



List of required laboratory devices and equipment				
#	Item	Quantity	Unit Price (\$)	Total Price (\$)
1.	Refrigerated swing bucket centrifuge	1	4,500	4,500
2.	Cyto Vision System	1	15,000	15,000
3.	Fully Automate Sample Preparation (Low Throughput)	1	27,000	27,000
4.	Densitometer	1	1,000	1,000
5.	Tissue Culture Grade CO ₂ Incubator	1	5,000	5,000
6.	Pipetting robot liquid handling station (open system)	1	25,000	25,000
7.	Microplate Centrifuge	1	5,000	5,000
8.	Sequence Studio Genetic Analyzer (open system)	1	110,000	110,000
9.	Fully Automate Sample Preparation (High Throughput)	1	50,000	50,000
10.	Semi-Automated System of Optimized Newborn Screening	1	20,000	20,000
11.	Automated Microbiology System	1	28,000	28,000
12.	HPLC System (High Performance Liquid Chromatography) and accessories for drugs and amino acids	1	71,000	71,000
13.	Cooled Incubator	1	4,000	4,000
14.	Incubator CO ₂	2	9,000	18,000
15.	Ultra-pure water unite "HPLC Grade"	2	6,000	12,000
16.	Tablet Hardness Tester	1	2,000	2,000
17.	EC/TDS Bench Meter	1	2,000	2,000
Estimated total (\$)				399,500

**Functional and Technical Specifications of Refrigerated swing bucket centrifuge:**

- Manufacture: Well-known Brand Name Company from (USA, Japan, Europe)/ else it should be proven in MOH and has good reputation and high efficiency.
- For cell culture with a 4 x 85 ml swing-bucket rotor with round buckets
- 4 adapters for 15 ml conical tubes and 4 adapters for 50 ml conical tubes
- Digital Speed control up to 6,000 rpm
- Safety lid-lock, prevents opening lid until rotor stops
- Timer up to 99 min and continuous
- Temp. control from -20°C to 40°C
- Sealing caps for round bucket
- Secure locking system allows easy push-button installation and exchange of rotors.

Service and warranty requirements:

- Certificates (agency approvals): FDA and CE will be taken into consideration; the offer must include the certificates for evaluation.
- Warranty three years from installation date.
- Warranty for not less than 10 years for spare parts.
- Original Operation and Service manuals are included (in English).
- Country of origin and source (clarification certificate) and manufacturing date.

Functional and Technical Specifications of CytoVision System:

- Manufacture: Well-known Brand Name Company from (USA, Japan, Europe)/ else it should be proven in MOH and has good reputation and high efficiency.
- CytoVision using Windows 7 operating system at least
- Microscope: Leica DM6000B
- Digital cameras: 75 fps @ 2448 x 2048 frame rate
- 1600 x 1200 pixels
- Slide loader or motorized stage: GSL-10 (10 slides per run)
- Application options: Karyotyping and FISH
- Monitor: 24" LCD
- UPS: Standard
- Fluorescent Filters Features: DAPI, Orange, Green, Red and Cy5
- 6 position motorized filter wheel.
- A laptop computer included with instrument control software, experiment design, monitoring and data management.
- Start-up consumables and accessories are included (different shape tips, different shapes of tubes and plates, racks etc.).

Service and warranty requirements:

- Training Biomedical Engineer for servicing and applications in mother country of the machine (separately priced).
- Certificates (agency approvals): FDA and CE will be taken into consideration; the offer must include the certificates for evaluation.
- Warranty three years from installation date.
- Warranty for not less than 10 years for spare parts.
- Original Operation and Service manuals are included (in English).
- Country of origin and source (clarification certificate) and manufacturing date.


