



New Brunswick Scientific
Where Quality and Innovation Have Become Tradition

7.0L - 19.5L BIOFLO®415 SIP FERMENTATION SYSTEM

*For Research Labs, Process Development & Pilot Plants.
No External Steam Supply Needed!*



Eliminate Lifting Heavy Vessels to the Autoclave!

New Brunswick Scientific's new BioFlo® 415 sterilizable-in-place fermentor, with advanced touchscreen interface, provides an unprecedented level of convenience and control for research through production applications. This cGMP-compliant, validatable benchtop system is uniquely capable of automatic sterilization using only your lab's water supply and the unit's built-in heater. With the ability to control up to 32 process loops and regulate one to four gasses, it's an ideal system for high-yield production of bacteria, yeast & fungi in aerobic and anaerobic cultures.

Sterilizable-in-Place Convenience

Why struggle carrying heavy vessels to and from the autoclave? Now you can sterilize your vessel, air and exhaust lines — with no external steam supply needed.

- Sterilization sequences are fully automated.
- Rapid heat-up & cool-down
- Sterilization sequences are easily initiated and configurable to match any requirement.

Powerful Controller with Large Touchscreen Display

We've seamlessly blended power & simplicity into one easy-to-use control station.

- Large 15" touchscreen interface simplifies entering setpoints and provides easy-to-read displays of current values, cascade loops, sterilization cycles and more.
- Controls up to 32 process loops.
- Easily integrates up to 10 external devices including your scales, analyzers or sensors for optimized yields.
- User-customizable trend graphs make it easy to track and export data. Trends up to 8 loops simultaneously.
- Saves up to 10 of your recipes for repeat usage.

Pre-Configured or Customizable to Fit Your Process Needs

Simplify ordering by choosing one of our pre-configured packages, or select from a wide array of options to customize the BioFlo 415 to your process needs.

- Offered with interchangeable 7, 14 & 19.5 L stainless-steel vessels. There's no hard piping, so you can interchange another vessel of any size, at any time.
- 1 Thermal Mass Flow Controller (TMFC) is standard. Multiple TMFCs optional.
- Multiple impeller options are available, individually suited for a particular process.
- Optional probes, addition kits and BioCommand® supervisory software can be added. Validation & training packages are also available.

BioFlo 415 Makes Scale-Up Easy

New Brunswick Scientific's BioFlo 415 is just one of a full line of unique solutions for research through production-scale processing. This SIP system combines dependable operation, with system flexibility, increased throughput and affordable pricing. Ask your NBS sales representative for a quotation today.



New sparger and exhaust condenser with integral heating pad eliminate clogging during sterilization. Process-controlled solenoid allows for proper condensate draining during SIP.



Multiple connections are provided for integrating ancillary equipment & BioCommand supervisory software. USB ports are provided for exporting trend data and importing firmware upgrades. All are easily accessed from the rear of the unit.



Parameter	Unit	Setpoint	Value	Control Mode	Units	Scale
Flow	0	20	0.0	ON	SLPM	None
Temp	30.0	30.0	0.0	ON	DegC	None
pH	6.75	6.80	0.0	ON	pH	None
pH	2.0	0.0	0.0	OFF	N/A	None
Airflow (1)	-0.1	0.0	20.0	Min	SLPM	None
Airflow (2)	-0.0	0.0	0.0	Min	SLPM	None
Airflow (3)	-0.0	0.0	0.0	Min	SLPM	None
Airflow (4)	-0.1	0.0	0.0	Min	SLPM	None
CO2	0.0	0.0	0.0	ON	%	None

Summary screen lets you conveniently view setpoints, current values, cascade loops and more — for up to 10 parameters simultaneously. All 32 parameters can be viewed simply by scrolling up or down.

Standard Pre-Configured Packages include a Control Station with touch-screen interface, vessel with magnetic drive, and foam/level sensor to simplify ordering

New Headplate Design lets you incorporate optional redundant probes and multiple septums

Safety Features A sanitary rupture disk in the vessel and an ASME safety release valve on the drain jacket are standard

Adjustable-Angle, User-Friendly 15" Touchscreen Interface simplifies control and provides clear viewing of process parameters

A Thermal Mass Flow Controller (TMFC) with 4-gas control is built into each Control Station to precisely control total gas flow rate. Additional TMFCs can be added for individual gas control of 2, 3 or 4 gasses

Customize PI Values for All Process Parameters or select factory defaults

Synoptic Screen provides pictorial alternative to the summary screen for viewing & editing process values

