



## תעודת הסמכה מס' 0014

# מ.ב.א הזורע טכנולוגיות כיוול אגש"ח בע"מ

כתובת אתר ייחוס: קיבוץ הזורע ד.ג. עמקים, 3658100

עד יום: 12.05.2028

בתוקף מיום: 15.03.2026

הארגון נבדק ונבחן על ידי הרשות הלאומית להסמכת מעבדות (להלן הרשות) ונמצא ראוי להסמכה בהתאם לנספח פירוט היקף ההסמכה המצורף לתעודה זו, המהווה חלק בלתי נפרד ממנה ומספרו זהה למספר התעודה. הסמכה מצביעה על כשירות מקצועית ותפעול מערכת ניהול איכות בעלת הכרה בינלאומית. הארגון המוסמך על ידי הרשות, עומד בתקנים/ בדרישות המפורטים מעלה. דרישות התקנים הם לכשירות מקצועית ולמערכות ניהול, שהינן הכרחיות למתן תוצאות אמינות. הסמכה זו ניתנה בהתאם לכללי ISO/IEC 17011:2017 לפיהם פועלת הרשות ובמסגרתם מקיימת פיקוח שוטף על הארגון לצורך בחינת תפקודו המתמשך בהתאם לדרישות ההסמכה. ההסמכה תקפה כל עוד הארגון עונה לאמות המידה שנקבעו על ידי הרשות. הרשות חתומה על הסכם הכרה רב צדדי (MLA) מול ארגון (EA) European Accreditation Cooperation.

תעודה זו אינה מהווה אישור לפי סעיף 12 לחוק התקנים.

אתי פלר  
מנכ"ל  
הרשות הלאומית להסמכת מעבדות

תאריך הסמכה ראשון: 13.05.1996



הרשות הלאומית להסמכת מעבדות  
Israel Laboratory Accreditation Authority

**Calibration Laboratories**

**ISO/IEC 17025:2017**

**Accreditation Certificate No. 0014**

**QCC Hazorea Calibration Technologies (A.C.S) Ltd.**

**Main site address:** Kibbutz Hazorea , 3658100 , Israel

**Valid from:15.03.2026**

**Until: 12.05.2028**

The organization was assessed by the Israel Laboratory Accreditation Authority (ISRAC) and found to be worthy of accreditation to the detailed schedule attached.

The schedule is an integral part of this certificate and is numbered with the above certificate number.

Accreditation demonstrates technical competence and operation of an internationally recognized quality management system.

The organization accredited by ISRAC complies with the standards/requirements mentioned above, meets the technical competence requirements and management system requirements that are necessary for it to consistently deliver technically competent results. This accreditation is granted in accordance with the requirements of ISO/IEC 17011:2017, and entails periodic surveillance and reassessment by ISRAC to ensure that the organization continues to comply with the accreditation requirements.

The accreditation is valid provided that the organization continues to meet the criteria as laid down by ISRAC. ISRAC is an EA-MLA (European Accreditation Cooperation Multi-Lateral Agreement) signatory.

This certificate does not constitute an approval in accordance with article 12 of the standard law.

**Date of first accreditation: 13.05.1996**

**Etty Feller  
General Manager  
Israel Laboratory Accreditation Authority**

Date of signature 15/03/2026

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<u>Name and Address:</u>	
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ite: P or T or M , P-Permanent, T-Temporary, M-Mobile

A permanent (P) or temporary (T) place, or a stationary or mobile (M) facility, at or from which the organization performs activities forming part of its scope of accreditation, starting from sampling to final issuance of a report or certificate and / or quality system activities. A temporary (T) site is a site established under the responsibility of an accredited permanent site. All activities performed at a temporary site are the responsibility of the permanent site. An outdoors work is also considered to be a temporary site. Temporary site will be a site that involves work for special project and the activity will be defined in time (up to 2 years).

Type of Scopes: A- Fixed, C- Flexible scope in analytical tests : Type of matrix, analytes, experimental systems and/or analytical characteristics may be subject to changes, in accordance with the laboratory's approved and documented procedures. For details, please refer to the list of Accredited Tests, available from the laboratory upon request.



Item	Scope Type	Site	Measurand Instrument, Gauge	Range [Including margins] (Does not include margins)	Uncertainty of Measurement <sup>1</sup>	Reference Documents	Remarks
<b>Calibration – Electrical Quantities - DC and LF</b>					<b>כיוול – גדלים חשמליים - זרם ישר ותדר נמוך</b>		
1	A	P	DC Voltage, Sources	± 1 V	2 μV/V	MetCal  Automated Calibration Software  Manufacturer instructions  WI-C104 WI-C100 WI-C103	Datron 1281 Wavetek 4912 Fluke 8508A Fluke 8588A
2	A	P		± 1.018 V	2 μV/V		
3	A	P		± 10 V	1 μV/V		
4	A	P;T		0 mV	0.12 μV		
5	A	P		[0.1 μV to 200 mV]	4.2 μV/V		
6	A	P		(200 mV to 2 V)	1.7 μV/V		
7	A	P		(2V to 20 V)	1.2 μV/V		
8	A	P		(20 V to 1050 V)	1.4 μV/V		
9	A	T		[0.1 μV to 200 mV]	14 μV/V		
10	A	T		(200 mV to 1V)	6.7 μV/V		
11	A	T		(1 V to 10 V)	5 μV/V		
12	A	T		(10 V to 100 V)	5 μV/V		
13	A	T		(100 V to 1000 V)	8.3 μV/V		
14	A	P, T	DC Voltage, Measuring Instruments	0 mV	0.14 μV	MetCal Automated Calibration Software  Manufacturer instructions  WI-C100	Fluke 5520A Fluke 5522A Fluke 5730A
15	A	P		[0.1 μV to 220 mV]	6.1 μV/V		
16	A	P		(0.22 V to 2.2 V)	2 μV/V		
17	A	P		(2.2 V to 22 V)	2 μV/V		
18	A	P		(22 V to 220 V)	1.6 μV/V		
19	A	P		(220 V to 1100 V)	2.2 μV/V		
20	A	T		(0 mV to 329.9999 mV]	8.4 μV/V		
21	A	T		(329.9999 mV to 3.299999 V]	15 μV/V		
22	A	T		(3.299999 V to 32.99999 V]	16 μV/V		
23	A	T		(32.99999 V to 329.999 V]	26 μV/V		
24	A	T		(329.9999 V to 1000 V]	26 μV/V		



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<b>Calibration – Electrical Quantities - DC and LF</b>					<b>כיוול – גדלים חשמליים - זרם ישר ותדר נמוך</b>		
25	A	P;T	DC Current.	0 $\mu$ A	0.51 nA	MetCal	Datron 1281
26	A	P;T	Sources	[10 nA to 200 $\mu$ A]	7.3 $\mu$ A/A		Fluke 8508A
27	A	P;T		(200 $\mu$ A to 2 mA]	8.1 $\mu$ A/A	Automated Calibration Software	Fluke 8588A
28	A	P;T		(2 mA to 20 mA]	4.5 $\mu$ A/A		
29	A	P;T		(20 mA to 200 mA]	11 $\mu$ A/A	Manufacturer instructions	
30	A	P;T		(200 mA to 2 A]	14 $\mu$ A/A	WI-C100	
31	A	P;T		(2 A to 20 A]	48.7 $\mu$ A/A		
32	A	P;T		(20 A to 500 A]	5 mA + 40 $\mu$ A/A		TH0530A
33	A	P;T		(500 A to 2000 A]	20 mA + 40 $\mu$ A/A		TA1000 Fluke 5730A Fluke 8588A Fluke 5522A
34	A	P;T	DC Current,	0 $\mu$ A	0.52 nA	MetCal	Fluke 5520A
35	A	P;T	Measuring Instruments	[2 nA to 220 $\mu$ A]	8 $\mu$ A/A	Automated Calibration Software	Fluke 5522A
36	A	P;T		(220 $\mu$ A to 2.2 mA]	10 $\mu$ A/A	Manufacturer instructions	Fluke 5730A
37	A	P;T		(2.2 mA to 22 mA]	6 $\mu$ A/A	WI-C100	Fluke 5725A
38	A	P;T		(22 mA to 220 mA]	14 $\mu$ A/A		Current Coils
39	A	P;T		(220 mA to 2.2 A]	16 $\mu$ A/A		
40	A	P;T		(2.2 A to 20 A]	480 $\mu$ A/A		
41	A	P;T		(20 A to 500 A]	5 mA + 40 $\mu$ A/A	WI-C101	TH0530A
42	A	P;T		(500 A to 2000 A]	20 mA + 40 $\mu$ A/A		TA1000 Fluke 5730A Fluke 8588A Fluke 5522A



Item	Scope Type	Site	Measurand Instrument, Gauge	Range [Including margins] (Does not include margins)	Uncertainty of Measurement <sup>1</sup>	Reference Documents	Remarks
<b>Calibration – Electrical Quantities - DC and LF</b>					<b>כיוול – גדלים חשמליים - זרם ישר ותדר נמוך</b>		
43	A	P,T	DC Current, Current clamp	זרם ישר, צבת זרם (1 A to 3000 A)	100 μA/A	WI-C101	TH0530A TA1000 Fluke 5730A Fluke 8588A Fluke 5522A
44	A	P,T	AC Current, Current clamp	זרם חילופין, צבת זרם (1 A to 3000 A)	1300 μA/A	WI-C101	TH0530A TA1000 Fluke 5730A Fluke 8588A Fluke 5522A
45	A	P;T	DC Resistance, Shunts	התנגדות זרם ישר, מיצד זרם [0.0001Ω±0.5 Ω] (2 A to 5 A)	10 μΩ / 5 Ω + 50 μΩ / Ω	Manufacturer instructions WI-C100	Low currents Fluke 5730A Fluke 5725A Fluke 8508A Fluke 8588A High currents Std. Shunt 7.5 digit DMM TH0530A TA1000
46	A	P;T		(5 A to 20 A)	10 μΩ / 20 Ω + 50 μΩ / Ω	WI-C101	
47	A	P;T		(20 A to 500 A)	10 μΩ / 500 Ω + 50 μΩ / Ω		
48	A	P		(500 A to 600 A)	10 μΩ / 2000 Ω + 50 μΩ / Ω		
49	A	T		(500 A to 2000 A)	10 μΩ / 2000 Ω + 50 μΩ / Ω		
50	A	P	DC Resistance, Sources	התנגדות זרם ישר, מחוללים 0 Ω	1.6 μΩ	MetCal	Datron 1281
51	A	P		(0 Ω to 2 Ω)	4 μΩ/Ω		FLUKE 8508A
52	A	P		(2 Ω to 20 Ω)	4.1 μΩ/Ω	Automated Calibration Software	Fluke 8588A
53	A	P		(20 Ω to 200 Ω)	3.9 μΩ/Ω	Manufacturer instructions	
54	A	P		(200 Ω to 2 kΩ)	5 μΩ/Ω	WI-C100	
55	A	P		(2 kΩ to 20 kΩ)	4.1 μΩ/Ω		
56	A	P		(20 kΩ to 200 kΩ)	3.4 μΩ/Ω		



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<b>Calibration – Electrical Quantities - DC and LF</b>						<b>כיוול – גדלים חשמליים - זרם ישר ותדר נמוך</b>		
57	A	P			(200 kΩ to 2 MΩ]	8.5 μΩ/Ω		
58	A	P			(2 MΩ to 20 MΩ]	19 μΩ/Ω		
59	A	P			(20 MΩ to 200 MΩ]	140 μΩ/Ω		
60	A	P			(200 MΩ to 2 GΩ]	190 μΩ/Ω		
61	A	P			(2 GΩ to 20 GΩ]	120 μΩ/Ω		
62	A	T			0 Ω	4 μΩ		
63	A	T			(0 Ω to 2 Ω]	17 μΩ/Ω		
64	A	T			(2 Ω to 20 Ω]	9 μΩ/Ω		
65	A	T			(20 Ω to 200 Ω]	8.98 μΩ/Ω		
66	A	T			(200 Ω to 2 kΩ]	9.29 μΩ/Ω		
67	A	T			(2 kΩ to 20 kΩ]	9.22 μΩ/Ω		
68	A	T			(20 kΩ to 200 kΩ]	9.41 μΩ/Ω		
69	A	T			(200 kΩ to 2 MΩ]	11.5 μΩ/Ω		
70	A	T			(2 MΩ to 20 MΩ]	313 μΩ/Ω		
71	A	T			(20 MΩ to 200 MΩ]	6.9 mΩ/Ω		
72	A	T			(200 MΩ to 2 GΩ]	0.18%		
73	A	T			(2 GΩ to 100 GΩ]	0.18%		
74	A	P	DC Resistance, Measuring Instruments	התנגדות זרם ישר, מכשירי מדידה	0 Ω	3.6 μΩ	MetCal	FLUKE 5730A
75	A	P			1 Ω	4.3 μΩ/Ω	Automated Calibration Software	
76	A	P			1.9 Ω	4.3 μΩ/Ω	Manufacturer instructions	
77	A	P			10 Ω	4.4 μΩ/Ω	WI-C100	
78	A	P			19 Ω	4.4 μΩ/Ω	WI-C101	
79	A	P			100 Ω	4.2 μΩ/Ω		
80	A	P			190 Ω	4.2 μΩ/Ω		
81	A	P			1 kΩ	5.4 μΩ/Ω		



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<b>Calibration – Electrical Quantities - DC and LF</b>					<b>כיוול – גדלים חשמליים - זרם ישר ותדר נמוך</b>		
82	A	P		1.9 kΩ	5.4 μΩ/Ω		
83	A	P		10 kΩ	4.4 μΩ/Ω		
84	A	P		19 kΩ	4.4 μΩ/Ω		
85	A	P		100 kΩ	3.7 μΩ/Ω		
86	A	P		190 kΩ	3.7 μΩ/Ω		
87	A	P		1 MΩ	9.1 μΩ/Ω		
88	A	P		1.9 MΩ	9.1 μΩ/Ω		
89	A	P		10 MΩ	20 μΩ/Ω		
90	A	P		19 MΩ	20 μΩ/Ω		
91	A	P		100 MΩ	150 μΩ/Ω		
92	A	P;T		0 Ω	3.6 μΩ	MetCal	Fluke5522A
93	A	P;T		(1 μΩ to 10 Ω]	21 μΩ/Ω	Automated Calibration Software	Fluke5520A
94	A	P;T		(10 Ω to 100 Ω]	9 μΩ/Ω	Manufacturer instructions	Fluke5730A
95	A	P;T		(100 Ω to 10 kΩ]	20 μΩ/Ω	WI-C100	
96	A	P;T		(10 kΩ to 100 kΩ]	8 μΩ/Ω	WI-C101	
97	A	P;T		(100 kΩ to 1 MΩ]	6 μΩ/Ω		
98	A	P;T		(1 MΩ to 10 MΩ]	30 μΩ/Ω		
99	A	P;T		(10 MΩ to 100 MΩ]	199 μΩ/Ω		
100	A	P;T		(100 MΩ to 1 GΩ]	517 μΩ/Ω		
101	A	P;T		(10 GΩ to 100 GΩ]	8.4 mΩ/Ω		
102	A	P;T	AC Resistance, Shunts	התנגדות זרם חליפין, מיצד זרם (1 A to 100 A]  (50 Hz to 400 Hz]	25 mA + 150 μA/A	WI-C101	TH0530A TA1000 Fluke 5730A Fluke 8588A Fluke 5522A



