



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

P.K. CALIBRATION & CONSULTING LABS LTD
d.b.a. PK LABS CALIBRATION & CONSULTING
3 Hadolev Str.
Tefen Industrial Zone, 24959
ISRAEL
Peter Kornhauser Phone: 972 4 9873345

CALIBRATION

Valid To: July 31, 2021

Certificate Number: 2806.01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following calibrations¹:

I. Chemical Quantities

Parameter/Equipment	Range	CMC ^{2,4} (±)	Comments ¹¹
CO ₂ – Measure ³	Up to 20 %	0.8 %	Geotech G100, ASTM E1292, ISO 8573-6, CEI EN 50270, CGA G-6

II. Dimensional

Parameter/Equipment	Range	CMC ^{2,4} (±)	Comments ¹¹
Calipers ³	Up to 350 mm (>350 to 1000) mm	12 µm (480 µin) 20 µm (790 µin)	Caliper checker gage blocks: DIN 862; ISO 13385; JIS B 7507
Thickness and Feeler Gages ³	Up to 0.01 mm (>0.01 to 1) mm (>1 to 2) mm (>2 to 3) mm (>3 to 10) mm (>10 to 20) mm (>20 to 30) mm (>30 to 40) mm (>40 to 50) mm	0.5 µm (20 µin) 0.6 µm (23 µin) 0.7 µm (28 µin) 0.8 µm (32 µin) 0.9 µm (35 µin) 1 µm (39 µin) 1.1 µm (43 µin) 1.3 µm (51 µin) 1.5 µm (59 µin)	Gage blocks; UMM: JIS B7524; DIN 2275

Parameter/Equipment	Range	CMC ^{2,5} (\pm)	Comments ¹¹
Micrometers ^{3,14}	Up to 500 mm	$(1.2R + 6L) \mu\text{m}$	Gage blocks: ISO 3611; DIN 863 Part 1-4; JIS B 7502; JIS B 7520
Length Indicators (Dial, Lever, Dial Gauge, Test, LVDT) ³	Up to 100 mm	$(1 + 0.5R) \mu\text{m}$	Indicator calibrator; UMM: DIN 879; DIN 879-1; DIN 879-3; DIN 878; DIN 2270; JIS B7503; JIS B 7533; ISO 13102
Height Gages ³	Up to 500 mm (>500 to 1000) mm	2 μm (79 μin) 3 μm (360 μin)	Gage blocks: JIS B7517; BS 1643; BS EN ISO 13225
Bore Gages	(2 to 200) mm	0.9 μm (35 μin)	Gage blocks; ring gages; UMM: JIS B7515
Cylindrical and Taper Gages – Pins and Plain Plugs ¹⁰ Plain Rings ¹⁰	Up to 100 mm (>100 to 300) mm (>300 to 550) mm Up to 100 mm (>100 to 300) mm (>300 to 450) mm	1 μm (39 μin) 2 μm (79 μin) 2.8 μm (110 μin) 1 μm (39 μin) 2 μm (79 μin) 2.5 μm (98 μin)	UMM, gage blocks: ISO 594/1; ISO 80369-7; ASME B1.20.5; ISO 286; ISO 286-1; ISO 286-2 DIN 7162; DIN EN ISO 1938-1; DIN 7163; DIN 7164
Length Standards (Micrometer Settings, End Rods, Length Bars)	Up to 100 mm (>100 to 500) mm	1.5 μm (59 μin) 2.7 μm (110 μin)	UMM, gage blocks: BS 870; BS EN ISO 3611; JIS B 7502
Thread Wires	Up to 7 mm	0.6 μm (24 μin)	UMM, gage blocks: BS 5590; ASME B1.2
Bevel Protractors ³ , Clinometers, Bubble Levels	Up to 5° (>5 to 180) °	9 $\mu\text{m}/\text{m}$ (1.8 arcsec) 0.6R	Angle blocks ⁶ , gage blocks, sine bars: BS 1685; BS 958; DIN 877; JIS B 7510;

