



**DEPARTMENT OF BIOTECHNOLOGY**  
**Indian Institute of Technology, Madras, Chennai, 600 036.**

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Date: 08.07.2019

**Ref: BT/GUHA/2019/007/SPL**

**Dt. 08.07.19**

**Due Dt. 29.07.19**

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.

## **Technical specifications for Microbial Fermenter (50L)**

### **Vessel and ports:**

1. Total capacity : 50Lts, Working volume :35 Lts
2. Jacketed Pressure vessel
3. Material of Construction (MOC): product contact parts SS 316L non Product contact parts SS 304L
4. Surface Finish: Inside of the vessel 0.4 $\mu$  with Electro polished, Outer 0.8 $\mu$  Mat finish
5. Pressure vessel Flat Top Lid, no weld ports allowed
6. Bottom torispherical dish,
7. Top Lid at least 12 x 19mm port 1x 25mm port 1x 32mm Exhaust
8. 1x Top drive with single Mechanical seal AC motor Speed range 100 to 1000rpm
9. 3x 6 blade rushton impeller
10. LED Light arrangement at the top
11. Sight view glass at longitudinal lateral side :
12. CIP spray ball at the top lid
13. 25mm Port x 4 nos, 1x sampling port with SIP valve bottom side
14. 1x Flush Bottom valve with SIP valve
15. 8x 19mm Hyperdermic Needle with septum arrangement

### **Air inlet**

16. Sterilizable absolute filter with housing flow meter, Pressure control valve, Pressure indicator, Non Return Valve (NRV) and ring sparger
17. Exhaust: Condenser, air filter with SS housing , Manual Back pressure control valve(SIP)

### **Sterilization:**

18. Full vessel sterilization air inlet, exhaust lines along with vessel.
19. No direct steam allowed inside or in the jacket during sterilization /Process temperature , only pressurized hot water circulation allowed for the temperature control,

### **Measurement and control**

20. **PH:** Sterilizable Probe : Measuring range 0 to 14 PH with two Peristaltic pump for auto PH correction
21. **DO:** Sterilizable DO probe Measuring range 0 to 100% activated jacketed valve to maintain Set point value, Cascaded with Speed controller
22. **Temperature:** PT 100 sensor. Measuring range 0 to 150°C
23. **Agitation:** AC motor with variable frequency drive (VFD) Adjustable speed : 100 to 1000 rpm
24. **Antifoam:** Sterilizable Probe with peristaltic pump to control the foam
25. Require O rings , and diaphragm for trouble free operation

### **Processor controller and human interface**

26. Complete PLC based controller enable to operate form PC
27. SCADA for complete Data management interfaced with PC customized mimics

28. System requirement: PC with windows10, 4GP RAM TB hard disc, 18"monitor flat, Comport, DVD writer Keypad and mouse, Require data sheet and brochure should ensure the quoted model as per the specification
29. Two years warranty
30. Free installation
31. Company should have supplied to IIT Madras or any reputed institute/company
32. Company should have certificate of satisfactory (COS) performance
33. Company should have servicing facility in Chennai
34. Company should have journal publication references
35. Two bid system: separate technical and financial bids