Item	Scope Type	Site	Measurand Instrument, Gauge	Range [Including margins] (Does not include margins)	Uncertainty of Measurement <sup>1</sup>	Reference Documents	Remarks	
<b>Calibration – Electrical Quantities - DC and LF</b>					<b>כיוול – גדלים חשמליים - זרם ישר ותדר נמוך</b>			
103	A	P;T	Air Standard Resistors	נגדי אוויר סטנדרטיים	1 Ω	4.5 μΩ/Ω	Manufacturer instructions	Standard resistors
104	A	P;T			10 Ω	6 μΩ/Ω	WI-C100	
105	A	P;T			100 Ω	6 μΩ/Ω	WI-C101	
106	A	P;T			1 kΩ	6 μΩ/Ω		
107	A	P;T			10 kΩ	1 μΩ/Ω		
108	A	P	Digital Amplifier	מגבר דיגיטלי	[-2.5 mV/V to 2.5 mV/V]	4E-5 mV/V	WI-C100	Test frequency 225 Hz for HBM BN100A Calibration of 350 Ω – bridge standards and related indicating devices with inductive bridge standard Where applicable amplifier/Decade may be calibrated (mV/V) by measuring and dividing input and output voltage directly
109	A	P;T	Capacitance, Measuring Instruments	קיבול מכשירי מדידה	[100 pF to 1.1μF]	0.5 %	MetCal Automated Calibration Software Manufacturer instructions WI-C100	FLUKE 5520A FLUKE 5522A Standard capacitors and Decade
110	A	P;T			[1.1 μF to 11 μF]	0.34 %		
111	A	P;T			[11 μF to 33 μF]	0.49 %		
112	A	P;T			[33 μF to 1 mF]	0.54 %		
113	A	P;T			0.001 μF	0.02 %		
114	A	P;T			0.005 μF	0.024 %		
115	A	P;T			0.01 μF	0.013 %		
116	A	P;T			0.05 μF	0.024 %		
117	A	P;T	0.1 μF	0.013 %				



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<b>Calibration – Electrical Quantities - DC and LF</b>					<b>כיוול – גדלים חשמליים - זרם ישר ותדר נמוך</b>		
118	A	P;T	Capacitance, קיבול, קבלים	[100 pF to 1 nF)	0.3 %	MetCal Automated Calibration Software Manufacturer instructions WI-C100	Fluke 8588A LCR Meter Tonghui TH2829A
119	A	P;T		[1 nF to 10 nF)	0.1 %		
120	A	P;T		[10 nF to 100 nF)	0.06 %		
121	A	P;T		[100 nF to 10 μF)	0.05 %		
122	A	P;T		[10 μF to 1 mF)	0.07 %		
123	A	P;T		[1 mF to 10 mF)	0.08 %		
124	A	P;T		[10 mF to 100 mF)	0.11 %		
125	A	P	Phase angle, Measurement זווית מופע מכשירי מדידה מדי זווית מופע	(0° to 90°) Frequency: [45 Hz to 65 Hz]	0.58°	Manufacturer Instructions WI-C108	FLUKE 5520A FLUKE 5522A Electrical test Equipment CALIBRATOR
126	P			Frequency: [65 Hz to 500 Hz]	0.21°		
				Parameters: V: 32 mV to 600 V I: 32 mA to 20 A Alternating V: 10 mV to 5 V When current transducer not allowed			
127	A	P,T	AC Power, Measurement הספק מתח חילופין מדי הספק	[1mW to 20 kW] Power factor: [ 0– 1] Frequency: [45 Hz to 65Hz]	3.5 %	MetCal Automated Calibration Software Manufacturer instruction WI-C108	Fluke 5520A Fluke 5522A Electrical Test Equipment calibrator
128	A	P,T	Power factor, Measurement מקדם הספק מדידה מדי הספק	[ 0– 1] Power: [1mW to 20 kW] Frequency: [45 Hz to 65Hz]	0.14		
129	A	P,T	DC Power, Measurement הספק מתח ישר מדי הספק	[10 mW to 20 kW]	0.5 %		



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<b>Calibration – Electrical Quantities - DC and LF</b>					<b>כיוול – גדלים חשמליים - זרם ישר ותדר נמוך</b>		
130	A	P,T	Defibrillator and Defibrillator analyzer	דפיברילטור וכייל דפיברילטורים	[2 J to 700 J]	0.2 J	IEC 60601-2-4 Calibration of Defibrillator Analyzers – NCSL 2015 WI-C108 Agilent 34470A Voltage divider
131	A	P,T	Continuity resistance Resistance, measuring instruments	התנגדות רציפות, מכשירי מדידת התנגדות	[0.20 Ω to 20 Ω]	1.5%	MetCal Automated Calibration Software Manufacturer instructions WI-C107 TRANSMILLE 3200 Electrical Test Equipment Calibrator
132	A	P,T		[20 Ω to 200 Ω]	1.2%		
133	A	P,T		[200 Ω to 2 kΩ]	1.2%		
134	A	P,T	Continuity current Current measuring instruments	זרם רציפות מכשירי מדידת זרם	(0 mA to 320 mA]	4%	Calibrator HV Probe 80K-40 DMM Electrical safety tester
135	A	P,T	Insulation resistance Resistance, measuring instruments	התנגדות של בידוד מכשירי מדידת התנגדות	0.01MΩ to 5.00 MΩ	3.2 %	MetCal Automated Calibration Software Manufacturer instructions WI-C107 TRANSMILLE 3200 Electrical Test Equipment Calibrator Electrical safety tester HV Probe 80K-40
136	A	P,T		5 MΩ to 2 GΩ	3.6 %		
137	A	P,T		2 G Ω to 10 GΩ	5.8 %		
138	A	P,T		10 GΩ to 1 TΩ	5.8 %		
139	A	P,T	Residual current AC Residual Current, Sensing Devices (RCD)	זרם חילופין שיוירי (מכשירי חישה RCD)	(Up to 5 Sec.]		MetCal Automated Calibration Software Manufacturer instructions WI-C107 TRANSMILLE 3200 Electrical Test Equipment Calibrator Electrical safety tester HV Probe 80K-40
140	A	P,T			3.00 mA to 10.00 mA	2 mA/A	
141	A	P,T			10.1 mA to 100 mA	1.39 mA/A	
142	A	P,T			101 mA to 1 A	7.81 mA/A	
					1.01 A to 3 A	34.8 mA/A	
143	A	P,T			(< 190 m Sec.]		
144	A	P,T			3 mA to 10mA	6 mA/A	
145	A	P,T			10.1 mA to 100 mA	6.5 mA/A	
146	A	P,T	101 mA to 1 A	5 mA/A			
			1.01 A to 3A	5.6 mA/A			



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<b>Calibration – Electrical Quantities - DC and LF</b>					<b>כיוול – גדלים חשמליים - זרם ישר ותדר נמוך</b>		
147	A	P,T	Residual current duration	0.05 Ω	0.0075 Ω	MetCal	TRANSMILLE 3200
148	A	P,T	AC Loop Resistance	0.1 Ω	0.0079 Ω	Automated Calibration Software	Electrical Test Equipment
149	A	P,T	Loop Testing Devices.	0.22 Ω	0.0087 Ω		Calibrator
150	A	P,T		0.33 Ω	0.0097 Ω	Manufacturer instructions	Electrical safety tester
151	A	P,T		0.5 Ω	0.011 Ω	WI-C107	
152	A	P,T		1 Ω	0.017 Ω		
153	A	P,T		5 Ω	0.067 Ω		
154	A	P,T		10 Ω	0.13 Ω		
155	A	P,T		100 Ω	1.3 Ω		
156	A	P,T		1 k Ω	13 Ω		
157	A	P,T	Auto Loop Resistance AC Auto Loop Resistance. Loop Testing devices.	1 Ω	0.06Ω	MetCal Automated Calibration Software	TRANSMILLE 3200 Electrical Test Equipment
158	A	P,T	Earth Bond Resistance	0.05 Ω	0.0049 Ω	Manufacturer instructions	Calibrator
159	A	P,T	Bond Resistance	0.1 Ω	0.0053 Ω	WI-C107	Electrical safety tester
160	A	P,T	PAT (Portable Appliance Tester)	0.22 Ω	0.0059 Ω		
161	A	P,T		0.33 Ω	0.0065 Ω		
162	A	P,T		0.5 Ω	0.0076 Ω		
163	A	P,T		1 Ω	0.010 Ω		
164	A	P,T		5 Ω	0.033 Ω		
165	A	P,T		10 Ω	0.062 Ω		
166	A	P,T		100 Ω	0.582 Ω		
167	A	P,T		1 k Ω	5.77 Ω		
168	A	P,T	Earth Bond Current	100.0 mA	9.3 mA		
169	A	P,T	Bond current, PAT (Portable Appliance Tester)	10.00 A	0.24 A		
170	A	P,T		30.00 A	0.59 A		



Item	Scope Type	Site	Measurand Instrument, Gauge	Range [Including margins] (Does not include margins)	Uncertainty of Measurement <sup>1</sup>	Reference Documents	Remarks
<b>Calibration – Electrical Quantities - DC and LF</b>					<b>כיוול – גדלים חשמליים - זרם ישר ותדר נמוך</b>		
171	A	P,T	Insulation Resistance	0 MΩ	0.0074 MΩ		
172	A	P,T	Resistance, PAT (Portable Appliance Tester)	0.01 MΩ to 5 MΩ	3 %		
173	A	P,T		5MΩ to 2 GΩ	3.5 %		
174	A	P,T	Leakage Current, PAT (Portable Appliance Tester)	2.000 mA	0.038 mA	MetCal Automated Calibration Software	TRANSMILLE 3200 Electrical Test Equipment
175	A	P,T		4.700 mA	0.084 mA		
176	A	P,T		7.700 mA	0.136 mA	Manufacturer instructions	Calibrator
177	A	P,T	Flash Voltage PAT (Portable Appliance Tester)	Class 1 (1.5 kV) (1 kV to 1.8 kV]		WI-C107	Electrical safety tester
178	A	P,T		1000 V	57 V	WI-C100	
179	A	P,T		1500 V	81 V		
179	A	P,T		Class 2 (3 kV) (2 kV to 3 kV]			
179	A	P,T		3000 V	151 V		
180	A	P,T	Flash Current PAT (Portable Appliance Tester)	(1 mA to 3 mA]			
180	A	P,T		1.00 mA	0.06 mA		
181	A	P,T	Line Voltage Measurement of line voltage	(200 V (rms) to 260 V(rms)]	1.2 %		
182	A	P,T	Breakdown/Hipot Measurement & source of high voltage – AC voltage	(0.1 kV to 5 kV] @ 50/60 Hz	0.3 %O.R	IEC 60060-2 Manufacturer instructions WI-C107	HV Probe 80K-40 DMM TRANSMILLE 3200 HI-POT VITREK 4700 Including HV probe
183	A	T		(5 kV to 35 kV] @ 50/60 Hz	0.3 %O.R		The voltage source will be provided by the customer
184	A	P,T	Measurement of current at high voltage	1 kV AC @ 50 Hz		Manufacturer instructions WI-C107	HV Probe 80K-40 DMM
184	A	P,T		200 μA	1.7 μA		



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Item	Scope Type	Site	Measurand Instrument, Gauge		Range [Including margins] (Does not include margins)	Uncertainty of Measurement <sup>1</sup>	Reference Documents	Remarks	
<b>Calibration – Electrical Quantities - DC and LF</b>					<b>כיוול – גדלים חשמליים - זרם ישר ותדר נמוך</b>				
185	A	P,T			2.00 mA	0.04 mA		TRANSMILLE 3200	
186	A	P,T			20.00 mA	0.16 mA			
187	A	P,T			200 µA	1.7 µA			
188	A	P,T			2.00 mA	0.04 mA			
189	A	P,T			20.00 mA	0.16 mA			
190	A	P,T	Breakdown/Hipot Measurement & source of high voltage – DC voltage	מדידי ומחוללי מתח גבוה – מתח ישר	(0.1 kV to 35 kV)	0.1 %O.R.	Manufacturer instructions WI-C107	SPELLMAN SL40P2000 HV Probe 80K-40 DMM VITREK 4700 Including HV probes	

Item	Scope Type	Site	Measurand Instrument, Gauge		Range [Including margins] (Does not include margins)	Uncertainty of Measurement <sup>1</sup>	Reference Documents	Remarks			
<b>Calibration – Electrical Quantities - DC and LF</b>					<b>כיוול – גדלים חשמליים – זרם ישר ותדר נמוך</b>						
191	A	P,T	AC Voltage, Sources	מתח חילופין, מחוללים		µV/V	MetCal Automated Calibration Software Manufacturer instructions WI-C100	Datron 1281 FLUKE 8508A Fluke 8588A			
Voltage		Frequency									
		[1 to 10) Hz	[10 to 40) Hz	[40 to 100) Hz	[0.1 to 1) kHz	[1 to 2) kHz	[2 to 10) kHz	[10 to 30) kHz	[30 to 100) kHz	[100 to 300) kHz	[0.3 to 1] MHz
[0.22 to 200)	mV	46	45	45	57	57	40	41	60	60	60
[200 to 2000)	mV	26	24	20	18	18	20	20	22	140	620
[2 to 20)	V	38	28	21	20	20	22	25	192	192	192
[20 to 200)	V	28	35	36	27	27	33	33	33	54	54
[200 to 1050)	V	51	51	51	50	40	40	40	40		



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Item	Scope Type	Site	Measurand Instrument, Gauge		Range [Including margins] (Does not include margins)	Uncertainty of Measurement'	Reference Documents	Remarks				
<b>Calibration – Electrical Quantities - DC and LF</b>									<b>כיוול – גדלים חשמליים – זרם וחדר נמוך</b>			
192	A	P,T	AC Voltage, Measuring Instrument	מתח חילופין, מכשירי מדידה		$\mu\text{V}/\text{V}$	MetCal Automated Calibration Software Manufacturer instructions WI-C100	Fluke 5520A Fluke 5522A FLUKE 5730A				
Voltage			Frequency									
			[10 to 15) Hz	[15 to 20) Hz	[20 to 40) Hz	[40 to 50) Hz	[0.05 to 1) kHz	[1 to 20) kHz	[20 to 50) kHz	[50 to 100) kHz	[100 to 500) kHz	[0.5 to 1] MHz
[0.22 to 220)	mV		56	56	55	69	69	50	49	72	72	73
[220 to 2200)	mV		31	31	30	24	24	24	27	27	168	745
[2.2 to 22)	V		53	53	34	31	31	31	31	230	230	750
[22 to 220)	V		46	46	43	39	39	39	40	40	65	65
[220 to 1100)	V			79	79	79	79	51				



