

CLASSIC™ LINE – EVO SERIES SIP FERMENTERS 10 UP TO 20 L WV

EXPERIENCE, INNOVATION AND PRACTICALITY

Utilizing its expertise in process vessel manufacturing and automated systems, DCI-BIOLAFITTE introduces its **CLASSIC EVO SERIES**, a new generation of cost optimized and easy-to-use SIP laboratory fermenter. The systems are efficiently manufactured assuring value for money and are suitable for many culture and process types including yeast, bacteria, fungi in batch, fed-batch or continuous culture (with appropriate accessories)

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 fermentation research 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

REACTOR

- ❑ Wall jacketed vessel with flat cover, and dished bottom – working aspect ratio of 1.7 : 1 – available sizes: 10/15 L, 15/25L and 20/30 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, vessel insulation*

AGITATION

- ❑ Top-mounted agitation equipped with one HTPG4™ impeller and one RUSHTON turbine - tip speed of up to 4 m/s
 - ❑ Agitator shaft with mechanical coupling
- Option: magnetic coupled agitator*

AERATION

- ❑ Via air sparger combined with baffle and overlay in headspace
 - ❑ 0.2 μm NOVASIP™ filters on gas inlet and outlet
 - ❑ Air flow-rate manually controlled via rotameter up to 2 VVM
- Options: exhaust gas condenser, mass flow controller on air inlet*

PRODUCT ADDITION LINES

- ❑ Septum port for up to 3 needles / flask assemblies for reagent additions plus one additional larger needle for inoculation
 - ❑ 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 inoculation / nutrient addition line, 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 / indirect steam injection
- Options: Steam or electrically heated exchanger and circulation pump*



INSTRUMENTATION AND AUTOMATION

- ❑ Laptop PC with Pentium 4 microprocessor - 2 GHz minimum
 - ❑ Highly flexible control loops for temperature, pH and agitator speed - Control types include PID, digital on/off, and cascade mode for advanced control strategies
- Options: Color printer, Tablet-PC, additional measurement and/or control such as DO₂, air flow rate, anti-foam, weight or continuous level, 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 (not recorded)
- ❑ Comprehensive test and documentation program designed to assure full system reliability and problem-free startup

CLASSIC™ EVO SERIES - SELECTION GUIDE

Indicate your selection here ↓

Code	Vessel Capacity (Working / total)
F01	10/15 L
F02	15/25 L
F03	20/30 L
Code	Design Type
X01	Bench top
X02	Free standing vessel
Code	Version
M	Semi-automatic
Code	Automation
N	Neptune
Code	Construction code
D	CODAP 2000
L	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
- (4) Also requires a peristaltic pump with variable speed

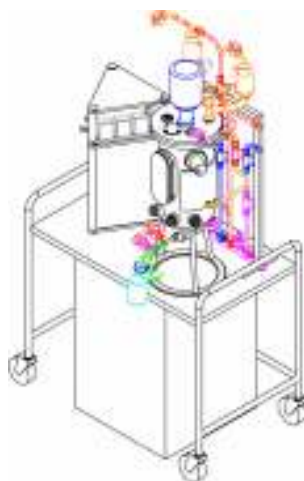
Additional equipment (peristaltic pumps, sampling and addition flasks, connection assemblies, scales, air compressor, steam production unit) and customized designs for specific applications are also available on request.

Indicate your selection here ↓

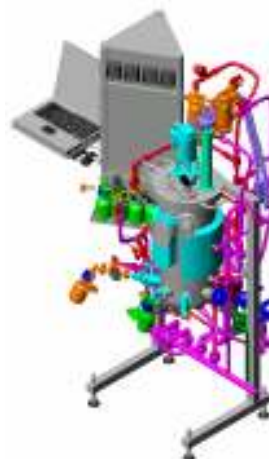
Available Options	
00	Oval sight glass ⁽¹⁾
01	Vessel insulation
02	Magnetic coupled agitator ⁽⁴⁾
21	Jacket circulator
23A	Heating with steam heat exchanger ⁽²⁾
23B	Heating with electrical heater ⁽²⁾
23C	Heating via direct steam injection
24	Resterilizable inoculation / nutrient addition line ⁽³⁾
31	Exhaust gas condenser
33	Dual purpose resterilizable valve for harvesting and sampling
40	Air mass flow controller
42	DO ₂ measurement and control
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

AVAILABLE SKID SIZES

Nominal working volume	Minimum working volume	Total volume	Depth	Width	Height		Weight Empty
					x01	x02	
10 L	5 L	17 L	950 mm	1320 mm	1400 mm	1800 mm	105 kg
15 L	7 L	23 L	950 mm	1320 mm	1500 mm	1880 mm	110 kg
20 L	8 L	30 L	950 mm	1320 mm	1600 mm	1900 mm	120 kg



Classic EVO X01 bench top version



Classic EVO X02 free standing version