Parameter/Equipment	Range	CMC ^{2,5} (±)	Comments ¹¹
Measuring Rules ³	Up to 0.2 m (>0.2 to 0.5) m (>0.5 to 1) m	0.5 mm (0.02 in) 0.9 mm (0.035 in) 1.2 mm (0.047 in)	Length standards: JIS B 7516
Measuring Tapes ³	Up to 5 m (>5 to 10) m (>10 to 20) m (>20 to 30) m (>30 to 40) m (>40 to 50) m	1.8 mm (0.071 in) 2 mm (0.079 in) 2.3 mm (0.091 in) 2.9 mm (0.11 in) 3.1 mm (0.12 in) 3.6 mm (0.14 in)	Length standards: JIS B 7512; JIS B 7522; BS 4035; BS 4484-1
Cylindrical and Taper Thread Plug Gage – Pitch Diameter Major Diameter ⁹	Up to 100 mm (>100 to 300) mm (>300 to 550) mm Up to 100 mm (>100 to 300) mm (>300 to 550) mm	1.5 μm (59 μin) 2.1 μm (75 μin) 3.4 μm (140 μin) 1 μm (39 μin) 2 μm (79 μin) 2.8 μm (110 μin)	Thread wires; UMM: ISO 7-1; ISO 7-2; ISO 965; ISO 1502; ISO 228; ISO 11363; ISO 15872; DIN 477; DIN 2999; DIN 103; DIN 40431; DIN 513; DIN 40430; DIN 158; DIN 158-1; DIN EN 10226; EN 10226; DIN 405; DIN EN 144-1; BS 93; BS 811; BS 84; BS 919; BS 21; BS EN 10226-1; DIN EN 10226- 1; DIN EN 10226-2; DIN EN 10226-3; BS 3409; BS 4377; BS 1657; BS 1104; DIN 7756; MIL-T-21309; A-A-59158; FED STD H28; ASME B1.2; ASME B1.5; ASME B1.8; ASME B 1.9; ASME B1.12; ASME B1.15; ASME B1.20.1; ASME B1.20.3; ASME B1.20.5; ASME B1.20.7; ASME B1.13M; ASME B1.16M; ASME B1.21M; ASME B1.22M; ASME B18.29.1; ASME B 1.1; BS 1580; API Spec 5B; API Spec 7-2; AWWA C800-05; SAE MA 1696.

Parameter/Equipment	Range	CMC ² (±)	Comments ¹¹
Solid and Tapered Thread Ring Gage – Pitch Diameter Minor Diameter ⁹	(0.5 to 100) mm (>100 to 300) mm (>300 to 450) mm (6 to 50) mm (>50 to 100) mm	1.5 µm (59 µin) 3.9 µm (150 µin) 4.3 µm (170 µin) 2.4 µm (94 µin) 2.9 µm (110 µin)	Ball probe, micrometer Tri-O-Bor,UMM: ISO 7-1; ISO 7-2; ISO 228 ; ISO 965; ISO 1502; ISO 11363; ISO 15872; DIN 477; DIN 2999; DIN 103; DIN 40431; DIN 513; DIN 40430;DIN 158; DIN 158-1; DIN EN 10226; EN 10226; DIN 405; DIN EN 144- 1; BS 93; BS 811;BS 84; BS 919; BS 21; BS EN 10226-1; DIN EN 10226-1;DIN EN 10226-2; DIN EN 10226-3; BS 3409; BS 4377; BS 1657; BS 1104; BS 1580-1; BS 1580-3; DIN 7756; MIL-T-21309; A-A-59158; FED STD H28; ASME B1.3; ASME B1.5; ASME B1.8; ASME B 1.9; ASME B1.12; ASME B1.15; ASME B1.20.1; ASME B1.20.3; ASME B1.20.5; ASME B1.20.7; ASME B1.13M; ASME B1.16M; ASME B1.21M; ASME B1.22M; ASME B1.1; API Spec 5B; API Spec 7-2; AWWA C800-05; SAE MA 1696.
Extensometers ³ – Displacement	(0.01 to 500) mm	2.6 µm (100 µin)	Micrometers; indicators, gage blocks: ASTM E83; ASTM E2309; ASTM E2309/E2309M; ISO 5893; ASTM E8/E8M ISO 9513, ASTM D5311; ASTM D5311/D5311M