Functional and Technical Specifications of Fully Automate Sample Preparation (Low Throughput):

- Manufacture: Well-known Brand Name Company from (USA, Japan, Europe)/ else it should be proven in MOH and has good reputation and high efficiency.
- Sample capacity: 1 to 12 or 1 to 16
- Nucleic acid extraction time: < 35 minutes
- Ready-to-use reagent cartridges
- Extraction Principle: Magnetic beads
- Nucleic acid extraction purity: $1.8 \leq OD_{260}/OD_{280} \leq 2.0$
- Magnetic beads recovery: $\geq 98\%$
- Disinfection/decontamination method UV lamp, fan
- HEPA Filter is Optional
- Heating range: Room temperature +5°C - 125°C
- Sample type: blood, serum, plasma, cultured cells, saliva, alveolar lavage fluid, nasopharyngeal aspirates and swabs etc.
- Sample Volume: at least 200 µl and can be increased by the specification of the instrument
- Elution volume: 50 - 200µl.
- Service and warranty requirements :
- Certificates (agency approvals): FDA and CE will be taken into consideration, the offer must include the certificates for evaluation.
- Warranty three years from instillation date.
- Warranty for not less than 10 years for spare parts.
- Original Operation and Service manuals are included (in English).
- Country of origin and source (clarification certificate) and manufacturing date.

Functional and Technical Specifications of Densitometer (suspension turbidity detector) :

- Manufacture: Well-known Brand Name Company from (USA, Japan, Europe)/ else it should be proven in MOH and has good reputation and high efficiency.
- Measurement range 0.00–15.00 McF
- Display resolution 0.01 McF
- Light source LED
- Measurement wavelength (λ) $\lambda = 565 \pm 15$ nm
- Accuracy (0.3–5.0 McF) $\pm 3\%$
- Measurement time 1 s
- Sample volume not less than 2 ml
- Tube external diameter 12 mm, 16 mm (using A-12, A-16 adapter) or 18 mm (without adapter)
- Possibility to restore factory calibration settings +
- Display LCD
- External power supply Input AC 100–240 V, 50/60 Hz; Output DC 12 V
- Complete with all accessories and consumables needed to work completely as specified (Glass sample tubes, Calibration kit, adapter etc.)



Service and warranty requirements :

- Certificates (agency approvals): FDA and CE will be taken into consideration, the offer must include the certificates for evaluation.
- Warranty three years from instillation date.
- Warranty for not less than 10 years for spare parts.
- Original Operation and Service manuals are included (in English).
- Country of origin and source (clarification certificate) and manufacturing date.

Functional and Technical Specifications of Tissue Culture Grade CO2 Incubator:

- Manufacture: Well-known Brand Name Company from (USA, Japan, Europe)/ else it should be proven in MOH and has good reputation and high efficiency.
- Capacity: at least 230 L
- Certifications/Compliance: UL, cUL, CE
- Temp. Range: Ambient +5°C to 60°C
- Temp. Accuracy: $\pm 0.1^\circ\text{C}$ at 37°C
- CO₂ Range: 0% to 20%
- CO₂ Accuracy: $\pm 0.1\%$ at 5%
- CO₂ Sensor: IR CO₂ Sensor
- Relative Humidity: 95%, controllable
- Humidity Source: External humidity reservoir
- Chamber Material: Electropolished Stainless Steel

Service and warranty requirements:

- Certificates (agency approvals): FDA and CE will be taken into consideration; the offer must include the certificates for evaluation.
- Warranty three years from instillation date and warranty for not less than 10 years for spare parts.
- Original Operation and Service manuals are included (in English).
- Country of origin and source (clarification certificate) and manufacturing date.



Functional and Technical Specifications of Pipetting robot liquid handling station (open system):

- Manufacture: Well-known Brand Name Company from (USA, Japan, Europe)/ else it should be proven in MOH and has good reputation and high efficiency.
- Allowing to configure and customize runs to any reagent, kit, or protocol. With intelligent tip management, our pipette heads allow up to 8 tips to be used simultaneously with
- Maximum pipetting accuracy from 0.2 to 1,000 μL
- Calibrated 1-channel and 8-channel pipetting tools
- Autoclavable & easy to maintain
- Automatic calibration warning
- Free-jet pipetting, no tubes, no wires, no air bubbles to minimize cross-contamination
- Compatible with tubes (0.2 mL to 50 mL), 96-deep well and microplates with up to 96 and 384 wells
- Optical sensor for detecting liquids, labware, tips
- Application: Serial dilutions, distributing reagents, Assay set-up, Sample transfer from individual tubes to plates, Reformatting plates, PCR set-up, Immunoassay set-up, Setting concentrations or volumes

Service and warranty requirements:

- Certificates (agency approvals): FDA and CE will be taken into consideration; the offer must include the certificates for evaluation.
- Warranty three years from instillation date.
- Warranty for not less than 10 years for spare parts.
- Original Operation and Service manuals are included (in English).
- Country of origin and source (clarification certificate) and manufacturing date.