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Item	Scope Type	Site	Measurand Instrument, Gauge		Range [Including margins] (Does not include margins)	Uncertainty of Measurement'	Reference Documents	Remarks		
<b>Calibration – Electrical Quantities - DC and LF</b>										
<b>כיול – גדלים חשמליים – זרם ישר ותדר נמוך</b>										
193	A	P,T	AC Current, Sources	זרם חילופין, מחוללים		μA/A	Metcal Automated Calibration Software Manufacturer Instruction WI-C100	Datron 1281 Fluke 8508A Fluke 8588A		
Current		Frequency								
		[1 to 50) Hz	[50 to 100) Hz	[100 to 400) Hz	[400 to 500) Hz	[0.05 to 1) kHz	[1 to 2) kHz	[2 to 5) kHz	[5 to 10) kHz	[10 to 100) kHz
Up to 200) μA		67	67	60	60	91	150	150	400	
[200 to 2000) μA		72	72	60	60	60	80	80	110	110
[2 to 20) mA		38	38	36	36	35	55	55	73	73
[20 to 200) mA		28	28	27	27	39	45	45	51	51
[200 to 2000) mA		160	160	160	160	150	130	130	220	220
[2 to 5) A		1.2 mA/A	0.25 mA+150	0.25 mA+150	1.2 mA/A	1.2 mA/A	1.2 mA/A	3.2 mA/A	3.2 mA/A	
[5 to 20) A		1.2 mA/A	1 mA+150	1 mA+150	1.2 mA/A	1.2 mA/A	1.2 mA/A	3.2 mA/A	3.2 mA/A	
[20 to 200) A			25 mA+150	25 mA+150						
[500 to 2000) A			25 mA+150	25 mA+150						



Item	Scope Type	Site	Measurand Instrument, Gauge		Range [Including margins] (Does not include margins)	Uncertainty of Measurement'	Reference Documents	Remarks	
<b>Calibration – Electrical Quantities - DC and LF</b>									
<b>כיוול – גדלים חשמליים – זרם ישר ותדר נמוך</b>									
194	A	P,T	AC Current, Measuring Instrument	זרם חילופין, מכשירי מדידה		μA/A	MetCal Automated Calibration Software Manufacturer instructions WI-C100	Fluke 5520A Fluke 5522A Fluke 5725A Fluke 5730A Current Coils * P site only	
Current			Frequency						
			[1 to 50) Hz	[50 to 100) Hz	[100 to 400) Hz	[400 to 500) Hz	[0.05 to 1) kHz	[1 to 5) kHz	[5 to 10) kHz*
[0.1 to 220) μA			132	132	87	87	110	161	415
[220 to 2200) μA			93	93	85	85	84	99	610
[2.2 to 22) mA			110	110	71	71	76	150	110
[22 to 220) mA			110	110	65	65	73	75	135
[220 to 2000) mA			270	270	170	170	220	150	450
[2 to 5) A			560	0.25 mA+150	0.25 mA+150	560	560	1.2 mA/A	4300
[5 to 20) A				1 mA+150	1 mA+150	7.6 mA/A	7.6 mA/A	41 mA/A	
[20 to 500) A				25 mA+150	25 mA+150				
[500 to 720) A				25 mA+150	25 mA+150				



Item	Scope Type	Site	Measurand Instrument, Gauge	Range [Including margins] (Does not include margins)	Uncertainty of Measurement <sup>1</sup>	Reference Documents	Remarks
<b>Calibration – Electrical Quantities - RF Frequency, Time</b>					<b>כיוול – גדלים חשמליים - תדר גבוה, זמן</b>		
195	A	P	Frequency, Sources תדר, מחוללי תדר	[0.037 Hz to 10 MHz]	$10^{-11}$ (24 h)	MetCal WI-C102 WI-C105 WI-C106	FLUKE 910R Wavetek 9500 H.P. 53132 A Via GPS System With Ref. Locked to 910R
196	A	P		(10 MHz to 3.2 GHz]	$5 \times 10^{-9}$ (0.3 h)	MetCal WI-C102 WI-C105 WI-C106	FLUKE 910R Wavetek 9500 H.P. 53132 A Via GPS System With Ref. Locked to 910R (with 9500 + 9530)
197	A	T		[0.037 Hz to 3.2 GHz]	$4.8 \times 10^{-5}$ (0.3 h)	MetCal WI-C102 WI-C105 WI-C106	Wavetek 9500 H.P. 53132 A With Internal Reference
198	A	P	Frequency, Counters תדר, מוני תדר	[0.1 Hz to 100 MHz]	$4.8 \times 10^{-9}$ (0.3 h)	WI-C102 WI-C105 WI-C106	With Ref. Locked to 910R
199	A	P		[100 MHz to 3 GHz]	$4.8 \times 10^{-10}$ (0.3 h)		With Ref. Locked to 910R (with 9500 + 9530)
200	A	T		[0.1 Hz to 3 GHz]	$1.4 \times 10^{-5}$ (0.3 h)		With Internal Reference
201	A	P;T	Timers, stopwatches שעוני עצר, מוני זמן	[0.5 sec to 24 hr]	0.06 sec	Manufacturer instructions WI-C070	מיתוג ידני Casio HS-70W
202	A	P;T		[0.1 sec to 24 hr]	0.04 sec		שיטת צילום Casio HS-70W
203	A	P;T		[0.1 sec to 24 hr]	0.001 sec		שיטת צילום H.P.52132 A



Item	Scope Type	Site	Measurand Instrument, Gauge	Range [Including margins] (Does not include margins)	Uncertainty of Measurement <sup>1</sup>	Reference Documents	Remarks
<b>Calibration – Electrical Quantities - RF Frequency, Time</b>					<b>כיוול – גדלים חשמליים - תדר גבוה, זמן</b>		
204	A	P;T	Oscilloscope Time markers function: Square wave, Pulse, Narrow Triangle ציר אופקי במשקף תנודות	[0.45 ns to 55 sec]	0.038 $\mu$ s/s	Software MetCal Software WI-C102	Wavetek 9500 Fluke 910R External reference input in the range 1 MHz to 20 MHz
205	A	P;T	Oscilloscope Amplitude Square Wave ציר אנכי במשקף תנודות	Input impedance 1 M $\Omega$ Peak to peak amplitude (40 $\mu$ V to 1 mV)	10 mV/V + 10 $\mu$ V	MetCal Software WI-C102 WI-C105 WI-C106	Wavetek 9500 Fluke 910R External reference input in the range 1 MHz to 20 MHz
206	A	P;T		(1 mV to 200 V)	1 mV/V + 10 $\mu$ V		
207	A	P;T	Oscilloscope Amplitude Square Wave ציר אנכי במשקף תנודות	Input impedance 50 $\Omega$ Peak to peak amplitude (40 $\mu$ V to 1 mV pk-pk)	10 mV/V + 10 $\mu$ V	MetCal Software WI-C102 WI-C105 WI-C106	Wavetek 9500
208	A	P;T		(1 mV to 5 V pk-pk)	1 mV/V + 10 $\mu$ V		
209	A	P;T	Oscilloscope Rise Time זמן עליית האות של משקף תנודות	Rise time, From 150 ps]	14 ps	MetCal Software WI-C102 WI-C105 WI-C106	Wavetek 9500
210	A	P;T	Oscilloscope Bandwidth: רוחב סרט של משקף תנודות	[0.1 Hz to 300 MHz]	0.23 db	MetCal Software WI-C102	Wavetek 9500
211	A	P;T		[300 MHz to 550 MHz]	0.23 db	WI-C105	
212	A	P;T		[550 MHz to 1.1GHz]	0.29 db	WI-C106	
213	A	P;T		[1.1 GHz to 3.2 GHz]	0.36 db		
214	A	P;T	Oscilloscope Flatness מישוריות האות כתלות בתדר ביחס לתדר הייחוס	[0.1 Hz to 300 MHz]	2.3 %	MetCal Software WI-C102	Wavetek 9500 Leveled Sine Wave Amplitude
215	A	P;T		(300 MHz to 550 MHz]	3.8 %		



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<b>Calibration – Electrical Quantities - RF Frequency, Time</b>						<b>כיוול – גדלים חשמליים - תדר גבוה, זמן</b>		
216	A	P;T			(550 MHz to 1.1 GHz]	4.9 %	WI-C105	50 kHz Ref
217	A	P;T			(1.1 GHz to 3.2 GHz]	6.0 %	WI-C106	
218	A	P;T	Oscilloscope Input Capacitance	קיבול כניסה של משקף תנודות	[1 pF to 65 pF]	7 mF/F	MetCal Software WI-C102 WI-C100	Wavetek 9500 Input impedance 50 Ω



Item	Scope Type	Site	Measurand Instrument, Gauge	Range [Including margins] (Does not include margins)	Uncertainty of Measurement <sup>1</sup>	Reference Documents	Remarks
<b>Calibration – Mechanical Quantities - Form, Angle</b>					<b>כיוול – גדלים מכניים - צורה, זווית</b>		
219	A	P	Flank Angle Screw Plug Gauges (parallel) including check and setting Plug	זווית השן מדיד הברגה זכר מקביל Plug Diameter [1 mm to 305 mm]	0.3°	A-A-59158 WI-C020	<i>M</i> is projector magnification and <i>P</i> is pitch in mm
220	A	P	Flank angle Screw Plug Gauges (taper)	זווית השן מדיד הברגה זכר קוני Plug Diameter [1 mm to 305 mm]	0.3°	A-A-59158 WI-C020	<i>M</i> is projector magnification and <i>P</i> is pitch in mm
221	A	P	Flatness of Optical Flats in diameter of 10 mm – 50 mm	מישוריות של משטחים אופטיים בעלי קוטר 10 – 50 mm	Above 0.05 μm	JIS B 7430 JIS B 7431 WI-C009	Optical flat/parallel מערכת כיוול מקבילונים ועדשה מישורית  The uncertainty quoted is for the departure from flatness of parallelism, i.e. the distance separating the two parallel planes, which just enclose by
222	A	P	Parallelism of Optical Parallels in diameter of 10 mm – 50 mm	מקבילות של משטחים אופטיים בעלי קוטר 10 – 50 mm	Above 0.01 μm		The uncertainty quoted is for the departure from flatness of parallelism, i.e. the distance separating the two parallel planes, which just enclose by



Item	Scope Type	Site	Measurand Instrument, Gauge	Range [Including margins] (Does not include margins)	Uncertainty of Measurement <sup>1</sup>	Reference Documents	Remarks
<b>Calibration – Mechanical Quantities - Form, Angle</b>					<b>כיוול – גדלים מכניים - צורה, זווית</b>		
223	A	P;T	Flatness of Granites or Cast iron surfaces in Grade 00 מישוריות של לוחות משטח גרניט וברזל יציקה ברמה 00	Above 0.1 μm	[1.5+0.8* length] μm	DIN 876 P1,2 ISO 8512 P1,2 GGG-P-463-C BS 817 WI-C038 WI-C060 WI-C053	עד 0.09 m <sup>2</sup> נבדק באמצעות גשש אורך. מעל 0.09 m <sup>2</sup> נבדק במערכת פלסים אלקטרוניים. The uncertainty quoted is for the departure from flatness, straightness, parallelism, or squareness i.e. the distance separating the two parallel planes which, just enclose the surface under consideration (Length in m)
224	A	P	Straightness, flatness and parallelism of Granite, Cast iron and Steel straightedges in Grade 00 ישרות, מישוריות, מקבילות של סרגל ישרות מתכת או גרניט ברמה 00	Above 1 μm	4.3 μm	DIN 874 P.1 WI-C066	גששי אורך
225	A	P	Straightness Knife edge, straight edge סרגל שיערה	Up to 500 mm]	1.5 μm	DIN 874 P.2 WI-C015	מקור אור מונוכרומטי, גששי אורך
226	A	P	Flatness, Parallels מקבילים, מישוריות	Up to 50*100*400 mm]	2 μm	DIN 6346 DIN 876 WI-C048	גששי אורך
227	A	P	Parallelism, Parallels מקבילים, מקבילות	Up to 50*100*400 mm]	2 μm	WI-C052	
228	A	P	Perpendicularity, Square, blade type ניצבות, זוויתנים	Up to 300 mm] (300 mm to 600 mm]	3 μm 5 μm	DIN-875-1DIN 875-2 JIS B 7526 WI-C016	גששי אורך מד ניצבות
229	A	P					
230	A	P	Parallelism Square, blade type מקבילות זוויתנים	Up to 300 mm] (300 mm to 600 mm]	3 μm 5 μm		גששי אורך
231	A	P					



Item	Scope Type	Site	Measurand Instrument, Gauge	Range [Including margins] (Does not include margins)	Uncertainty of Measurement <sup>1</sup>	Reference Documents	Remarks
<b>Calibration – Mechanical Quantities - Form, Angle</b>					<b>כיוול – גדלים מכניים - צורה, זווית</b>		
232	A	P	Flatness, Square, blade type	מישוריות זוויתנים Up to 300 mm]	3 µm		
233	A	P		(300 mm to 600 mm]	5 µm		
234	A	P	Perpendicularity, Cylinder	גליל ניצבות Up to 600 mm]	2 µm	JIS B 7539	
235	A	P	Perpendicularity, Universal Box Angles	ניצבות אבזור דפינה אוניברסאלי Up to 100 mm]	3 µm	DIN 875-1	
236	A	P		(100 mm to 300 mm]	5 µm	DIN 875-2/DIN 876	
237	A	P		(300 mm to 600 mm]	8 µm		
238	A	P	Flatness, Universal Box Angles	מישוריות אבזור דפינה אוניברסאלי Up to 100 mm]	3 µm	DIN 875-1	
239	A	P		(100 mm to 300 mm]	5 µm	DIN 875-2/DIN 876	
240	A	P		(300 mm to 600 mm]	8 µm		
241	A	P	Parallelism Universal Box Angles	מקבילות אבזור דפינה אוניברסאלי Up to 100 mm]	3 µm	DIN 875-1	
242	A	P		(100 mm to 300 mm]	5 µm	DIN 875-2	
243	A	P		(300 mm to 600 mm]	8 µm	DIN 876	
244	A	P	Squareness Right angle and box angle plate	ברך, קוביה ניצבות Up to 600 mm]	[3 + 1 per 100 mm] µm	DIN 875-1 DIN 875-2 DIN 876 BS 5535 WI-C050	מד ניצבות
245	A	P	Parallelism Right angle and box angle plate	ברך, קוביה מקבילות Up to 600 mm]	[1 + (1 per 100 mm)] µm	WI-C050	מד ניצבות
246	A	P	Perpendicularity Square master	מד ניצבות ניצבות 600 mm	2.1 µm	נתוני יצרן WI-C018	השוואה למדיד אב לניצבות