Parameter/Equipment	Range	CMC ² (±)	Comments ¹¹
Length Measuring Instruments – UMMs, Bench Micrometers, Indicators, Calibrators, Caliper Checkers	Up to 1 mm (>1 to 20) mm (>20 to 50) mm (>50 to 100) mm (>100 to 200) mm (>200 to 300) mm	0.12 μm (4.7 μin) 0.18 μm (7.1 μin) 0.2 μm (7.9 μin) 0.24 μm (9.5 μin) 4 μm (160 μin) 5.6 μm (220 μin)	Gage blocks, LVDT
Line Standard Scales	Up to 1 mm (>1 to 10) mm (>10 to 50) mm (>50 to 200) mm	0.7 μm (28 μin) 1.3 μm (51 μin) 1.7 μm (67 μin) 2.5 μm (98 μin)	UMM: JIS B 7541
Measuring Projectors and Microscopes ³ – Displacement Angle	Up to 10 mm (>10 to 50) mm (>50 to 100) mm (0 to 90)°	1.7 μm (67 μin) 2.3 μm (91 μin) 3.5 μm (140 μin) 3.5" (0.000 017 rad)	Line standard scales: JIS B7184; JIS B7153; ASTM 1951; ASTM 112 Angle blocks
Surface (Granite) Plates - Measure Flatness Only	Up to 2.5 m x 1.6 m	0.001 mm	ISO 8512-2, DIN 876, GGG-P-463cc, BS 817 To Manufacturer or customer requirements

III. Dimensional Testing/Calibration

Parameter/Equipment	Range	CMC ² (±)	Comments ¹¹
Linear Measurement (Single Axis) ^{3,7}	Up to 0.2 m (>0.2 to 0.5) m (>0.5 to 1.0) m (>1.0 to 5.0) m (>5.0 to 10.0) m Up to 50 mm	0.15 mm (0.0059 in) 0.7 mm (0.028 in) 0.9 mm (0.035 in) 2 mm (0.079 in) 3.3 mm (0.13 in) 3.0 μm (120 μin)	Length standards Measuring projector

Parameter/Equipment	Range	CMC ² (±)	Comments ¹¹
Inspection Fixtures – Length, Single Axis (Straight Edges, Knife Edges) ¹²	Up to 500 mm	2.6 μm (79 μin)	LVDT; DIN 874; JIS B 7514
Inspection Fixtures – Length, Two Axis (V-Blocks, Bar Parallels, 1-2-3 Blocks, Squares, Sine Bars, Sine Plates, Angle Irons) ¹²			BS 3731; BS 3064; JIS B 7523; JIS B 7526; JIS B 7539; JIS B 7540; JIS B 7514; DIN 875; DIN 875-1; DIN 874; DIN 2273; DIN 2274
Flatness	Up to 500 mm	5.6 μm (220 μin)	LVDT, granite plate
Angle	Up to 60° (5 to 60)° (>60 to 180)° (0.5 to 60)°	4" (0.000 019 rad) 0.6R 1.0R 36" (0.000 17 rad)	Sine bar, granite plate bevel protractor Measuring projector
Parallelism	Up to 200 mm	3.0 μm (120 μin)	LVDT, granite plate
Perpendicularity	Up to 600 mm	2.8 μm (110 μin)	Square, granite plate, gage blocks

IV. Electrical – DC/Low Frequency

Parameter/Equipment	Range	CMC ² (±)	Comments ¹¹
Electrical Simulation of RTDs ³ – Pt 50 Ω, Pt 100 Ω, Pt 200 Ω, Pt 500 Ω Pt 1000 Ω	(-190 to 830) °C	0.12 °C	Process calibrator: EURAMET/cg-11; AMS 2750

