OFFICE OF THE DIRECTOR
NATIONAL INSTITUTE OF TECHNOLOGY NIT RAIPUR

TENDER NOTICE NO.....1772/BIOTECHNOLOGY/NITRR/2009 Raipur Date 08/09/09

Last Date for Submission: **09/10/2009** up to 14.00 hrs.from date of Publication.

Date of Opening of Technical Bid: **09/10/2009** at 15.30 hrs.

(1) Tenders received after the date and time mentioned above will not be entertained.

(2) The tender form is non-transferable.

(3) Tenders should be submitted in two parts (i) Technical Bid containing only the technical specifications of the equipments without any price and (ii) FINANCIAL BID containing only the price of each equipment quoted. Both the envelopes should be sealed in separate covers superscribing in bold letters TECHNIAL BID and FINALCIAL BID and their after put together in an outer envelop. On the date of opening the tender as specified above only the TECHNICAL BID will be opened in the presence of intending tenderers and the FINANCIAL BID of only those tenderers who are found technically suitable and fulfilling all the conditions of the tender will be opened on a later date. The date and time of opening the FINANCIAL BID shall be communicated only to those tenderers who qualify for it as being technically qualified. Tenders not adhering to this condition shall be summarily by rejected.

(4) This tender is open to be quoted by the ORIGINAL EQUIPMENT MANUFACTURERS (OEMs)/ Authorized distributor of OEM, because of the sophisticated and highly technical nature of equipments. Authorized agents are also eligible to participate in this tender.

(5) Tenders should be submitted in duplicate. They should be tagged separately and should not be mixed up with the original tender. The duplicate should be marked as duplicate.

(6) Item No. and Page No. of the tender form should be strictly in chronological order.

(7) Copy of the terms and conditions should be furnished in duplicate. Printed conditions on the back will not be binding unless separately mentioned.

(8) The tenderer must furnish complete and detailed specifications of the equipment offered in the tender. Incomplete specifications of the equipment in the tender will be liable to be rejected.

(9) In case equipments on DGS & D rate contract are available and are offered, the supplier should furnish a copy of the rate contract along with the tender and should indicate this fact against the equipment.

(10) Leaflet/Literature etc. should be attached with the tender in duplicate, Item No. and Page No. of the equipment should also be stated on the relevant leaflet literature for reference.

(11) The rate should be quoted F.O.R. Raipur, the forwarding, freight, Transit Insurance and excise charges to be mentioned the separately Nothing extra will be paid to the supplier except the C.S.T. as per rule.

(12) All tenderers must deposit an E.M.D. equivalent to 3% of the total value of the equipments quoted by them. The E.M.D. should be in the form of crossed D/D drawn in favour of "Director, National Institute of Technology, Raipur" and payable at S.B.I. Raipur.

(13) Taxes, if leviable and being claimed extra should be clearly stated failing which the rates quoted in the tender will be considered as inclusive of all taxes.

(14) The rates should not be altered. Quotations should always be both in figures and words.

(15) In case of non-acceptance of the tender, the E.M.D. will be refunded to the tenderer in due course of time. The E.M.D. will be treated as Security Deposit in the case of selected tenders.

E.M.D./Security Deposit will be forefeited in case:-

(a) Supplier expresses his inability to execute the order for the quoted items if the order is placed with him within the valid period of tender, at the rates quoted in the tender and for makes/brand quoted in the tender.

(b) If complete equipment is not supplied within the delivery period mentioned in the order or within the extended periods from time to time.

(c) If the supplier executes only part of the tender.

Extension in the delivery period may be granted at the discretion of the undersigned, provided the tenderer is willing to accept penalty 1% Per Month of the full cost of the equipment for which the order has been placed. The equipment received after delivery period or dispatched after delivery period mentioned in the order will also be subjected to 1% Per Month penalty.

(16) In case of any default in executing the order the undersigned reserves the right to forefeit the E.M.D./Security Deposit. The undersigned also reserves the right to cancel the order and forefeit the E.M.D./Security Deposit in case the tenderer fails to adhere strictly to all the terms and conditions of the tender.

(17) If defects of any kind or deviations from the specifications are detected and reported to the supplier, the supplier should effect replacement or rectify the defects free of all charges within 30 days from the date of report, failing which the equipment will be returned to the supplier at his own cost and risk and E.M.D. will be forefeited. In case the equipment is sent for repairs to the firm it should be repaired within 30 days from the date of receipt of equipment failing which the same will not be accepted and E.M.D. will be forefeited. However, the undersigned may condone the delay in deserving case at his/her discretion.

(18) The undersigned reserves the right to increase/decrease the quantity given of the equipment at his/her discretion.

(19) The submission of the tender will be deemed to be the acceptance of all the terms and conditions of the tender is stated herein.

(20) Tenders should be valid at least for six months from the date of opening of the tender. The prices should be firm and should not be subject to any variation.

(21) The undersigned does not bind himself / herself to accept the lowest of any tender and also reserves the right of rejecting all or any tender without assigning any reasons for the same and to split up the tender as he/she may seem it fit.

(22) Request for supply of any details in respect of quotation or comparative chart or any other enquiry in respect of the tenders received will not be entertained.

(23) Exact and earliest possible time of delivery should be indicated in the tender against each item. Other things being equal, tenderers who will give earliest delivery period given in the order will be the date of receipt of equipment in the institution and not the date of dispatch of equipment by the supplier.