Item	Scope Type	Site	Measurand Instrument, Gauge	Range [Including margins] (Does not include margins)	Uncertainty of Measurement <sup>1</sup>	Reference Documents	Remarks
<b>Calibration – Mechanical Quantities - Form, Angle</b>						<b>כיוול – גדלים מכניים - צורה, זווית</b>	
247	A	P	Perpendicularity Vee blocks	פריזמות ניצבות Up to 150 mm]	2.1 μm	BS 3731 JIS B 7540	Grade 00 גששי אורך גליליים
248	A	P	Flatness, Vee blocks	פריזמות מישוריות Up to 150 mm]	2.1 μm	DIN 2274 WI-C021	
249	A	P	Parallelism Vee blocks	פריזמות מקבילות Up to 150 mm]	2.1 μm		
250	A	P	Angle Sines bars and tables Clinometers calibration system	זווית סרגלים ושולחנות סינוס מערכת לכיוול קלינומטרים Up to 500 mm]	2"	BS 3064 GGG-B 121b DIN 2273 WI-C025	Angel is estimated by measuring distance מקבילונים בלוק זוויתי
251	A	P	Angle Level	פלאס Up to 5°	0.5"	DIN 887 BS 958 WI-C022	מייצר זווית קטנות
252	A	P	Angle Clinometer	קלינומטר Up to 90°]	10"	DIN 887 BS 958 DIN 2274 DIN 2276-1,2 WI-C022	מייצר זווית קטנות שולחן סובב
253	A	P	Angle Bevel protractor	מד זווית מתכוונן Up to 360°	3'	BS 1685WI-C017	בלוק זוויתי גששי אורך מד ניצבות
254	A	P;T	Rotational Speed Mechanical tachometer	מהירות סיבוב (סל"ד) מד סל"ד מכני [1 to 8000] RPM	0.01 %OR or 0.01 RPM Whichever is greater	Manufacturer instructions WI-C069	Counter מונה
255	A	P;T	Rotational Speed Optical tachometer	מהירות סיבוב (סל"ד) מד סל"ד אופטי [1 to 2500] RPM	0.01 % OR or 1 resolution Whichever is greater		Function generator מחולל אותות
256	A	P;T	Rotational Speed Optical tachometer	מהירות סיבוב (סל"ד) מד סל"ד אופטי [2500 to 99999] RPM	0.005 %O.R.		Function generator מחולל אותות



Item	Scope Type	Site	Measurand Instrument, Gauge	Range [Including margins] (Does not include margins)	Uncertainty of Measurement <sup>1</sup>	Reference Documents	Remarks
<b>Calibration – Mechanical Quantities - Form, Angle</b>					<b>כיוול – גדלים מכניים - צורה, זווית</b>		
257	A	P	Distance/rotation counter encoder מונה מטרים ומונה סיבובים אנקודר	up to 360°]	0.23° / number of turns Or 1 Resolution whichever is greater	WI-C069	Uncertainty of meter counter is calculated from wheel diameter and encoder precision אי ודאות למונה מטרים מחושבת מקוטר גלגל ודיוק אנקודר
258	A	P;T	Radius gauge מד רדיוס עלים	[0.1mm to 100 mm]	0.03 %O.R. + 17 μm	Manufacturer instructions WI-C030	
259	A	P;T	Angle measurement מדידת זווית	[0° to 90°]	0.12°	Customer requirements WI-C081	
260	A	P;T		(90° to 180°]	0.15°		
261	A	P;T		(180° to 270°]	0.19°		
262	A	P;T		(270° to 360°]	0.23°		



Item	Scope Type	Site	Measurand Instrument, Gauge	Range [Including margins] (Does not include margins)	Uncertainty of Measurement <sup>1</sup>	Reference Documents	Remarks			
<b>Calibration – Mechanical Quantities - Hardness Meters</b>					<b>כיוול – גדלים מכניים - מדי קושיות</b>					
263	A	P;T	Rockwell hardness testing machine	HRA [20 to 95]	0.45 HRA	ASTM E18 ISO 6508-2 WI-C058	Indirect verification השוואה לחומר יחוס סטנדרטי			
264	A	P;T		HRBW [10 to 100]	1.0 HRBW					
265	A	P;T		HRC [10 to 70]	0.45 HRC					
266	A	P;T		HRFW [69 to 97]	0.4 HRFW					
267	A	P;T		HREW [70 to 100]	0.7 HREW					
268	A	P;T		HR15N [70 to 94]	0.5 HR15N					
269	A	P;T		HR30N [42 to 86]	0.6 HR30N					
270	A	P;T		HR45N [20 to 77]	0.5 HR45N					
271	A	P;T		HR15TW [67 to 93]	0.7 HR15TW					
272	A	P;T		HR30TW [29 to 82]	0.7 HR30TW					
273	A	P;T		HR45TW [10 to 72]	1.0 HR45TW					
274	A	P;T		Brinell hardness testing machine	HBW 2.5 / 187.5			2% HBW	ASTM E10 WI-C058	Indirect verification השוואה לחומר יחוס סטנדרטי
275	A	P;T			HBW 2.5 / 62.5			2% HBW		
276	A	P;T	HBW 2.5 / 31.25		2% HBW					
277		P;T	HBW 10/3000 - 202		2% HBW					
278	A	P;T	HBW 10/3000 - 340		2% HBW					
279	A	P;T	HBW 10/3000 - 400		1.8% HBW					



Item	Scope Type	Site	Measurand Instrument, Gauge		Range [Including margins] (Does not include margins)	Uncertainty of Measurement <sup>1</sup>	Reference Documents	Remarks	
<b>Calibration – Mechanical Quantities - Hardness Meters</b>						<b>כיוול – גדלים מכניים - מדי קושיות</b>			
280	A	P;T	Vickers hardness testing machine	מכשירים למדידת קשיות בשיטת וויקרס	( 0.1 to 0.5 ) HV	1.5% HV	ASTM E384 ASTM E92	Indirect verification השוואה לחומר יחוס סטנדרטי	
281	A	P;T			(1 to 100 ) HV	1.2% HV	ISO 6507-2 WI-C058		
282	A	P;T	Knoop hardness testing machine	מכשירים למדידת קשיות בשיטת קנופ	38.9 to 455.7 HK		ASTM E384 ASTM E92	Indirect verification השוואה לחומר יחוס סטנדרטי	
283	A	P;T			0.05 gf	3 %HK			
284	A	P;T			0.1 gf	2.7 %HK			
285	A	P;T			0.2 gf	2.5 %HK			
285	A	P;T			0.3 gf	1.9 %HK			
286	A	P	(Shore durometer) – All types	מכשירים למדידת קשיות פלסטיק וגומי - כל הסוגים	0 Shore	0.1 Shore	ASTM D2240	Any type of rubber/plastic durometer such as Shore/IRHD, VLRH etc. Direct verification כיוול כח קפץ ביחידות Shore Durocalibrator Balance / Load cell Shore/IRHD/VLRH hardness testing equipment. Tested by Shore/IRHD/VLRH units according to device. בדיקת פרמטרים גיאומטריים של החודרן Profile projector Microscope Indenters with parameters out of the nominal range may be calibrated at stated uncertainties as well	
287	A	P			(0 to 100) Shore	0.4 Shore	ISO 21509		
288	A	P			100 Shore	0.1 Shore	ISO 48-9 WI-C057		
Geometrical parameters									
289	A	P	Indenter extension	אורך החודרן	[0.1 to 5] mm	0.01 mm			
290	A	P	Indenter diameter	קוטר החודרן	[0.7 to 12] mm	0.01 mm			
291	A	P	Indenter angle	זווית החודרן	[29° to 36°]	0.05°			
292	A	P	Indenter Horn diameter/radius	קוטר/רדיוס חוד החודרן	[0.1 –11] mm	0.005 mm			
293	A	P	Presser foot Hole diameter	קוטר קדח הבסיס	[0.9 – 13] mm	0.01 mm			
294	A	P	Presser foot diameter Calculated effective diameter for rectangular base	קוטר בסיס לחיצה קוטר אפקטיבי מחושב לבסיס מלבני	up to 100] mm	0.03 mm			



Item	Scope Type	Site	Measurand Instrument, Gauge	Range [Including margins] (Does not include margins)	Uncertainty of Measurement <sup>1</sup>	Reference Documents	Remarks	
<b>Calibration – Mechanical Quantities - Length</b>					<b>כיול – גדלים מכניים - אורך</b>			
295	A	P	Gauge Blocks Comparator	מרכת כיול מקבילונים	Up to 100 mm	0.05µm	Euramet eg-2 WI-C042	Gauge blocks
296	A	P	Length, Gauge Blocks (by Comparison)	אורך, מקבילונים	Up to 10 mm}	Class (see note)		קומפרטור מקבילונים <b>Class C</b> uncertainties apply to the measurement of length of steel gauges by comparison with grade K standards of length of a similar material. <b>Class C</b> uncertainties apply to new grade 0, 1 and 2 gauges to the aforementioned standard and represent the best capability for all grades of used gauges to the aforementioned standard. <b>Class D</b> Class D uncertainties represent the best capability for the measurement of length of tungsten carbide and ceramic gauges by comparison with grade K standards of length of a dissimilar material
297	A	P			(10 mm to 25 mm]	0.08 µm	0.10 µm	
298	A	P			Sizes: 30, 40, 50	0.10 µm	0.13 µm	
299	A	P			Sizes: 60, 70, 75	0.12 µm	0.17 µm	
300	A	P			Sizes: 80, 90, 100	0.15 µm	0.21 µm	
301	A	P			Up to 0.4 in}	0.18 µm	0.25 µm	
302	A	P			(0.4 to 1 in]	3 µin	4 µin	
303	A	P			2 in	4 µin	5 µin	
304	A	P			3 in	5 µin	7 µin	
305	A	P	4 in	6 µin	8 µin			
306	A	P	Length Gauge Block accessories	אורך, אביזרים מקבילונים	160 mm	2 µm	JIS B7506WI-C029	מכונת מדידה SIP / TRIMOS 305M
307	A	P	Length, Length Bars	אורך, מוטות אורך מדיד	Up to 1000 mm]	[0.1 + 2×length in m] µm	BS 5317 DIN EN ISO 3650 ASME B.89.1.13 WI-C008	מוטות תקניים (מקבילונים או מוטות אורך ומקבילים) Length bar Length in m Check master – step gauge



Item	Scope Type	Site	Measurand Instrument, Gauge	Range [Including margins] (Does not include margins)	Uncertainty of Measurement <sup>1</sup>	Reference Documents	Remarks
<b>Calibration – Mechanical Quantities - Length</b>					<b>כיול – גדלים מכניים - אורך</b>		
308	A	P	Length, Length Gauges אורך, מדידי אורך	Up to 1000 mm]	$[0.1 + 2.5 \times \text{length in m}] \mu\text{m}$	DIN EN ISO 3650 ASME B89.1.13	מוטות לא תקינים (ייצור עצמי, מוטות לכיול זחונים, קצה מעוגל (כדי) Length bar Length in m
309	A	P	Length, Step Gauge אורך, מקבילונים מדורגים	Up to 1000 mm]	$[0.1 + 2.5 \times \text{length in m}] \mu\text{m}$	נתוני יצרן WI-C019	Length bar Length in m Check master – step gauge
310	A	P,T	Length Measuring Machine מכונת מדידת אורך	Up to 500 mm	$[0.1 + 2.5 \times \text{length in m}] \mu\text{m}$	Manufacturer Instructions WI-C076	Length bar Length in m
311	A	P,T	IAC master scanner מכונה לכיול מדידים	Up to 160 mm	0.7 $\mu\text{m}$	Manufacturer Instructions WI-C091	Plug & ring gauges מדידי תקע וטבעות
312	A	P,T	Length, Plain Plug Gauges אורך, מדידי תקע חלק	Up to 100] mm	0.3 $\mu\text{m}$	ISO 286-1 ISO 286-2 DIN EN ISO 1938-1 DIN EN ISO 1938-2 DIN 7163 DIN 7164 H28/SEC.6 DIN 2269 WI-C013	מכונת מדידה SIP / TRIMOS 305M מיקרומטר שולחני MasterScanner XP 16060
313	A	P		(100 mm to 150] mm	0.4 $\mu\text{m}$		
314	A	P	Diameter Plain Rings טבעות חלקות	[1.75 mm to 100 mm]	0.4 $\mu\text{m}$	DIN 2250-1 DIN 7151-2 WI-C023	מכונת מדידה SIP / TRIMOS 305M calibration by comparison to standard plain ring provides lower uncertainties MasterScanner XP 16060
315	A	P		(100 mm to 150 mm]	1.5 $\mu\text{m}$		
316	A	P		(150 mm to 220 mm]	2 $\mu\text{m}$		



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<b>Calibration – Mechanical Quantities - Length</b>						<b>כיוול – גדלים מכניים - אורך</b>	
317	A	P	Diameter Thread Measuring Cylinders	תיילים לבדיקת מדיד הברגה [0.1 mm to 6 mm]	0.7 μm	H28/SEC.22A ASME B1.22 M WI-C055	מכונת מדידה SIP / TRIMOS 305M
318	A	P	Pitch Diameter Screw Plug Gauges (parallel) including check and setting Plug	מדיד הברגה זכר – מקביל Plug Diameter Up to 100 mm]	2.2 μm	F-STD-H-28 ISO 228/1-2 ISO 1502	כיוול זווית השן מדיד הברגה זכר מקביל – ראה בטכנולוגיה כיוול – גדלים מכניים – צורה, זווית SIP / TRIMOS 305M
319	A	P		(100 mm to 150 mm]	2.3 μm	ISO 2903/4 ISO 7/1,2,9	
320	A	P		(150 mm to 305 mm]	5 μm	BS 919/1,2,3 BS 849	
321	A	P	Pitch Screw Plug Gauges (parallel) including check and setting Plug	פסיעת התבריג מדיד הברגה זכר מקביל Plug Diameter Up to 305 mm]	1.5 μm	BS 3409/1,2 BS 4377/2 BS EN 10226-1 DIN 103/9 DIN 405-1 DIN 405-2	
322	A	P	Pitch Diameter Screw Plug Gauges (taper)	מדיד הברגה זכר - קוני Plug Diameter Up to 150 mm]	2.2 μm	DIN 405-3 DIN EN 10226-3	כיוול זווית השן מדיד הברגה זכר קוני – ראה בטכנולוגיה כיוול – גדלים מכניים – צורה, זווית SIP / TRIMOS 305M
323	A	P		(150 mm to 305 mm]	5 μm	ASME B.1.2 B.N.A.e	
324	A	P	Pitch Screw Plug Gauges (taper)	פסיעת התבריג מדיד הברגה זכר קוני Plug Diameter Up to 305 mm]	1.5 μm	A-A-59158 WI-C020	MasterScanner XP 16060
325	A	P	Pitch Diameter Thread rings (parallel)	טבעות הברגה – מקבילה Ring diameter [1.2 mm to 3 mm]	Not relevant	F-STD-H 28 ISO 228/1-2 ISO 1502	Go no go test by means of check plug מכונת מדידה
326	A	P		(3 mm to 4 mm)	4 μm	ISO 2903/2904	SIP / TRIMOS 305M
327	A	P		[4 mm to 100 mm]	2.2 μm	BS 919/1,2,3	MasterScanner XP 16060
328	A	P		(100 mm to 160 mm]	2.7 μm	ISO 7-2BS 84	