Functional and Technical Specifications of Microplate Centrifuge:

- Manufacture: Well-known Brand Name Company from (USA, Japan, Europe)/ else it should be proven in MOH and has good reputation and high efficiency.
- Speed 2550 rpm / 600 xg
- Capacity 2 PCR Plates
- 24 x 0.2 ml PCR strips
- Electrical 230V; 50-60Hz; 250W
- Accepts all popular types of PCR plates
- Unique swing-out rotor design prevents spillage

Service and warranty requirements:

- Country of origin and source clarification and manufacturing date certificates (agency approvals): FDA, TUF, and CE will be taken into consideration, the offer must include the certificates for evaluation.
- Warranty three years from instillation date.
- Warranty for not less than 10 years for spare parts.
- Original Service and Operation manuals in English are included.



Functional and Technical Specifications of Sequence Studio Genetic Analyzer (open system):

- Manufacture: Well-known Brand Name Company from (USA, Japan, Europe)/ else it should be proven in MOH and has good reputation and high efficiency
- Applications include Sanger sequence analysis and fragment analysis. Both can be performed separately or on the same run
- Sample format: Standard 96-well plate and standard 8-tube tapes
- Internal hard drive storage with a capacity of at least 128 GB, approximately 3,500 injections or 14,000 interactions.
- Ability to monitor remotely via the web
- Sequence up to 800 bps of DNA fragments in approximately 2 hours or less.
- Integrated cartridge (polymer, matrix, pump, anode store - all in one unit) o Capillary matrix length: 28 cm o Maximum number of injections / reactions: up to 250 injections / 1000 reactions or samples o Shelf life up to 6 months After opening Storage 2-8 ° C The system includes:
- A 4-stroke genetic analyzer system with a 3-year extended warranty
- A laptop embedded with minimum specifications: o Memory > 16 GB o Processor 10th Generation Intel Core i7 o Drive SSD hard disk o Microsoft Windows 10 operating system
- Administrator driver.
- A complete suite of sequence and fragment analysis software (GeneMapper, Sequence Analysis, Minor Variant Finder, Variant Reporter, SeqScape).
- BigDye Terminator Starter Cycle Sequence Kit.
- Starter cartridge (1000 reactions)
- Cathode storage container (4 packages)
- Cathode storage container tank (20 pieces)
- 96 well plate (20 pieces)
- 8 strip tube (24 pieces)
- Integrated capillary guard
- Service manual
- Drip On-site operation
- Operator and service training included Pipettes Robotic Fluid Handling System:
- A number of deck positions for loading various shapes of tubes (96-well PCR sheets, strips, etc.), pipette tips, including positions that can be used to combine thermal circulation and vibration Waste disposal
- Adaptable to various types of applications including: o NGS o PCR preparation o PCR cleaning o Cell staining o Genomics o Fluid handling o HLA preparation
- Single-channel and 8-channel automatic interchangeable draw-and-clutch tools
- Dual pipette bands Dynamic volume from 1 to 1000 µl • Samples protected from airborne particles • Lab instruments support from tubes to 384 micro / large wells and thermal spin panels
- A laptop computer included with instrument control software, experiment design, monitoring and data management.
- Start-up consumables and accessories are included (different shape tips, different shapes of tubes and plates, racks etc.). Microscopic centrifugation:
- Short acceleration and braking time.
- Multiple centrifuges inverters included.
- Rotors included:
- Multi-well plates (96 wells and 384 wells)
- Fine centrifuge tubes (0.2 mL to 2.0 mL)
- PCR strip tubes
- Maximum speed: 30.130 x g (17,500 rpm).