(24) SEALED ENVELOPES FOR THE TENDER SHOULD BE SUPERSCRIBED as Tender Notice No. ...../ Date of opening and should be addressed to :-

THE DIRECTOR
NATIONAL INSTITUTE OF TECHNOLOGY
RAIPUR – 492010 (CHHATTISGARH)

(25) **NO** ADVANCE PAYMENT EITHER WITH ORDER OR AGAINST WILL BE MADE TO ANY SUPPLIER. PLEASE NOTE THAT ANY PAYMENT TERMS OF SUCH TYPE ARE NOT NEGOTIABLE. PAYMENT IN FULL WILL BE MADE WITHIN 30 DAYS AFTER RECEIPT OF EQUIPMENT IN PERFECT PHYSICALLY AND WORKING CONDITION. **NO PART PAYMENT FOR DEFECTIVE OR INCOMPLETE EQUIPMENT WILL BE MADE.**

(26) The tenderers should furnish Sales Tax Clearance Certificate for period ending 31.03.2008 from the concerned authority without which the tender will be liable for rejection.

(27) The minimum guarantee period for the equipment supplied by the supplier will be minimum one year. The tenderers will have to undertake repair/replacement of defective parts free of charge within this guarantee period. Repairs replacement of the defective parts will be done and delivered free of cost at the Institution.

(28) Performance guarantee equivalent to 10% of the total value of the equipments is required to be submitted by the successful tenderer at the time of bill submission in the form of joint FDR which will be released only after the expiry of guaranty period subject to satisfactory maintenance services. The EMD will be returned simultaneously.

(29) Equipment and machinery calibrated in metric system only need be quoted.

(30) The tenderers shall guarantee that after sales, service shall be made available as and when required.

(31) The supplier has to undertake complete erection, installation and commissioning of the machine/equipment in the Institution free of charges.

(32) No offer should be made for imported items, against import license to be arranged by the Director. All imported equipments will have to be delivered in the institution and payment will be made in Rupees only.

(33) All disputes with regard to the contract of this purchase of equipment etc. will be subject to Raipur Jurisdiction only.

(34) Please submit original authorization certificate from the manufacturer [for equipments of Indian origin] or importing agents [for the products of overseas manufacturers] addressed to the Director, NIT, Raipur. Certificate issued by the importing principals should be supported by Xerox copy of authorization from their overseas principals. The authorization should carry the tender enquiry number.

(35) Three year comprehensive free service and spares warranty is required. The cost of service and spares for three years should either be included in the prices or should be given separately. In case nothing is mentioned then it will be assumed that the supplier has agreed for three years free spares and service warranty at no extra cost. The 5% of the total order value in form of FDR valid for three years will be required to be deposited as security money against warranty obligations.

(36) Suppliers are required to commission, demonstrate and train the NIT staff on working of the offered equipments. Payment can only be related after successful commissioning of the equipments.

Registrar
National Institute of Technology
Raipur (C.G.)

Other Specifications

(1) The equipment should be complete in all respects and in a ready to operate condition with all accessories and auxiliary parts.

(2) The whole unit of equipment should be assembled rigidly on a base plate.

(3) Quote separately for each equipment / instrument with accessories.

(4) During installation/inspection any kind of raw material such as glass wares/chemicals required for experimentation will have to be arranged by the supplier. The institute will provide only space, power and water etc.

(5) Most of the equipment parts/assembly unit should be powder coated and others should be painted with automotive paint.

(6) Company Tenderers who have earlier supplied such equipments to IIT_S/NIT_S will be preferred.

Registrar
National Institute of Technology
Raipur (C.G.)

LIST OF THE EQUIPMENTS WITH DETAILED SPECIFICATIONS.

<table>
<tr><th>S.No.</th><th>Particulars</th></tr>
<tr><td>1</td><td>HORIZONTAL LAMINAR FLOW WORK STATION COMPLETE Stainless steel.

Capable of maintaining a particulate free work area when operated in an uncontrolled environment.
Achieved by total removal of air borne particulates [droplets & dust borne micro organisms by unidirectional clean air system.
Rely on air flow in which the entire body of air within a confined area essentially moves non turbulently along parallel flow lines.
The velocity through the cross section of the work place is conventionally maintained at 90±10FPM.
The stratification of the air should be such that minimum cross stream particulate migration occurs, with the result that activity generated particulates that become airborne are carried linearly along a predictable path
When an object (e.g. equipment, operator) is introduced in to the air system, the LAF streamlines altered such that it is not possible to regulate the particulate content within the work space as would be possible without the object altering the airflow pattern
Work table size : 3'x2', 4'x2', 6'x2'

