

NATIONAL INSTITUTE OF TECHNOLOGY, RAIPUR

(Formerly Government Engineering College, Raipur-C.G.)

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No. /Biotechnology / NITRR /2009/BT-01

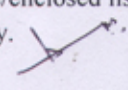
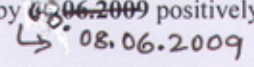
Raipur Dated: 13.05.2009

BIO-TECHNOLOGY

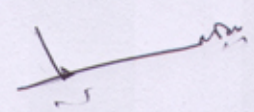
To,

SUBJECT: TENDER QUOTATIONS

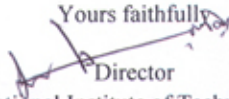
Dear Sir,

This institution intends to purchase the equipment/software/items shown in the list given on the reverse/enclosed list. Your quotation for the supply of these equipment/software/items may please be sent by ~~08.06.2009~~ positively. 
PLEASE NOTE THE FOLLOWING: 

1. The quotation is liable to be rejected if not submitted as per the following condition without asking any further clarification.
2. Taxes, if viable extra, should be clearly indicated failing which the rate quoted in the quotation will be considered as inclusive of all taxes.
3. The supplier will have to get the equipment delivered and duly installed to the satisfaction of undersigned in the institution and then only the payment will be made in rupees.
4. There should be no alterations/corrections made in the quotation. Quotation should always be in figures and words.
5. An earnest money Deposit @ 3% of the cost of equipment quoted or as indicated on the Enquiry Performa must be deposited with the institute in form of a Demand Draft in favor of The Director, National Institute of Technology, Raipur.
6. In case of non-acceptance of the quotation, the EMD will be refunded to the firm quoted in due course of time. The EMD will be treated as security deposit in case of quotations selected for placing orders. EMD /Security deposit will be forfeited in case of breach of agreement of supply by the supplier.
7. The order shall stand cancelled and security deposit shall be forfeited
 - a. if supplier expresses his inability to execute the order for the quoted items within validity period of the quotation at the rate and for make/ brand quoted.
 - b. If the complete equipment is not supplied within the delivery period mentioned in the order or within the extended period permitted.
 - c. If the supplier executes only part of the order.
8. Any Equipment / Trainers, Hardware or software breakdown must be attended within 48 hours during the warranty period of the equipment/software free of cost.
9. Payments will be released after the successful installation and demonstration at the institution.
10. Extension in the delivery period may be granted at the discretion of the undersigned. The penalty at a rate of 1% per month of the full cost of the equipment is liable to be charged for the extension of the delivery period. Equipment received after the delivery period or dispatched after the delivery period mentioned in the order will also be subjected to this penalty
11. In case of any default in execution the order, the undersigned reserves the right to forfeit the EMD /Security deposit. The undersigned also reserves the right to cancel the order and forfeit the EMD/Security deposit in case the firm concerned fails to adhere strictly to all terms and condition of the order.
12. The undersigned reserves the right to accept the lowest or any other quotes and also of rejecting all or any quotation without assigning any reasons for the same or to split up the quotation as he may deem fit.
13. No advance payment, either with the Firm concerned or agent R/R will be made to any supplier, please note that any other payment terms or such type are not negotiable.
14. Quotations must be valid for a period of at-least three months from the date the quotations are opened.
15. Printed condition on the back of the quotation will not be binding unless separately mentioned. Copies of the terms and condition should be furnished in duplicate.
16. Complete Specifications and printed material, literature concerning the item quoted must be supplied with the quotation.
17. Documents and supply of material by V.P.P. and Documents, viz. railway receipts, etc. through bank are not accepted by us.
18. All the disputes with regard to the contract of purchase of equipment, etc. will be subjected to Raipur jurisdiction only.
19. 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.
20. Please produce original technical brochures for the products being offered.
21. Please produce list of users of the products being offered.
22. Kindly quote price in INDIAN CURRENCY only.
23. Equipments are to be delivered at NIT, Raipur campus free of cost. Only applicable VAT will be paid extra.
24. 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. 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.



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

Yours faithfully,

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

LIST OF THE EQUIPMENTS WITH DETAILED SPECIFICATIONS.

