8L – 1 900) µin	
	1 152 in to 1 224 in	(2.8L – 1 900) µin	
	1 224 in to 1 296 in	(4.2L – 3 600) µin	
	1 296 in to 1 368 in	(2.8L – 1 800) µin	
Digital Diameter Tapes, Outside Diameter Tapes, Inside Diameter Tapes, Belt Diameter Tapes, O-ring Diameter Tapes, & Wide Diameter Tapes O.D. & I.D. <sup>F</sup> Vernier = 50 mm	Up to 1 905 mm	(9.5 + 0.000 46L) μm	Ring Gauges calibrated with Laser Measurement System PT Calibration Procedure 1
R = 0.01 mm			





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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
Digital Diameter Tapes,	Up to 1 800 mm	$(2.3 + 0.27L) \mu m$	Linear Machine calibrated with
Outside Diameter Tapes,	1 800 mm to 3 600 mm	(2.2 + 0.33L) μm	Laser Measurement System PT Calibration Procedures 2 &
Inside Diameter Tapes, Belt Diameter Tapes,	3 600 mm to 5 400 mm	$(2.4 + 0.28L) \mu m$	5
O-ring Diameter Tapes, &	5 400 mm to 7 200 mm	$(1.5 + 0.44L) \mu m$	
Wide Diameter Tapes O.D.	7 200 mm to 9 000 mm	$(1.1 + 0.5L) \mu m$	
& I.D. <sup>F</sup> Vernier = 50 mm	9 000 mm to 10 800 mm	$(1.6 + 0.44L) \mu m$	
R = 0.01  mm	10 800 mm to 12 600 mm	(0.72L – 1.4) µm	
	12 600 mm to 14 400 mm	$(0.67L - 0.74) \mu m$	
	14 400 mm to 16 200 mm	$(0.12 + 0.61L) \mu m$	-
	16 200 mm to 18 000 mm	(1.1L – 7.8) μm	
	18 000 mm to 19 800 mm	(1.1L – 7.8) μm	-
	19 800 mm to 21 600 mm	(1.1L – 7.8) μm	-
	21 600 mm to 23 400 mm	(1.1L – 7.8) μm	
	23 400 mm to 25 200 mm	$(1.7L - 22) \mu m$	
	25 200 mm to 27 000 mm	$(2.2L - 34) \mu m$	
	27 000 mm to 28 800 mm	$(2.2L - 34) \mu m$	
	28 800 mm to 30 600 mm	$(1.7L - 20) \mu m$	
	30 600 mm to 32 400 mm	(3.3L – 69) µm	
	32 400 mm to 34 200 mm	(3.9L – 88) μm	
Go/No Go Diameter Tapes <sup>F</sup>	Up to 75 in	(360 + 0.78L) μin	Ring Gauges calibrated with Laser Measurement System PT Calibration Procedure 1
	Up to 72 in	(36 + 0.48L) µin	Linear Machine calibrated with
	72 in to 144 in	(30 + 0.56L) µin	Laser Measurement System PT Calibration Procedures 2 &
	144 in to 216 in	(29 + 0.56L) µin	5
	216 in to 288 in	(29 + 0.56L) µin	
	288 in to 360 in	(29 + 0.56L) µin	
	360 in to 432 in	(0.69L – 18) µin	
	432 in to 504 in	(0.69L – 18) µin	
	504 in to 576 in	(0.83L - 88) µin	
	576 in to 648 in	(0.83L - 88) µin	
	648 in to 720 in	(1.1L – 260) µin	
	720 in to 792 in	(1.1L – 260) µin	
	792 in to 864 in	(1.4L – 500) µin	
	864 in to 936 in	(1.7L – 760) µin	