Service and warranty requirements of Sequence Studio Genetic analyzer (open system):



- Training Biomedical Engineer & lab Technician for servicing and applications in mother country of the machine (separately priced).
- Certificates (agency approvals): FDA and CE will be taken into consideration; the offer must include the certificates for evaluation.
- Warranty three years from instillation date.
- Warranty for not less than 10 years for spare parts.
- Original Operation and Service manuals are included (in English).
- Country of origin and source (clarification certificate) and manufacturing date.

Functional and Technical Specifications of Fully Automate Sample Preparation (High Throughput):

- Manufacture: Well-known Brand Name Company from (USA, Japan, Europe)/ else it should be proven in MOH and has good reputation and high efficiency.
- Process 1-96 samples per run in parallel depending on throughput demands
- Sample volumes from 200 µl to 2 ml
- Processing Time: 20-40 minutes
- Reliable DNA, RNA and miRNA extraction from virtually any sample type
- Convenient to handle different sample types as blood, plasma, serum, CSF, UTM, FFPE, cells, tissue and body fluids.
- Optimized protocols for various extraction applications
- Valid - extraction without carryover effects
- Compatible with diverse reagents and kits
- High-quality nucleic acid purification with minimal steps and less hands-on time
- All accessories must be supplied

Service and warranty requirements :

- Certificates (agency approvals): FDA and CE will be taken into consideration, the offer must include the certificates for evaluation.
- Warranty three years from instillation date.
- Warranty for not less than 10 years for spare parts.
- Original Operation and Service manuals are included (in English).
- Country of origin and source (clarification certificate) and manufacturing date.

Functional and Technical Specifications of Semi-Automated System of Optimized Newborn Screening:

- Manufacture: Well-known Brand Name Company from (USA, Japan, Europe)/ else it should be proven in MOH and has good reputation and high efficiency.
- Fully robotic platform with integrated incubator, shaker, washer, disc remover.
- Performs all assays (TSH, T4, PKU, 17OHP, G6PD, Galactose, GALT, IRT, Biotinidase and, TOXO-IgM).
- High capacity –Fully loaded 25 microplate /run.
- Low running costs (no disposable tips /reagent basins)
- Fully automated with hands off operations.
- High sensitivity fluorometric detection.
- Top level flexibility – upgradable according to changed needs.
- Highly sensitive and highly specific.
- Integrated disc remover connected to the washer.



- Unique liquid handling system allows all assays to be performed on the same platform.
- No disposable tips required.
- Expandable panels.

Service and warranty requirements:

- Certificates (agency approvals): FDA and CE will be taken into consideration; the offer must include the certificates for evaluation.
- Warranty three years from instillation date.
- Warranty for not less than 10 years for spare parts.
- Original Operation and Service manuals are included (in English).
- Country of origin and source (clarification certificate) and manufacturing date.

Functional and Technical Specifications of Automated Microbiology System:

- Automated Microbiology System is a fully automated system that performs bacterial identification and antibiotic susceptibility testing.
- Well-known Brand Name Manufacture.
- Windows based operation system with user-friendly software
- Large LCD display at least 8"
- System should include an advanced expert system (AES) that analyzes MIC patterns and detects phenotypes for most organisms tested.
- System should provide accurate “fingerprint” recognition of bacterial resistance mechanisms and phenotypes.
- System capacity: approx. 60 cards per instrument
- System connection: should support at least 3 instruments which can be connected to the same PC
- System should include vacuum system to provides both safety and the highest level of automation.
- Microbial Identification - bacteria and yeast identification (ID)
- Antibiotic susceptibility testing (AST) and resistance mechanism detection
- Epidemiologic trending and reporting
- High discrimination between species
- Low rate of multiple choice and misidentified species
- Minimal number of off-line tests
- System should provide the following:
 - Knowledge base developed from more than 80,000 references
 - More than 1,200 described phenotypes
 - More than 15,000 MIC distributions
 - More than 90 resistance mechanisms detected
 - More than 90 organisms
 - Result range of: 4 to 6 MIC doubling dilutions per antibiotic
 - Extended MIC range to enable low-level resistance detection
 - Resistance-oriented results that highlight unusual phenotypes
 - Deduced antibiotic results to meet formulary requirements
 - Checks every result every time
 - Completed tests are automatically ejected into a trash container.

