JAWAHARLAL INSTITUTEOF POST GRADUATE MEDICAL EDUCATION AND RESEARCH, PUDUCHERRY-605006

SPECIFICATIONS FOR HEAT BLOCK

Operational Requirement:

The heat block unit must be ideal for clinical laboratory applications like incubation, boiling, inactivation, wet washing, enzyme analysis and other clinical uses.

Technical Specifications:

- Should be a micro computer-controlled product withan advanced thermoelectric technique with a LCD display.
- Must be easy to setup and use.
- Must have a robust construction for long term durability and reliability
- Small, light and compact foot print.
- Should possess a simultaneous display of set and actual time, temperature.
- Should have a solid anodized aluminum construction ensuring maximum heat transfer between the heater base and tube contents
- Should have a reliable design with inner extra temperature protection
- Change of blocks must be easy and convenient.
- Should have a wide range of controlling temperature and temperature deflection for differing purposes.
- Standard blocks (given in the table below) as a part of the unit for versatile applications

Temperature setting Range	5-105 ℃
Temperature control Range	10-100 ℃
Timing Range	1 min -99h59min
Temperature control Accuracy	≤ ± 0.5 ℃
Temperature setting	Push button
Display Accuracy	0.1 ℃
Temperature uniformity across the block	≤ ± 0.5 ℃
Heating Rate	≤25min (20℃ to 100℃)
Cooling Rate	≤30min (20℃ to -10℃)
Standard blocks (must be provided as part of equipment, not as optional)	A-BLOCK: 96 well Plate; B-BLOCK:0.5ml x 54 C-BLOCK: 1.5ml x 35 D-BLOCK: 2ml x 35 E-BLOCK: 50 ml
Power supply	230V 50-60 Hz

Accessories to be provided (at no extra cost): Block extraction tool must be supplied, allowing blocks to be removed easily.

Standards, Safety and Training

- Should be FDA, CE, UL or BIS approved product.

- Electrical safety conforms to standards for electrical safety IEC-60601 / IS-13450
- The manufacturer/supplier has to provide adequate training in operation and maintenance of the equipment at the site of installation.

Warranty:

1. The supplied equipment and all accessories should be under warranty for a period of 3 years after successful commissioning.
2. All spare parts, PC boards and service manuals should be available with the local service centre during the warranty period and steps should be taken immediately for servicing when required to minimize down-time.

Annual Maintenance Contract:

1. Annual maintenance contract rates for a period of 5 years after the end of warranty period should be quoted separately and this would be taken into consideration during price comparisons.
2. Annual maintenance contract should include preventive maintenance as well as breakdown calls. A copy of the service manual should be available with the local service centre.

Installation, Commissioning, Testing, Maintenance and After-Sales Service:

1. The equipment and all accessories should be installed, tested and commissioned at the Clinical Immunology Laboratory, Department of Clinical Immunology, JIPMER, free of cost.
2. All spare parts and consumables should be available with the supplier or principals for a period of ten years after commissioning.

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SPECIFICATIONS FOR VACUUM MANIFOLD AND PUMP (1 No.)

Operational Requirement:

Vacuum Manifold with suitable pump for processing of 96 well/384 well filter plates for use with multiplex bioassay analyzer (Luminex) system.

Technical Specifications:

1. Should be compatible with 96 well filter plates and 384 well filter plates
2. Should be compatible with all vacuum filtration applications
3. Manifold components should be resistant to solvents
4. Should be suitable for use with automated or manual protocols
5. Should be easily configured for both flow-to-waste and analyte collection
6. Plate and manifold designs should combine to eliminate gaps between the flow directors and receiver wells
7. Should provide a plate-on-plate processing option for assays where filtrate collection is required
8. Effortless vacuum initiation
9. Should be possible to do complete filtration assay cycles with no manual intervention
10. Should enable crosstalk-free filtrate collection
11. Configurations for deep well or standard receiver plates
12. Footprint should allow for easy robotic deck integration

VACUUM PUMP:

1. Piston-driven high output Vacuum Pump with 70 cm of 1/4" tubing and a 50mm filter for in-line moisture protection.
2. Vacuum max. – 921 mbar (27.2 in. Hg)
3. Pressure max. – 5.4 bar (80 psig)
4. Flow rate max. – 34 L/min
5. Construction – Cast aluminium
6. Weight – 5.3kg
7. Dimensions – (8 x 9 x 10 in.)
8. Connections – ¼" Stepped hose barb
9. Should come with a 2L **vacuum filter flask** with cork and 1/4" solvent resistant tubings