Item	Scope Type	Site	Measurand Instrument, Gauge	Range [Including margins] (Does not include margins)	Uncertainty of Measurement <sup>1</sup>	Reference Documents	Remarks
<b>Calibration – Mechanical Quantities - Length</b>					<b>כיוול – גדלים מכניים - אורך</b>		
329	A	P		(160 mm to 305 mm)	5 µm	BS 4377/2 BS EN 10226-1 DIN 477 DIN 103/9 DIN 405-1 DIN 405-2 DIN 405-3 DIN EN 10226-3 B.N.A.e WI-C024	
330	A	P	Pitch Diameter Thread Plug ring (taper)	טבעת הברגה - קונית Ring Diameter [4 mm to 100 mm]	2.2 µm	ASME B.1.20 BS 21 API spec 5B	MasterScanner XP 16060
331	A	P		(100 mm to 160 mm)	2.6 µm	API spec 7-2 WI-C024	
332	A	P	Standard sphere	כדור מדויק (2 mm to 100 mm)	1 µm	WI-C091	מכונת מדידה
333	A	P	Micrometer External	מיקרומטר חיצוני Up to 2000 mm]	[1.2 + 5×length in m] µm	ISO 3611 DIN 863	מקבילונים מוטות אורך
334	A	T		Up to 600 mm]	[1.2 + 5×length in m] µm	ASME B89.1.13 JIS B 7502 WI-C006	
335	A	P,T	Micrometer Internal	מיקרומטר פנים Up to 300 mm] extension rod to 1000 mm]	[1.2 + 5×length in m] µm	DIN 863 ASME B89.1.13 WI-C026 WI-C027	טבעות חלקות מכונת מדידה
336	A	P;T	Micrometer Depth	מיקרומטר עומק Up to 350 mm]	[1.2 + 5×length in m] µm	DIN 863 ASME B89.1.13 WI-C007 JIS B 7544	מקבילונים



Item	Scope Type	Site	Measurand Instrument, Gauge	Range [Including margins] (Does not include margins)	Uncertainty of Measurement'	Reference Documents	Remarks	
<b>Calibration – Mechanical Quantities - Length</b>					<b>כיול – גדלים מכניים - אורך</b>			
337	A	P	Micrometers (indicating digital and electronic)	מיקרומטר (כולל דיגיטלי)	Up to 2000 mm]	[1.2 + 5×length in m] μm	ISO 3611 DIN 863 ASME B89.1.13	מקבילונים מוטות אורך
338	A	T			Up to 600 mm]	[1.2 + 5×length in m] μm	JIS B 7502 WI-C006	
339	A	P	Three point Internal and bore micrometer	מיקרומטר פנים תלת נקודתי	[2 mm to 50 mm]	2 μm	DIN 863 Manufacturer Instructions WI-C012	טבעות חלקות
340	A	P			(50 mm to 250 mm]	5 μm		
341	A	P	Micrometer head	ראש מיקרומטר	Up to 50 mm]	2 μm	Manufacturer instructions WI-C006	
342	A	P;T	Laser micrometer	מיקרומטר לייזר	[0.22 mm up to 150 mm]	0.5 μm	WI-C006	פינים מדויקים
343	A	P	Height setting micrometer	מד גובה מיקרומטרי	Up to 315 mm]	Total length [0.1 + 2×length in m] μm Movement 2.5 μm	ISO 7863 WI-C014	מקבילונים, מוטות אורך
344	A	P	Riser Block	בסיס הגבהה למד גובה מיקרומטרי	Up to 150 mm]	2.5 μm	WI-C005	
345	A	P			(150 to 300 mm]	5 μm		
346	A	P;T	Vernier Caliper, depth Gauges	זחון ורנייר	Up to 2000 mm]	Overall performance [10 + 30× length in m] μm	DIN EN ISO 13385-1 DIN EN ISO 13385-2 ASME B89.1.14JIS B 7507 WI-C001	מקבילונים, מוטות אורך, בודק זחונים
347	A	P;T	Caliper (digital and electronic)	זחון אלקטרוני ודיגיטלי	Up to 2000 mm]	Overall performance [10 + 30× length in m] μm	DIN EN ISO 13385-1 DIN EN ISO 13385-2 ASME B89.1.14 JIS B 7507 WI-C001	מקבילונים, מוטות אורך, בודק זחונים
348	A	P	Micrometer Heads Dial testers	מערכת כיול חוגנים	Up to 100 mm	0.2 μm	WI-C028	Gauge blocks



Item	Scope Type	Site	Measurand Instrument, Gauge	Range [Including margins] (Does not include margins)	Uncertainty of Measurement <sup>1</sup>	Reference Documents	Remarks
<b>Calibration – Mechanical Quantities - Length</b>					<b>כיוול – גדלים מכניים - אורך</b>		
349	A	P;T	Height Gauge Electronic microprocessor Controlled height Gauge	מד גובה Up to 1000 mm]	[1 + 5× length in m] μm	ISO 13225 JIS B 7517 WI-C005	
350	A	P;T	Dial Indicator	חוגן Up to 3 mm]	0.3 μm	DIN 878	בודק חוגנים מכונת מדידה
351	A	P;T	Length gauge	גשש אורך (3-60] mm	1 μm	DIN 879 JIS B 7503	
352	A	P;T		(60-100] mm	1.5 μm	JIS B 7509 JIS B 7536	
353	A	P;T		(100-300] mm	4 μm	ANSI B89.1.10M NF E 11-056 ISO 13102 ISO 463 WI-C003 WI-C027 WI-C033 WI-C036 WI-C053	
354	A	P;T	Lever type dial indicator Lever type gauge	חוגן מנופי גשש מנופי Up to 6 mm]	0.3 μm	BS 2795 PT.1 DIN 2270 ANSI B.89.1.10.M JIS B 7533 JIS B 7536 ISO 9493 ISO 13102 WI-C004	
355	A	P;T	Thickness gauge	מד עובי Up to 50 mm	2 μm	Manufacturer Instructions WI-C037	מקבילוני אורך Gauge blocks



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<b>Calibration – Mechanical Quantities - Length</b>					<b>כיול – גדלים מכניים - אורך</b>		
356	A	P;T	Dial caliper gage (external type) מד עובי זרועות	Up to 150 mm	10 µm	Manufacturer Instructions WI-C037	מקבילוני אורך Gauge blocks
357	A	P;T	Dial caliper gage (internal type) מד חריצים	Up to 125 mm	10 µm	Manufacturer Instructions WI-C035	מיקרומטר, מקבילוני אורך Micrometer, Gauge blocks
358	A	P;T	Elcometer מד עובי ציפוי	[22 µm to 2000 µm]	2 µm	Manufacturer Instructions WI-C049	
359	A	P	Feeler/Thread Gauge מד מרווח/מסרק עלים	Up to 1 mm]	4 µm	WI-C032 WI-C054	מיקרומטר
360	A	P;T	Measuring microscope מיקרוסקופ מדידה	Up to 0.1 mm]	1.3 µm	JIS B 7153 WI-C034	סרגל אופטי M is total magnification
361	A	P;T		Up to 500 mm	[2 + (25/M)] µm		
362	A	P;T	Profile projectors מטול פרופילים Optical measuring machine מכונת מדידה אופטית	Up to 0.1 mm]	1.3 µm	JIS B 7184 WI-C034	סרגל אופטי M is total magnification
363	A	P;T		Up to 500 mm	[2 + (25/M)] µm		
364	A	P	Bore comparators (bore gauge) מד קדח גשר	[6 mm to 150 mm]	2 µm	JIS B 7515 CID A-A-58070 WI-C010	בודק חוגגים טבעות חלקות מיקרומטר
365	A	P	Bore comparators Cylinder gauge פין מפציל	[1 mm to 50 mm]	2 µm	CID A-A-58070 WI-C011	
366	A	P	Optical scale סרגל אופטי	Up to 1 mm]	0.5 µm	JIS B 7541 Manufacturer Instructions WI-C039	מכונת מדידה TRIMOS/ SIP 305M
367	A	P		(1 mm – 300 mm)	1 µm		



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<b>Calibration – Mechanical Quantities - Length</b>					<b>כיול – גדלים מכניים - אורך</b>		
368	A	P	Tape and ruler measuring system	Up to 1000 mm]	8 μm	Manufacturer Instructions	סרגל אופטי
369	A	P		(1000 mm – 2000 mm]	15 μm	WI-C085	מוטות אורך
370	A	P	Measuring rule	Up to 400] mm	7 μm	DIN 866 JIS-B 7516	מכונת מדידה אופטית
371	A	P		Up to 2000] mm	42 μm	Manufacturer Instructions WI-C078	מיקרוסקופ מדידה כייל סרגלי וסרטי מדידה Optical measure machine Measuring microscope Scale and Tape Calibration Unit.
372	A	P	Measuring tape	Up to 50] m	$42 \cdot \sqrt{(n/2)} \mu\text{m}$	OIML-R-35 BS 4484-1 DIN 866 JIS B 7516 Manufacturer Instructions WI-C043 WI-C064 WI-C078	כייל סרגלי וסרטי מדידה Scale and Tape Calibration Unit. (n/2) rounded up to integer n in meters
373	A	P;T	Length Length meter	[1 to 1000] m	0.01 m or 0.2 % OR Whichever is greater	WI-C069	Mechanical tachometer (Mode “m”) מונה מטרים
374	A	P;T	Surface Speed Surface Speed meter	[2 to 500] m/min	0.1 m/min or 0.2 % or Whichever is greater	WI-C069	Mechanical tachometer (Mode “m/min”) מד מהירות
375	A	P;T	Velocity in extensometer machine	[0.01 mm/min to 5000 mm/min]	0.1 %O.R.	Manufacturer Instructions WI-C075	



Item	Scope Type	Site	Measurand Instrument, Gauge	Range [Including margins] (Does not include margins)	Uncertainty of Measurement <sup>1</sup>	Reference Documents	Remarks
<b>Calibration – Mechanical Quantities - Length</b>					<b>כיוול – גדלים מכניים - אורך</b>		
376	A	P	Test sieves	נפות Nominal aperture size: Up to 0.1 mm] (0.1 mm to 0.2 mm] (0.2 mm to 1 mm] (1 mm to 5 mm] (5 mm to 15 mm] (15 mm to 30 mm] (Above 30 mm	0.0016 mm	ASTM E11 ISO 3310-1,2 ASTM E323 WI-C071	מטול פרופיליים, זחון Micro-Vu, Profile projector, caliper.
377	A	P			0.003 mm		
378	A	P			0.005 mm		
379	A	P			0.010 mm		
380	A	P			0.020 mm		
381	A	P			0.050 mm		
382	A	P			0.10 mm		
383	A	P:T	Extensometer	מד התארכות [0.01 mm to 50 mm]	0.004 mm	ASTM E83 BS ISO 5893 +A1 ISO 9513 ISO 5893 WI-C075	Extensometer calibrator
384	A	P:T	Extensometer (displacement)	מד התארכות [0.01 mm to 1000 mm]	0.006 mm	Manufacturer Instructions WI-C075	High precision dial gauge, Length gauge
385	A	P;T	Length measurements	מדידת אורך Up to 0.1 mm Up to 125 mm] (125 mm to 200 mm] (200 mm to 600 mm] (600 mm to 2000 mm] (2 m to 10 m] (10 m to 30 m]	0.0016 mm	Customer requirements WI-C081	Profile Projector Micro VU
386	A	P;T			0.003 mm		
387	A	P;T			0.005 mm		
388	A	P;T			0.007 mm		
389	A	P;T			0.05 mm		
390	A	P;T			4.6 mm		
					6.8 mm		



Department: Calibration Laboratory

ISO/IEC 17025: 2017

Accreditation No. 0014

Item	Scope Type	Site	Measurand Instrument, Gauge	Range [Including margins] (Does not include margins)	Uncertainty of Measurement <sup>1</sup>	Reference Documents	Remarks
<b>Calibration – Mechanical Quantities - Length</b>					<b>כיול – גדלים מכניים - אורך</b>		
391	A	P;T	Laser distance meter	מד טווח לייזר	Up to 50 mm	5 μm	ISO 16331-1 Manufacturer Instructions WI-C083
392	A	P			(0.05 m to 0.5 m]	5 μm	
393	A	P			(0.5 m to 10 m]	0.74 mm	
394	A	P			(2 m to 10 m]	2 mm	
395	A	P			(10 m to 30 m]	2.5 mm	



Item	Scope Type	Site	Measurand Instrument, Gauge	Range [Including margins] (Does not include margins)	Uncertainty of Measurement <sup>1</sup>	Reference Documents	Remarks
<b>Calibration – Physical Quantities - Optics</b>					<b>כיוול – גדלים פיזיקליים - אופטיקה</b>		
396	A	P,T	Optical emitting devices and Meters מכשיר פולט קרינה אופטית ומד קרינה אופטית	Power הספק 3 nW to 3 mW at 270 to 1650 nm and 15 μW to 150 W at 193 nm to 10600 nm	3.5% of Reading	NADCAP AC7114/2 In house procedure Based on: IEC 60825 ISO 13694 WI-C203	Irradiance is calculated / measured by dividing power by aperture area
397	A	P,T	Display/controller by optical simulation צג/בקור בסימולציה אופטית	Power הספק [3 nW to 150 W] at [193 nm to 10600 nm]	0.3% of Reading	In house procedure Based on: IEC 60825 ISO 13694 WI-C203	
398	A	P,T	Light emitting devices and Meters מכשיר פולט אור ומד קרינה אופטית	Energy אנרגיה 20μJ to 4 KJ at 193 to 10600 nm	5% of Reading	In house procedure Based on: IEC 60825 ISO 13694 WI-C203	
399	A	P,T	Optical emitting devices and Meters מכשיר פולט קרינה אופטית ומד קרינה אופטית	Frequency & Time תדר וזמן Up to 0.7 MHz Min. Rise/Fall Time 2 nsec	1 nsec	In house procedure Based on: IEC 60825 ISO 13694 WI-C202	
400	A	P,T	Optical Meters, Spectrometer מד קרינה אופטית, ספקטרומטר	Wavelength אורך גל 35 nm to 3507 nm	2x10 <sup>-4</sup> nm	In house procedure Based on: IEC 60825 ISO 13694 WI-C200	NIST Atomic Spectra Database The Resolution used to calculate the calibration uncertainty corresponds to the wavelength difference between two adjacent pixels of the UUT
401	A	P,T	Beam profiler מנתח קרן אחידות	3 nW to 150 W at 193 nm to 10600 nm	0.1 %O.R.	In house procedure Based on: IEC 60825 ISO 13694 WI-C205	
402	A	P,T	Linearity ליניאריות	3 nW to 150 W at 193 nm to 10600 nm	0.8 %O.R.		
403	A	P,T	Spot size גודל כתם	Up to 300 mm	0.35 %O.R.		



Item	Scope Type	Site	Measurand Instrument, Gauge	Range [Including margins] (Does not include margins)	Uncertainty of Measurement <sup>1</sup>	Reference Documents	Remarks	
<b>Calibration – Physical Quantities - Optics</b>					<b>כיוול – גדלים פיזיקליים - אופטיקה</b>			
404	A	P,T	Gloss Meter	מד ברק	[0 GU to 500 GU]	0.72 GU + 1 %O.R.	ISO 2813 ASTM D523 WI-C204	20°, 60°, 85°
405	A	P,T			(500 GU to 2200 GU]	20 GU + 0.5 %O.R.		
406	A	P,T	Gloss Tile	אריח ברק	[0 GU to 500 GU]	0.72 GU + 1 %O.R.	ISO 2813 ASTM D523 WI-C204	20°, 60°, 85°
407	A	P,T			(500 GU to 2200 GU]	20 GU + 0.5 %O.R.		
408	A	P,T	Optical emitting devices	מכשיר פולט קרינה אופטית	Wavelength אורך גל 180 nm to 1100 nm	1 nm	In house procedure Based on: IEC 60825 ISO 13694 WI-C200	
409	A	P,T	Light emitting devices and Meters Illuminance	מכשיר פולט אור ומד אור	Visible Light אור נראה 1 lux to 30000 lux	2.6 % Whichever is greater	NADCAP AC7114/2 In house procedure The CIE 1924 photopic V(λ) luminosity function WI-C201	Calibration can be given in other units as required.
410	A	P,T	Light emitting devices and Meters Luminance	מכשיר פולט אור ומד אור	Visible Light אור נראה 1.85 cd/m2 to 6000 cd/m2	2.7 %O.R.		