Training

- Technical and Service Training for (biomedical Engineer & operational applicator) at the Manufacturer (priced separately)
- Onsite operational training

**Documents and warranty:**

- User & Service manuals to be supplied in English.
- New catalogue is attached with the offer
- All standard and safety certificates should be included (ISO, FDA, CE, etc.)
- 3 years warranty
- Warranty for the supply of spare parts for a minimum period of 10 years.

Functional and Technical Specifications of HPLC System :

- Manufacture: Well-known Brand Name Company from (USA, Japan, Europe)
- The Integrated HPLC must have the following condensed into a compact package:

- Solvent Delivery System for quaternary gradient.
- On-line Degasser.
- Photo Diode array detector (PDA).
- Refractive index detector.
- High Throughput Auto-Injector.
- Column Oven.
- System Controller.
- Data Management System.
- Others.

Solvent Delivery System for Quaternary gradient:

- Including dual pump, for suction of solvent and the other pump for mixing of solvent
- It should be a serial dual plunger micro-volume construction
- The flow rate should be settable between 0.001 to 5 ml/min
- Flow rate accuracy should be within $\pm 1\%$ or + 2ul whichever is larger
- Flow rate precision should be within $\pm 0.075\%$ RSD
- Pressure setting range should be 10-6000 PSI
- It should have a pressure fluctuation of less than 1 kg/cm²
- It should have a 4-channel low pressure solvent mixing capability
- Concentration accuracy should be $\pm 0.5\%$
- Concentration precision should be $\pm 0.1\%$
- Must be equipped with Dynamic Inlet Valve to greatly improve flow rate stability and gradient performance
- It should have automatic rinsing mechanism for cleaning of plunger

The offer Including:

- Maintenance kit, reservoir tray (with 4 solvent bottles complete with fittings) & automatic rinsing kit must be supplied as standard.
- Plunger with seal (Qty. 2).
- Tools and keys kit for maintenance.
- It must have a leak sensor as safety feature.
- It should have functions for maintenance and validation which are accessible by a dedicated operation button.

Degassing Unit:

- Membrane degassing unit for 5 flow lines
- Degassing capacity to less than 1.5 ppm of Oxygen remaining at 1 ml/min
- It must have a leak sensor as safety feature
- Any Error status should be transferrable to the operating software

Photo Diode Array detector (PDA):

- Both sensitivity and resolution must be optimized with a fixed slit width design and available simultaneously without sacrificing one for the other



- Wavelength range 190 to 800 nm
- Spectral Resolution 1.4nm
- Slit width 1.2nm, 8nm
- Number of photodiode array elements 1024
- Wavelength accuracy $\leq \pm 1$ nm
- Wavelength precision ± 0.1 nm
- Drift Less than 1×10^{-4} AU/Hour
- Noise Level $\pm 0.25 \times 10^{-5}$ AU
- Sampling rate: up to 100 Hz
- Light Source: Deuterium Lamp (Standard), tungsten lamp (option)
- Flow cell 10ul (10mm, TC) 12 MPa
- Option cell: high speed 8ul (10mm, TC), semi-micro 2.5ul (5mm, TC)
- A standard cell [Length 10 mm, volume: 8 ul] should be available as standard.
- It should have a self-aligning mechanism for the light sources and cell to allow alignment-free installation from the front.
- A leak sensor and lamp replacement protection system

The Offer must be including:

- A standard cell (Qty. 1)
- Deuterium lamp (Qty. 2)
- Analytical cell to be supplied (Qty. 1)
- refractive index detector,
- Measuring Method: Deflection type
- Refractive index range, 1 to 1.75 RIU
- Measuring range: 0.25 - 512uRIU
- Maximum operating flow rate, 20 mL/min (150 mL/min with option.
- Temperature control of cell unit, 30 to 60 °C
- Flow Cell volume: 8 - 10 μ L.
- Flow cell type: 2 chambers
- Maximum flow rate: 10 mL/min (with water)