SYRINGE FILTER

1. 50 mm bi-directional syringe filter units with hydrophobic membrane for vacuum line protection
2. Material – Polypropylene
3. Filtration Area 19.6 cm^2
4. 60 psi (4.1 bar) maximum inlet pressure
5. Operating temperature up to 121˚C

Ambient conditions for operation:

1. The unit should be capable of withstanding continuous storage and operation at ambient temperatures of 0°-50°C and relative humidity of 15-90%

Power Requirements:

1. Suitable for input power of 220-240V AC, 50 Hz, fitted with suitable plug for Indian conditions
2. Resettable over current breaker

Standards, Safety and Training

- Should be FDA , CE,UL or BIS approved product.

- Electrical safety conforms to standards for electrical safety IEC-60601 / IS-13450
- The manufacturer/supplier has to provide adequate training in operation and maintenance of the equipment at the site of installation.

Warranty:

3. The supplied equipment and all accessories should be under warranty for a period of 3 years after successful commissioning.
4. All spare parts, PC boards and service manuals should be available with the local service centre during the warranty period and steps should be taken immediately for servicing when required to minimise down-time.

Annual Maintenance Contract:

3. Annual maintenance contract rates for a period of 5 years after the end of warranty period should be quoted separately and this would be taken into consideration during price comparisons.
4. Annual maintenance contract should include preventive maintenance as well as breakdown calls. A copy of the service manual should be available with the local service centre.

Installation, Commissioning, Testing, Maintenance and After-Sales Service:

3. The equipment and all accessories should be installed, tested and commissioned at the Clinical Immunology Laboratory, Department of Clinical Immunology, JIPMER, free of cost.
4. All spare parts and consumables should be available with the supplier or principals for a period of ten years after commissioning.

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SPECIFICATIONS FOR BATH SONICATOR

Operational Requirement:
Required for processing of microbeads for multiplexing applications for use with multiplex bioassay analyser (Luminex) system.

Technical Specifications:
1. Ambient heating 5°C to 70°C
2. Capacity – Should allow processing of up to 24 X 0.5ml tubes or 6 X 50ml tubes at a time.
3. Construction:
   - Stainless steel basket - designed specifically to generate maximum ultrasonic activity, prevent items resting on the tank and prevent operators coming into contact with chemical solutions.
   - Plastic lid to reduce noise and minimise potential of aerosol escape.
4. Operation at 200 watts, ultrasonic frequency 24kHz
5. Automatic frequency tuning system for accurate frequency control
6. Amplitude adjustable from 20 to 100%,
7. Pulse adjustable from 0 to 100%,
8. Built-in timer
9. Easy to use single touch LCD control panel with user - settable parameters
10. Drain valve for convenient emptying
11. Minimal noise levels, homogeneous ultrasonic activity throughout the tank, minimal dead spots and standing waves
12. Accurate process control of time, temperature, ultrasonic activity, degas and power
13. One bottle of ultrasonic solution to be included as standard

Ambient conditions for operation: The unit should be capable of withstanding continuous storage and operation at ambient temperatures of 0°-50°C and relative humidity of 15-90%

Power Requirements: Suitable for input power of 220-240V AC, 50 Hz, fitted with suitable plug for Indian conditions**.** Should have built in safety measures like resettable over current breaker.

Standards, Safety and Training
- Should be FDA , CE,UL or BIS approved product.
- Electrical safety conforms to standards for electrical safety IEC-60601 / IS-13450
- The manufacturer/supplier has to provide adequate training in operation and maintenance of the equipment at the site of installation.

Warranty:
- The supplied equipment and all accessories should be under warranty for a period of 3 years after successful commissioning.
- All spare parts, PC boards and service manuals should be available with the local service centre during the warranty period and steps should be taken immediately for servicing when required to minimise down-time.

Annual Maintenance Contract:

- Annual maintenance contract rates for a period of 5 years after the end of warranty period should be quoted separately and this would be taken into consideration during price comparisons.
- Annual maintenance contract should include preventive maintenance as well as breakdown calls. A copy of the service manual should be available with the local service centre.

