



DEPARTMENT OF BIOTECHNOLOGY
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MUKESH DOBLE
Professor and Head

Date: 28.06.2013

Ref: BT/TSCH/2013/15/SPL

Dt. 28.06.13

Due Dt.17.07.13

1. Quotations are invited in duplicate for the various items shown below/overleaf/ enclosed list.
2. The quotations duly sealed and super scribed on the envelope with the reference No. and due date, should be addressed to the undersigned so as to reach him on or before the due date stipulated above.
3. The quotations should be valid for sixty days from the due date and the period of delivery required should also be clearly indicated.
4. If the item is under DGS & D Rate Contract, Rate Contract Number and the price must be mentioned. It may also please be indicated whether the supply can be made direct to us at the rate contract price. If so, please send copy of the R.C. (Please note that we are not Direct Demanding Officers).
5. Relevant literature pertaining to the items quoted with full specifications (and drawing, if any) should be sent along with the Quotations, wherever applicable. Samples if called for should be submitted free of charges and collected back at the supplier's expenses.
6. **Local Firms:** Quotations should be for free delivery to this Institute. If quotations are for Ex-Godown, delivery charges should be indicated separately.
7. **Firms outside Chennai:** Quotations should be for F.O.R Chennai. If F.O.R. Consigner stationer freight charges by passenger train/lorry transport must be indicated. If Ex-Godown, Packing, forwarding and freight charges must be indicated.
8. The rates of Sales/General Taxes and the percentage of such other taxes legally leviable and intended to be claimed should be distinctly shown along with the price quoted. Where this is not done, no claim for Sales/General Taxes will be admitted at any stage and on any ground whatsoever. **The taxes leviable should take into consideration that we are entitled to have concessional sales tax applicable to non-government educational institutions run with no profit motive for which a Concession. Sales tax certificates will be issued at the time of final settlement of the bill.**
9. Goods should be supplied carriage paid and insured.
10. Goods shall not be supplied without an official supply order.
11. **Payment:** Every attempt will be made to make payment within 30 days from the date of receipt of bill/acceptance of goods, whichever is later.

Bench top Autoclavable Bioreactor

Specifications:

- Round bottom glass vessel with 3 baffles for fungal fermentation.
- Total Capacity – 2.5 liters with Working volume: Minimum 0.6 Liters and maximum up to 1.7 Liters
- Agitation should be using mechanical seal bearing
- Rotation Speed: Ranges from 50 to 1250 rpm
- Stirrer with 2 impellers & with six blades
- Temperature measurement using PT 100 sensor with measuring range -10 °C up to 100 °C and temperature control range up to 60°C, Temperature Accuracy: $\pm 0.3^{\circ}\text{C}$
- Jacketed Vessel
- Cold finger for additional cooling required
- pO₂ measurement and control
- Gel filled pH sensor with 2 peristaltic pumps (acid, base) and control of pH range from 2 up to 12 pH
- Anti foam control using additional peristaltic pump
- Exit Gas Cooler function to prevent excessive losses of liquid from the culture in the form of water vapour carried out in the exit gas stream
- Additional pump for feed addition should be included.
- Gas flow addition for Air + O₂
- Aseptic Sampling System using autoclavable sampler kit to avoid contamination and Achieve Zero dead volume after sampling, and avoid injection needles during sampling.
- The fermenter system to be connected to PC for data logging and remote control operation
- Software should have the following functions:
 - Connectivity for 1 to 3 Bioreactor
 - Control for time and event based profiling
 - Control of calculated parameter like respiratory quotient
 - Two-stage asymmetrical alarms
 - Storage and display of all alarm reports
 - Data for external peripherals for additional parameters controls in future
 - On line display of all data's as text, online or bar graph
 - Comparison and correlation graphs
 - Reports & parameter data should be exported

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