Item	Scope Type	Site	Measurand Instrument, Gauge	Range [Including margins] (Does not include margins)	Uncertainty of Measurement <sup>1</sup>	Reference Documents	Remarks	
<b>Calibration – Physical Quantities - Force, Torque</b>					<b>כיוול – גדלים פיזיקליים - כח, מומנט</b>			
411	A	P;T	Force calibration in tension, force measurement machine	כיוול כח במתיחה, מכונות למדידת כח	[0.1 kN to 100 kN]	1.5 N/kN of verification force	ISO 7500-1 ASTM E4 Euramet cg-4	מתמר כח Force load cell Calibration can be given in other units as required. 1 N/kN = 0.1%
412	A	T	Force calibration in tension, material testing machine	כיוול כח במתיחה, מכונות למדידת כח	[0.1 kN to 500 kN]	2.0 N/kN of verification force	Manufacturer instructions WI-C056	
413	A	P;T	Force calibration in compression, material testing machine	כיוול כח בלחיצה, מכונות למדידת כח	[0.1 kN to 1 MN]	2.0 N/kN of verification force	Manufacturer instructions WI-C056	כולל כיוול מכונות בדיקה לפי דרישות תקן ישראלי 26 חלק 4.1
414	A	P			(1 MN to 2.8 MN)	2.4 N/kN of verification force		
415	A	T			(1 MN to 3 MN)	2.4 N/kN of verification force		
416	A	P;T	Force calibration in tension and compression, push pull force measurement machine	כיוול כח בלחיצה ומתיחה מכונות למדידת כוח	(0.005 N to 1.2 kN]	0.015 %O.R. or 0.6res. whichever is greater		משקולות / מתמר כח res - resolution
417	A	P;T	Force calibration in tension, Force gauge Force system	כיוול כח במתיחה, מד כוח מערכת כוח	[0.1 kN to 100 kN]	1.5 N/kN of verification force	Euramet cg-4 Manufacturer instructions WI-C056	מתמר כח Force load cell Calibration can be given in other units as required. 1 N/kN = 0.1%
418	A	P;T	Force calibration in compression, Force gauge Force system	כיוול כח בלחיצה, מד כוח מערכת כוח	[0.1 kN to 1 MN]	2.0 N/kN of verification force		
419	A	P			(1 MN to 2.8 MN]	2.4 N/kN of verification force		
420	A	T			(1 MN to 3 MN]	2.4 N/kN of verification force		
421	A	P;T	Force calibration in tension and compression using weights, Force gauge Force system	כיוול כח במתיחה ולחיצה באמצעות משקולות, מד כוח מערכת כוח	(0.005 N to 1.2 kN]	0.015 %O.R. or 0.6res. whichever is greater		משקולות / מתמר כח res - resolution



Item	Scope Type	Site	Measurand Instrument, Gauge	Range [Including margins] (Does not include margins)	Uncertainty of Measurement <sup>1</sup>	Reference Documents	Remarks
<b>Calibration – Physical Quantities - Force, Torque</b>					<b>כיוול – גדלים פיזיקליים - כח, מומנט</b>		
422	A	P	Force calibration in tension and compression, Proving devices	כיוול כח בלחיצה ומתיחה [0.005 N to 1.2 kN]	0.015 %O.R. or 0.6res. whichever is greater	ISO 376 Euramet cg-4 WI-C073	משקולות, מתמר כח res - resolution
423	A	P	Force calibration in tension, Proving devices	תאי (טבעות) כוח [1 kN to 20 kN]	0.7 N/kN of verification force		
424	A	P	Force calibration in compression, Proving devices	כיוול כח בלחיצה [20 kN to 1 MN]	1.0 N/kN of verification force		
425	A	P	Force calibration in compression, Proving devices	תאי (טבעות) כוח [1 MN to 2.8 MN]	2.0 N/kN of verification force		
426	A	P	Force calibration in tension, Proving devices	כיוול כח במתיחה תאי (טבעות) כוח [20 kN to 100 kN]	1.0 N/kN of verification force		
427	A	P,T	Torque Torque wrenches and drivers Electric & pneumatic screwdrivers	מומנט ידיית מומנט, מברגת מומנט מברגות חשמליות / פניאומטיות [0.01 Nm to 1000 Nm]	0.5 % OR	ISO 6789-1 ISO 6789-2 BS 7882 Euramet cg-14	מתמרי מומנט קורות כיוול ומשקולות Calibration can be given in other units as required OR – Of Reading
428	A	P	Torque	מומנט [0.001 Nm to 0.01 Nm]	0.25 % OR	Manufacturer's instructions WI-C061 WI-C041	Indicated torque Evaluation of the type B uncertainty of the torque tool is based on data acquired from the tool manufacturer or estimated by QCC based on statistically sampled experience of similar equipment.
429	A	P	Mechanical and Electronic torque calibration equipment	מכשירים למדידת מומנט (מכאניים ואלקטרוניים) [0.01 Nm to 1000 Nm]	0.1 % OR		
430	A	T	Torque	מומנט [0.001 Nm to 0.01 Nm]	0.4 % OR		
431	A	T	Mechanical and Electronic torque calibration equipment	מכשירים למדידת מומנט (מכאניים ואלקטרוניים) [0.01 Nm to 500 Nm]	0.15 % OR		



Item	Scope Type	Site	Measurand Instrument, Gauge	Range [Including margins] (Does not include margins)	Uncertainty of Measurement <sup>1</sup>	Reference Documents	Remarks
<b>Calibration – Physical Quantities - Humidity</b>						<b>כיוול – גדלים פיזיקליים - לחות</b>	
432	A	P	Relative humidity RH meters	לחות יחסית מדי לחות 0 °C to 10 °C [5 %rh to 25 %rh]	0.8 %rh	ASTM-E-104-20a NIS 19 OIML R121 Manufacturer instructions WI-C046	Chilled mirror hygrometer. היגרומטר מד נקודת טל. Humidity and temperature controlled chamber. תא מבוקר לחות וטמפרטורה.
433	A	P	RH data loggers	רגשי לחות (25 %rh to 65 %rh)	1.2 %rh		
434	A	P	RH probes	מתמרי לחות אוגרי נתונים (65 %rh 95 %rh)	1.6 %rh		
435	A	P	RH transducers	10 °C to 20 °C [5 %rh to 25 %rh]	0.8 %rh		
436	A	P		(25 %rh to 65 %rh)	1.0 %rh		
437	A	P		(65 %rh 95 %rh)	1.3 %rh		
438	A	P		20 °C to 50 °C [5 %rh to 55 %rh]	0.8 %rh		
439	A	P		(55 %rh to 75 %rh)	1.0 %rh		
440	A	P		(75 %rh to 95 %rh)	1.3 %rh		
441	A	P		50 °C to 90 °C [5 %rh to 45 %rh]	0.6 %rh		
442	A	P	(45 %rh to 75 %rh)	0.8 %rh			
443	A	P	(75 %rh to 95 %rh)	1.0 %rh			
444	A	T	Relative humidity RH probes	לחות יחסית רגשי לחות 0 °C to 90 °C [5 %rh to 95 %rh]	2.0 %rh		
445	A	T	RH chambers	תאי לחות מדי לחות 15 °C to 25 °C [5 %rh to 75 %rh]	1.0 %rh		
446	A	T	RH meters	(75 %rh to 85 %rh)	1.2 %rh		
447	A	T		(85 %rh to 95 %rh)	1.5 %rh		
448	A	P;T	Relative humidity RH probes	לחות יחסית רגשי לחות 23°C ± 2 °C 5 %rh	0.3 %rh	Salt solutions in ampoules as humidity standards.	
449	A	P;T		10 %rh	0.4 %rh		



Item	Scope Type	Site	Measurand Instrument, Gauge	Range [Including margins] (Does not include margins)	Uncertainty of Measurement <sup>1</sup>	Reference Documents	Remarks
<b>Calibration – Physical Quantities - Humidity</b>					<b>כיוול – גדלים פיזיקליים - לחות</b>		
450	A	P;T		11.3 %rh	0.4 %rh		
451	A	P;T		35 %rh	0.45 %rh		
452	A	P;T		50 %rh	0.65 %rh		
453	A	P;T		75 %rh	0.75 %rh		
454	A	P;T		80 %rh	0.75 %rh		
455	A	P;T		95 % rh	0.85 %rh		
456	A	P;T	Dew point	נקודת טל [-80 °C to -75 °C]	1.0 °C		Chilled mirror hygrometer / dew point sensor היגרומטר מד נקודת טל.
457	A	P;T	RH meters	לחות יחסית [-75 °C to -60 °C]	0.55 °C		
458	A	P;T	RH transducers	מדי לחות מתמרי לחות [-60 °C to -50 °C]	0.35 °C		
459	A	P;T		[-50 °C to 60 °C]	0.11 °C		
460	A	P;T		(60 °C to 90 °C)	0.15 °C		



Item	Scope Type	Site	Measurand Instrument, Gauge	Range [Including margins] (Does not include margins)	Uncertainty of Measurement <sup>1</sup>	Reference Documents	Remarks
<b>Calibration – Physical Quantities - Liquid and Air Flow</b>					<b>כיוול – גדלים פיזיקליים – זרימה, נוזל ואוויר</b>		
461	A	P, T	Flowrate	[0.01 L/min to 0.1 L/min]	0.4 %O.R. + 0.0004 L/min	NIST Special publication 250-49	Reference and UUT connected in series
462	A	P, T	Gas flowmeters	(0.1 L/min to 1 L/min)	0.4 %O.R. + 0.004 L/min	National measurement system - GOOD PRACTICE GUIDE THE CALIBRATION OF FLOW METERS WI-C079	Flow rates values may be converted to other units by taking into account relevant reference conditions. STP conditions: 25°C 1 atm (14.696 psi)
463	A	P, T		(1 L/min to 5 L/min)	0.4 %O.R. + 0.02 L/min		
464	A	P, T		(5 L/min to 50 L/min)	0.4 %O.R. + 0.2 L/min		
465	A	P, T		(50 L/min to 500 L/min)	0.4 %O.R. + 2 L/min		



Item	Scope Type	Site	Measurand Instrument, Gauge	Range [Including margins] (Does not include margins)	Uncertainty of Measurement <sup>1</sup>	Reference Documents	Remarks	
<b>Calibration – Physical Quantities - Mass</b>					<b>כיוול – גדלים פיזיקליים - מסה</b>			
466	A	P	Mass	0.001 g	0.0008 mg	OIML R 111-1	מאזני השוואה Calibration can be given in other units as required. Intermediate value can be calibrated with an uncertainty interpolated from the next higher and lower values in the table.	
467	A	P	Weights	0.002 g	0.0009 mg	OIML R 52		
468	A	P		0.005 g	0.001 mg	ASTM-E-617		
469	A	P		0.01 g	0.0012 mg	WI-C045		
470	A	P		0.02 g	0.0014 mg			
471	A	P		0.05 g	0.0016 mg			
472	A	P		0.1 g	0.0023 mg			
473	A	P		0.2 g	0.003 mg			
474	A	P		0.5 g	0.0036 mg			
475	A	P		1 g	0.0046 mg			
476	A	P		2 g	0.0053 mg			
477	A	P		5 g	0.0068 mg			
478	A	P		10 g	0.017 mg			
479	A	P		20 g	0.018 mg			
480	A	P		50 g	0.021 mg			
481	A	P		100 g	0.033 mg			
482	A	P		200 g	0.049 mg			
483	A	P		500 g	0.23 mg			
484	A	P		1000 g	0.31 mg			
485	A	P		2000 g	0.47 mg			
486	A	P		5000 g	1.9 mg			
487	A	P		10000 g	3 mg			
488	A	P		20000 g	10 mg			
489	A	P		(20 kg to 60 kg]	21 mg			משקולות סטנדרטיות מעל 50 kg ניתן לכייל מדרגת M2 ומטה או מקביל.
490	A	P		(60 kg to 500 kg]	21 g			



Item	Scope Type	Site	Measurand Instrument, Gauge	Range [Including margins] (Does not include margins)	Uncertainty of Measurement <sup>1</sup>	Reference Documents	Remarks
<b>Calibration – Physical Quantities - Mass</b>					<b>כיוול – גדלים פיזיקליים - מסה</b>		
491	A	P;T	Non automatic weighing instruments מאזניים לא אוטומטיים	(Up to 10 mg]	1.3 μg + 0.6res	OIML R76 Manufacturer instructions WI-C044	<p>1. Uncertainties depend on the performance of the weighting machine under calibration.</p> <p>2. Available weights are: OIML Class E2 from 1 mg to 2 kg, OIML Class F1 from 1 mg to 5 kg, OIML Class F2 from 1 mg to 5 kg, OIML Class M1 from 1 mg to 20 kg, OIML Class M2 from 5 kg to 20 kg, test weights 2 × 500 kg.</p> <p>OIML Class E1 weights can be provided on demand.</p> <p>3. res - resolution</p>
492	A	P;T		(10 mg to 100 mg]	2.6 μg + 0.6res		
493	A	P;T		(100 mg to 500 mg]	3.6 μg + 0.6res		
494	A	P;T		(500 mg to 2 g]	7.4 μg + 0.6res		
495	A	P;T		(2 g to 5 g]	8.9 μg + 0.6res		
496	A	P;T		(5 g to 10 g]	18 μg + 0.6res		
497	A	P;T		(10 g to 20 g]	24 μg + 0.6res		
498	A	P;T		(20 g to 50 g]	29 μg + 0.6res		
499	A	P;T		(50 g to 120 g]	0.65 μg/g + 0.6res		
500	A	P;T		(120 g to 620 g]	0.4 μg/g + 0.6res		
501	A	P;T		(620 g to 110 kg]	1.5 μg/g + 0.6res		
502	A	P;T		(110 kg to 550 kg]	24 μg/g + 0.6res		
503	A	P;T		(500 kg to 10000 kg]	62 μg/g + 0.6res		