Installation, Commissioning, Testing, Maintenance and After-Sales Service:

- The equipment and all accessories should be installed, tested and commissioned at the Clinical Immunology Laboratory, Department of Clinical Immunology, JIPMER, free of cost.
- All spare parts and consumables should be available with the supplier or principals for a period of ten years after commissioning.

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SPECIFICATIONS FOR MICROPLATE ROCKER/SHAKER

Operational Requirement:
Micro Plate Shaker required for stirring very low volumes of multiple samples on 96 well plates.

Technical Specifications:
1. Capacity – Should allow processing of four 96 well micro plates at a time.
2. Construction: stainless steel/Powder coated heavy gauge MS body
3. Accurate speed control at 20 to 600 rpm
4. Minimal noise levels
5. Electronic DC motor controlled
6. Minimal footprint to volume ratio
7. Should be fitted with digital / electronic display of speed and timer

Ambient conditions for operation: The unit should be capable of withstanding continuous storage and operation at ambient temperatures of 0°-50°C and relative humidity of 15-90%

Power Requirements: Suitable for input power of 220-240V AC, 50 Hz, fitted with suitable plug for Indian conditions. Should have built in safety measures like resettable over current breaker.

Standards, Safety and Training
- Should be FDA, CE,UL or BIS approved product.
- Electrical safety conforms to standards for electrical safety IEC-60601 / IS-13450
- The manufacturer/supplier has to provide adequate training in operation and maintenance of the equipment at the site of installation.

Warranty:
- The supplied equipment and all accessories should be under warranty for a period of 3 years after successful commissioning.
- All spare parts, PC boards and service manuals should be available with the local service centre during the warranty period and steps should be taken immediately for servicing when required to minimise down-time.

Annual Maintenance Contract:
- Annual maintenance contract rates for a period of 5 years after the end of warranty period should be quoted separately and this would be taken into consideration during price comparisons.
- Annual maintenance contract should include preventive maintenance as well as breakdown calls. A copy of the service manual should be available with the local service centre.

Installation, Commissioning, Testing, Maintenance and After-Sales Service:
- The equipment and all accessories should be installed, tested and commissioned at the Clinical Immunology Laboratory, Department of Clinical Immunology, JIPMER, free of cost.
- All spare parts and consumables should be available with the supplier or principals for a period of ten years after commissioning.

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SPECIFICATIONS FOR VORTEX MIXER

- Speed: 100 – 3200 rpm
- Operation: Touch/continuous
- Working condition: 4 – 60^{o}C
- Accessory: 10 -15 tube insert attachment for different tube size
- Vortexing motion: Circular orbit
- Input voltage: 230 V ± 10%, 50Hz, Single phase

Standards, Safety and Training

- Should be FDA , CE,UL or BIS approved product.
- Electrical safety conforms to standards for electrical safety IEC-60601 / IS-13450
- The manufacturer/supplier has to provide adequate training in operation and maintenance of the equipment at the site of installation.

WARRANTY:

- The equipment and all accessories should be under WARRANTY for a period of THREE YEARS after successful commissioning.
- All essential spare parts, PC boards and service manuals should be available with the local services during WARRANTY period and all steps should be taken for immediate servicing to prevent the down-time.

Annual Maintenance Contract:

- The Annual maintenance Contract rates for a period of 3 years after the warranty period should be quoted separately and this would be taken into consideration in comparing the price bids.
- Annual Maintenance Contract should include preventive maintenance and breakdown calls. A copy of service manual should be available with local service centre.

Installations, Commissioning, Testing, Maintenance and After Sales Service:

- The equipment and all accessories should be installed, tested and commissioned at JIPMER, Pondicherry free of cost.
- All spare parts and consumables should be available with the supplier or principals for a period of 10 years.

