

CLASSIC™ LABORATORY SERIES SIP FERMENTERS 10 UP To 30L WV

EXPERIENCE AND INNOVATION

Utilizing its expertise in process vessel manufacturing, fermentation and automated systems, **DCI-BIOLAFITTE** introduces its **CLASSIC LABORATORY SERIES**, a new generation of SIP laboratory fermenters. These systems represent the best tool for optimization of your batch, fed-batch or continuous microbial processes.

BENEFITS

- ❑ Open frame units are pre-mounted and pre-wired, allowing easy installation and maintenance
- ❑ High oxygen and heat transfer performance via use of patented HTPG4™ impellers
- ❑ User friendly control interface utilizing Windows™ operating system
- ❑ Software packages for fermentation research/process optimization or production
- ❑ Two different designs to meet all needs: S Type for general applications, G Type for cGMP validated applications:
 - Material and component traceability - Endoscopic control of welds
 - Comprehensive testing and documentation package to support validation
 - Software compliant with cGAMP revision 4, 21 CFR Part 11 and S88 standards (batch module)

TECHNICAL SPECIFICATIONS

REACTOR

- ❑ Jacketed vessel with flat cover - aspect ratio of 3 : 1 - available sizes: 10/15L, 20/30L, 30/40L
 - ❑ Material and finish: stainless steel grade 1.4404 (316L) Ra ≤ 0.8 µm (S Type) or Ra ≤ 0.4 µm electro-polished (G Type) for all parts in contact with the culture
 - ❑ 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 and DN25 ports, sampling port
- Options: Oval sight glass, clean in place devices, reesterilizable sample valve*

AGITATION

- ❑ Bottom-mounted agitation equipped with two HTPG4™ impellers and one Rushton impeller - tip speed of 5 m/s
- ❑ Screwed coupling with single mechanical seal (S Type) or magnetic coupling (G Type)

AERATION

- ❑ Via sparger and overlay in headspace
- ❑ 0.2 µm absolute filters on gas inlet and outlet
- ❑ Air flow-rate adjustable from 0 to 2 VVM via rotameter
- ❑ Manual backpressure controller via pressure gauge and manual valve

Options: Additional gas supplies (O₂, CO₂ or NH₃, N₂), automatic pressure control, exhaust gas condenser, double filtration of exhaust gas, mass flow controller on gas inlet, reesterilizable filters

PRODUCT ADDITION LINES

- ❑ 2 reesterilizable lines for addition or transfer of product (G Type) or inoculation tube plus septum port for injection needles (S Type)
- ❑ Combined reesterilizable harvest and sampling line with flush-mounted diaphragm valve (G Type)
- ❑ Connections for 4 peristaltic pumps, including one with adjustable speed for fed-batch cultures

Option: Additional reesterilizable product lines



TEMPERATURE CONTROL

- ❑ Cultivation temperature controlled by injection of hot or cold water into jacket
 - ❑ Sterilization via steam injection into vessel or jacket
- Options: Glycol water heat exchanger, steam heat exchanger, electrical heater*

INSTRUMENTATION AND AUTOMATION

- ❑ PLC (G Type) or DCU (S Type) and PC workstation - Pentium 4 microprocessor, 1 GHz minimum
 - ❑ Operator interface with touch screen
 - ❑ Highly flexible control loops - Control types include PID, digital on/off, and others - Cascade mode for advanced control strategies
- Options: Color printer, measurement and/or control of all fermentation parameters, additional temperature monitoring on drain lines, positive feedback of valve positions*

CONTROL SOFTWARE

WINPROGRESS™ SCADA/PLC combination (G Type) or NEPTUNE™ SCADA/DCU combination (S Type)

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
- ❑ Color printing of curves, events and alarms
- ❑ Audit trail
- ❑ Alarm monitoring

Option: Advanced version

- ❑ Calculation module allowing users to define additional calculations and apply control based on those calculations - Also adds set point profile feature

Option: Expert version

- ❑ Batch module compliant with ISA S88 guideline or Sequence module for process strategy optimization

QUALIFICATION AND VALIDATION (TYPE G)

- ❑ Full material traceability - All manufacturer certifications supplied
- ❑ 100% endoscopic control of process welds + 10% with CD record
- ❑ Comprehensive test and documentation program designed to ease and support validation

CLASSIC™ LABORATORY SERIES - SELECTION GUIDE

Indicate your selection here →

Code	Vessel Capacity (Working/Total)
F01	10/15L
F02	20/30L
F03	30/40L

Code	Version
M	Semi-automatic
A	Automatic

Code	Design
S	Standard (S Type)
G	cGMP (G Type)

Code	Construction code
C	CODAP 2000
B	BRITISH STANDARD 5500
A	ASME

- (1) To replace round sight glass
- (2) Included as standard for G Type
- (3) Also requires option 21, jacket circulator
- (4) Maximum number of lines : 2 for S Type or 4 for G Type

Additional equipment (peristaltic pumps, reagent flasks, autoclavable or SIP vessels, scales, CIP units, ...) and customized designs for specific applications and biological containment are available on request.

Indicate your selection here →

Code	Available Options
00	Oval sight glass ⁽¹⁾
01	Vessel insulation
02	Agitation with magnetic coupling ⁽²⁾
20	Resterilizable gas filters
21	Jacket circulator
22A	Cooling via chilled water circulation in jacket
22B	Cooling via glycol water heat exchanger ⁽³⁾
23A	Heating via steam heat exchanger ⁽³⁾
23B	Heating via electrical heater ⁽³⁾
24	Resterilizable product addition line ⁽⁴⁾ Qty:
25	Resterilizable product transfer line ⁽⁴⁾ Qty:
26	Cleaning in place device
27	Independent resterilizable sampling valve
28	Oxygen line with mass flow controller
29	CO ₂ or NH ₃ lines with solenoid valve for pH control
30	Nitrogen line with rotameter
31	Exhaust gas condenser
32	Double filtration of exhaust gas line
33	Dual purpose resterilizable harvest/sampling line ⁽²⁾
40	Air flow rate measurement and control
41	Vessel pressure measurement and control
42	Dissolved oxygen measurement and control
43	Anti-foam control
44	Vessel low level switch
45A	Vessel weight measurement
45B	Continuous level measurement
46	Temperature measurement on drain lines Qty:
47	Feedback control of valve position
48	Feedback measurement of agitation speed
49	Color printer
50	Nutrient flow rate control
51	Optical density measurement
52	Gas analyzer
60B	Advanced version supervision software
60C	Expert version supervision software

AVAILABLE SKID SIZES

Vessel Capacity	Length (L)	Width (W)	Height (H)	Weight Empty
10/15L	1000 mm (40 in)	750 mm (30 in)	1940 mm (77 in)	175 kg (390 lbs)
20/30L	1000 mm (40 in)	750 mm (30 in)	1940 mm (77 in)	185 kg (410 lbs)
30/40L	1000 mm (40 in)	1000 mm (40 in)	2250 mm (89 in)	200 kg (440 lbs)

Other sizes available upon request

