

**INVITATION FOR BIDS FOR FERMENTER
BAIF CENTRAL RESEARCH STATION, URULI KANCHAN**

1. This procurement will be carried out through e-TENDER ENQUIRY on behalf of the President of BAIF.
2. **Address for physical submission / E-mail (crspurchasequote@baif.org.in) of quotation in a sealed envelope:**

**BAIF DEVELOPMENT RESEARCH FOUNDATION
Central Research Station
Kamdhenu Nagar, Uruli Kanchan, Tal. Haveli Dist. Pune 412202
Maharashtra**

3. Mobile No.:9284035068 / 9421989098

4. **Required technical specifications and processing cost per sample:**

Sr. No.	Description	Quantity
1.	500 Litres Working Capacity Fermenter (SCADA Operated Automated Fermenter)	01

Technical Specifications:

1. A total set of all instruments (pH, DO, Temp., Antifoam) inoculation port (flame type), 4 peristaltic pumps, Temp control with Scada system.
2. Super thermostat for accurate temperature control of the above 500 litre fermenter batch within the range
 - a. 10-60 OC, regardless of ambient temperature fluctuations. This is expected to significantly increase the cell count of the fermenter batch.
3. In-situ steam sterilizable pH sensor □ Microprocessor-based digital pH indicator
4. 2 panel mounted variable speed peristaltic pumps for acid and/or alkali addition for pH control, flow
 - a. range 0.25 to 2.7 LPH
5. Vessel:
6. Working capacity 500 litres
7. Vertical cylindrical vessel with top and bottom dished ends/dome shaped (both accepted)
8. Bottom dished/dome end will be welded to the cylindrical shell
9. Top dish/ dome end will be removable and bolted to the shell through body flanges
10. Process contacts parts in stainless steel grade SS316
11. Jacket in stainless steel grade SS316
12. Other non-process contact parts in MS
13. Structural support parts in MS
14. Internal surface polished to 120 grit finish
15. External surface polished to 120 grit finish

16. MS surfaces painted with 2 coats of anti-corrosive paint (or powder coated wherever possible)
17. Suitable for 0-4 kg/cm²(g) pressure
18. Shell and dish/ dome end thickness for various fermenter capacities will be calculated according to ASME
 - a. Sec. VIII Div. I and Good Engineering Practices suitable for 4-125 OC temperature
19. Jacket for steam and tempered water circulation
20. Facilities on top dish/ dome end: - Light glass, Sight glass cum charging hole (heat and pressure resistant), Agitator, Inoculation port, Air inlet to ring sparger, Air exhaust, Addition port with SS funnel and suitable adaptor
21. Facilities on cylindrical shell: Port for temperature sensor Facilities on bottom dish/dome end Removable type SS baffles with SS bolts, Provision for in-situ empty (dry) sterilization & in-situ media sterilization, Pressure gauges range 0-30 psi provided on chamber & jacket, Safety valves provided for safety on chamber and jacket, 230 Volts, 50 Hz, 1 Phase stabilized AC power supply required, Ball valves on air inlet/exhaust, steam inlet/outlet, water inlet/outlet & bottom outlet nozzles, Variable speed agitator
22. Top mounting agitator with leak proof seal for steam and air and water, Rushton turbine impeller, Rugged industrial grade AC geared motor, 275 RPM output speed, Panel-mounted variable speed drive for above geared motor, speed range 55-275 RPM, Panel mounted digital RPM indicator.
23. Piping & aeration system: - Air filter for sterilization of air, Pleated PTFE membrane type air filter cartridge, length 5", rating 0.2-micron, Suitable housing for above cartridge with side inlet/outlet, Air inlet dip pipe with ring type sparger, Rotameter for air inlet with needle valve for manual flow control, range 15-150 NLPM, Interconnecting piping and valve assembly for fermenter operation.
24. **Sterilization control system:**
 - A) RTD Pt-100 temperature sensor,
 - B) Microprocessor-based on/off type digital temperature indicator-controller.
 - C) Provision for steam circulation through jacket for in-situ sterilization.
 - D) Provision for automatic in-situ steam sterilization facility.
 - E) Provision for cold water (or temperature-controlled water) circulation through jacket for temperature control during cooling & batching stages.
 - F) Solenoid control valve for steam flow control.
 - G) Steam trap on condensate outlet from jacket.

Control panel: CRCA powder coated control panel console with electrical switchgear, panel accessories and mounting arrangement for panel-mounted instruments, Suitable for wall mounting near fermenter location.