


- Calibration equipment
- Calibration courses & training
- Sale of pipettes & tips
- Sale of thermometers & probes
- Sale of test weights

QCC Hazorea Calibration Technologies

*Our Precision, Your Value*




## Length & Angle Calibration

- Micrometers & extension bars
- Calipers
- Thickness & slit gauges
- Dial Gauges
- Length gauges with display
- Sieves
- High accuracy plug gauges
- Brake drum gauge & parallel wheel gauge
- Plain plug rings & gauges
- Calibration of paralel screw and taper screw rings & gages
- Vee-blocks
- Roughness Measurement Instrument & Master
- Angle & try-square gauges,rulers and sine tables
- Coating thickness gauge and Master
- Measuring tapes & rulers
- Angel levels & clinometers
- Gauge blocks, length bars & angle blocks
- Optical rulers
- Crimping tools
- Length bars (Master)
- Calibration of high accuracy length gauges

## Electronic Calibration

- DMM up to 8½ digits
- Oscilloscope up to 3.2 GHz
- Power supply and electronic loads
- Signal generator
- Current, voltage, capacitance, resistance & conductivity meters
- Temperature simulation for all types of thermocouples and PT-100.
- Standard resistors
- Decade Resistance
- Frequency counter
- Logic analyzer
- Electronic calibrators

**Exclusive calibration using manufacturer's procedures:**

- KAYE - Validator 2000 Sensor Input Module (Sim)
- Electronic cards (PC plug in boards)

## Mass Calibration

- Weights with an accuracy class of E2, F1, F2, M1, M2 & M3, & ordinary accuracy class according to:
  - OIML-R-111Standard
  - OIML-R-52 Standard
- Weights with an accuracy class of 1-7 according to standards: ASTM-E617 & Troemner UltraClass
- Non-standard particular weights
- Balance and scales with a resolution of no less than 0.01 gr.

**At the customer's site:**

- Balance, scales and weighing systems up to 10,000 kg.
- Various types of balance and scales: analytical, semi-analytical, Delta-Range, micro-balance analytical
- Weighing systems
- Moisture analyzers (including temperature calibration)
- Non-standard particular weights in the range of 50-1,000 kg. on the client's scales (not within the accreditation)

## Temperature & Humidity Calibration

- Liquid in glass thermometer
- Digital thermometers and probes
- Precision calibration ovens / baths
- Temperature displays, recorders & controllers by electronic simulation
- All types of humidity gauges
- Dew-point gauge from -40°C to 60°C.
- Ovens
- Refrigerator-Ovens
- Freezer chambers
- Incubators
- Sterilizers / Autoclaves
- Thermal cycler instruments - (PCR), heated presses, temperature-controlled plates, heating blocks for test tubes
- Percentage of $CO_2$ in incubators

**We calibrate most types of existing appliances within the range of -196°C to 1100°C.**

ISRAC Israel Laboratory Accreditation Authority
ISO/IEC 17025
No. 14 .010

ilac-MRA

**QCC is ISO 17025 accredited by ISRAC - the Israel Laboratory Accreditation Authority - for: Electronic, Mass, Pressure, Force, Length & Angle, Torque, Hardness, Volumetric, Tachometer & Time and Temperature & humidity.**




## Force Calibration

- Dynamometer
- Proving Devices
- Impact testers, asphalt hammers
- Presses, including load rate
- Tension & compression machines, including extensometers
- Force gauge systems
- Extensometers

## Hardness Calibration

- Hardness measuring system using various methods: Rockwell, Vickers, Brinell.
- Hardness reference blocks
- Portable hardness testers
- Durometers for rubber and plastic using Shore method

## Torque Calibration

- Mechanical torque wrenches and drivers
- Torque measuring system
- Torque transducers
- Torque calibrators
- Torque measuring devices for opening / closing bottles

## Pressure Calibration

- Various types of pressure and vacuum gauges
- Low pressure differential pressure gauges
- High accuracy calibrators & monitors
- Various types of transducer
- Barometers & absolute pressure gauges
- Dead weight tester pressure balances

## Sale of Measuring equipment

METTLER TOLEDO

Represents METTLER TOLEDO in Israel for the sale of all types of pipettes & BioClean tips (RAININ).

Termoprodukt

Represents Termopodukt in Israel for the sale of PT100-4W thermometers and probes.

INSCO

Represents INSCO in Israel for the sale of high precision stainless still test weights.