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Dimensional		F	
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
Go/No Go Diameter Tapes <sup>F</sup>	936 in to 1 008 in	(1.7L – 760) µin	Linear Machine calibrated with
	1 008 in to 1 080 in	(2.1L – 1 200) µin	Laser Measurement System
	1 080 in to 1 152 in	(2.8L – 1 900) µin	PT Calibration Procedures 2 & 5
	1 152 in to 1 224 in	(2.8L – 1 900) µin	-
	1 224 in to 1 296 in	(4.2L – 3 600) µin	
	1 296 in to 1 368 in	(2.8L – 1 800) µin	
	Up to 1 905 mm	(9.0 + 0.000 78L) μm	Ring Gauges calibrated with Laser Measurement System PT Calibration Procedure 1
	Up to 1 800 mm	$(0.48 + 0.62L) \mu m$	Linear Machine calibrated with
	1 800 mm to 3 600 mm	$(0.70 + 0.50L) \mu m$	Laser Measurement System PT Calibration Procedures 2 &
	3 600 mm to 5 400 mm	(1.1 + 0.39L) μm	5
	5 400 mm to 7 200 mm	$(0.50 + 0.50L) \mu m$	
	7 200 mm to 9 000 mm	(0.10 + 0.56L) µm	
	9 000 mm to 10 800 mm	$(0.60 + 0.50L) \mu m$	
	10 800 mm to 12 600 mm	(0.72L – 1.8) μm	
	12 600 mm to 14 400 mm	(0.72L – 1.8) μm	
	14 400 mm to 16 200 mm	(0.78L – 2.6) μm	
	16 200 mm to 18 000 mm	(1.1L – 7.8) μm	
	18 000 mm to 19 800 mm	(1.1L – 7.8) μm	
	19 800 mm to 21 600 mm	(1.1L – 7.8) μm	
	21 600 mm to 23 400 mm	(1.1L – 7.8) μm	
	23 400 mm to 25 200 mm	(1.7L – 22) μm	
	25 200 mm to 27 000 mm	$(2.2L - 34) \mu m$	
	27 000 mm to 28 800 mm	$(2.2L - 34) \mu m$	
	28 800 mm to 30 600 mm	(1.7L – 20) µm	
	30 600 mm to 32 400 mm	(3.3L – 69) µm	
	32 400 mm to 34 200 mm	(3.9L – 88) µm	
Outside Diameter Tapes <sup>F</sup> (Tapes with 0-10 inch vernier) R = 0.001 in	Up to 75 in	(430 + 0.39L) μin	Ring Gauges calibrated with Laser Measurement System PT Calibration Procedure 1





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Outside Diameter Tapes <sup>F</sup>	Up to 72 in	(230 + 0.17L) µin	Linear Machine calibrated with Laser Measurement System PT Calibration Procedures 2 & 14
(Tapes with 0-10 inch	72 in to 144 in	(220 + 0.28L) µin	
vernier) R = $0.001$ in	144 in to 216 in	(220 + 0.28L) µin	
	216 in to 288 in	(220 + 0.28L) µin	
	288 in to 360 in	(180 + 0.42L) µin	
	360 in to 432 in	(180 + 0.42L) µin	
	432 in to 504 in	(120 + 0.56L) µin	
	504 in to 576 in	(52 + 0.69L) µin	
	576 in to 648 in	(0.83L - 28) µin	
	648 in to 720 in	(0.97L – 120) µin	
	720 in to 792 in	(0.97L – 120) µin	
	792 in to 864 in	(1.4L – 460) µin	
	864 in to 936 in	(1.5L – 550) µin	
	936 in to 1 008 in	(1.7L – 730) µin	
	1 008 in to 1 080 in	(1.7L – 700) µin	
	1 080 in to 1 152 in	(2.8L – 1 900) µin	
	1 152 in to 1 224 in	(2.8L – 1 900) µin	
	1 224 in to 1 296 in	(4.2L – 3 600) µin	
	1 296 in to 1 368 in	(2.8L – 1 800) µin	
Outside Diameter Tapes <sup>F</sup>	Up to 1 905 mm	(9.5 + 0.000 46L) μm	Ring Gauges calibrated with
(Tapes with 0-25 mm vernier)			Laser Measurement System PT Calibration Procedure 1
R = 0.01 mm	Up mm to 1 800 mm	(2.3 + 0.27L) μm	Linear Machine calibrated with
	1 800 mm to 3 600 mm	$(2.2 + 0.33L) \mu m$	Laser Measurement System PT Calibration Procedures 2 &
	3 600 mm to 5 400 mm	$(2.4 + 0.28L) \mu m$	14
	5 400 mm to 7 200 mm	$(1.5 + 0.44L) \mu m$	
	7 200 mm to 9 000 mm	$(1.1 + 0.5L) \mu m$	
	9 000 mm to 10 800 mm	$(1.6 + 0.44L) \mu m$	
	10 800 mm to 12 600 mm	$(0.72L - 1.4) \mu m$	
	12 600 mm to 14 400 mm	$(0.67L - 0.74) \mu m$	
	14 400 mm to 16 200 mm	$(0.12 + 0.61L) \mu m$	
	16 200 mm to 18 000 mm	(1.1L – 7.8) μm	]
	18 000 mm to 19 800 mm	(1.1L – 7.8) μm	





