



Standalone
CelCradle X[®]



CCX[®]-SAH

CelCradle X[®]

Closed Automated Single-use cGMP/
GMP 13485 Bioreactor with Closed
Single-use Harvester

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Closed Automated Single-use cGMP/GMP 13485 Bioreactor with Closed Single-use Harvester

Features

- Complete standalone bioreactor running on Siemens HMI/PLC with single-use bottles, pH, and DO sensors
- Can be used as a standalone bioactor or integrated with an Esco Laminar Airflow Cabinet, Biosafety Cabinet, or Cell Processing Isolator
- Equipped with H₂O₂ biodecontamination system
- Produced in an ISO 9001/14001/13485 factory
- Automated seeding and control of pH/DO and glucose (optional)
- Single use automated harvesting system for autologous cell therapy, process development, and seed train for TideXcell[®]
- Able to use autoclavable pH/DO sensors for process development and switch *in situ* for single use pH/DO



CCX Isolator Integration:
designed as dock/undock bioreactor
module to cell processing isolator



**Standalone CCX on
Support Stand**



Commercial cGMP/GMP Solutions

- Vaccine Production
- Monoclonal Antibodies or Recombinant Proteins for therapeutics/*in vitro*/*in vivo* diagnostics
- Drug Discovery
- Conditioned media production for cosmeceuticals
- Adherent cell master cell bank (MCB) or working cell bank (WCB) generation
- Intracellular, Secreted Viral Vector or Virus Process Development
- Proteome Research
- PK/PD Testing
- Virus MVB production

Enabling research/clinical solutions

- Adherent cell seed train for TideXcell®
- Stem cell or exosome-autologous therapy (bone regeneration using bioscaffolds)
- Autologous adherent cell therapy (e.g. hair loss, face recontouring, etc.)
- Technology transfer from multi-stack or hyperstack bioreactors for small scale production of vaccines/virus/viral vectors
- Monoclonal antibodies or proteins
- Biochemistry/Stemistry



Options:



- Minus 8°C from ambient to 40°C
- Aquaculture vaccines (as low as 16 °C)
- Low temperature 25-28°C with 2.5% CO₂



- Mini fridge for final secreted product collection



- Hollow fiber for protein concentration and clarification



- Aseptic sampling



- Improve RH up to 95%



- Orbital shaker for insect or other cell seed train

NOMENCLATURE

Model	Bioprocessing Mode	Bioprocessing Mode/ Bottles	Mixing Bottles	Packed Bed Volume	Carrier Type
CelCradle X®	SA-SUGH (Semi-Automated Single Use Glass Hybrid) Single use bottle with single pump, glass mixer, autoclavable pH/DO sensors	500AP Single use. Batch with Re-circulation 2L (0.5L cannot be used)	Single use 2L bottle, single use pH & DO sensor	Empty	Client's own or pack lower volume BioNOC™ II/BioMesh®
	SA-SUB (Semi-Automated Single Use CC Bottle with peristaltic pump) After cells have reached confluency, the CC bottle will be disconnected and placed into a separate CelCradle Harvester equipped with in-line, purification, filtration, and filling	500-AP Single use. Perfusion with Feed/Harvest of Biologic 0.5L. Mixer (2L cannot be used), 2L Feed / Harvest Bag	Single use 0.5L, single use pH & DO sensor	0.1 liter	BioNOC™ II/BioMesh®
	FA-SUB (Fully Automated Single Use from cryovial to filled product) <i>*under development</i>		Glass 2L autoclavable pH & DO sensor	0.2 liter <i>*not available for beta testing</i>	BioNOC™ II/BioMesh®
			Glass 0.5L autoclavable pH & DO sensor	0.3 liter <i>*not available for beta testing</i>	BioNOC™ II/BioMesh®

**Specifications subject to change.*

CelCradle X[®]-SAH

The CelCradle X[®] Semi-Automated Harvesting System (CCX-SA) is used to harvest whole cells from the CelCradle bottle through automation by setting up various parameters.

This semi-automated cell harvesting of adherent CelCradle cultures includes but not limited to: Insect Cells, Mammalian Cells, Stem Cells.

The mounted fixed-speed peristaltic pumps provides for convenient liquid addition/removal and cell suspension harvest during the culture's harvesting process.

Applications

- Autologous cell therapy
- Mammalian cell harvest
- Biomass harvesting for seed cell / seed train
- Biomass harvesting for 3D bioprinting
- Biomass harvesting for cellular agriculture/lab grown meat
- Harvesting automation for secreted or non-secreted products.
- Harvesting for intracellular viruses

Features

- Mechanical dissociation of adherent cells from Tide Motion macroporous carriers
- Automated harvesting run can be setup from washing to harvesting (secreted or non-secreted products) in a closed, automated manner.
- Suitable for cell harvest from CelCradle X[®] System
- Support the cell seed source for TideXcell[®]-002 up to TideXcell[®]-100 systems.
- Harvest viable animal cells within 1 to 3 hours (harvest time depends on harvest cycles).
- Able to achieve more than 90% harvesting efficiency

Note: Cell harvest efficiency depends on the cell line and dissociation enzyme used.

Parts of CCX®-SAH



CelCradle X® Semi-Automated Harvesting System (CCX-SA)

Exterior dimension (WxDxH)	SAH: 928 x 380 x 822 mm (36.53 x 14.96 x 32.36 in) Incubator: 543 x 640 x 759 mm (21.38 x 25.20 x 29.88 in)
Weight	SAH: 50 kg (110.23 lb) Incubator: 85 kg (187.39 lb) Whole Unit: 135 kg (297.62 lb)
Power	Single phase, AC, 220 V, 50 Hz
Motor	Shaker motor
Max Speed range	0-300 rpm
Tubing	ID 9.6 mm(3/8")*WT 3.2 mm(1/8")
Capacity	1 CelCradle bottle
Consumable CelCradle Bottle Volume	500 ml
CelCradle Material	PP
Incubator temperature range	20-38°C
Touchscreen Size	Control panel: 7" color Incubator HMI: 7" color

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