Parameter/Equipment	Range	CMC ² (±)	Comments ¹¹
Electrical Simulation of Thermocouples ³ –			
Type B	(250 to 900) °C (>900 to 1800) °C	1.0 °C 0.31 °C	Process calibrator: EURAMET/cg-11; AMS 2750
Type C	(250 to 900) °C (>900 to 2250) °C	0.32 °C 0.40 °C	
Type E	(-200 to 0) °C (>0 to 990) °C	0.20 °C 0.25 °C	
Type J	(-200 to 0) °C (>0 to 1190) °C	0.19 °C 0.20 °C	
Type K	(-200 to -100) °C (>-100 to 0) °C (>0 to 900) °C (>900 to 1360) °C	0.26 °C 0.20 °C 0.21 °C 0.23 °C	
Type N	(-200 to 0) °C (>0 to 1240) °C	0.21 °C 0.21 °C	
Type S	(-40 to 600) °C (>600 to 1730) °C	0.77 °C 0.34 °C	
Type T	(-200 to -180) °C (>-180 to 0) °C (>0 to 390) °C	0.41 °C 0.21 °C 0.20 °C	

V. Mechanical

Parameter/Equipment	Range	CMC ² (±)	Comments ¹¹
Force ³ –			
Load Cell (Force Transducer)			ASTM E74; ISO 376
Compression and Tension	(0.001 to 1) kN (>1 to 10) kN	0.04 % of reading 0.05 % of reading	Dead weights
	(10 to 50) kN (>50 to 100) kN	0.057 % of reading 0.088 % of reading	Load cell standards
Compression	(100 to 500) kN (>500 to 5000) kN	0.073 % of reading 0.09 % of reading	Load cell standards

Parameter/Equipment	Range	CMC ² (±)	Comments ¹¹
Force ³ – (cont)			
Testing Machines Force Push/Pull Gages Dynamometers			ASTM E4; ISO 7500-1; ISO 7500-2; BS 12390-4 (Israeli standard 26 part 4-1) ¹³
Compression and Tension	Up to 50 kN (50 to 100) kN (100 to 200) kN (200 to 500) kN (500 to 1000) kN	0.052 % of reading 0.039 % of reading 0.063 % of reading 0.057 % of reading 0.033 % of reading	Dead weights
Compression	(500 to 1000) kN (1000 to 5000) kN	0.041 % of reading 0.039 % of reading	Load cell standards
Rate of Stress	(0.05 to 2) MPa/sec	0.07 MPa/s	BS EN 12390-3; load cell, stop watch
Rate of Straining	(0.5 to 12) MPa/sec (0.05 to 0.8) mm/mm/min	0.3 MPa/s 0.02 mm/mm/min	ASTM E2658; load cell, stop watch
Pressure Gages ³ –			OIML/R 101; Israeli standard 697; EA-10/17
Pneumatic –			
Gage & Differential	(-1250 to 1250) kPa (-15 to 15) kPa (-100 to 100) kPa	0.8 Pa 3 Pa 0.14 kPa	Druck, LPE 9400 Druck, DPI 610 Druck, DPI 610
Absolute	(13 to 1250) Pa (0.04 to 200) kPa	0.73 Pa 0.53 kPa	Druck, LPE 940 Druck, DPI 104
Hydraulic & Pneumatic	(0 to 7) MPa (>7 to 70) MPa (>70 to 200) MPa	0.4 kPa 10 kPa 32 kPa	Druck, DPI 104 Druck, DPI 104 AEP Transducers LAB DMM

Parameter/Equipment	Range	CMC ² (±)	Comments
Pressure Testers, Pressure transducers, Pressure indicators –			
Pneumatic –	(-100 to 100) kPa	2 Pa	Deadweight tester YANTRIKA, REW 401HAA/1
	(0 to 7) MPa	150 Pa	Deadweight tester YANTRIKA, REW 417HAA/1
Hydraulic	(0 to 7) MPa (>7 to 140) MPa	170 Pa 1 kPa	Deadweight tester YANTRIKA, REW 309HAO/
Durometers Calibration –			ASTM D 2240; ISO 868; DIN 53505; DIN ISO 7619-1
Indenter – Extension and Shape			
Diameter	Diameter of the base of the cone 0.79 mm (A, C)	4 µm (160 µin)	Optical inspection under magnification
Radius	Tip radius R 0.1 mm (B, D), R 1.19 mm (O, DO)	3 µm (120 µin) 10 µm (390 µin)	
Angle	Cone angle 35° (A, C), 30° (B, D)	51" (0.00025 rad)	
Extension	2.5 mm (A, B, C, D, O, DO)	8 µm (320 µin)	
Spring Calibration Force	A, B, E, O C, D, DO	0.04 N 0.4 N	Load cell standards; dead weights