The offer must include: lamp (Qty. 2) as spare part

- **Number of channels: up to 4.**
- **Flow cell temperature control: 15 °C to 50 °C**

Auto-Sample Injector

- Auto sampler should be able to do Full volume injection and variable injection without any sample loss
- Sample injection volume should be variable between 0.1 μ l to 100 μ l [0.1 μ l step]. Injection volume of 1-2000 μ l [1 μ l step] should be available as an option
- Number of samples to be processed automatically, random access up to 250
- It must perform customized, continuous analyses according to the conditions specified for each sample, including pre-treatment, injection and analysis conditions. Priority samples may be inserted in the queue during automated run.
- Flow line rinse capability both before and after sampling should be possible
- Needle wash must be standard
- Needle aspiration speed should be variable
- Carry over must be within 0.01 %
- The injection reproducibility should be less than 0.3% RSD
- Injection volume accuracy $\pm 1\%$
- Number of reagent addition should be up to 3 with mixing capability
- Reaction time setting before injection should be 0.1 - 120 min
- Should be capable of accommodating microtiter plates
- Sample cooler; a **direct cooling mechanism** with Peltier elements for temperature setting from 4-60°C.



- It must have a leak sensor, automatic rack and vial recognition as safety feature.

The offer must include:

- Needle as spare part (Qty. 2).
- HPLC vial for the size of microtiter plates (Qty. 1000 vial)
- Syringe filter 0.45 µl (Qty. 1000 filter)

Column Oven

- It should be block heating type oven with pre-heating of mobile phase for uniform temperature distribution and with a quick feedback mechanism to maintain constant temperature level even when power source voltage fluctuates.
- The temperature range should be 4 °C to 60 °C
- Temperature control precision should be ±0.1 °C
- It should accommodate up to 2 columns of 30 cm length and post column reaction coils.
- The oven should have temperature limit device and temperature fuse and a solvent leak sensor
- It should come standard with one certified ODS column (4.6 mm ID X 250 mm with guard column)
- Column management device should be available as an option.

Column

- Two types of Stainless-steel column C18, C8
- The offer must be including:
 - Stainless steel column C18 (RP) 5 µm ODS2, 4mmX125mm (Qty. 4)
 - Stainless steel column C18 (RP) 5 µm ODS2, 4mmX250mm (Qty. 4)
 - Stainless steel column C8 (RP) 5 µm ODS2, 4mmX125mm (Qty. 4)
 - Stainless steel column C8 (RP) 5 µm ODS2, 4mmX250mm (Qty. 4)

System Controller

- The controller must be equipped with a big, clear LCD display for control parameters and time programs as well as spectrum display of scanned data and chromatogram display.
- It should store up to 20 analysis files with a total up to 400 steps of time programs
- It must have the capability of data buffering to protect collected chromatography data from PC failure

Data Management System

- **Hardware**
 - Required computer should be provided with the system.
 - Online UPS: 4 KVA
 - Interface RS-232.
 - Power supply: 220v, 50Hz.
- **Software**
 - It should be capable of controlling HPLC systems and data acquisition of up to 8 channels (3 detectors for each system).
 - The monitoring of all the four HPLC systems simultaneously should be possible
 - Auto start-up, Auto shut-down, baseline stability auto judgement, Auto- validation, Auto purge, etc. must be available from the touch of a button
 - Operation of the system should be easy and intuitive via a state-of-the-art windows XP / Windows 7 software
- There should be an on-line help function context sensitive
 - Method file capability should include LC analysis parameters, data processing parameters, report format, etc.
 - The quantitation software should include, internal standard, external standard, normalization and corrected normalization for accurate and reproducible quantitation
 - The calibration curves obtained with weighted regression should be possible
 - A multipoint calibration curve calculation using the average value of each concentration should be possible
 - The reporting format should be flexible and easy to use in any desired format