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Outside Diameter Tapes <sup>F</sup>	19 800 mm to 21 600 mm	$(1.1L - 7.8) \mu m$	Linear Machine calibrated with Laser Measurement System PT Calibration Procedures 2 & 14
(Tapes with 0-25 mm vernier)	21 600 mm to 23 400 mm	$(1.1L - 7.8) \mu m$	
R = 0.01  mm	23 400 mm to 25 200 mm	$(1.7L - 22) \mu m$	
	25 200 mm to 27 000 mm	$(2.2L - 34) \mu m$	
	27 000 mm to 28 800 mm	$(2.2L - 34) \mu m$	
	28 800 mm to 30 600 mm	$(1.7L - 20) \mu m$	
	30 600 mm to 32 400 mm	(3.3L – 69) µm	
	32 400 mm to 34 200 mm	(3.9L – 88) µm	
Outside Diameter Tapes <sup>F</sup> (Tapes with 0-10 mm vernier)	Up to 1 905 mm	15 μm	Ring Gauges calibrated with Laser Measurement System PT Calibration Procedure 1
R = 0.05 mm	Up to 1 800 mm	12 μm	Linear Machine calibrated with
	1 800 mm to 3 600 mm	12 μm	Laser Measurement System
	3 600 mm to 5 400 mm	12 μm	PT Calibration Procedures 2 & 14
	5 400 mm to 7 200 mm	12 μm	
	7 200 mm to 9 000 mm	13 μm	
	9 000 mm to 10 800 mm	13 µm	
	10 800 mm to 12 600 mm	14 µm	
	12 600 mm to 14 400 mm	14 µm	
	14 400 mm to 16 200 mm	15 µm	
	16 200 mm to 18 000 mm	17 µm	
	18 000 mm to 19 800 mm	18 µm	
	19 800 mm to 21 600 mm	20 µm	
	21 600 mm to 23 400 mm	21 µm	
	23 400 mm to 25 200 mm	24 µm	
	25 200 mm to 27 000 mm	28 µm	
	27 000 mm to 28 800 mm	31 µm	
	28 800 mm to 30 600 mm	34 µm	
	30 600 mm to 32 400 mm	40 µm	
	32 400 mm to 34 200 mm	46 µm	
Extended Range Tapes O.D. & I.D. $^{\rm F}$ Vernier = 100 in R = 0.01 in	Up to 75 in	0.002 3 in	Ring Gauges calibrated with Laser Measurement System PT Calibration Procedure 1



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Extended Range Tapes O.D.	Up to 72 in	0.002 3 in	Linear Machine calibrated with Laser Measurement System PT Calibration Procedures 2 & 5
& I.D. <sup>F</sup> Vernier = 100 in	72 in to 144 in	0.002 3 in	
R = 0.01  in	144 in to 216 in	0.002 3 in	
	216 in to 288 in	0.002 3 in	
	288 in to 360 in	0.002 3 in	
	360 in to 432 in	0.002 3 in	
	432 in to 504 in	0.002 3 in	
	504 in to 576 in	0.002 3 in	
	576 in to 648 in	0.002 4 in	
	648 in to 720 in	0.002 4 in	
	720 in to 792 in	0.002 4 in	
	792 in to 864 in	0.002 4 in	
	864 in to 936 in	0.002 5 in	
	936 in to 1 008 in	0.002 5 in	
	1 008 in to 1 080 in	0.002 6 in	
	1 080 in to 1 152 in	0.002 7 in	
	1 152 in to 1 224 in	0.002 8 in	
	1 224 in to 1 296 in	0.002 9 in	
	1 296 in to 1 368 in	0.003 1 in	
Extended Range Tapes O.D. & I.D. <sup>F</sup> Vernier = 25 mm	Up to 1 905 mm	120 µm	Ring Gauges calibrated with Laser Measurement System PT Calibration Procedure 1
R = 0.5  mm	Up to 1 800 mm	120 µm	Linear Machine calibrated with
	1 800 mm to 3 600 mm	120 µm	Laser Measurement System
	3 600 mm to 5 400 mm	120 µm	PT Calibration Procedures 2 & 5
	5 400 mm to 7 200 mm	120 µm	5
	7 200 mm to 9 000 mm	120 µm	
	9 000 mm to 10 800 mm	120 µm	
	10 800 mm to 12 600 mm	120 µm	
	12 600 mm to 14 400 mm	120 µm	
	14 400 mm to 16 200 mm	120 μm	
	16 200 mm to 18 000 mm	120 μm	
	18 000 mm to 19 800 mm	120 μm	