Item	Scope Type	Site	Measurand Instrument, Gauge	Range [Including margins] (Does not include margins)	Uncertainty of Measurement <sup>1</sup>	Reference Documents	Remarks
<b>Calibration – Physical Quantities - Pressure</b>					<b>כיוול - גדלים פיזיקליים – לחץ</b>		
504	A	P	Pneumatic Gauge pressure (low range) Differential pressure Pressure indicating instruments and gauges	לחץ פניאומאטי יחסי (טווח נמוך) לחץ הפרשי מדידי לחץ	[-2.5 kPa to 2.5 kPa]	0.10 Pa/kPa O.R. + 0.05 Pa OIML-R 101 IS 697 Euramet cg 17 Manufacturer instructions WI-C047	Pace 5000 or similar 1 Pa/kPa = 0.1 % O.R. – of reading
505	A	P	Pneumatic pressure, Gauge. Differential pressure Pressure indicating instruments and gauges	לחץ פניאומאטי, יחסי לחץ הפרשי מדידי לחץ	[2.5 kPa to 7 MPa]	0.10 Pa/kPa O.R. + 0.35 Pa WI-C068	Ruska 2465-754 Pace 5000 or similar Including differential pressure
506	A	P	Pneumatic pressure Absolute. Pressure indicating instruments and gauges	לחץ פניאומאטי, אבסולוטי מדידי לחץ פניאומאטיים	[1.6 kPa a to 7 MPa a]	0.10 Pa/kPa O.R. + 1 Pa	Ruska 2465-754 Pace 5000 or similar
507	A	P	Hydraulic pressure, (gauge) Pressure indicating instruments and gauges	לחץ הידראולי מדידי לחץ	[0.6 MPa to 121 MPa]	0.20 Pa/kPa OIML-R 101 IS 697 Euramet cg 17 Manufacturer instructions WI-C068 WI-C047	DH-Budenberg 580HX
508	A	P	Hydraulic pressure, Dead weight tester. Effective area of hydraulic dead weight tester piston	לחץ הידראולי כיוול שטח אפקטיבי של בוכנת מאזני לחץ הידראוליים	[0.6 MPa to 121 MPa]	0.20 Pa/kPa Euramet cg 3 Manufacturer instructions WI-C068	DH-Budenberg 580HX Dead weight tester to be supplied with its mass set Calibration by means of cross float method
509	A	T	Pneumatic Gauge pressure (low range)	לחץ פניאומאטי יחסי (טווח נמוך)	[-1.25 kPa to 1.25 kPa]	0.7 Pa/kPa O.R. + 0.05 Pa OIML-R 101 IS 697	Druck 610LP 1 Pa/kPa = 0.1%
510	A	T	Differential pressure Pressure indicating instruments and gauges	לחץ הפרשי מדידי לחץ	[-2.5 kPa to 2.5 kPa]	1.7 Pa Euramet cg 17 Manufacturer instructions	Druck DPI 705



Item	Scope Type	Site	Measurand Instrument, Gauge	Range [Including margins] (Does not include margins)	Uncertainty of Measurement <sup>1</sup>	Reference Documents	Remarks
<b>Calibration – Physical Quantities - Pressure</b>					<b>כיוול - גדלים פיזיקליים – לחץ</b>		
511	A	T	Pneumatic pressure Gauge Pressure indicating instruments and gauges	לחץ פניאומאטי, יחסי מדידי לחץ פניאומאטיים [2.5 kPa to 7 MPa]	1.0 Pa/kPa	WI-C047	Druck 610 Druck 603 Druck 104
512	A	T	Pneumatic pressure Absolute Pressure indicating instruments and gauges	לחץ פניאומאטי, אבסולוטי מדידי לחץ פניאומאטיים [1.6 kPa to 0.7 MPa]	1.5 Pa/kPa		
513	A	T	Hydraulic pressure (gauge) Pressure indicating instruments and gauges	לחץ הידראולי מדידי לחץ [0.6 MPa to 70 MPa]	1.0 Pa/kPa		
514	A	P;T	Blood pressure meter	מד לחץ דם [30 mmHg to 280 mmHg]	1 mmHg	BHS-IP2	CONTEC MS200



Item	Scope Type	Site	Measurand Instrument, Gauge	Range [Including margins] (Does not include margins)	Uncertainty of Measurement <sup>1</sup>	Reference Documents	Remarks	
<b>Calibration – Physical Quantities - Temperature</b>						<b>כיוול – גדלים פיזיקליים - טמפרטורה</b>		
515	A	P	Liquid in glass thermometers	תרמומטרים נוזל בזכוכית	[- 80 °C to – 30 °C]	0.15 °C	ISO 1770	אמבטיות כיוול
516	A	P			(- 30 °C to 0 °C)	0.1 °C	ISO 1771	תרמומטר אב PRT
517	A	P			(0 °C to 250 °C)	0.08 °C	ISO 386	
518	A	P			(250 °C to 550 °C)	0.5 °C	ASTM E1	
519	A	T			[-40 °C to 150 °C]	1.0 °C	ASTM E2251	
520	A	T			(150 °C to 250 °C)	2.0 °C	ASTM E563	
							ASTM E77	
							BS 593	
							BS 1704	
							Manufacturer instructions	
							WI-C063	
521	A	P	Resistance thermometers	גששי טמפרטורה התנגדות	-196 °C	0.02 °C	ASTM E 1137	Liquid nitrogen/ air or other gas/ Ethanol/Water/Salt/ Dry block
522	A	P	Miscellaneous thermometers	גששי טמפרטורה שונים	[- 100 °C to -80 °C]	0.2 °C	ASTM E 644	
523	A	P			[- 80 °C to 250 °C]	0.02 °C	ASTM E 344	PRT may calibrated with its indicator. The uncertainty will be dependent on the indicator performance.
524	A	P			(250 °C to 550 °C)	0.05 °C	IEC 751	
525	A	P			(550 °C to 661 °C)	0.3 °C	IEC60751	כולל סעיף 10.3 מתוך נוהל משרד הבריאות מס' 126
							ITS-90	Calibration of SPRT/PRT/Thermistors etc.
							Manufacturer instructions	מערכות למדידת טמפרטורה
							WI-C065	By WTP
526	A	P			0.01 °C	0.006 °C		
527	A	T	Resistance thermometers	גששי טמפרטורה התנגדות	-196 °C	0.1 °C		Liquid nitrogen/ air or other gas/ Ethanol/Water/Salt/ Dry block
528	A	T	Miscellaneous thermometers	גששי טמפרטורה שונים	(- 196 °C to – 100 °C)	0.5 °C		
529	A	T			[- 100 °C to – 40 °C)	0.1 °C		PRT may calibrated with its indicator. The uncertainty will be dependent on the indicator performance.
530	A	T			[- 40 °C to 140 °C]	0.1 °C		
531	A	T			(140 °C to 250 °C)	0.1 °C		



Item	Scope Type	Site	Measurand Instrument, Gauge	Range [Including margins] (Does not include margins)	Uncertainty of Measurement <sup>1</sup>	Reference Documents	Remarks
<b>Calibration – Physical Quantities - Temperature</b>					<b>כיול – גדלים פיזיקליים - טמפרטורה</b>		
532	A	T		(250 °C to 661 °C)	0.5 °C		כולל סעיף 10.3 מתוך נוהל משרד הבריאות מס' 126 Calibration of SPRT/PRT/Thermistors etc. מערכות למדידת טמפרטורה
533	A	P	TC Measurement by comparison צמידים תרמיים	-196 °C	0.14 °C	ASTM-E-230 ASTM-E-220 ITS-90 Manufacturer instructions WI-C065	Liquid nitrogen/ air or other gas/ Ethanol/ Dry block TC may calibrated with its indicator. The uncertainty will be dependent on the indicator performance. בכיול צמידים תרמיים מבוססי מתכות אצילות לא מבוצעת הרפיית מאמצים בכיול בבית הלקוח
534	A	P		[- 100 °C to -80 °C)	0.2 °C		
535	A	P		[- 80 °C to 250 °C]	0.14 °C		
536	A	P		(250 °C to 550 °C)	0.4 °C		
537	A	P		(550 °C to 1100 °C)	1 °C		
538	A	P		(1100°C to 1300 °C)	1.6 °C		
539	A	T		-196 °C	0.3 °C		
540	A	T		(- 196 °C to – 100 °C)	0.5 °C		
541	A	T		[- 100 °C to -40 °C)	0.2 °C		
542	A	T		[- 40 °C to 250 °C]	0.2 °C		
543	A	T		(250 °C to 550 °C)	0.5 °C		
544	A	T		(550 °C to 1100 °C)	1.5 °C		
545	A	T	(1100 °C to 1300 °C)	1.8 °C			
546	A	P;T	Temperature controlled chambers Furnaces, Freezers, Incubators, Autoclaves Including uniformity תאים מבוקרי טמפרטורה מקפיאים, אינקובטורים אוטוקלבים, תנורים כולל בדיקת אחידות	[-196 °C to -100 °C)	0.8 °C	DKD-R-5-7 DIN 12880 ASTM D1238 ISO 1133 AMS 2750 ISO 17665 ISO 11135 Manufacturer instructions WI-C062	TC, PRT, Data logger
547	A	P;T		[-100 °C to -45 °C)	0.5 °C		
548	A	P;T		[-45 °C to 70 °C)	0.25 °C		
549	A	P;T		[70 °C to 151 °C)	0.5 °C		
550	A	P;T		[151 °C to 300 °C)	0.7 °C		
551	A	P;T		(300 °C to 550 °C)	1 °C		
552	A	P;T		(550 °C to 1100 °C)	2.5 °C		
553	A	P;T		[1100 °C to 1300 °C]	3.5 °C		



Item	Scope Type	Site	Measurand Instrument, Gauge	Range [Including margins] (Does not include margins)	Uncertainty of Measurement <sup>1</sup>	Reference Documents	Remarks
<b>Calibration – Physical Quantities - Temperature</b>					<b>כיוול – גדלים פיזיקליים - טמפרטורה</b>		
554	A	P;T	Bathes	אמבט [ -196 °C to 251 °C ]	0.03 °C	Manufacturer instructions	SPRT, PRT
555	A	P;T	Including uniformity	כולל בדיקת אחידות (251 °C to 550 °C)	0.09 °C	WI-C062	
556	A	P;T	Dry block calibrator	תנור בלוק יבש [ -110 °C to 300 °C ]	0.05 °C	EURAMET cg-13	PRT
557	A	P;T		(300 °C to 550 °C)	0.2 °C	Manufacturer instructions	
558	A	P;T		(550°C to 661°C)	0.3 °C	WI-C062	
559	A	P;T		(661 °C to 1000 °C)	0.7 °C		
560	A	P;T		(1000 °C to 1300 °C)	2 °C		
561	A	P;T	Tube furnace	תנור כיוול צינורי [300 °C to 661 °C]	0.2 °C	Manufacturer instructions	PRT, TC
562	A	P;T	Including uniformity	כולל בדיקת אחידות (661 °C to 1100 °C)	1.2 °C	WI-C062	
563	A	P;T		(1100 °C to 1300 °C)	2.5 °C		
564	A	P;T	Temperature indicators, controllers, recorders and simulators for the resistance sensors	מדוי, רשמי ומדמי טמפרטורה עבור מדוי התנגדות	-200 °C to 800 °C	EURAMET cg-11 Manufacturer instructions WI-C067 WI-C100	Calibration by means of electrical calibration,
565	A	P;T	Temperature indicators, controllers, recorders and simulators for the base metal thermocouples	מדוי, רשמי ומדמי טמפרטורה עבור צמדדים תרמיים מתכות בסיסיות	-200 °C to 1380 °C	EURAMET cg-11 Manufacturer instructions WI-C067 WI-C100	Calibration by means of electrical calibration, including cold junction compensation
566	A	P;T	Temperature indicators, controllers, recorders and simulators for the noble metal thermocouples	מדוי, רשמי ומדמי טמפרטורה עבור צמדדים תרמיים מתכות אצילות	0 °C to 500 °C	EURAMET cg-11 Manufacturer instructions	Calibration by means of electrical calibration, including cold junction compensation
567	A	P;T		500 °C to 1800 °C	0.3 °C	WI-C067 WI-C100	
568	A	T	Temperature, Infrared Thermometers,	טמפרטורה מדוי טמפרטורת קרינה [ -20 °C to 30 °C ]	0.3 °C	ASTM E2847	IR Calibrator
569	A	P;T		[30 °C to 100 °C]	0.3 °C	Manufacturer instructions	כיוול מדוי טמפרטורה ללא מגע בבית הלקוח יבוצעו אל מול גוף שחור שסופק על ידי הלקוח
570	A	P;T		(100 °C to 200 °C)	0.65 °C	WI-C080	
571	A	P;T		(200 °C to 350 °C)	0.9 °C		



Item	Scope Type	Site	Measurand Instrument, Gauge	Range [Including margins] (Does not include margins)	Uncertainty of Measurement <sup>1</sup>	Reference Documents	Remarks
<b>Calibration – Physical Quantities - Temperature</b>					<b>כיוול – גדלים פיזיקליים - טמפרטורה</b>		
572	A	P;T		(350 °C to 500 °C]	1.3 °C		
573	A	P;T		(500 °C to 750 °C]	1.6 °C		
574	A	P;T		(750 °C to 1000 °C]	2 °C		
575	A	P,T	Temperature	טמפרטורה	[-20 °C to 100 °C]	0.2 °C	ASTM E2847 Manufacturer instructions WI-C080  Radiometric calibration Thermometric calibration for black body sensor - according to sensor's type & scope
576	A	P,T	Black Body Calibration	כיוול גופים שחורים	(100 °C to 300 °C]	0.5 °C	
577	A	P,T			(300 °C to 500 °C]	0.7 °C	
578	A	P,T			(500 °C to 750 °C]	1.2 °C	
579	A	P,T			(750 °C to 1000 °C]	1.6 °C	
580	A	P,T	Temperature - uniformity Black Body Calibration	טמפרטורה - אחידות כיוול גופים שחורים	[-20 °C to 1000 °C]	0.2 °C	Manufacturer instructions WI-C080  Radiometric calibration



Item	Scope Type	Site	Measurand Instrument, Gauge	Range [Including margins] (Does not include margins)	Uncertainty of Measurement <sup>1</sup>	Reference Documents	Remarks
<b>Calibration – Small (up to 2L) Volume Volumetric Instruments</b>					<b>כיוול – כיוול מכשירים וולומטריים – נפחים קטנים עד 2 ליטר</b>		
581	A	P	Liquid volume, Piston-operated volumetric apparatus	Nominal value Up to 1 µl	0.020 µl	ISO 8655- Part 1,2,3,4,5,6 ISO/TR 20461 Manufacturer instructions WI-C074	מתקן נפח מופעל בוכנה POVA Intermediate volumes may be calibrated with uncertainty as for the higher volume value
582	A	P		2 µl	0.025 µl		
583	A	P		5 µl	0.030 µl		
584	A	P		10 µl	0.040 µl		
585	A	P		20 µl	0.060 µl		
586	A	P		50 µl	0.12 µl		
587	A	P		100 µl	0.15 µl		
588	A	P		200 µl	0.3 µl		
589	A	P		500 µl	0.6 µl		
590	A	P		1000 µl	1.0 µl		
591	A	P		2000 µl	3.0 µl		
592	A	P		5000 µl	6.0 µl		
593	A	P		10000 µl	10 µl		
594	A	P		20000 µl	20 µl		
595	A	P		25000 µl	25 µl		
596	A	P		50000 µl	30 µl		
597	A	P		100000 µl	40 µl		