General specifications :
<table>
<tr><td>Material of construction</td><td>SS 304 grade</td></tr>
<tr><td>Pre filter efficiency</td><td>Make GEU 5 rating 90% down to 5 micron</td></tr>
<tr><td>Final supply filter efficiency</td><td>Mini pleat HEPA filter EU 13 rating 99.997% down to 0.3 micron</td></tr>
<tr><td>Work table</td><td>S.S. Table clad wooden base for strength</td></tr>
<tr><td>Grills</td><td>Perforated grill for pre filter.</td></tr>
<tr><td>Fluorescent lights</td><td>Dwyer USA make fluorescent tube lights with diffuser.</td></tr>
<tr><td>UV Light</td><td>UV Lights with hour meter.</td></tr>
<tr><td>Pressure gauge</td><td>Enabled.</td></tr>
<tr><td>Switch & socket within work chamber</td><td>3 pin socket 15 amps : 1 Nos., ON\Off switch</td></tr>
<tr><td>Gas stream</td><td>Gas cock.</td></tr>
<tr><td>Performance</td><td>ISO-5 AS PER ISO 14644-1)</td></tr>
<tr><td>Class air flow velocity</td><td>90±10FPM</td></tr>
<tr><td>Noise level</td><td>Less than 70 dB</td></tr>
<tr><td>Vibration</td><td>Minimum</td></tr>
</table></td></tr>
<tr><td>2</td><td>GRADIENT THERMAL CYCLER WITH PALM TOP CONTROL.

Thermal Cycling System Active heating and cooling using 8 Peltier elements + 4 Platinum sensors
Temperature Range 4°C–99°C
Temperature Accuracy ±0.25°C of set temperature, 1 minute after clock start
Temperature Uniformity ±0.5°C, 30 seconds after clock start
Temperature Resolution 0.1°C increments
Heating/Cooling Rate 2.0°C/sec maximum
Condensation control Automatic using a heated lid design
Special Functions Auto-resume on power fail, on-line logging and graphing, touchdown and long-range programming, linear thermal gradient (programmable up to 24°C), adjustable ramp rate, oligonucleotide calculator, program holds, manual mode, online help, thermal calibration wizard.
96-Well version Supported consumables: 0.2 mL tubes or strip tubes
</td></tr>
</table>

	with flat or domed caps; 96-well high- or low skirt plates with strip caps or an adhesive cover • 200–240 VAC @ 2 Amp (50/60 Hz) • Startup Accessories *(included)* Blue Silicon pad. • Secure Key for Palm Device • SD Memory Card 128 MB (minimum) • Power Cable • User Manual • Palmtop PC accessories (manufacturer's standard set) Palmtop PC device *(minimum)* Hewlett Packard model hx2190b or later update: Intel® PXA270 Processor 312 MHz, Integrated Bluetooth® wireless technology, Integrated Compact Flash type II (CF) and Secure Digital (SDIO) slots, HP Protect Tools secured by Credant Technologies security application, 3.5" transflective TFT QVGA color LED backlight touch screen display, landscape and portrait display modes, Microsoft® Windows Mobile™ 5.0 Software for Pocket PC, Premium Edition, Removable/rechargeable 920 mAh battery, Integrated Serial IR, Protective plastic flip cover, Pocket versions of familiar applications like Microsoft Outlook®, Word, Excel®, and PowerPoint® Software Supplied, with unlimited user license. Free upgrades by web download. Warranty 2 years on instrument, manufacturers warranty on palmtop PC device
3	FERMENTOR. VESSEL STANDARD The vessel is designed to comply with the requirements of pressure vessel and Bioprocess. VESSEL SPECIFICATIONS Total Volume : 5 L Working Volume : 3 L D/H Ratio : 1: 2.5 Shell : Welded with dished bottom and provided With Jacket for steam / water circulation. Top Plate : Attached to shell through bolts. MATERIAL OF CONSTRUCTION All parts in contact with the culture SS 316 Jacket with Spiral SS 304 O rings EPDM / Silicone 4. PARAMETERS VESSEL JACKET Design Temperature (°C) 150 150 Design pressure (Bar) 3 3 5. SCHEDULE OF PORTS The vessel is provided with the following ports at various locations: Top Plate : Addition Ports Antifoam : 1 No. Inoculum : 1 No. Nutrient : 1 No. pH : 1 No. DO : 1 No. Agitator Port : 1 No. Air In : 1 No. Exhaust : 1 No. Antifoam Probe : 1 No. Sampling : 1 No. Bottom dish : Drain : 1 No.

Shell
Addition Ports
Acid : 1 No.
Alkali : 1 No.
25 ∅ pH : 1 No.
(Optional)
25 ∅ DO : 1 No.
(Optional)
Light Glass : 1 No.
Sight Glass : 1 No.
Jacket
Jacket in : 1 Nos.
Jacket out : 1 Nos.

6. AGITATOR

The agitator assembly consists of the following:

- Shaft with 3 nos. Ruston Turbine Impellers
- Single Mechanical Seal
- Speed Range : 100 – 1000 rpm
- Motor Power : 0.25 hp AC

7. PIPE RACK

This houses the air / steam / water connection with necessary accessories.

7.1. AIR CONNECTION

- Inlet filter (with SS housing)
- Exhaust filter (with condenser)
- Rotameter, Flow range : 0 – 10 lpm

Steam / Water Connection

3 way valve for switch over from sterilization to fermentation mode.

8. VESSEL ACCESSORIES

- Baffles : 3 Nos.
- Tubular ring air Sparger : 1 No.
- Drain Valve : 1 No.
- Dip Sampling arrangement : 1 No.
- Needle adaptor, needle, septum and blind plug : 5 Sets.
- Exhaust condenser : 1 No.

9. BASE FRAME

Vessel with agitator assembly and the pipe rack are housed in the base frame.

10. INSTRUMENTATION

The standard system consists of individual PID controllers for temperature and speed.