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Extended Range Tapes O.D.	19 800 mm to 21 600 mm	120 µm	Linear Machine calibrated
& I.D. <sup>F</sup> Vernier = 25 mm	21 600 mm to 23 400 mm	120 µm	with Laser Measurement System
R = 0.5  mm	23 400 mm to 25 200 mm	120 µm	PT Calibration Procedures 2
	25 200 mm to 27 000 mm	120 µm	& 5
	27 000 mm to 28 800 mm	120 µm	
	28 800 mm to 30 600 mm	120 µm	
	30 600 mm to 32 400 mm	120 µm	
	32 400 mm to 34 200 mm	120 µm	
Precision Linear Measurement Tapes <sup>F</sup>	Up to 11 278 mm (Up to 444 in)	(19 + 0.005 6L) μm [(350 + 4.8L) μin]	Gage Blocks, Linear Measuring Machine PT Calibration Procedures 8, 9, & 10
Digital Linear Tapes F	Up to 240 in	(160 + 0.39L) µin	Linear Machine calibrated
R = 0.0005 in	240 in to 480 in	(130 + 0.54L) µin	with Laser Measurement
	480 in to 720 in	(130 + 0.54L) µin	System PT Calibration Procedure 9
	720 in to 960 in	(160 + 0.50L) µin	
	960 in to 1200 in	$(0.67L - 3) \mu in$	
Linear Tapes <sup>F</sup>	Up in to 240 in	(260 + 0.31L) µin	Linear Machine calibrated
Vernier = $25$ in R = $0.001$ in	240 in to 480 in	(220 + 0.46L) µin	with Laser Measurement System
K = 0.001  m	480 in to 720 in	(200 + 0.50L) µin	PT Calibration Procedure 9
	720 in to 960 in	(230 + 0.46L) µin	
	960 in to 1 200 in	(65 + 0.63L) µin	
Digital Linear Tapes <sup>F</sup>	Up to 6000 mm	(3.6 + 0.44L) µm	Linear Machine calibrated
R = 0.01 mm	6 000 mm to 12 000 mm	(2.9 + 0.55L) μm	with Laser Measurement System
	12 000 mm to 18 000 mm	$(4.5 + 0.42L) \mu m$	PT Calibration Procedure 9
	18 000 mm to 24 000 mm	$(3.0 + 0.5L) \mu m$	
	24 000 mm to 30 000 mm	$(3.0 + 0.50L) \mu m$	
	30 000 mm to 36 000 mm	$(0.67L - 2.1) \mu m$	
	36 000 mm to 42 000 mm	$(0.67L - 2.1) \mu m$	
	42 000 mm to 48 000 mm	$(0.83L - 8.9) \mu m$	