JAWAHARLAL INSTITUTEOF POST GRADUATE MEDICAL EDUCATION AND RESEARCH, PONDICHERRY-605006

SPECIFICATIONS FOR WATER BATH WITH TEMPERATURE CONTROL 37°C and 56°C (2 Numbers)

Operational requirement

1. Water bath for use in Clinical Immunology Laboratory (56°C)
2. Water bath for use in Immunotherapy / Cytatherapy unit (37°C)

Technical specification:

- Maximum capacity: 10 – 12 Litres
- Temperature range: 25^{o}C to 100^{o}C
- Temperature control: Electronic microprocessor based
- Temperature Sensitivity: +/- 0.5 -1^{o} C
- Temperature Sensor: Audio visual alarm if temperature deviates from preset temperature
- Body: Inner body SS and outer body MS with powder coated
- Water circulation: Inside the tank through integrated pump to maintain precise temperature uniformity through the liquid medium
- Tank dimension: 30cm x 25cm x 15cm (approximately)
- Input voltage: 230 V ± 10%, 50Hz, 15 amps A.C. Supply
- Cleaning : Should be easy to clean the tank

Standards, Safety and Training

- Should be FDA, CE, UL or BIS approved product.
- Electrical safety conforms to standards for electrical safety IEC-60601 / IS-13450 / BIS standards
- The manufacturer/supplier has to provide adequate training in operation and maintenance of the equipment at the site of installation.

WARRANTY:

- The equipment and all accessories should be under WARRANTY for a period of THREE YEARS after successful commissioning.
- All essential spare parts, PC boards and service manuals should be available with the local services during WARRANTY period and all steps should be taken for immediate servicing to prevent the down-time.

Annual Maintenance Contract:

- The Annual maintenance Contract rates for a period of 3 years after the warranty period should be quoted separately and this would be taken into consideration in comparing the price bids.
- Annual Maintenance Contract should include preventive maintenance and breakdown calls. A copy of service manual should be available with local service centre.

Installations, Commissioning, Testing, Maintenance and After Sales Service:

- The equipment and all accessories should be installed, tested and commissioned at the JIPMER, Pondicherry free of cost.
- All spare parts and consumables should be available with the supplier or principals for a period of 10 years.

JAWAHARLAL INSTITUTEOF POST GRADUATE MEDICAL EDUCATION AND RESEARCH, PUDUCHERRY-605006

SPECIFICATIONS FOR PROGRAMMABLE HIGH VOLTAGE POWERPACKS

Operational Requirement: Programmable high voltage power packs suitable for molecular biology applications.

Technical Specifications:

- Should be an ultra compact sized unit providing power to run horizontal agarose or vertical polyacrylamide electrophoresis.
- Should be of a high quality, high precision and must ensure safe power supply for electrophoresis applications that require a maximum of 600 volts and 400 mA.
- The power-pack must be ideal for the following applications like SDS-PAGE (Polyacrylamide Gel Electrophoresis), Native PAGE, Agarose electrophoresis, Electroblotting, DNA pulsed field electrophoresis, DNA fragment separation, DNA submarine electrophoresis.

Regulation	Maximum voltage, current and power with automatic cross-over at preset limits
Control	Microprocessor controlled
Output range	Voltage: 0-600 V DC, Current: 0-400 mA Power: 0-100 W
Programming range	Voltage: 6-600 V DC Current: 1-400 mA Power: 1-100 W Time: 00:01-500 h Volt hour: 1-500 000 Vh
Output resolution	Voltage: 1 V Current: 100 µA, 0-39.9 mA 1 mA, 40-400 mA Power: 1W
Programming resolution	Voltage: 1 V Current: 1 mA Power: 1 W Time: 1 min, 00:01-99:59, 1h, 100-500 h Volt hour: 1 Vh, 1-9999 Vh, 100 Vh, 10.0-99.9 kVh 1 kVh, 100-500 kV
Accuracy	Voltage: 1%, ± 3 V Current: 1%, ± 1 mA Power: 2%, ± 1 W Timer: 0.1% ± 1 min, 00:01-99:59 h 0.1%, ± 10 min, 100-500 h
Line regulation	< 0.2%
Load regulation	< 1% at load change 10-90% of maximum load
Ripple	< 1% at 600 V

Short term stability	< 0.2% /10 h after warm up
Long term stability	< 1% /year
Start current check	Resistance not greater than 0.2 MΩat 40 V (current less than 200 µA). Can be disabled
Ground leakage check	Leakage not greater than 500 µA
Output protection	Fully protected against any overload conditions
Timers	1 ~ 999 mins with alarm, continuous
Recovery after power failure	Duration < 8 s, The program must continue automatically Duration >8 s, The program must continue after manual restart
Ambient operating temperature	4-40 °C
Ambient operating humidity	0-95%
Ambient operating pressure	68-106 kPa, maximum altitude of 2000 m
Mains requirements	100-120/220-240 V ~ ; 50/60 Hz
Power consumption	Max 140 W
Terminator pairs	4 pairs of outlet terminator (Four gel chambers should be connected simultaneously 1 time).
Safety device	No load detection; Leakage detection; Sudden load change detection; Over temperature protection; Over- load detection; Shrouded plug and sockets;
Program Storage	30 programmed files

Accessories to be provided (at no extra cost): power pack adaptor, replacement fuse (2 no.)