10.1. TEMPERATURE MEASUREMENT & CONTROL

- Duplex Temperature sensor
- Temperature Controller
- Digital display
- Measurement accuracy ± 0.1° C
- Control accuracy ± 0.2° C (upto 40° C)

10.2. SPEED CONTROL

- AC Drive
- Digital display
- Measurement accuracy + 2 rpm

Control accuracy ± 5 rpm

Septum	30
Blind plug 'O' rings for addition port	20
Blind plug 'O' rings for pH, DO port	5
Sparger housing 'O' ring	3
Mechanical seal housing 'O' ring	3
Vessel 'O' ring	2

25 mm blind plug 'O' ring	5
Inlet filter housing 'O' ring	3
Dip Sampling needle 'O' ring	3
Exhaust condenser flange "O" Ring	3
Exhaust 1" SMS gasket	3
Mechanical Seal Housing Gasket	3
Bottle gasket	3
Dip Sampling Needle Adaptor Gasket	3
Sight glass gasket	1
Silicon tube 6 x 3	10m
Bottle filter	3
Tool kit	1 set

1. pH SYSTEM

1.1. pH MEASUREMENT

- pH probe, Gel filled
- pH transmitter ; Range: 0-14

1.2. pH MEASUREMENT & CONTROL

- pH probe, Gel Filled
- pH transmitter ; Range: 0-14
- pH controller
- Acid / Alkali Addition system consisting of 2 sets of 250 ml Bottles with Disposable Disc Filters, 5 Meter Silicone tubing
- 2 Nos. of Peristaltic pumps (fixed speed, Ravel Hi-tech or equivalent)

2. DO SYSTEM

2.1. DO MEASUREMENT

- DO probe, Polographic
- DO transmitter ; Range: 0-100%

2.2. DO MEASUREMENT & CONTROL

- DO probe, Polographic
- DO transmitter ; Range: 0-100%
- DO controller to control only aeration through on / off valve
- On / off Control Valve
- Membrane kit

Note : Mass Flow controller (MFC) option for DO control is not possible.

3. FOUR GAS HANDLING UNIT FOR DO CONTROL – O2 / N2 / Air / CO2

- Facility to mix 4 gases
- 4 nos. of Rotameter
- 4 nos. of Solenoid valve
- 4 nos. of Pressure regulator

4. TWO GAS HANDLING UNIT FOR DO CONTROL – O2 / Air

- Facility to mix 2 gases
- 2 nos. of Rotameter
- 2 nos. of Solenoid valve
- 2 nos. of Pressure regulator

5. FOAM CONTROL

- Antifoam Probe
- Antifoam Addition system consisting of a set of 250ml Bottles with Disposable Disc Filter, 5 Meter Silicone tubing
- Foam Control timer
- 1 No. of Peristaltic pump (fixed speed, Ravel Hi-tech or equivalent)

6. FED BATCH CULTIVATION / CONTINUOUS CULTIVATION

- Level sensor
- 2 nos. of Programmable peristaltic pumps
- 2 sets of 3 L Addition bottles with 5 Meter silicone tube, Disposable disc filter
- Level controller

	7. UTILITIES 7.1. AIR COMPRESSOR ○ 10 lpm @ 2 bar, oil free 7.2. STEAM GENERATOR ○ 6 KW 3 ∅ SS 304 steam boiler 7.3. CHILLER ○ Range 15 – 18° C @ 10 lpm 7.4. WATER CIRCULATION SYSTEM SS Tank and Circulation pump (Tullu / Sharp make) with or without heater	
4	**SUBMARINE HORIZONTAL GEL SYSTEM.**	
A	**Baby -** Gel 7 x 3.5 cm Basic unit with Platinum electrode assembly (2), Gel platforms: 10x7 cm (1); 4/5 -well comb, 1.5 mm (1), and Power cord (1). Spares : Gel casting system - Baby Gel Platform – 7 x 4 cm Ordinary Gel Platform – 7 x 4 cm **UVT** Dual Comb, 4/5 wells, 1.0 mm Dual Comb, 4/5 wells, 1.5 mm Gel Scoop, Ordinary Gel Scoop, **UVT**	
B	**Mini -** Gels 10x7; 5x7 cm Basic unit with Platinum electrode assembly (2), Gel platforms: 1 0x7 cm (1); 7x5 cm (2), 8-well comb, 1.5 mm (2) and Power cord (1). Spares : Gel Casting system – Mini Developing Chamber - light-proof Gel Platform – 5 x 7 cm, Ordinary - (2/pk) Gel Platform – 10 x 7 cm, Ordinary Gel Platform – **UVT** - 5x7 cm (2/pk) Gel Platform, **UVT** - 10x7 cm 8-well comb, 1.0 mm 8-Well comb, 1.5 mm 2-well Preparative comb, 3.0 mm Gel Scoop, Ordinary Gel Scoop, **UVT**	
C	**Analytical Model -** Gels 13x13, 6x6 cm Basic unit with Platinum electrode assembly (2),Gel platforms : 13 x 13 cm (1); 6x6.5 cm (4),15-well comb, 1.5 mm (1), 8-well comb, 1.5 mm (4), and Power cord (1). Spares : Gel Casting System – Medium Gel Developing Chamber, light proof Gel Platform – 6 x 6.5 cm, Ordinary-2/pk) Gel Platform – 13 x 6 cm, Ordinary Gel Platform - 13 x 13 cm, Ordinary Gel Platform – 6 x 6.5 cm **UVT** – (2/pk) Gel Platform – 13 x 6 cm, **UVT** Gel Platform – 13 x 13 cm **UVT** 8-well comb, 1.0 mm 8-well comb, 1.5 mm 15-well comb, 1.0 mm 15-well comb, 1.5 mm 20-well comb, 1.0 mm 20-well comb, 1.5 mm 2-well Preparative comb, 3.0 mm	

