

**Technical Specifications for Tri-gas CO<sub>2</sub> incubator**

1. System should be air-jacketed stackable with temperature control from 4° C to 50°C (control accuracy  $\pm 0.1^{\circ}\text{C}$ ).
2. Incubator capacity range should be between 45-65 liters.
3. System should have microprocessor controlled soft touch control panel with TFT-LCD display for Temperature, CO<sub>2</sub>, O<sub>2</sub> & relative humidity ( $\geq 95\%$  RH). Display should show real time information of overall incubator status including temperature, CO<sub>2</sub> and O<sub>2</sub> Levels, humidity. In case of any deviation from the normal settings of the equipment Audio- Visual alarms should be there (high temperature, CO<sub>2</sub> and O<sub>2</sub> levels deviation, door ajar, overheat protection).
4. System should have in-built 90°C / 180°C heat decontamination facility to sterilize CO<sub>2</sub> incubator without removal of sensors and other components preferably.
5. System with fully insulated stainless steel door with 2-point locking (compression door lock), 1 perforated stainless-steel shelf/shelves, incl. works calibration certificate (measuring point chamber centre) at +37°C, 5 % CO<sub>2</sub> for standard units, 1 stainless steel water dish, is preferred.
6. System should have sealed inner glass door with at least 2 adjustable shelving racks.
7. System should have membrane filter (in order to remove impurities and pollutants, all incoming gases pass through a membrane filter before they reach the chamber)
8. System have CO<sub>2</sub> and optional N<sub>2</sub>/O<sub>2</sub> gases are pre-humidified before entering the chamber, providing a more constant, uniform environment.
9. System should have six-sided direct heating with fan, gentle convection circulation to provide stable temperature control, excellent uniformity and rapid recovery after opening of door.
10. CO<sub>2</sub> control range should be from 0 to 20% with control accuracy and uniformity of  $\pm 0.1\%$ .
11. O<sub>2</sub> control range should be 1-21% with good sensor.
12. System should able to support 1% O<sub>2</sub>, 5% CO<sub>2</sub> and 94% N<sub>2</sub>.
13. Drift Free IR CO<sub>2</sub> sensor with auto-zero function to provide superior accuracy & stability.
14. System should be supplied with accessories like line filter (5), double stage regulator for regulating CO<sub>2</sub> and N<sub>2</sub> (1), HEPA filter (2), Gas cylinder (2) for CO<sub>2</sub> and N<sub>2</sub> and stainless-steel humidity tray with 2KVA Servo voltage stabilizer.
15. System should have capacity sensor for humidity display.
16. Highly responsive with recovery under 5 minutes from door openings

17. To eliminate condensation on inner door, surface the system should have in-built independent door heater.
18. System should be supplied with HEPA filter on the inlets to avoid contamination.
19. RS232 communication port & access port should be there.
20. System should also be supported with stabilizer (inbuild or externally supported) for voltage fluctuations as a safety measure.
21. An external humidity reservoir simplifies maintenance by allowing water refill without disrupting culturing.
22. Quoted model should be CE certified & manufacturer should be ISO 9001-2000 company.
23. The instrument should be provided with 3 years warranty.
- 24. The specifications should be authenticated by brochures and company website/catalog. Technical catalogue or brochure of the model must be provided. Instant preparation of the same based on the specifications provided and its onward submission will disqualify the bidder without any further communication.**
- 25. If the need be, the qualifying bidders may be required to place the demo model of the quoted equipment in the Department for testing the efficiency of the equipment. Based on the efficiency and the results obtained the technical committee may further disqualify the vendors and shortlist the vendors whose financial bid will then be opened.**