- The data should be convertible to other formats. Spread Sheet software and word-processing software should be available to provide data in tables or graphs through industry standard protocols
- Software must have its own log files for complete audit trails
- An audio-visual multi-media CD-ROM for Maintenance and Troubleshooting must be provided
- System suitability, System security as well as System check functions must be provided which comply with Good Laboratory Practice (GLP) and Regulatory Conformity
- Including laser jet printer

Service and warranty requirements:

- Training for one Biomedical Engineer for servicing, maintenance, trouble shooting and applications in mother country of the machine.
- Training one user Operator for the system start-up, usage, quality control, trouble shooting in mother country of the machine.
- Warranty 5 years from instillation date, the warranty shall commence only upon successful completion of the Acceptance Test or commissioning.
- Country of origin and source clarification and starting date of manufacturing this model. Certificates (agency approvals): FDA, TUF, and CE will be taken into consideration, the offer must include the certificates for evaluation.
- Warranty for not less than 10 years for spare parts.
- Include Operating Program Software.
- Service and Operation manuals original in English are included.
- Instrument to be supplied with all essential consumables for HPLC, Tool kit etc. necessary for installation/demonstration of the HPLC as well as for smooth operation of the HPLC at least two year.
- Vendor to provide both on-site and operator training for users on the system start-up, usage, maintenance, quality control, trouble shooting, etc. Including comprehensive classroom training.



Functional and Technical Specifications of Cooled Incubator:

- Manufacture: Well-known Brand Name Company from (USA, Japan, Europe)/ else it should be proven in MOH and has good reputation and high efficiency.
- Stainless steel working chamber and powder coated steel housing with dual-layer toughened glass window.
- Double doors structure.
- Stainless steel shelf with adjustable space.
- Compressor with over-pressure and under-pressure protection, intelligent defrost, self-checking on-and-off control programme and internal refrigeration device. Low noise, long life and low temperature fluctuation.
- Omni-directional 3D heating technology ensuring uniformity of chamber temperature, with independently-controlled illumination inside the chamber.
- Equipped with 220V power socket, convenient for BOD tests.
- Temperature controller with high-speed, high-performance CPU chip.
- High-sensitivity and high precision Pt resistance sensor.
- Preset programmed control with timing range up to 99 hours for power-on, power-off and working.
- Multiple alarming for sensor failure, high/low temperature deviation, over.
- Temperature.
- Parameter memory.
- Temperature display calibration.
- Dynamic self-diagnostic control technology.
- Independent temperature control and alarming system to provide dual protections and stop working in case of over-temperature.
- Specifications:
- Chamber volume(L): 80 L
- Timer: Power-on, power off and working. Timing range: 1min-99hr
- Temp. Control Range: 5C to 60C
- Accuracy: $\pm 0.1C$ at 37C
- Fluctuation: $\pm 0.3C$
- Temperature Uniformity: $\pm 0.3C$ at 37C
- Controller: PID microprocessor control, soft touch, LED display.
- Sensor: Pt 100 resistor.

Service and warranty requirements:

- Country of origin and source clarification and manufacturing date certificates (agency approvals): FDA and CE will be taken into consideration; the offer must include the certificates for evaluation.
- Warranty three years from instillation date.
- Warranty for not less than 10 years for spare parts.
- Original Service and Operation manuals in English are included.



Construction: CO₂ incubators with CO₂ Cylinder

Functional and Technical Specifications of CO₂ incubator:

- Manufacture: Well-known Brand Name Company from (USA, Japan, Europe)/ else it should be proven in MOH and has good reputation and high efficiency.
- Digital displays for temperature and CO₂ Level
- Temp. Range: Ambient +5°C to at least 60°C
- Temp. Accuracy: ±0.1°C at 37°C
- CO₂ Range: 0% to 20%
- CO₂ Accuracy: ±0.1% at 5%
- CO₂ Sensor: IR CO₂ Sensor
- Chamber volume: around 150 liters
- Chamber Material: Stainless Steel
- Heating method by water jacket or heating element.
- Supplied with CO₂ min. 40-liter cylinder and regulator.
- Power supply: 220V AC, 50 HZ
- all necessary accessories and ready for use.
- List of important spare parts and accessories with their part number.