	2-well Preparative comb, 6.0 mm Gel Scoop, Ordinary Gel Scoop, **UVT**
D	**Preparative Model - Gel 25x13 cm** Basic unit with Platinum electrode assembly (2), Gel platforms : 25 x 13 cm (1), Preparative combs: 3.0 mm (1); 6.0 mm (1) and Power cord (1). Spares : Gel Casting System, Large Gel Developing Chamber, light proof Gel Platform, 25 x 13 cm, Ordinary Gel Platform, 25 x 13 cm, **UVT** 2-well Preparative comb, 3.0 mm 2-well Preparative comb, 6.0 mm Gel Scoop, Ordinary Gel Scoop, UVT
E	**Maxi Model - 20x25cm** Gels with **UVT** platform for PCR samples up to 104 samples.Basic unit with Platinum electrode assembly (2), Built-in heat exchanger (1), UV Transparent Gel Platform : 20x25 cm (1), 26-well comb 1.5 mm(4), *Optional water circulation provision and Power cord (1) Spares: Gel Casting System, Maxi Gel Developing Chamber, light proof Gel Platform – 20 x 15 cm UVT Gel Platform – 20 x 20 cm UVT Gel Platform – 20 x 25 cm UVT 20-well comb, 1.0 mm 20-well comb, 1.5 mm 26-well comb, 1.0 mm 26-well comb,1.5 mm 30-well comb, 1.0 mm 30-well comb, 1.5 mm
5	**VERTICAL SLAB GEL SYSTEMS.**
A	**Mini Model -** One 8x7cm Gel Basic unit with Platinum electrode assembly (2), Glass Plates - notched & rectangular (2sets), Teflon comb, 1,1.5 mm (1+1), Spacers, 1,1.5 mm (3+3),Single gel casting stand (1set), Metal Clips (2), Plastic pouch (1pk) Clamp & screws (1set) and Power cord (1) Spares : Glass Plates - notched & rect. - 8x7 cm gel Gel Casting Unit for **single** gel Gel Casting Unit for **dual** gels Teflon Combs - 0.5, 1.0, 1.5 mm (3/pk) Teflon spacers - 0.5, 1.0, 1.5 mm (9/pk) Teflon Comb 7-wells, 0.5 mm Teflon Comb 7-wells, 1.0 mm Teflon Comb 7-wells, 1.5 mm Teflon comb 10-well, 1.0 mm Teflon comb 10-well, 1.5 mm Teflon spacers 0.5 mm (6/pk) Teflon spacers 0.5 mm1.0 mm (6/pk) Teflon spacers 0.5 mm 1.5 mm (6/pk) Acrylic Clamp & Screws (1set) Acrylic spacers, 1.0 mm (6/pk) Acrylic spacers, 1.5 mm (6/pk) Metal Clips - small No.

	Metal Clips – large Nylon Screws (6/pk) Gel sealing Plastic Pouches Gel Developing Tray
B	**Regular Model -** One16x14 cm Gel Basic unit with Platinum electrode assembly (2), Glass Plates - notched & rectangular (2sets), Teflon comb, 1,1.5 mm (1+1), Spacers, 1,1.5 mm (3+3), Single gel casting stand(1set),Metal clips (4), Plastic pouch (1pk) Clamp & screws (1set) and Power cord (1). Spares Glass plates, notched & rectangular- 16x14 cm gel Casting Unit for **single,** regular gel (New model) Casting Unit for **dual** regular gels (New model) Gel Developing Tray with transparent base, gel holder Gradient maker - cylindrical of total 50 ml capacity Gradient maker - conical of total 50 ml capacity Teflon Combs, 13 wells, 0.5, 1.0, 1.5 mm (3pk) Teflon spacers 3-each of 0.5, 1.0, 1.5 mm (9/pk) Teflon Comb 13-wells, 0.5 mm Teflon Comb 13-wells, 1.0 mm Teflon Comb 13-well,1.5 mm Teflon spacer 0.5 mm (6/pk) Teflon spacer 1.0 mm (6/pk) Teflon spacer 1.5 mm (6/pk) Acrylic spacers 1.0 mm (6/pk) Acrylic spacers1.5 mm (6/pk) Gel Sealing Pouches (50/pk)
C	**Dual Model - Mini -** Two 8x7 cm Basic unit with Platinum electrode assembly (2), Glass Plates - notched & rectangular (2sets), Teflon comb, 1 mm (2), Spacers (6), Dual Gel casting stand (1set), Metal Clips (4), Plastic pouch (1pk) Clamp & screws (4sets) Power cord (1) and Water circulation facility is available*. Spares Glass Plates - notched & rect. - 8x7 cm gel Gel Casting Unit for **single** gel Gel Casting Unit for **dual** gels Teflon Combs - 0.5, 1.0, 1.5 mm (3/pk) Teflon spacers - 0.5, 1.0, 1.5 mm (9/pk) Teflon Comb 7-wells, 0.5 mm Teflon Comb 7-wells, 1.0 mm Teflon Comb 7-wells, 1.5 mm Teflon comb 10-well, 1.0 mm Teflon comb 10-well, 1.5 mm Teflon spacers 0.5 mm (6/pk) Teflon spacers 0.5 mm1.0 mm (6/pk) Teflon spacers 0.5 mm 1.5 mm (6/pk) Acrylic Clamp & Screws (1set) Acrylic spacers, 1.0 mm (6/pk) Acrylic spacers, 1.5 mm (6/pk) Metal Clips - small No. Metal Clips – large Nylon Screws (6/pk) Gel sealing Plastic Pouches Gel Developing Tray
D	**Dual Model - Regula**r- Two 16 x14 cm Gels Basic Unit with Platinum electrode assembly (2), Glass Plates - notched & rectangular-(2sets), Teflon comb, 1.0 mm (2), Spacers, 1.0mm (6),