Standards, Safety and Training

- Should be FDA, CE, UL or BIS approved product.
- Electrical safety conforms to standards for electrical safety IEC-60601 / IS-13450
- The manufacturer/supplier has to provide adequate training in operation and maintenance of the equipment at the site of installation.

Warranty:

- The supplied equipment and all accessories should be under warranty for a period of 3 years after successful commissioning.
- All spare parts, PC boards and service manuals should be available with the local service centre during the warranty period and steps should be taken immediately for servicing when required to minimize down-time.

Annual Maintenance Contract:

- Annual maintenance contract rates for a period of 5 years after the end of warranty period should be quoted separately and this would be taken into consideration during price comparisons.
- Annual maintenance contract should include preventive maintenance as well as breakdown calls. A copy of the service manual should be available with the local service centre.

Installation, Commissioning, Testing, Maintenance and After-Sales Service:

- The equipment and all accessories should be installed, tested and commissioned at the Clinical Immunology Laboratory, Department of Clinical Immunology, JIPMER, free of cost.
- All spare parts and consumables should be available with the supplier or principals for a period of ten years after commissioning.

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EDUCATION AND RESEARCH, PUDUCHERRY-605006

SPECIFICATION FOR TABLE TOP CENTRIFUGE

Operational Requirements

Microprocessor based tabletop centrifuge that use brushless induction motor with frequency drive enabling the user to pre-set speed & time with a high degree of accuracy. Display of set parameters like speed, time etc. make the unit an ideal choice for repetitive sample analysis.

Features

- Brushless Induction motor with frequency drive
- Stable speed output even under unstable voltage conditions
- 7 segment LED display of speed (R-8C BL)
- Digital countdown timer
- Safety lid interlock to prevent lid opening during centrifugation
- Dynamic brake for quick deceleration
- Imbalance & Inverter fault detection with auto shutdown
- Recall of last set parameters. (Useful for repetitive analysis)
- Automatic door opening through gas hinges

Technical specifications

- Max. Speed: 5250 rpm
- Max. RCF: 3600 g
- W x D x M: 365 x 415 x 350 mm
- Type of Head: swing-out
- Maximum capacity: 400 ml
- Swing out Rotor heads for running 8 x 15 ml tubes with Maximum speed of 4200 rpm and Maximun RCF of 3000 g.
- Swing out Rotor heads for running 6 x 50 ml tubes with Maximum speed of 4000 rpm and
- Maximun RCF of 2800 g.

Power Requirements:

- Suitable for input power of 220-240V AC, 50 Hz, fitted with suitable plug for Indian conditions
- Resettable over current breaker

Standards, Safety and Training

- Should be FDA, CE, UL or BIS approved product.
- Electrical safety conforms to standards for electrical safety IEC-60601 / IS-13450
- The manufacturer/supplier has to provide adequate training in operation and maintenance of the equipment at the site of installation.

WARRANTY:

- The equipment and all accessories should be under WARRANTY for a period of THREE YEARS after successful commissioning.
- All essential spare parts, PC boards and service manuals should be available with the local services during WARRANTY period and all steps should be taken for immediate servicing to prevent the down-time.

Annual Maintenance Contract:

- The Annual maintenance Contract rates for a period of 3 years after the warranty period should be quoted separately and this would be taken into consideration in comparing the price bids.
- Annual Maintenance Contract should include preventive maintenance and breakdown calls. A copy of service manual should be available with local service centre.

Installations, Commissioning, Testing, Maintenance and After Sales Service:

- The equipment and all accessories should be installed, tested and commissioned at JIPMER, Pondicherry free of cost.
- All spare parts and consumables should be available with the supplier or principals for a period of 10 years.