Department of Chemical Engineering
Indian Institute of Technology, Delhi

May 27, 2014

Subject: NIQ for FERMENTOR

Following Specification are required for FERMENTOR

1. The system should be compact, autoclavable, bench top 1.3L total volume fermentor designed for growth of bacteria, yeast, mammalian cells fungi and plant cells and additional 1.3L Add –A- vessel advanced fermentation kit should be quoted.
2. Controller should be capable of Batch. Fed-batch and continuous modes of operation.
3. It should be possible to use the same controller for vessels having total volumes of 3L; 7.5l and 14L
4. The vessels should be interchangeable and made of borosilicate glass, autoclavable with dished-bottom.
5. Controllers should be capable of running either microbial fermentation or cell culture.
6. System should be supplied with TMFC in range of 0.04 – 20 SLPM and capable of accommodating 1-4 rotameters.
7. The master control station should be capable of controlling up to 3 vessels simultaneously.
8. The system should be suitable for both research and production purposes.
9. The system should be equipped with a bright color touch – screen interface of minimum 8.4"
10. The system should be supplied with at least 3 fixed speed peristaltic pumps.
11. The system should use platinum RTD probe for temperature sensing.
12. The system should use PID control for heating and cooling.
13. The system agitation should be through direct-drive mechanism.
14. The agitation range and control should be from 50-1200 RPM for fermentation and 25-400 RPM for cell culture. The control should be PID with manual, automatic or cascade settings.
15. The system should maintain temperature range maximum up to 70° C. Temperature is controlled via external heating blanket and immersed stainless steel cooling coil.
16. The system should be supplied with Ring sparger for aeration. Microsparger should be offered as an option. Inlet filter should be 0.2µm.
17. The system should maintain temperature range maximum up to 70° C. Temperature is controlled via external heating blanket and immersed stainless steel cooling coil.
18. The system should be supplied with one pH probe. The pH control range should be from 2-14, in 0.01 increments via PID links to pumps or gases and adjustable dead band.
19. The system should be provided with one DO probe. The DO probe range and control should be from 0-200% in 0.01 increments via PID. The system should have a built-in cascade feature to automatically maintain DO set point.
20. The system should be supplied with one Foam/Level sensor.
21. The system should be CE certified and same will be mentioned in the original technical literature.
22. The supplier should have a minimum of 25 installations of the quoted model in India with in three year (user list to be attached)

Warranty	: 1 Year
Third party software integration	: Yes

Please send the above quotation latest by 20 / 06 / 2014.

Terms and Conditions:

1. Quotations must be made in sealed envelopes. Technical and Commercial bids must be sent separately in two sealed envelopes and then put together in one envelope. The quotes must reach the following address by 20th June, 2014 by 05:00 pm latest.
2. Price must be quoted CIF New Delhi.
3. Please specify warranty periods.
4. Indian agency certificate must be enclosed. Proprietary certificate might be enclosed if applicable.
5. Payment through L/C.
6. Validity of quotation should be at least 3 months.
7. Period of delivery should be mentioned.
8. Educational discount should also be mentioned.

Remarks: The Institute reserves the right to accept or reject any all the quotations without assigning any reason thereof.

Prof. Anurag S. Rathore
Department of Chemical Engineering
IIT Delhi
Email: asrathore@biotechcmz.com
Phone No: 011-26596242