Parameter/Equipment	Range	CMC ² (±)	Comments ¹¹
Scales and Balances ³ (Includes Analytical Balances)	Up to 20 mg (>20 to 100) mg (>100 to 1000) mg (>1 to 10) g (>10 to 20) g (>20 to 100) g (>100 to 200) g (>200 to 500) g (>500 to 1000) g (>1 to 10) kg (>10 to 200) kg (>200 to 1000) kg (1000 to 2400) kg	0.002 mg 0.003 mg 0.004 mg 0.009 mg 0.014 mg 0.092 mg 0.169 mg 0.8 mg 0.9 mg 0.08 g 1.3 g 15 g 23 g	Mass standards: Class E ₂ , M ₁ , M ₃ , OIML R76-1, OIML R 111-1 EURAMET/cg-18, USP 41
Calibration of Standard Weights	10 kg 20 kg 50 kg	0.15 g 0.30 g 0.78 g	OIML R101 OIML R 111-1 Accuracy grades: M ₁ , M ₂ , M ₃
Custom Weights/Fixtures ^{3,8} –			
Mass	From 10 g to 100 g (>100 to 1000) g (>1 to 10) kg (>10 to 30) kg	0.092 mg 0.9 mg 0.08 g 1.3 g	Precision scales ⁶ OIML R 111-1
Volume	From 1 ml to 5 ml (>5 to 20) ml (>20 to 150) ml (>150 to 200) ml	0.001 ml 0.002 ml 0.003 ml 0.004 ml	Derived value
Torque – Torque Wrenches and Torque Drivers ³	(0 to 0.25) N·m (0.25 to 0.7) N·m (0.7 to 2.5) N·m (2.5 to 25) N·m (25 to 250) N·m (150 to 1500) N·m	0.066 N·m 0.068 N·m 0.11 N·m 0.009 N·m 0.13 N·m 0.48 N·m	Torque calibrators, ISO 6789; ISO 6789-1; ISO 6789-2 Torque Meter

Parameter/Equipment	Range	CMC ² (±)	Comments ¹¹
Indirect Verification of Rockwell Hardness Testers ³	<p>HRA: Low Medium High</p> <p>HRBW: Low Medium High</p> <p>HRC: Low Medium High</p> <p>HREW: Low Medium High</p> <p>HR15TW: Low Medium High</p>	<p>0.24 HRA 0.24 HRA 0.18 HRA</p> <p>0.58 HRBW 0.39 HRBW 0.40 HRBW</p> <p>0.29 HRC 0.24 HRC 0.40 HRC</p> <p>0.19 HREW 0.28 HREW 0.18 HREW</p> <p>0.28 HR15TW 0.25 HR15TW 0.31 HR15TW</p>	Hardness standards: ASTM E18; ISO 6508-2
Indirect Verification of Vickers Hardness Testers ³ (0.1, 0.5, 1 and 10) kg	(≥100 to 240) HV (>240 to ≤ 600) HV >600 HV	3.3 HV 6.1 HV 8.1 HV	Hardness standards: ASTM E384, ASTM E92; ISO 6507-2
Indirect Verification of Knoop Hardness Testers ³	(≥100 to 250) HK (>250 to ≤ 650) HK >650 HK	4.7 HK 5.6 HK 9.6 HK	Hardness standards: ASTM E384; ISO 4545-2
Indirect Verification of Brinell Hardness Testers ³ , (10/3000, 10/1000, and 2.5/187.5)	<125 HBW (125 to 225) HBW >225 HBW	1.9 HBW 2.9 HBW 4.4 HBW	Hardness standards: ASTM E10; ISO 6506-2

