

Tender Ref. No: NABI/2(125)/18-19/N-PUR

Modified Technical Specifications after Pre-Bid Meeting held on 21st Feb' 2019

Specifications for Parallel Mini-Fermenter

Amendments/Changes mentioned in Yellow Colour

S. No	Parallel Mini Fermenter	
1.	System	Mini Fermenter with four vessels with controller(s) to control independently each vessel and in parallel mode all the 4 vessels simultaneously.
2.	Major Use	For Anaerobic /aerobic controlled fermentation applications. Each vessel must be used as an independent single reactor or must be used in parallel with an application of using as a gastrointestinal simulator.
3.	Vessels	<ul style="list-style-type: none">a. Must be cylindrical, flat or curve bottomed borosilicate glass vessel that can be autoclavable with or without fermentation media along with tubing.b. Minimum working volume of the vessel must be 150 milliliter or better (down up to 50ml) and maximum working volume to be less than or equal to 500 milliliters.c. Vessels must be temperature regulated (must be hassle free) via Peltier system or through jacketed circulation of hot or cold water around the working volume during the process of fermentation. In case of jacketed system, the chillers must be of international brand of sufficient capacity to maintain temperature and must have CE certification.
4.	Head plate	Sterilizable, corrosion free stainless steel having 10-15 ports or better for various attachments
5.	Temperature range	The entire fermentation process can be operated at 25°C to 50°C or better
6.	Mass flow controller	Each vessel must have mass Flow Controllers & Valves for N2, CO2 and air individually and must have a provision for mixing N2 and CO2 while pumping on to the fermentation vessel

7.	Probes	Each vessel must have internationally branded probes for pH (1-14), optical DO (100%), redox, temperature, foam, stirrer (Rushton, 100 or lower and up to 1400 RPM or better) and must have a provision for aseptic and sterilizable sampling port.
8.	Peristaltic pumps	Four pumps for each vessel (one each for acid, base and antifoam addition and 1 for nutrient feeding) along with autoclavable suitable bottles, universal caps and connectors, tubing. Pumps must be configurable using the control system. All essential components such as tubing, cables, liquid addition bottles (for acid, alkali, foam, feed per each vessel to be quoted in the main quote.
9.	Controller	<p>Splash protected and resistant, PID based, having touch-based keys with LCD display or through PC having on-screen programming capability, data acquisition, data display of pH, DO, Temperature, Foam, Redox, Feed etc.</p> <p>Online virtual overview of all process parameters on a smart phone or on computer/laptop using network connectivity access.</p> <p>SCADA software to control and access all parameters. Software should facilitate single fermenter programming or parallel process by window selection.</p> <p>Online control and data logging software with facility to display and print trends, profiles and graphs of various parameters.</p>
10.	Data Management	<p>Online and offline data collection and data export function (Microsoft excel export option).</p> <p>Sampling frequency less than 2min</p>
11.	Exhaust	0.2 micrometer filter to avoid contamination.
12.	Maintenance kit	That includes two additional pH sensors, DO membranes, additional tubing of required sizes, 100 Nos inoculation septa, clamping rings, connectors, tubing clamps, one set of O rings per vessel, cable ties

13.	Computer & Printer	Suitable branded PC with Widows 10 OS, Intel i5 or better processor with 4 cores, 3.4 GHz (i7-4790 processor (Quad Core, 8MB, 3.60GHz); 8 GB RAM (usually DDR3 1600MHz); 500 GB hard drive, 7200 RPM; Mouse, keyboard, monitor and a color printer
14.	UPS	Suitable online UPS (Min 15 minutes) of sufficient capacity to support the Equipment (Make: APC/Emerson/Eaton/Numeric)
15.	Air Compressor	Must be oil free medical grade to suffice for all the vessels
16.	Warranty	TWO YEARS
17.	Most important	Any other items that are required for the full functionality of the system and enhance the significant functionality of the system must be quoted.

Apart from the above-mentioned changes in yellow colour all other terms and conditions shall follow as per the tender terms and conditions.

For MSME Exemption clarifications: In case the bid is submitted as an Indian dealer or distributor or agent or subsidiary of a foreign bidder and the eligibility criteria conditions were met thru foreign company, then the EMD Exemption cannot be claimed under the MSME status of Indian dealer or distributor or agent or subsidiary of Foreign company/firms.

All other Terms and Conditions of the tender remain unchanged

Stores and Purchase Officer