Connections for Gasses & Vessel Components are easily accessible

Front-Mounted On-Off Switch is easily accessed

ASME & CE Certified Designed and built to ASME and CE standards

Illuminated Sight Glass 1½" window and momentary light provide clear viewing of vessel contents

Quick Connects allow utilities to be added in seconds

Three Built-in, Assignable, Peristaltic Pumps are provided for addition, harvest, foam, level, etc. Controls and connections are also provided for easy addition of your external pumps

Optional Drain Valve is easily accessed through an opening at the bottom of the vessel

Recommended options include pH, DO and Redox Kits, 7-port septum, 8-port serial box for scales. Options are also available for second pH, DO and level/foam probes and optional impellers



The trend graph screen makes it simple to track & export data on up to eight process variables over a six day span. Customize the view by selecting the parameters, colors & interval between sample measurements.



Phase	Device	Control	Heat A	Heat B	Stark	Cool A	Cool B
Wash Temp (Min)	PT-2A						
Heat B Temp (2) 100.0	PT-2B						
Heat Temp (2) 123.5	PT-2C						
Heat Temp (Max) 100	Heater						
Cool B Temp (2) 100.0	TY-2B						
Wash Temp (2) 30.0	Substrate						

Enter and view sterilization parameters and valve sequences from the sterilization screen. Across the bottom are quick links to screens for **synoptic view, calibration, cascades, trends, pumps, alarms and setup.**

To	From	Start Input	With Start Back	End Input	With End Back
Agit	10.5	250	0.0	1200	75.0
O2 (2)	10.5	0.0	75.0	100.0	100.0
None	ND				
None	ND				
None	ND				

The cascade screen provides sophisticated process control by altering any one or more variable, (in this case **Agitation** and **O₂**), based on the value of any other one or more variables. Cascades run in parallel, not just serial sequence, for optimized control.

BioFlo 415 Fermentor Specifications*

VESSEL VOLUME	Total Capacity	7.0 Liters	14.0 Liters	19.5 Liters
		Working Volume	2.0 - 5.0 Liters	4.0 - 10.0 Liters
VESSEL CONSTRUCTION	Aspect Ratio	2:1	2:1	3:1
	Fabrication	ASME/CE certified. 316L stainless steel. 20 Ra internal finish & 35 Ra external		
PORTS	Headplate	(2) 6.35 mm	(2) 6.35 mm	(2) 6.35 mm
		(9) 12 mm	(10) 12 mm	(10) 12 mm
		(1) 19 mm	(1) 19 mm	(1) 19 mm
		(2) PG 13.5	(2) PG 13.5	(2) PG 13.5
	Upper Side Wall	2" Tri-clamp (1.5" round sight glass)		
Bottom	0.75" NA [®] connect			
CONTROLLER	Control Station	Controls 1 vessel with 32 control loops. Stores 10 recipes & 8 process variables for trend graphing. Includes an industrial touchscreen monitor / user interface, 3 built-in pumps, and connections for all utilities & communications signals		
	Touchscreen Interface / Display	15" Industrial touchscreen interface / display		
TEMPERATURE	Heat & Sterilization**	Electric heaters & automatic sterilization control, capable of achieving temp. rises of ~ 1°C/min.		
	Range & Control ◊	Culture temperature 5°C to 80°C, displayed in 0.1°C increments using Platinum RTD probe		
AGITATION	Drive	Top magnetic drive with single mechanical seal. Digital display in 1 RPM increments		
	Range & Control	50 - 1,000 RPM, ±1 at 100 RPM ; ± 2 at 500 RPM ; ± 5 at 1,000 RPM		
	Impellers	Two six-bladed Rushton impellers on 7.0 & 14L systems; Three impellers on 19.5L systems		
	Baffles	Four 316L removable, stainless steel baffles		
EXHAUST	Condenser & Filter	Stainless-steel exhaust condenser on headplate. 1.2µ disposable depth filter; 0.2µ absolute option		
AERATION	Gas System	Standard: 1 Thermal Mass Flow Controller (TMFC) with 0.5 to 25 SLPM flow rate and built in four-gas control (4 solenoid valves). Optional: Rotameter or 2nd, 3rd or 4th TMFCs for individual gas control		
	Gas Inlet	Ring sparger is provided with 0.2µ absolute disposable filter for use as a sparger or overlay		
pH	Sensor	Option of one or two gel pH probe(s) with digital display in 0.01 increments		
	Range & Control	2 - 14 pH via PID control. Cascade to pumps, gases and/or loops from external devices		
DO	Sensor	Option of one or two Polarographic DO probe(s) with digital display in 0.1% increments		
	Range & Control	0 - 200% via PID control. Cascade to agitation, gases, pumps and/or loops from external devices		
OTHER SENSORS	Foam/Level	Two foam/level sensor provided		
	Optional Sensors	Redox or 2nd pH probe or 2nd DO probe available. [External sensors can be added via analog I/O. Max. three pH, DO & Redox sensors possible, including 1st pH & 1st DO]		
PUMPS	Standard, Options & Control	Three built-in, assignable, peristaltic pumps are standard. External pumps can be added. Control modes: Off, Prime, Base, Acid, Foam, Level 2 Wet, Level 2 Dry		
	Speed	Pumps 1 & 2: 12 RPM Fixed speed duty cycle — ability to view total pump flow rates Pump 3: 100 RPM Fixed speed duty cycle — ability to view total pump flow rates		
UTILITY REQUIREMENTS & CONNECTIONS	Process Air & Oxygen	20 PSIG each, with push on connection. (No requirement for instrument air)		
	Water Return	Maximum backpressure 5 PSIG, accessed via Quick Connects		
	Facility Water	2 GPM must be regulated to 10 PSIG, accessed via Quick Connects		
	Electric Service	208 - 230 VAC, 50/60 Hz. Single phase, 15 Amps. (Fluctuations not to exceed ± 10%)		
NET WEIGHT	Control Station	88 lbs. [40 kg], including 15 lb. [6.8 kg] touchscreen		
	Vessel	47 lbs. [21 kg]	60 lbs. [27 kg]	80 lbs. [36 kg]
DIMENSIONS wide x deep x high	Inches	25" x 26 x 38.5"	25" x 26 x 45"	25" x 26 x 53"
	cm	63.5 x 66.0 x 97.8 cm	63.5 x 66.0 x 114.3 cm	63.5 x 66.0 x 134.6 cm
INPUT / OUTPUT CONNECTIONS & COMM PORTS (Built into the back panel of Master Control Station)	External Devices	Seven analog inputs & seven analog outputs for your external devices such as analyzers, sensors, external pumps, etc. (Reduce by 1 input & output for each additional TMFC added)		
	2 USB Ports	Import firmware/software upgrades and export trend data. Connect optional 8-port serial box for scales, etc.		
	Communications Port	For optional BioCommand/SCADA software		
	Secondary Probes	Optional for Redox or second pH probe or second DO probe		
REGULATORY COMPLIANCE	  CAN/CSA-C22.2 Nos. 1010.1 & 1010.2.010 UL Standard UL-61010A-1 & 61010A-2-010			