	Clamp & screws (4 sets) Dual gel casting stand (1set), Metal Clips (4), Plastic pouch (1pk), Power cord (1) and water circulation provision is available*. **Spares** Glass plates, notched & rectangular- 16x14 cm gel Casting Unit for **single,** regular gel (New model) Casting Unit for **dual** regular gels (New model) Gel Developing Tray with transparent base, gel holder Gradient maker - cylindrical of total 50 ml capacity Gradient maker - conical of total 50 ml capacity Teflon Combs, 13 wells, 0.5, 1.0, 1.5 mm (3pk) Teflon spacers 3-each of 0.5, 1.0, 1.5 mm (9/pk) Teflon Comb 13-wells, 0.5 mm Teflon Comb 13-wells, 1.0 mm Teflon Comb 13-well,1.5 mm Teflon spacer 0.5 mm (6/pk) Teflon spacer 1.0 mm (6/pk) Teflon spacer 1.5 mm (6/pk) Acrylic spacers 1.0 mm (6/pk) Acrylic spacers1.5 mm (6/pk) Gel Sealing Pouches (50/pk
E	**2D PAGE System, Mini for 8 x 7 cm gel** Basic Unit with Platinum electrode assembly (2), Glass Tubes – 3 m id. 7.5 cm length (6 nos), Glass Plates – beveled notched plate and rectangular (2 sets), Spacers, 1 mm (6 nos), Tube Gel adaptor (1), Gel Casting system (1set), Metal Clips (4 nos) and Power cord (1 set) Spares Glass plates for mini 2D PAGE, Beveled Glass tubes, 3.0 mm diameter. Tube Gel adaptor Rubber grommets, with holes (6/pk) Rubber grommets, without holes (6/pk)
F	**2D PAGE System, Regular for 16 x 14 cm gel** Basic Unit with Platinum electrode assembly (2), Glass Tubes – 3 mm id. 14 cm length (6 nos), Glass Plates – beveled notched plate and rectangular (2 sets), Spacers, 1 mm (6 nos), Tube Gel adaptor (1), Gel Casting system (1set), Metal Clips (4 nos) and Power cord (1 set) Spares Glass plates for regular 2D PAGE, Beveled Glass tubes, 3.0 mm dia Tube gel adaptor Rubber grommets (6/pk) Rubber grommets , without holes (6/pk) Long needles (2/pk)
G	**New BABY Model -** One 8 x 7 cm cm Gel. Basic Unit with Platinum electrode assembly (2), Glass Plates - notched Alumina (1) & rectangular- (2sets), Teflon comb, 1.0 mm (2), Spacers, 1.0mm (6), Plastic clips (2), Gel casting system (1set), Plastic pouch (1pk), Power cord (1). Spares Alumina notched plate Rectangular glass plate (5/pk)

	Plastic clips (4/pk) Silicone sponge rubber gasket (2/pk) 10-well comb, 1.0 mm Spacers, 1.0 mm (6/pk)
6	**BLOTTING SYSTEMS.**
A	**Bioblot - Mini SINGLE-** gel cassettes - 8x7 cm gel Basic unit with Platinum electrode cells (2), Gel Cassettee(1), Scotch Brite Pads (1pk), Cushion Pads (1pk) and Power cord(1). Spares Scotch Brite pads, 8X7 cm (6/pk) Cushion pads (12/pk)
B	**Bioblot - Mini Dual -** gel cassettes – Two, 8x7 cm gel Basic unit with Platinum electrode cells (2), Gel Cassettee(2), Scotch Brite Pads (1pk), Cushion Pads (1pk), heat exchanger and Power cord(1). **Spares** Scotch Brite pads, 8X7 cm (6/pk) Cushion pads (12/pk)
C	**Bioblot - Regular – single** gel cassettes – one 16 x 14 cm gel. Basic unit with Platinum electrode cells (2), Gel Cassettee(1), Scotch Brite Pads (1pk), Cushion Pads (1pk) and Power cord(1) Spare Scotch Brite pads 16x14 cm gel (6/pk) Cushion pads, 16x14 cm gel (12/pk)
D	**Bioblot - Regular – Dual** gel cassettes – Two 16 x 14 cm gels. Basic unit with Platinum electrode cells (2), Gel cassettes (2), Scotch Brite Pads (1pk), Cushion Pads (1pk) heat exchanger and Power cord(1). Spare Scotch Brite pads 16x14 cm gel (6/pk) Cushion pads, 16x14 cm gel (12/pk)
E	**Bioblot -Semi Dry, 10 x 10 cm** with **Graphite electrodes** Basic unit with Graphite electrode assembly (2), nonconducting masking sheets (2) and Power cord (1).
F	**Bioblot -Semi Dry, 20 x 20 cm** with **Graphite electrodes** Basic unit with Graphite electrode assembly (2), nonconducting masking sheets (2) and Power cord (1).
7	**POWER SUPPLIES.**
A	**Analytical Model** Output: 0-30VDC; 100 mA; Overload / short-circuit; automatic cross-over and timer
B	**Versatile Model:** Output Volt : 0-500 V ; Current 0-500 mA
C	**Hi-current Model** - for low intensity Blotting - 60V - 3A
D	**Hi-current Model -** for high intensity blotting – 250V-2.5A
	SPARES
	Power cord (1set)_
	Power cord – safety, imported model
8	**Trinocular Research Phase Microscope with Phase Contrast & fluorescent attachment** Consisting of the following • Microscope frame for transmitted light microscopy. Infinity corrected optical system as per ISO norms. Coaxial coarse and fine focusing

