

BIOCELL™ LINE – EVO SERIES

SIP BIOREACTORS 10 UP TO 20 L WV

EXPERIENCE AND INNOVATION

Utilizing its expertise in cell culture and bio-informatics, DCI-BIOLAFITTE introduces its **BIOCELL EVO SERIES**, a new generation of cost optimized and easy-to-use SIP laboratory bioreactors. The systems are efficiently manufactured assuring value for money and are suitable for batch, fed-batch or continuous process using suspended cells or micro carriers.

BENEFITS

- ❑ Bench top or free-standing variants both pre-mounted and pre-wired, allowing easy installation and maintenance
- ❑ High thermal transfer performance and minimum shear force via use of patented HTPG4™ impeller
- ❑ User friendly control interface utilizing Windows™ operating system
- ❑ Integrated software package suitable for research applications from university through to process optimization or small scale production
- ❑ Rigorous quality control and comprehensive quality test program for problem-free start up

TECHNICAL SPECIFICATIONS

BIOREACTOR

- ❑ Wall and bottom jacketed vessel with flat cover – working aspect ratio of 1 : 1 – available sizes: 10/18 L, 15/25 L, 20/35 L
 - ❑ Material and finish: stainless steel grade 1.4404 (316L) in contact with the culture $Ra \leq 0.8 \mu\text{m}$ for vessel and $\leq 1.6 \mu\text{m}$ for piping
 - ❑ Maximum operating pressure: 3 bar g (43 PSI) for vessel and jacket
 - ❑ Standard features: round sight glass, illumination lamp, sanitary relief valve, pressure gauge, product inlets, DN25 ports, needle type sample port and single-use harvest valve
- Options: Oval sight glass, magnetic coupled spin filter for continuous culture, vessel insulation*

AGITATION

- ❑ Top-mounted agitation equipped with one HTPG4™ impeller - tip speed 2 m/s
- ❑ Magnetic coupled agitator

AERATION AND GAS MIXING

- ❑ Via sparger combined with baffle (Oxygen) and overlay in headspace (air and carbon dioxide)
 - ❑ 0.2 μm NOVASIP™ filters on gas inlets and outlet
 - ❑ Oxygen and air flow-rates controlled via rotameters and solenoid valves
 - ❑ Carbon dioxide addition according to pH control
- Options: additional gas supply (Nitrogen), exhaust gas condenser, mass flow controllers on air and oxygen inlets*

PRODUCT ADDITION LINES

- ❑ Septum port for up to 3 needles / flask assemblies for reagent additions
 - ❑ Resterilizable inoculation / nutrient addition line
 - ❑ Harvest diaphragm valve (steamed during vessel sterilization)
 - ❑ Septum port for 'flame or alcohol' sampling via syringe
 - ❑ Connections for up to 3 peristaltic pumps – fixed speed
- Options: Resterilizable product line with dip tube, dual purpose resterilizable valve for harvesting and sampling, connection for additional peristaltic pump with adjustable speed for fed-batch cultures*



TEMPERATURE CONTROL

- ❑ Cultivation temperature automatically controlled by injection of plant hot or cold water into jacket
 - ❑ Sterilization via direct steam injection
- Options: Heating via steam heat exchanger or electrical heater and circulation pump*

INSTRUMENTATION AND AUTOMATION

- ❑ Laptop PC with Pentium 4 microprocessor - 2 GHz minimum
 - ❑ Highly flexible control loops for temperature, pH (via alkali and carbon dioxide addition), agitator speed, DO₂ - Control types include PID, digital on/off and cascade modes for advanced control strategies
- Options: Color printer, tablet PC, additional measurements and/or controls such as air and oxygen flow rates, anti-foam, weight, nutrient flow rate, optical density, gas analysis.*

NEPTUNE™ CONTROL SOFTWARE

- Basic version:
- ❑ Graphical representation of system, updated in real time
 - ❑ Data logging and archiving with trends and graphs - Data can be exported via standard file format for use in reports or for further analysis
 - ❑ Archive management (Audit trail)
 - ❑ Color printing of curves, events and alarms
 - ❑ Alarm monitoring
 - ❑ Access by password
- Option: Advanced version*
- ❑ Calculation module allowing users to define additional calculations and apply control based on those calculations - Also adds set point profile feature – Cultivation file management
- Option: Expert version*
- ❑ Sequence module for process strategy optimization

QUALIFICATION

- ❑ Full system testing (client invited to attend)
- ❑ 100% endoscopic control of process welds
- ❑ Comprehensive test and documentation program designed to assure full system reliability and problem-free startup

BIOCELL™ EVO SERIES - SELECTION GUIDE

Indicate your selection here ↓

Code	Vessel Capacity (Working/Total)	
F01	10/18 L	
F02	15/25 L	
F03	20/35 L	
Code	Design Type	
X01	Bench top	
X02	Free standing vessel	
Code	Version	
M	Semi-automatic	
Code	Automation	
N	Neptune	
Code	Construction code	
C	CODAP 2000	
B	BRITISH STANDARD 5500	
A	ASME	

- (1) To replace round sight glass
- (2) Also requires option 21, jacket circulator
- (3) Base version already fitted with 1 septum for up to 3 needle / flask assemblies and 1 resterilizable inoculation / nutrient addition line
- (4) Also requires a peristaltic pump with variable speed

Additional equipment (peristaltic pumps, sampling and addition flasks, connection assemblies, scales, air compressor, steam production unit) and customized designs for specific applications are also available on request.

Indicate your selection here ↓

	Available Options	
00	Oval sight glass ⁽¹⁾	
01	Vessel insulation	
03	Spin filter with magnetic coupling ⁽⁴⁾	
21	Jacket circulator	
23A	Heating via steam heat exchanger ⁽²⁾	
23B	Heating via electrical heater ⁽²⁾	
24	Additional resterilizable product line with dip tube ⁽³⁾	
28	Oxygen mass flow controller	
30	Nitrogen line with rotameter	
31	Exhaust gas condenser	
33	Dual purpose resterilizable valve for harvesting and sampling	
40	Air mass flow controller	
43	Anti-foam control	
45A	Weight measurement	
45B	Continuous level measurement	
49	Color printer	
50	Control of nutrient flow rate ⁽⁴⁾	
51	Optical density measurement	
52	Gas analyzer	
60B	Advanced version supervision software	
60C	Expert version supervision software	

SKID SIZING

Nominal working volume	Minimum working volume	Total volume	Depth	Width	Height		Weight Empty
					X01	X02	
10 L	4 L	18 L	950 mm	1320 mm	1400 mm	1800 mm	105 kg
15 L	5 L	25 L	950 mm	1320 mm	1500 mm	1880 mm	110 kg
20 L	8 L	35 L	950 mm	1320 mm	1600 mm	1900 mm	120 kg



BIOCELL EVO X01 bench top version



BIOCELL EVO X02 free standing version