INDIAN INSTITUTE OF TECHNOLOGY BOMBAY
MATERIALS MANAGEMENT DIVISION
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PR No. **1000054695** Rfx. No.6100002911

TECHNICAL SPECIFICATION FOR FLOW CYTOMETRY, AUTOMATED CELL COUNTER

Sr. No	Detailed Technical Specification	Technical Compliance (Yes / No)	Additional Information (if any)
	Compact benchtop cell sorting and single cell dispensing system based on microfluidics and low pressure flow technology, capable of gentle sorting, high viability, and rapid plate based single cell isolation. The system must be suitable for research and cell engineering applications.		
1	**Applications** The instrument should support: I. Single-cell isolation into 96- and 384-well plates. II. Enrichment and sorting of rare cell populations (<0.1%). III. Bulk sorting of large cell suspensions. IV. Applications including: CRISPR editing, cell line development, single-cell genomics, antibody discovery, cell therapy workflows, and rare cell isolation		
2	**Sorting & Dispensing Performance** I. Technology based on **microfluidics with low system pressure (<2 psi)** for high viability.		

	II. **Single-cell dispensing speed:** o 96-well plate: **< 2 minutes** o 384-well plate: **~6 minutes** III. **Sorting throughput:** o Bulk sorting: **~50 cells/sec** o Enrichment mode: **≥ 50,000 cells/sec** IV. **Sample density range:** must support **100 cells/mL to 150 million cells/mL**. V. Ability to process **3 million cells in ~1 minute**. VI. **Single-cell dispensing volume:** approximately **1 µL** per deposited cell. VII. **Bulk sorting droplet volume:** approximately **60 nL** per event. VIII. **Input sample volume: 100–600 µL**. IX. **Sheath consumption:** approximately **6–7 mL/hour**. X. **Initialization time:** system must be ready in **2–3 minutes**, with **no routine calibration** required. XI. Must include **multiple sorting modes**, including: o Single-cell dispensing o Target enrichment o Bulk sorting XII. Must allow sorting directly in **standard culture media**.		
3	**A. Microfluidic Cartridge & Fluidics System** I. Cartridges must have **near-zero dead volume**, enabling recovery from **small inputs (~100 cells)**. II. Cartridge-based fluidics should ensure **no clogging** and **no aerosol formation**. **B. Physical, Ergonomic & Safety Requirements** I. **Benchtop** and **portable**, suitable for placement inside a **biosafety cabinet**.		

	II. Fully enclosed sorting path to prevent aerosol release.		
4	**Software & Automation** A. Fully automated setup, calibration-free operation. B. Software must support: I. Single-cell dispensing workflows II. Enrichment/bulk sorting III. Well-by-well deposition statistics		
5	**Accessories & Consumables** Should supply Single Cell Cartridge Kit (10 packs (Total 100 numbers))		
6	**Training** Should be provided and Application Training/support should be provided whenever needed.		
7	**Warranty** **3 years**		