knobs with tension adjustment facility on coarse focusing. Fine focusing 0.1 mm / rotation. Coarse focusing 15 mm / rotation. Vertical Stage Movement 25mm. Stage handle and focusing knobs at very comfortable distance from the operator hand in order to reduce the strain during long hours of working. Built-in Photo switch, field iris diaphragm & condenser holder .Refocusing stopper to lock the stage at desired position in order to prevent contact between slide and objective. Immersion oil bottle 8cc. & screw driver

- 6V30W Lamp Socket
- 30W Halogen bulb
- Light Balancing Filter
- Power cord
- Dust cover No. 18
- Anti fungus sidentopf Three Way Trinocular observation tube 30 degree inclined with Interpupillary distance 50-76 mm. Di-opter adjustment facility available on both eyes. Three position beam splitter (100/0, 20/80. 01100) (F.O.V. 22mm)
- Wide field eyepiece lOX (focusable) with Rubber eye cap & Eye guard focusable with diopter adjustment facility on +/-5. The eyepieces can be locked to the observation tube. (Anti fungus)
- Wide field Eyepiece lOX with Rubber eye guard and cap. (FOV 22 mm.) The eyepiece can be locked to the observation tube.
- Rectangular Ceramic surface mechanical stage with right hand low drive for X & Y motion with traverse range of 52mm X 76mm. There is a torque adjustment facility on the stage handle in order to control the movement of stage.
- Mechanical slide holder with the capability to hold two slides at a time
- Quintuple Revolving Nosepiece
- Pointer unit electronic arrow pointer unit
- <u>PHASE CONTRAST ATTACHMENT</u>
  Universal Phase contrast dark field condenser NA 1.1 with one position for Brightfield, three phase positions PHI, PH2, PH3 and one Dark Field Position
- Interference Filter
- Plan achromat objective 4X/0. I, WD 18.5mm
- Plan Fluorite Phase Objective 10X/0.25, WD 10.6 mm.
- U Plan Fluorite Phase Objective 40X/0.75, WD 0.51 mm (spring)
- U Plan Fluorite phase objective 100X/l.3, WD 0.2 mm (spring loaded,Oil)
- <u>FLUORESCENCE ATTACHMENT</u>
  Reflected light with field stop, filter slider and BF/DF mirror unit including UV protective shield (can accommodate six fluorescence filter cubes)
- Power supply with built in hour meter for mercury burner.
- Lamp housing for 1OOW mercury burner providing twice brightness than other systems with infinity corrected collector lens.
- Mercury Bulb 100 Watt.
- Power cord
- Neutral density filter for incident light
- Neutral density filter for incident light
- Mirror Unit for fluorescence microscopy, wide band UV excitation, exciter filter BP360-370, dichroic beam splitter DM400, barrier filter BA420. For Flourochrome DAPI/ Hoechst etc.
- Mirror Unit for fluorescence microscopy, wide band Blue excitation, exciter filter BP460-490, dichroic beam splitter DM500, barrier filter BA515 which is applicable for FITC & any other Blue light excited Flourochrome.

