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Benchtop Convenience

New Brunswick™ BioFlo® 415 SIP fermentation systems

Eliminate the Heavy Lifting

The Eppendorf line of New Brunswick™ BioFlo® 415 fermentors 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 control station's built-in heater. With its superior process control capabilities, it's an ideal system for high-yield production of bacteria, yeast and 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, inlet and exhaust lines on your lab bench — with no external steam supply needed.

> Sterilization sequences are fully automated, easily initiated and configurable to match a wide variety of process requirements
> Rapid heat-up and cool-down

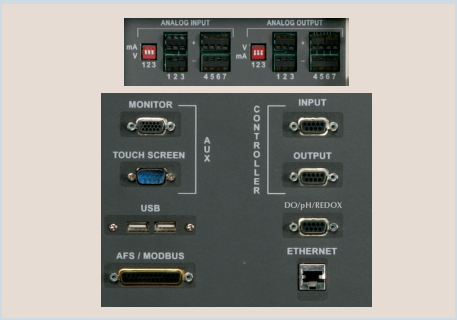
Powerful controller with large touchscreen display
We've seamlessly blended power & simplicity into one easy-to-use control station.

> Controls up to 32 process loops
> Easily integrates multiple external devices including scales, analyzers or sensors for optimized yields
> Saves up to 10 of your recipes for repeat usage

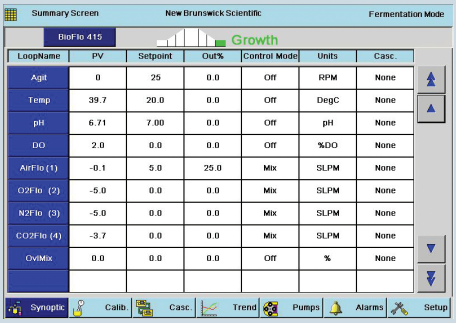
Pre-configured or customizable to fit your process needs
Simplify ordering by choosing one of our pre-configured packages, or select from a wide array of options to customize to your process needs.

> Interchangeable 5, 10 & 15 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 available
> Optional sensors, addition kits and BioCommand® supervisory software can be added. Validation and training packages are also available

Sparger and exhaust condenser with integral heating pad eliminate clogging during fermentation



Multiple connections are provided for integrating ancillary equipment & BioCommand® supervisory software



Summary screen lets you conveniently view setpoints, current values, cascade loops and more

Headplate design lets you incorporate optional redundant sensors 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 in (38 cm) touchscreen interface

Connections for gasses and vessel components are easily accessible

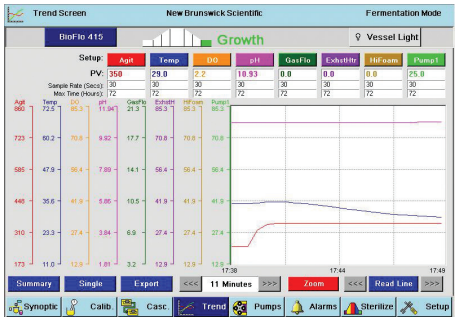
Front-mounted on-off switch is easily accessed

Quick connects allow utilities to be added in seconds

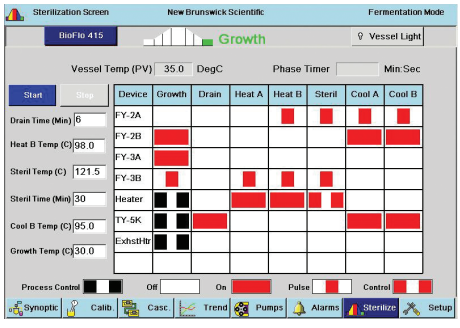
Three built-in, assignable, peristaltic pumps

ASME certified vessel

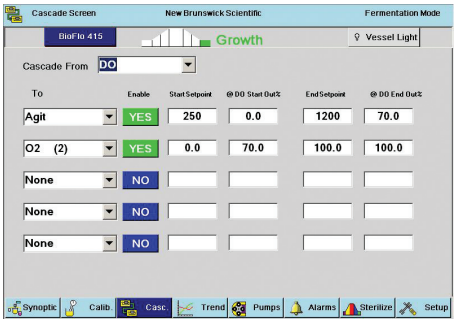
Optional drain valve is easily accessed through an opening at the bottom of the vessel