S.No.	Particulars																												
1	<u>HORIZONTAL LAMINAR FLOW WORK STATION COMPLETE Stainless steel.</u> - 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 ± 10 FPM. - 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 border="1"> <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>	Material of construction	SS 304 grade	Pre filter efficiency	Make GEU 5 rating 90% down to 5 micron	Final supply filter efficiency	Mini pleat HEPA filter EU 13 rating 99.997% down to 0.3 micron	Work table	S.S. Table clad wooden base for strength	Grills	Perforated grill for pre filter.	Fluorescent lights	Dwyer USA make fluorescent tube lights with diffuser.	UV Light	UV Lights with hour meter.	Pressure gauge	Enabled.	Switch & socket within work chamber	3 pin socket 15 amps : 1 Nos., ON\Off switch	Gas stream	Gas cock.	Performance	ISO-5 AS PER ISO 14644-1)	Class air flow velocity	90+10FPM	Noise level	Less than 70 dB	Vibration	Minimum
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2	<u>GRADIENT THERMAL CYCLER WITH PALM TOP CONTROL.</u> - Thermal Cycling System Active heating and cooling using 8 Peltier elements + 4 Platinum sensors - Temperature Range 4°C-99°C - Temperature Accuracy $\pm 0.25^\circ\text{C}$ of set temperature, 1 minute after clock start - Temperature Uniformity $\pm 0.5^\circ\text{C}$, 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																												

	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 (<i>included</i>) 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 (<i>minimum</i>) 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" transfective 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	<u>FERMENTOR.</u> VESSEL STANDARD The vessel is designed to comply with the requirements of pressure vessel and Bioprocess. <u>VESSEL SPECIFICATIONS</u> 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. <u>MATERIAL OF CONSTRUCTION</u> All parts in contact with the culture SS 316 Jacket with Spiral SS 304 O rings EPDM / Silicone <table><tr><th><u>4. PARAMETERS</u></th><th><u>VESSEL</u></th><th><u>JACKET</u></th></tr><tr><td>Design Temperature (°C)</td><td>150</td><td>150</td></tr><tr><td>Design pressure (Bar)</td><td>3</td><td>3</td></tr></table> <u>5. SCHEDULE OF PORTS</u> 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.	<u>4. PARAMETERS</u>	<u>VESSEL</u>	<u>JACKET</u>	Design Temperature (°C)	150	150	Design pressure (Bar)	3	3
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Design Temperature (°C)	150	150								
Design pressure (Bar)	3	3								

Shell

Addition Ports

Acid : 1 No.

Alkali : 1 No.

25 Ø pH : 1 No.

(Optional)

25 Ø 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:

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

7. PIPE RACK

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

7.1. AIR CONNECTION

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

Steam / Water Connection

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

8. VESSEL ACCESSORIES

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

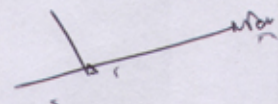
- o Duplex Temperature sensor
- o Temperature Controller
- o Digital display
- o Measurement accuracy $\pm 0.1^\circ \text{C}$
- o Control accuracy $\pm 0.2^\circ \text{C}$ (upto 40°C)

10.2. SPEED CONTROL

- o AC Drive
- o Digital display
- o Measurement accuracy $\pm 2 \text{ rpm}$

Control accuracy $\pm 5 \text{ rpm}$

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

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

1.2. pH MEASUREMENT & CONTROL

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

2. DO SYSTEM

2.1. DO MEASUREMENT

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

2.2. DO MEASUREMENT & CONTROL

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

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

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

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

5. FOAM CONTROL

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

6. FED BATCH CULTIVATION / CONTINUOUS CULTIVATION

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

	<u>7. UTILITIES</u> <u>7.1. AIR COMPRESSOR</u> o 10 lpm @ 2 bar, oil free <u>7.2. STEAM GENERATOR</u> o 6 KW 3 Ø SS 304 steam boiler <u>7.3. CHILLER</u> o Range 15 – 18° C @ 10 lpm <u>7.4. WATER CIRCULATION SYSTEM</u> 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 mm 1.0 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 - Regular- 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 spacers 1.5 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 mm 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 Cassette(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 Cassette(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 Cassette(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	<u>Trinocular Research Phase Microscope with Phase Contrast & fluorescent attachment</u> 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 IOX (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 IOX 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
- PHASE CONTRAST ATTACHMENT
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/1.3, WD 0.2 mm (spring loaded,Oil)
- FLUORESCENCE ATTACHMENT
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 100W 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	<u>VORTEX MIXER</u> • 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	<u>REFRIGERATED HIGH SPEED CENTRIFUGE MACHINE WITH ROTOR</u>
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	<u>TISSUE CULTURE RACKS.</u> • 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	<u>GEL DOCUMENTATION SYSTEM.</u> Unit Includes: The AlphaDigiDoc® Pro is an easy-to-use documentation system that captures sharp, high resolution black and white or color images. Applications of the AlphaDigiDoc ® 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.