Mirror unit for fluorescent microscopy wide band

	Blue green excitation exciter filter BP510-550, diachronic beam splitter DM-570, barrier filter BA-590 which is applicable for Rhodamine & any other range of green microscope light excited fluorochrome.
9	VORTEX MIXER • Variable speed mixer to accommodate a variety of tubes for various analysis to eliminate time consuming hand mixing. • Holding tube against vibrating rubber cup does rapid mixing of contents of tubes. • Continuously variable speed regulator controls the degree of vibration. Unique touch feature operated the unit as soo as the tube is pressed on the rubber cap.
10	**REFRIGERATED HIGH SPEED CENTRIFUGE MACHINE WITH ROTOR**
A	Refrigerated High Speed Centrifuge Machine • Maximum speed : 20000 rpm • Lowest temperature : -10°C • Maximum rcf : 34500 g • Maximum capacity: 400 ml. • Maximum tube size: 100 ml. • Table top model. • Step less speed controller, • Digital speedometer, • 0-99 Minutes digital timer cum indicator with bypass switch. • Dynamic brakes & zero start interlock, imbalance safety device, see through acrylic lid and lid locking switch. 2 KVA servo controlled voltage transformer
B	Rotors for above • 4x100 ml. angle head • 8x50ml. angle head, • 8x25 ml. angle head, • 12x15 ml angle head, • 4x10ml swing out head, • 24x1.5ml. angle head, 24x0.5 ml. angle head.
C	2 KVA Servo controlled Voltage Stabilizer
11	TISSUE CULTURE RACKS. • Series racks fixed type. • Made of powder coated phospatised slotted angle racks. • With rails for culture bottles or baskets • Set of 5 shelves and five rows • Size 125x315x192cms. • Fitted with fluorescent lights. • Shelves are made of polycarbonate acrylic thick sheets. • Chokes are mounted outside the room to avoid temperature increase due to heat generated by chokes. Timers should be provided to control the illumination conditions.
12	GEL DOCUMENTATION SYSTEM. **Unit Includes:** The DigiDoc is an easy-to-use documentation system that captures sharp, high resolution black and white or color images. Applications of the DigiDoc include fluorescent imaging and colorimetric or absorption imaging. **Camera:** • 24 bit color and 8 bit monochrome camera • Resolution : 10 mega pixels • Zoom : 4X optical/4X Digital/16X Combined zoom • LCD Monitor:2.5 inch low-temperature polycrystalline silicon TFT color LCD

Custom Hood: Custom hood with mounted gasket, bracket, Quick-fit connector.

TransIlluminator ML-26 (21x26cm) : Two wavelengths of illumination allow for excitation of multiple fluorescent dyes Hi/Low intensity settings control.

Interference Filters:

- **Orange Filter (included):** for gels stained with ethidium bromide, comassie blue, or SYPRO® Orange.

Applications:

Fluorescence: Ethidium Bromide, SYBR® Green, SYBR® Safe, Hoescht Blue.

Absorbance/ Colorimetric: Coomassie gels, colony plates, silver staining.

AlphaProView acquisition Software:

This proprietary software is designed specifically for capturing white light and fluorescen images for scientific imaging. The software also features tools a scientist will need for their routine imaging saturation detection, image contrasting and the option to take color or black and white images.

Alpha View Stand Alone-1 license :

Key Features

- MultiImage viewing modes for direct side-by-side image comparisons
- Real time saturation detection ensures accurate and linear quantification.
- Crop Function: CROP will display just the region of interest as the active window in the AlphaView interface. COPY will copy the desired area of interest into the Windows Clipboard and allow you to paste into any desktop publishing package (ie. Word, Excel, Adobe Photoshop, etc.).

Print Image Information: This includes the exposure time, the Black level, White level, and Gamma setting, the date and time the image file was generated, an image ID number, and the name of the file to which the image is stored.

Enhancement Tools:

- **Zoom Tool :** This function magnifies an image, making details easier to see, and allows movement around the magnified image.
- **Rotate/Flip Tool:** This function rotates the image in a clockwise or counterclockwise direction by 1 degree increments up to a maximum of 90 degrees in either direction. This is a useful tool if the image is not aligned properly during the capturing process.
- **Histogram:** Histogram is a graphical display of the proportion of pixels assigned to each of the 4,095 gray levels.
- **Automatic Enhancement:** This function is ideal for new or inexperienced users of the system since it offers 9 levels of automatic image enhancement of the black, white, and gamma levels simultaneously.
- **Annotations:** On-screen annotations function for text, boxes, circles, arrows, lines, or freehand sketch. Annotations can be stretched, moved, copied, and zoomed. 6 different pen widths, 5 different pen styles, single or double ended arrows, unlimited fonts, colors, and point sizes. Text annotations can be rotated to user defined angles. Annotations placed anywhere inside or outside of image.
- **False Color:** 20 adjustable false color options with unique EtBr, coomassie blue, SYBR green, Texas Red, and SYPRO orange color simulations.
- **Image Filters:** Unlimited image filtering to obtain sharper and clearer images by noise reduction, 3D contour, and/or edge sharpening.

Analysis Features:

- **Molecular Weight Analysis:** Proprietary algorithms compensate for gel distortion and gel curving /smiling. Overlapping bands clearly separated using proprietary band identification and peak calculation algorithm. M.W. library for automatic, semi-automatic, or manual standard identification.

	Automatic or manual assignment of molecular weights to reference standard. Unlimited number of M.W. standard lanes can be used per gel for optimal M.W. accuracy • **1-D Multi Lane Densitometry:** Automatic band scoring and band or pattern matching can be determined based on Area, Mass, or Peak Height related to: Present/Absent, High/Med/Low/Absent, % of Control, Quantity. Phylogenetic tree, Dendrograms, and band matching for RFLP analysis and other applications. • **Spot Densitometry:** Quantitative PCR with sample concentration in user defined units such as ng, pg, fg, or %. % normalization using one or multiple standard points with multiple algorithms including least square fit and smooth cubic spline. Colony Counting: Manual and automatic count for colonies and cells. Scoring: Gel scoring module for easy positive/negative identification and reporting. **Ruler:** Object distance measurement with scaled, calibrated distance measurements between two points of interest. X Y coordinate position with mouse cursor movements.