Training requirements:

- Service and operation manuals original in English hard copy & soft copy.

Service and warranty requirements:

- Warranty three years from instillation date.
- Warranty for not less than 10 years for spare parts.



Functional and Technical Specifications of Ultra-pure water unite "HPLC Grade":

- Manufacture: Well-known Brand Name Company from (USA, Japan, Europe)/ else it should be proven in MOH and has good reputation and high efficiency.
- Automatic microcomputer control system, multi-level menu operation
- Supplies end of life alarm, automatic fault detection, to provide security guarantees
- Free to start, shut down the ultra-pure water circulation system to maintain 4.the system's low level of bacterial contamination
- Integration of plastic molding cabinet, ergonomic design
- System flow: PF+AC+RO+DI
- Water requirements: city water: TDS<200 ppm
- RO water conductivity: 1 ~ 5µs/cm
- heavy metal ion :< 0.1ppb
- TOC:<10 ppb (UV<3 ppb)
- Heat / endotoxin:<0.001 EU/ml (UF
- Microbiology / bacteria:<1 CFU/ml
- particulate matter:>0.22µm) <1/ml
- Output:10 liter/hour
- Power: 220V、 50Hz

Service and warranty requirements:

- Country of origin and source clarification and manufacturing date certificates (agency approvals): FDA and CE will be taken into consideration; the offer must include the certificates for evaluation.
- Warranty three years from instillation date.
- Warranty for not less than 10 years for spare parts.
- Original Service and Operation manuals in English are included.



Functional and Technical Specifications of Tablet Hardness Tester:

- Manufacture: Well-known Brand Name Company from (USA, Japan, Europe)/ else it should be proven in MOH and has good reputation and high efficiency.
- Automatic Tablet Hardness Tester
- It has a high accuracy press sensor and displays hardness data
- It tests tablet hardness continuity.
- Calibration procedures are included.
- Test Range: 0 ~ 20 kgf (Optional Up to 50 kgf)
- Test Accuracy: $\pm 0.05\text{Kgf}$
- Probe Testing Range: 40 mm

Service and warranty requirements:

- Country of origin and source clarification and manufacturing date certificates (agency approvals): FDA and CE will be taken into consideration; the offer must include the certificates for evaluation.
- Warranty three years from instillation date.
- Warranty for not less than 10 years for spare parts.

Original Service and Operation manuals in English are included.

Functional and Technical Specifications of EC/TDS Bench Meter:

- Manufacture: Well-known Brand Name Company from (USA, Japan, Europe)/ else it should be proven in MOH and has good reputation and high efficiency.
- Conductivity, resistivity, TDS and salinity modes
- Special pure water mode for ultra-low conductivity measurements
- Storage of 500 results with built in data logger
- Infra-red data link (IrDA) for connection to printer and RS232 link to connect to printer or PC via DataWay software
- 2-year warranty
- The meter is a high specification laboratory conductivity /resistivity/TDS/salinity and temperature meter that offers additional accuracy with 1, 2 or 3 point conductivity calibration across the wide measurement range of 0 to 19.99S.
- The dedicated "pure water" mode ensures the optimum accuracy for this difficult application.
- Conductivity range: 6 auto-selected from 0 to 19.99S*
- Conductivity resolution: 0.01 μS to 0.01S
- Conductivity accuracy: $\pm 0.5\%$ ± 2 digits
- TDS range: 6 auto selected ranges from 0 –1999g/l*
- TDS resolution: 0.01mg/l to 1g/l
- TDS accuracy: $\pm 0.5\%$ ± 2 digits
- Temperature range: -10 to 105°C
- Temperature resolution: 0.1°C
- Temperature accuracy: $\pm 0.5^\circ\text{C}$
- ATC and manual: 0 to 100°C

Service and warranty requirements of EC/TDS Bench Meter:



- Country of origin and source clarification and manufacturing date certificates (agency approvals): FDA and CE will be taken into consideration; the offer must include the certificates for evaluation.
- Warranty three years from instillation date.
- Warranty for not less than 10 years for spare parts.
- Original Service and Operation manuals in English are included.