Parameter/Equipment	Range	CMC ² (±)	Comments ¹¹
Volume – Fixed Points (Volumetric Apparatus, Pipettes)	1 µl 2 µl 5 µl 10 µl 20 µl 50 µl 100 µl 200 µl 500 µl 1 ml 2 ml 5 ml 10 ml 20 ml 50 ml 100 ml	0.016 µl 0.016 µl 0.016 µl 0.016 µl 0.016 µl 0.017 µl 0.017 µl 0.017 µl 0.017 µl 0.018 µl 0.021 µl 0.40 µl 0.49 µl 0.66 µl 1.87 µl 2.42 µl	Gravimetric method with analytical balance: ISO 8655-1; ISO 8655- 2; ISO 8655-3; ISO 8655-4; ISO 8655-5; ISO 8655-6
Sieves	Standard sieve designation (Customer defined parameters)	7 µm (280 µin)	Measuring projector; caliper; ASTM E11; ISO 3310-1; ISO 3310- 2; ISO 3310-3; ISO 2395; ISO 565
Hammers ³ – Weighing Height of Free Fall	Defined by Standard Defined by Standard	2 LSVD 0.9 mm (0.035 in)	ASTM D 1557; ASTM D 698; ASTM D 2168; ASTM D 1883

Parameter/Equipment	Range	CMC ^{2,4} (±)	Comments ¹¹
Impact Testing Devices ³ (Direct Method Only) –			
Energy	(1 to 5.5) J (>5.5 to 150) J (>150 to 406) J	0.21 J 0.51 J 3.2 J	ASTM D 256; ASTM E 23; AS 1146.3; EN 10045;
Velocity	(3 to 6) m/s	0.004 m/s	ISO 148; ISO 148-1; ISO 148-2; BS 131; BS 131-1; BS 131-5; BS 131-6; BS 131-7;

VI. Thermodynamics

Parameter/Equipment	Range	CMC ² (±)	Comments ¹¹
Thermocouple Calibration –			
Type E	(190 to 0) °C (>0 to 960) °C	0.24 °C 0.24 °C	AMS 2750; ASTM E220
Type J	(-190 to 0) °C (>0 to 960) °C	0.18 °C 0.24 °C	
Type K	(-190 to 0) °C (>0 to 230) °C (>230 to 660) °C (>660 to 960) °C (>960 to 1250) °C	0.19 °C 0.18 °C 0.22 °C 0.28 °C 2.5 °C	
Type N	(-190 to 0) °C (>0 to 230) °C (>230 to 660) °C (>660 to 960) °C (>960 to 1250) °C	0.28 °C 0.28 °C 0.22 °C 0.22 °C 2.5 °C	
Type R	(-40 to 0) °C (>0 to 600) °C (>600 to 960) °C (>960 to 1250) °C	0.96 °C 0.43 °C 0.46 °C 2.6 °C	

Parameter/Equipment	Range	CMC ² (±)	Comments ¹¹
Thermocouple Calibration – (cont) Type S Type T	(-40 to 0) °C (>0 to 600) °C (>600 to 960) °C (>960 to 1250) °C (-190 to 0) °C (>0 to 230) °C (>230 to 420) °C	0.65 °C 0.49 °C 0.51 °C 2.6 °C 0.20 °C 0.25 °C 0.23 °C	AMS 2750; ASTM E220
RTD Probes Calibration	(-190 to 0) °C (>0 to 150) °C (>150 to 230) °C (>230 to 660) °C (>660 to 960) °C	0.09 °C 0.09 °C 0.09 °C 0.09 °C 0.1 °C	AMS 2750; ASTM E644; ASTM E1137; ASTM E1137/E1137M
Temperature Measuring Instruments – Liquid in Glass Thermometers Mechanical and Electrical Indicators with Probe(s)	(-80 to 0) °C (>0 to 100) °C (>100 to 230) °C (-190 to 0) °C (>0 to 100) °C (>100 to 420) °C (>420 to 660) °C	0.12 °C 0.09 °C 0.09 °C 0.09 °C 0.09 °C 0.09 °C 0.09 °C	SPRT, RTD standards: ASTM E1; ASTM E77; ISO 1770; ISO 1771 AMS 2750
Temperature – Measure Liquid Baths Uniformity Surveys ³ (Ovens, Furnaces, Autoclaves and Freezers)	(-190 to -40) °C (>-40 to 0) °C (>0 to 150) °C (-190 to 0) °C (>0 to 100) °C (>100 to 230) °C (>230 to 420) °C (>420 to 660) °C (>660 to 960) °C (>960 to 1250) °C	0.09 °C 0.09 °C 0.09 °C 0.39 °C 0.17 °C 0.30 °C 0.35 °C 0.44 °C 0.54 °C 2.7 °C	PRTs and thermocouple reference standards: Measurement and uniformity surveys; AMS 2750; ISO 17665-1; ISO 17665-2; SI 1291 (Israeli standard) ¹⁵

