The Development Engine instrument.



A benchtop lab-in-a-box for bioprocess development

Specifications

The instrument is a prototype in development. Dimensions, weight, and utility requirements are confirmed at evaluation.

Bioreactor positions	Up to 9 independent positions, each with its own fluid, gas, and mixing control (9 MFX-12 cassettes; 3 MFX-96 cassettes; 1 MFX-384 + 3 MFX-12 cassettes)
Cassettes	MFX single-use bioreactor cassettes. Position count depends on cassette size
Reagent storage	9 refrigerated bottle positions on board, sterile tubing to each cassette
Fluid handling	Programmable additions and removals per cassette - feeds, washes, media exchange, harvest
Gas control	Air, CO_2, and N_2 blended per cassette, independently addressable
Temperature	Setpoint is user-selectable and applies to the whole bay, so all 9 positions run at the same temperature. Tracked across the bay. No external incubator required
Mixing	Programmable tilt-based agitation, no impellers or sparging
Online analytics	Shared gantry head: 15x brightfield imaging. Raman spectroscopy, optical pH and DO patch reading
Sampling	Reusable aseptic port on every cassette, manual sampling at any point in the run
Installation	Benchtop, fits a standard laboratory bench. Mains power, gas supply and network. Dimensions and utilities confirmed at evaluation
Software	Protocol designer, live dashboards, remote monitoring, audit trail, time-series export
Status	Prototype in development. For research & development use

Specifications are indicative and subject to change during development.

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mfx

Our scalable bioreactor.



A flexible, and affordable single-use bioreactor

Specifications

One geometry across four sizes. The smaller cassettes can be handled manually on the bench or run automatically; the larger ones are run automatically.

CASSETTE	MFX-12	MFX-96 8X IN DEVELOPMENT	MFX-192 16X IN DEVELOPMENT	MFX-384 32X	MFX-384 STACK 320X IN DEVELOPMENT
Culture area	12 cm^2	96 cm^2	192 cm^2	400 cm^2	4,000 cm^2
Working volume	3-12 mL	24-96 mL	50-200 mL	100-400 mL	1-4 L
Footprint, approx.	13 x 5 cm	20 x 9 cm	28 x 12 cm	35 x 18 cm	As MFX-384, 10x the height
Approx. T-cell numbers low-high	1 M-80 M	8 M-640 M	16 M-1.3 B	32 M-2.6 B	320 M-26 B
Approx. iPSC numbers upper range at 70% confluency	0.3 M-3 M	2.4 M-24 M	5 M-48 M	10 M-96 M	100 M-960 M
Handling	Manual or automated	Manual or automated	Automated	Automated	Automated

COMMON TO EVERY SIZE

Material - Cyclic olefin copolymer (COC). USP Class VI, ISO 10993

pH/DO patches - optional single-use non-contact optical patches

Sterilisation - gamma irradiation

Supplied - pre-assembled with tubing set and aseptic connectors, in Tyvek packaging

Cell numbers are typical working ranges and depend on cell type, medium, and process. Footprints are approximate.

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