NBS SALES OFFICES

USA HEADQUARTERS
 800-631-5417
 732-287-1200
 Fax: 732-287-4222
 bioinfo@nbsc.com
 www.nbsc.com
 PO Box 4005
 44 Talmadge Rd.
 Edison, NJ 08818-4005

UNITED KINGDOM
 0800 581331
 +44 (0) 1727 853855
 Fax: +44 (0) 1727 835666
 bioinfo@nbsuk.co.uk
 17 Alban Park, Hatfield Rd
 St. Albans, AL4 0JJ

THE NETHERLANDS
 + 31 (0)24 3717 600
 Fax: + 31 (0)24 3717 640
 sales@nbsbv.nl
 Kerkenbos 1101, 6546 BC
 Nijmegen
 P.O. Box 6826, 6503 GH
 Nijmegen

FRANCE
 + 33 (0)1 53 53 15 11
 Fax: + 33 (0)1 53 53 15 57
 sales@nbsarl.fr
 12 - 14, Rond Point des
 Champs Elysées
 75008 Paris

BELGIUM
 +32 (0) 16 562 831
 Fax: +32 (0) 16 572 753
 sales@nbsnv-sa.be
 Stationsstraat 180/4
 B-3110 Rotselaar
 België/Belgique

GERMANY
 +49 (0)7022-932490
 Fax: +49 (0)7022-32486
 sales@nbsgmbh.de
 In der Au 14
 D-72622 Nürtingen

CHINA
 +86-21-648 45955
 Fax: +86-21-648 45933
 nbschc@online.sh.cn
 A903, 904 Yin Hai Bldg.,
 No. 250, Cao Xi Rd.
 Shanghai 200235

* Specifications are subject to change without notice. As shown, for operation as a fermentor. Optional impellers and accessories enable use as a cell culture system. Ask your NBS sales representative for details. ◊ Ambient operating conditions of 10 to 30°C, up to 80% relative humidity, non-condensing.

** In 14 & 19.5 L vessel, temperature rises take longer.

Connect With Us