## Calibration Courses & Training

QCC calibration training courses consist of theory of operation and calibration procedures & methods. Training Courses & seminars are offered at QCC Hazorea or at customer's site **www.mba.co.il**




## Volumetric Calibration

- Calibration of all types of single / multi channel pipettes from all manufacturers
- Calibration of steppers
- Calibration of dispensers
- Calibration of burettes

## Tachometer & Time Calibration

- Stop watches
- Timers
- Optical and mechanical rotational gauges
- Rotation meters and counters
- Centrifuges
- Temperature-controlled centrifuges
- Vibration systems

## Conductivity & pH Calibration

- pH meters
- Conductivity meters

**Calibration is carried out in three ways:**

- By electrical simulation
- Calibration of temp. probe in the pH meter
- In calibration solutions


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| Quantity | Base Unit | Symbol |
|---|---|---|
| Length | metre | m |
| Mass | kilogram | kg |
| Time | second | s |
| Electric current | ampere | A |
| Thermodynamic temp. | kelvin | K |
| Amount of substance | mole | mol |
| Luminous intensity | candela | cd |

| Quantity | Base Unit | Value SI Units |
|---|---|---|
| Time | minute (min) | 1 min = 60 s |
| | hour (h) | 1 h = 60 min = 3600 s |
| | day (d) | 1 d = 24 h |
| Plane angle | degree (°) | 1° = (π/180) rad |
| | minute (′) | 1′ = (1/60)′ = (π/10 800) rad |
| | second (″) | 1″ = (1/60)″ = (π/648 000) rad |
| | nygrad (gon) | 1 gon = (π/200) rad |
| Volume | liter (l, L) | 1l = 1 $dm^3$ = $10^{-3}$ $m^3$ |
| Mass | metric tonne (t) | 1 t = $10^3$ kg |

| Quantity | Base Unit | Symbol |
|---|---|---|
| Area | square metre | $m^2$ |
| Volume | Cubic metre | $m^3$ |
| Speed, Velocity | metre per second | $m \cdot s^{-1}$ |
| Acceleration | metre per second squared | $m \cdot s^{-2}$ |
| Angular velocity | radian per second | $rad \cdot s^{-1}$ |
| Angular accleration | radian per second squared | $rad \cdot s^{-2}$ |
| Density | Kilogram per cubic metre | $kg \cdot m^{-3}$ |
| Magnetic field intensity (linear current density) | ampere per metre | $A \cdot m^{-1}$ |
| Current density | ampere per square metre | $A \cdot m^{-2}$ |
| Moment of force | newton metre | $N \cdot m$ |
| Electric fiend strength | volt per metre | $V \cdot m^{-1}$ |
| Permeability | henry per metre | $H \cdot m^{-1}$ |
| Permittivity | farad per metre | $F \cdot m^{-1}$ |
| Specific heat capacity | joule per kilogram kelvin | $J \cdot kg^{-1} \cdot K^{-2}$ |
| Amount of substance concentration | mol per cubic metre | $mol \cdot m^{-3}$ |
| Luminance | candela per square metre | $cd \cdot m^{-2}$ |

| Derived quantity | SI derived unit (Symbol) | SI units | SI base units |
|---|---|---|---|
| Frequency | hertz (Hz) | | $s^{-1}$ |
| Force | newton (N) | | $m \cdot kg \cdot s^{-2}$ |
| Pressure, Stress | pascal (Pa) | $N/m^2$ | $m^{-1} \cdot kg \cdot s^{-2}$ |
| Energy, Work | joule (J) | $N \cdot m$ | $m^2 \cdot kg \cdot s^{-2}$ |
| Power, Radiant flux | watt (W) | J/s | $m^2 \cdot kg \cdot s^{-3}$ |
| Electric charge | coulomb (C) | | $s \cdot A$ |
| Electric capacitance | farad (F) | C/V | $m^{-2} \cdot kg^{-1} \cdot s^4 \cdot A^2$ |
| Electric resistance | ohm (Ω) | V/A | $m^2 \cdot kg \cdot s^{-3} \cdot A^{-2}$ |
| Electric conductance | siemens (S) | A/V | $m^{-2} \cdot kg^{-1} \cdot s^3 \cdot A^2$ |
| Magnetic flux | weber (Wb) | $V \cdot S$ | $m^2 \cdot kg \cdot s^{-2} \cdot A^{-1}$ |
| Inductance | henry (H) | Wb/A | $m^2 \cdot kg \cdot s^{-2} \cdot A^{-2}$ |
| Luminous flux | lumen (lm) | $Cd \cdot sr$ | $m^2 \cdot m^{-2} \cdot cd = cd$ |
| Illuminance | lux (lx) | $Lm/m^2$ | $m^2 \cdot m^{-4} \cdot cd = m^{-2} \cdot cd$ |
| Activity | becquerel (Bq) | | $s^{-1}$ |
| Absorbed dose, Kerma | gray (Gy) | J/kg | $m^2 \cdot s^{-2}$ |
| Dose equivalent | sievert (Sv) | J/kg | $m^2 \cdot s^{-2}$ |
| Plane angle | radian (rad) | | $m \cdot m^{-1} = 1$ |
| Solid angle | steradian (sr) | | $m^2 \cdot m^{-2} = 1$ |
| Catalytic activity | katal (kat) | | $s^{-1} \cdot mol$ |