Department: Calibration Laboratory

ISO/IEC 17025: 2017

Accreditation No. 0014

Item	Scope Type	Site	Measurand Instrument, Gauge	Range [Including margins] (Does not include margins)	Uncertainty of Measurement <sup>1</sup>	Reference Documents	Remarks	
<b>Calibration – Chemical Quantities, pH Meters</b>					<b>כיוול – גדלים כימיים - מדי pH</b>			
598	A	P;T	PH meters Calibration using standard solutions	מדי PH (ערך הגבה) כיוול בהשוואה לתמיסות	[4, 7, 10] pH	0.03 pH	ASTM D1293 BS 3145 Manufacturer instructions WI-C077	Standard Solution



Item	Scope Type	Site	Measurand Instrument, Gauge	Range [Including margins] (Does not include margins)	Uncertainty of Measurement <sup>1</sup>	Reference Documents	Remarks
<b>Calibration – Electrochemical Quantities - Liquid Conductivity Meters</b>					<b>כיוול – גדלים אלקטרוכימיים - מדי מוליכות נוזלים</b>		
599	A	P;T	Conductivity meters	מדי מוליכות 1.3 $\mu\text{s/cm}$	7.7 %O.R.	ASTM D1225	Standard Solution
600	A	P;T	Calibration using standard solutions	כיוול בהשוואה לתמיסות 5 $\mu\text{s/cm}$	2 %O.R.	ISO 7888	Values may differ slightly due to temperature variations
601	A	P;T		84 $\mu\text{s/cm}$	1 %O.R.	Manufacturer instructions	O.R. – of reading
602	A	P;T		1413 $\mu\text{s/cm}$	1 %O.R.	WI-C087	
603	A	P;T		12880 $\mu\text{s/cm}$	1 %O.R.		
604	A	P;T	Conductivity meters Calibration by comparison to a conductivity meter	מדי מוליכות כיוול בהשוואה למד מוליכות [0.02 to 13,000] $\mu\text{s/cm}$	1.5% O.R. + 0.01 $\mu\text{s/cm}$	ASTM D5391 Manufacturer instructions WI-C087	Calibration of conductivity meter adjacent to a reference meter which is calibrated using solutions and resistors  Calibration units may be presented as either conductance or resistance
605	A	P	Conductivity meters Calibration by comparison to a known resistance	מדי מוליכות כיוול בהשוואה לנגדים [0.02 to 13,000] $\mu\text{s/cm}$	1% O.R.	ASTM D5391 Manufacturer instructions WI-C087	Calibration using resistors to establish linearity in comparison to measured values using solutions  Calibration units may be presented as either conductance or resistance



Item	Scope Type	Site	Measurand Instrument, Gauge		Range [Including margins] (Does not include margins)	Uncertainty of Measurement <sup>1</sup>	Reference Documents	Remarks
<b>Calibration – Mechanical Quantities – Air Velocity</b>						<b>כיוול – גדלים מכניים – מהירות אוויר</b>		
606	A	P	Air Velocity Meters	מדי מהירות אוויר	[0.3 m/s to 5 m/s]	0.2 m/s	ISO 17713-1 IEC610400-12-1 EURAMET CG-24	Are calibrated against a reference anemometer using an open blowdown wind tunnel  Anemometer of all types with diameter up to 100 mm can be calibrated
607	A	P			(5 m/s to 10 m/s]	0.3 m/s	ISO 16622	
608	A	P			(10 m/s to 30 m/s]	0.4 m/s	ASTM D5096 FAA-RD-77-49 Manufacturer instructions WI-C086	
609	A	T	Air velocity at hood / duct / clean room	מהירות אוויר במנדף / תעלה / חדר נקי	[0.3 m/s to 30 m/s]	0.25 m/s + 1 %O.R.	WI-C086	



Item	Scope Type	Site	Measurand Instrument, Gauge	Range [Including margins] (Does not include margins)	CMC Expressed as an Expanded Uncertainty (95%)	Reference Documents	Remarks
<b>Calibration - Chemical Quantities - Gas Detector</b>						<b>כיוול - גדלים כימיים - גלאי גזים באוויר</b>	
610	A	P;T	Gas detector CO (Carbon monoxide) גלאי גז CO (פחמן חד-חמצני)	25 µmol/mol	1 %O.R.	ISO 16664 OSHA SHIB 09-30-2013 Manufacturer instructions WI-C088	O.R. - Of Reading כיוול גלאי גזים אל מול גז ייחוס או באווירה מבוקרת (הצמדה / הזרמה בטור) The Range is a Nominal concentration of Reference gas. This value can be vary according to certified concentration of Reference gas from the calibration certificate. Actual value may be in the margins of ±10% of nominal value LEL -Lower Explosive Limit כיוול גלאי פרופאן, בוטאן, איזו-בוטאן ואן-בוטאן, אתילן, ואתאן באמצעות גז חליפי מתאן 2.5% (CH <sub>4</sub> 6*)
611	A	P;T		50 µmol/mol	1 %O.R.		
612	A	P;T		100 µmol/mol	0.2 %O.R.		
613	A	P;T		[25 µmol/mol to 100 µmol/mol]	5 %O.R.		
614	A	P;T	Gas detector O2 (Oxygen) גלאי גז O2 (חמצן)	12 %	0.8 %O.R.		
615	A	P;T		18 %	0.8 % O.R.		
616	A	P;T		20.9 %	0.25 %O.R.		
617	A	P;T		[12 % to 20.9 %]	5 %O.R.		
618	A	P;T	Gas detector CH4 (Methane) גלאי גז CH4 (מתאן)	2.2 % (44 % LEL)	1.1 %O.R.		
619	A	P;T		2.5 % (50 % LEL)	1 %O.R.		
620	A	P;T	Gas detector C3H8 (Propane) גלאי גז C3H8 (פרופאן)	62 % LEL	4 %O.R.		Propane 5* Star rating
621	A	P;T	Gas Detector C4H10 (Butane & N-Butane) גלאי גז C4H10 (בוטאן ואן-בוטאן)	78 % LEL	4 %O.R.		Butane & N-Butane 4*
622	A	P;T	Gas Detector C4H8 (Iso Butane) גלאי גז C4H8 (איזו-בוטאן)	62 % LEL	4 %O.R.		Iso Butane 5*
623	A	P;T	Gas Detector C2H4 (Ethylene) גלאי גז C2H4 (אתילן)	62 % LEL	4 %O.R.		Ethylene 5*
624	A	P;T	Gas Detector C2H6 (Ethane) גלאי גז C2H6 (אתאן)	62 % LEL	4 %O.R.		Ethane 5*
625	A	P;T	Gas Detector C2H6O (Ethanol) גלאי גז C2H6O (אתאנול)	500 µmol/mol	2 %O.R.		
626	A	P;T	Gas detector H2S (Hydrogen sulfide) גלאי גז H2S (מימן גופרית)	10 µmol/mol	1.5 %O.R.		
627	A	P;T		20 µmol/mol	2 %O.R.		
628	A	P;T		25 µmol/mol	2 %O.R.		
629	A	P;T		[10 µmol/mol to 25 µmol/mol]	5 %O.R.		



Item	Scope Type	Site	Measurand Instrument, Gauge	Range [Including margins] (Does not include margins)	CMC Expressed as an Expanded Uncertainty (95%)	Reference Documents	Remarks
<b>Calibration - Chemical Quantities - Gas Detector</b>						<b>כיוול - גדלים כימיים - גלאי גזים באוויר</b>	
630	A	P;T	Gas detector NO (Nitrous oxide)	גלאי גז NO (חנקן חמצני)	200 µmol/mol	2 %O.R.	
631	A	P;T			1000 µmol/mol	2 %O.R.	
632	A	P;T			[200 µmol/mol to 1000 µmol/mol]	5 %O.R.	
633	A	P;T	Gas detector NO <sub>2</sub> (Nitrous dioxide)	גלאי גז NO <sub>2</sub> (חנקן דו-חמצני)	100 µmol/mol	2 %O.R.	
634	A	P;T	Gas detector CO <sub>2</sub> (Carbon dioxide)	גלאי גז CO <sub>2</sub> (פחמן דו-חמצני)	500 µmol/mol	1.2 %O.R.	
635	A	P;T			1000 µmol/mol	1.1 %O.R.	
636	A	P;T			1 %	1 %O.R.	
637	A	P;T			4 %	0.6 %O.R.	
638	A	P;T			5 %	1 %O.R.	
639	A	P;T			10 %	2 %O.R.	
640	A	P;T			[0.05 % to 10 %]	5 %O.R.	
641	A	P;T	Gas detector NH <sub>3</sub> (Ammonia)	גלאי גז NH <sub>3</sub> (אמוניה)	80 µmol/mol	2.1 %O.R.	
642	A	P;T	Gas detector H <sub>2</sub> (Hydrogen)	גלאי גז H <sub>2</sub> (מימן)	2 %	2 %O.R.	



Item	Scope Type	Site	Measurand Instrument, Gauge	Range [Including margins] (Does not include margins)	CMC Expressed as an Expanded Uncertainty (95%)	Reference Documents	Remarks
<b>Calibration - Chemical Quantities - Determination of gas concentration in the cylinder</b>					<b>כיוול - גדלים כימיים - קביעת ריכוזו גז בגליל</b>		
643	A	P;T	Gas concentration in cylinder CO (Carbon monoxide)	ריכוז גז בגליל CO (פחמן חד-חמצני)	28* $\mu\text{mol/mol}$	ISO 12963 Manufacturer instructions WI-C090	O.R.- Of Reading  * Nominal value. Actual value may be in the margins of $\pm 10\%$ of nominal value  Gas analysis — Comparison methods for the determination of the composition of gas mixtures based on one- and two-point calibration
644	A	P;T		50* $\mu\text{mol/mol}$			
645	A	P;T		95* $\mu\text{mol/mol}$			
646	A	P;T		[20 $\mu\text{mol/mol}$ to 100 $\mu\text{mol/mol}$ ]			
647	A	P;T	Gas concentration in cylinder O2 (Oxygen)	ריכוז גז בגליל O2 (חמצן)	12* %	ISO 12963 Manufacturer instructions WI-C090	O.R.- Of Reading  * Nominal value. Actual value may be in the margins of $\pm 10\%$ of nominal value  Gas analysis — Comparison methods for the determination of the composition of gas mixtures based on one- and two-point calibration
648	A	P;T		18* %			
649	A	P;T		20.9* %			
650	A	P;T		[10.5 % to 20.9 %]			
651	A	P;T	Gas concentration in cylinder CH4 (Methane)	ריכוז גז בגליל CH4 (מתאן)	2.2* % (44 % LEL)	ISO 12963 Manufacturer instructions WI-C090	O.R.- Of Reading  * Nominal value. Actual value may be in the margins of $\pm 10\%$ of nominal value  Gas analysis — Comparison methods for the determination of the composition of gas mixtures based on one- and two-point calibration
652	A	P;T		2.5* % (50 % LEL)			
653	A	P;T		[1.8 % to 2.5 %]			
654	A	P;T	Gas concentration in cylinder C2H6O (Ethanol)	ריכוז גז בגליל C2H6O (אתאנול)	500* $\mu\text{mol/mol}$	ISO 12963 Manufacturer instructions WI-C090	O.R.- Of Reading  * Nominal value. Actual value may be in the margins of $\pm 10\%$ of nominal value  Gas analysis — Comparison methods for the determination of the composition of gas mixtures based on one- and two-point calibration
655	A	P;T		[350 $\mu\text{mol/mol}$ to 500 $\mu\text{mol/mol}$ ]			
656	A	P;T	Gas concentration in cylinder H2S (Hydrogen sulfide)	ריכוז גז בגליל H2S (מימן גופרתי)	10* $\mu\text{mol/mol}$	ISO 12963 Manufacturer instructions WI-C090	O.R.- Of Reading  * Nominal value. Actual value may be in the margins of $\pm 10\%$ of nominal value  Gas analysis — Comparison methods for the determination of the composition of gas mixtures based on one- and two-point calibration
657	A	P;T		21* $\mu\text{mol/mol}$			
658	A	P;T		26* $\mu\text{mol/mol}$			
659	A	P;T		[8 $\mu\text{mol/mol}$ to 26 $\mu\text{mol/mol}$ ]			
660	A	P;T	Gas concentration in cylinder NO (Nitrous oxide)	ריכוז גז בגליל NO (חנקן חמצני)	200* $\mu\text{mol/mol}$	ISO 12963 Manufacturer instructions WI-C090	O.R.- Of Reading  * Nominal value. Actual value may be in the margins of $\pm 10\%$ of nominal value  Gas analysis — Comparison methods for the determination of the composition of gas mixtures based on one- and two-point calibration
661	A	P;T		1000* $\mu\text{mol/mol}$			
662	A	P;T		[150 $\mu\text{mol/mol}$ to 1000 $\mu\text{mol/mol}$ ]			
663	A	P;T	Gas concentration in cylinder NO2 (Nitrous dioxide)	ריכוז גז בגליל NO2 (חנקן דו-חמצני)	100* $\mu\text{mol/mol}$	ISO 12963 Manufacturer instructions WI-C090	O.R.- Of Reading  * Nominal value. Actual value may be in the margins of $\pm 10\%$ of nominal value  Gas analysis — Comparison methods for the determination of the composition of gas mixtures based on one- and two-point calibration
664	A	P;T		[80 $\mu\text{mol/mol}$ to 100 $\mu\text{mol/mol}$ ]			
665	A	P;T	Gas concentration in cylinder CO2 (Carbon dioxide)	ריכוז גז בגליל CO2 (פחמן דו-חמצני)	500* $\mu\text{mol/mol}$	ISO 12963 Manufacturer instructions WI-C090	O.R.- Of Reading  * Nominal value. Actual value may be in the margins of $\pm 10\%$ of nominal value  Gas analysis — Comparison methods for the determination of the composition of gas mixtures based on one- and two-point calibration
666	A	P;T		1000* $\mu\text{mol/mol}$			
667	A	P;T		1* %			



Item	Scope Type	Site	Measurand Instrument, Gauge	Range [Including margins] (Does not include margins)	CMC Expressed as an Expanded Uncertainty (95%)	Reference Documents	Remarks
<b>Calibration - Chemical Quantities - Determination of gas concentration in the cylinder</b>					<b>כיוול - גדלים כימיים - קביעת ריכוז גז בגליל</b>		
668	A	P;T		4* %	1.4 %O.R.		
669	A	P;T		5* %	1.2 %O.R.		
670	A	P;T		10* %	2 %O.R.		
671	A	P;T		[0.05 % to 10 %]	10 %O.R.		
672	A	P;T	Gas concentration in cylinder NH3 (Ammonia)	80* $\mu\text{mol/mol}$ ריכוז גז בגליל (אמוניה) NH3	2 %O.R.		
673	A	P;T		[65 $\mu\text{mol/mol}$ to 80 $\mu\text{mol/mol}$ ]	12 %O.R.		
674	A	P;T	Gas concentration in cylinder H2 (Hydrogen)	2* % ריכוז גז בגליל (מימן) H2	2.7 %O.R.		

<sup>1)</sup> The uncertainty covered by the CMC expressed as the standard measurement uncertainty multiplied by the coverage factor  $k$  such that the coverage probability corresponds to approximately 95 %.