Parameter/Equipment	Range	CMC ² (±)	Comments ¹¹
Relative Humidity – Measuring Equipment	(10 to 20) % RH (>20 to 40) % RH (>40 to 70) % RH (>70 to 95) % RH	0.68 % RH 0.86 % RH 1.1 % RH 1.4 % RH	Humidity chamber
Measure ³	(10 to 20) % RH (>20 to 65) % RH (>65 to 90) % RH	1.0 % RH 1.3 % RH 1.4 % RH	Rotronic humidity indicator
Dewpoint – Measuring Equipment	(-40 to 95) °C	0.056 °C	Chilled Mirror ASTM D4230, ASTM E104, ASTM E546, ASTM E576, MIL-I-24144, MIL-M-24144
Measure ³	(-40 to 180) °C	0.2 °C	

VII. Time & Frequency

Parameter/Equipment	Range	CMC ^{2,4} (±)	Comments
Timers ³	2 sec to 24 hr	0.57 " (0.57 s)	Stopwatch
Speed ^{3,4} – Rotational (RPM) Oscillation (OPM)	(15 to 60) RPM (>60 to 3000) RPM (>3000 to 24 000) RPM (>24000 to 48 000) RPM (>48 000 to 90 000) RPM	0.18 RPM 0.34 RPM 4 RPM 30 RPM 54 RPM	Optical tachometer (mode photo) ASTM D4060
Surface Speed	(15 to 60) RPM (>60 to 600) RPM (>600 to 1000) RPM (>1000 to 6000) RPM (10 to 400) m/min	0.18 RPM 0.24 RPM 0.63 RPM 2 RPM 0.25 m/min	Mechanical Tachometer (mode contact) Mechanical Tachometer (mode m/min)
Length Counter ³	(2 to 1000) m	0.5 m	Mechanical tachometer; (mode m/min), mechanical stopwatch

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- ¹ This laboratory offers commercial calibration, dimensional testing, and field calibration services.
- ² 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.
- ³ Field calibration service is available for this calibration and this laboratory meets A2LA R104 – *General Requirements: Accreditation of Field Testing and Field Calibration Laboratories* 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.
- ⁴ In the statement of CMC, L is the numerical value of the nominal length of the device measured in meters. In the statement of best uncertainty, R is the numerical value of the resolution of the device measured in micrometers; LSVD represents the least significant valid displayed division of the device subject to calibration; RPM is revolution per minute, ORM is oscillation per minute.
- ⁵ In the statement of CMC, R is the numerical value of the resolution of the angle measuring devices measured in degrees or in minutes.
- ⁶ Calibrated by P.K. Labs
- ⁷ 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.
- ⁸ Including weighing of distilled water (density 1 g/cm^3) and conversion to the volume units.
- ⁹ Compliance according to the policy of the P.K.Labs
- ¹⁰ Compliance of the setting or limit gauges according to the policy of the P.K.Labs.
- ¹¹ Calibration can be also performed to manufacturer or specific customer requirements.
- ¹² This test is not equivalent to that of a calibration.
- ¹³ Calibration of the compression machines for testing of hardened concrete (Israeli standard 26 part 4-1-is the Hebrew version)
- ¹⁴ Calibration of micrometers "Tri-O-Bor"(internal micrometer with three-point contact) according to test instruction VDI/VDE/DGO 2618 as an expansion of DIN 863
- ¹⁵ Calibration of the vehicles for food transport in a controlled temperature (Israeli standard 1291 is the Hebrew version)



Accredited Laboratory

A2LA has accredited

P.K. CALIBRATION & CONSULTING LABS LTD D.BA. PK LABS CALIBRATION & CONSULTING

Tefen Industrial Zone, ISRAEL

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 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 22nd day of July 2019.

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

Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 2806.01
Valid to July 31, 2021

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