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Linear Tapes <sup>F</sup>	Up to 6 000 mm	$(23 + 0.20L) \mu m$	Linear Machine calibrated
Vernier = $10 \text{ mm}$ R = $0.1 \text{ mm}$	6 000 mm to 12 000 mm	(23 + 0.17L μm	with Laser Measurement System
$\mathbf{K} = 0.1$ mm	12 000 mm to 18 000 mm	(23 + 0.17L) μm	PT Calibration Procedure 9
	18 000 mm to 24 000 mm	$(20 + 0.33L) \mu m$	
	24 000 mm to 30 000 mm	(23 + 0.17L) μm	
	30 000 mm to 36 000 mm	(14 + 0.50L μm	
	36 000 mm to 42 000 mm	(14 + 0.50L μm	
	42 000 mm to 48 000 mm	$(6.9 + 0.67L) \mu m$	
Linear Vernier Scales <sup>F</sup>	Up to 10 mm (Up to 25 in)	24 μm (300 μin)	Optical Comparator PT Calibration Procedure 8
	Up to 50 mm (Up to 100 in)	8.2 μm (300 μin)	Laser Measurement System PT Calibration Procedure 14
Precision Circumference Tapes <sup>F</sup>	Up to 11 278 mm (Up to 444 in)	(19 + 0.005 6L) μm [(350 + 4.8L) μin]	Ring Gages, Gage Blocks, Linear Measuring Machine PT Calibration Procedures 5, 8, 11 & 12
Digital Circumference Tapes <sup>F</sup> R = 0.0005 in	Up to 240 in	1 200 µin	Ring Gauges calibrated with Laser Measurement System PT Calibration Procedure 11
	Up in to 240 in	(160 + 0.39L) µin	Linear Machine calibrated
	240 in to 480 in	(130 + 0.54L) µin	with Laser Measurement System
	480 in to 720 in	(130 + 0.54L) µin	PT Calibration Procedures 5
	720 in to 960 in	(160 + 0.50L) µin	& 12
	960 in to 1 200 in	(0.67L – 3) µin	
Outside Circumference Tapes & Inside Circumference Tapes <sup>F</sup>	Up in to 240 in	1 200 µin	Ring Gauges calibrated with Laser Measurement System PT Calibration Procedure 11
Vernier = $25$ in	Up in to 240 in	(260 + 0.31L) µin	Linear Machine calibrated
R = 0.001 in	240 in to 480 in	$(200 + 0.31L) \mu m$ $(220 + 0.46L) \mu m$	with Laser Measurement
	480 in to 720 in	$(220 + 0.40L) \mu m$ $(200 + 0.50L) \mu m$	System
	720 in to 960 in	$(230 + 0.46L) \mu in$	PT Calibration Procedures 5 & 12
	960 in to 1 200 in	$(250 \pm 0.46L) \mu \text{m}$ (65 + 0.63L) $\mu \text{in}$	u 12
	200 III 10 I 200 III	$(0.05 \pm 0.05L)$ µIII	





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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
Digital Circumference Tapes <sup>F</sup> R = 0.01  mm	Up to 6 100 mm	(29 + 0.00049L) μm	Ring Gauges calibrated with Laser Measurement System PT Calibration Procedure 11
	Up to 6 000 mm	$(3.6 + 0.44L) \mu m$	Linear Machine calibrated
	6 000 mm to 12 000 mm	(2.9 + 0.55L) µm	with Laser Measurement System
	12 000 mm to 18 000 mm	$(4.5 + 0.42L) \mu m$	PT Calibration Procedures 5
	18 000 mm to 24 000 mm	$(3.0 + 0.5L) \mu m$	& 12
	24 000 mm to 30 000 mm	$(3.0 + 0.50L) \mu m$	
	30 000 mm to 36 000 mm	$(0.67L - 2.1) \mu m$	
	36 000 mm to 42 000 mm	$(0.67L - 2.1) \mu m$	
	42 000 mm to 48 000 mm	(0.83L – 8.9) µm	
Outside Circumference Tapes & Inside Circumference Tapes <sup>F</sup>	Up to 6 100 mm	(37 + 0.00049L) μm	Ring Gauges calibrated with Laser Measurement System PT Calibration Procedure 11
Vernier = 10 mm	Up to 6 000 mm	(23 + 0.20L) μm	Linear Machine calibrated
R = 0.1  mm	6 000 mm to 12 000 mm	$(23 + 0.17L) \mu m$	with Laser Measurement
	12 000 mm to 18 000 mm	$(23 + 0.17L) \mu m$	System PT Calibration Procedures 5
	18 000 mm to 24 000 mm	$(20 + 0.33L) \mu m$	& 12
	24 000 mm to 30 000 mm	(23 + 0.17L) μm	
	30 000 mm to 36 000 mm	(14 + 0.50L) μm	
	36 000 mm to 42 000 mm	(14 + 0.50L) μm	
	42 000 mm to 48 000 mm	(6.9 + 0.67L) μm	

- 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<sup>F</sup> would mean that the laboratory performs this calibration at its fixed location.

4. The term L represents length in inches or millimeters as appropriate to the uncertainty statement.Issue: 07/2021This supplement is in conjunction with certificate #L21-466Page