The trend graph screen makes it simple to track and export data on up to eight process variables over a six day span



Enter and view sterilization parameters and valve sequences from the sterilization screen



The cascade screen provides sophisticated process control

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BioFlo® 415 Fermentor specifications*

Vessel		**5 L**	**10 L**	**15 L**
	Working volume	2.0 - 5.0 L	4.0 - 10.5 L	5.0 - 15.5 L
	Total volume	7 L	14 L	19.5 L
Vessel construction	Aspect ratio	2:1	2:1	3:1
	Fabrication	ASME certified. 316L stainless steel. 20 CLA (0.5 µ) Ra internal finish and 35 CLA (0.875 µ) Ra external finish		
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 in Tri-clamp (1.5 in round sight glass)		
	Bottom	0.75 in NA-Connect®		
Net weight	Control station	40 kg (88 lbs.) including 6.8 kg (15 lbs.) touchscreen		
	Vessel	21 kg (47 lbs.)	27 kg (60 lbs.)	36 kg (80 lbs.)
Dimensions (W X D X H)	cm	63.5 x 66.0 x 97.8	63.5 x 66.0 x 114.3	63.5 x 66.0 x 134.6
	inches	25 x 26 x 38.5	25 x 26 x 45	25 x 26 x 53
Controller	Control station	Controls 1 vessel with 32 control loops. Stores 10 recipes and 8 process variables for trend graphing. Includes an industrial touchscreen monitor/user interface, 3 built-in pumps, and connections for all utilities and communications signals		
	Touchscreen interface/ display	38 cm (15 in) Industrial touchscreen interface/display		
Temperature	Heat and sterilization†	Electric heaters and automatic sterilization control, capable of achieving temperature rises of ~ 1 °C/min.		
	Range and control◊	Culture temperature 5 °C to 80 °C, displayed in 0.1 °C increments using Platinum RTD sensor		
Agitation	Drive	Top magnetic drive with single mechanical seal. Digital display in 1 rpm increments		
	Range and control	50 - 1000 rpm, ±1 at 100 rpm ; ± 2 at 500 rpm ; ± 5 at 1000 rpm		
	Impellers	Two six-bladed Rushton impellers on 5 and 10 L systems; Three impellers on 15 L systems		
	Baffles	Four 316L removable, stainless steel baffles		
Exhaust	Condenser and filter	Stainless-steel exhaust condenser on headplate. 1.2 µ disposable depth filter; 0.2 µ 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-filled pH sensor with digital display in 0.01 increments		
	Range and control	2 - 12 pH via PI control. Cascade to pumps, gases and/or loops from external devices		
DO	Sensor	Option of one or two Polaragraphic DO sensor with digital display in 0.1 % increments		
	Range and control	0 - 200 % via PI 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 sensor or 2nd DO sensor available		
Pumps	Standard, options and 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 and 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 and connections	Process air and oxygen	20 PSIG (1.38 barg) each, with push on connection. (No requirement for instrument air)		
	Water return	Maximum backpressure 5 PSIG (0.34 barg), accessed via Quick Connects		
	Facility water	2 GPM (9.1 LPM) must be regulated to 10 PSIG (0.69 barg), accessed via Quick Connects		
	Electric service	208 - 230 VAC, 50/60 Hz. Single phase, 15 Amps. (Fluctuations not to exceed ± 10 %)		
Input/output connections and comm ports (Built Into The Back Panel Of Master Control Station)	External devices	Seven analog inputs and seven analog outputs for your external devices such as analyzers, sensors, external pumps, etc. (Reduce by 1 input and output for each additional TMFC added)		
	2 USB ports	Import firmware/software upgrades and export trend data. Connect optional 8-port serial box		
	Communications port	For optional BioCommand®/SCADA software		
Regulatory compliance		c ETL us CAN/CSA-C22.2 Nos. 1010.1 and 1010.2.010 UL Standard UL-61010A-1 and 61010A-2-010		

* 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 Eppendorf sales representative for details. † In 10 & 15 L vessels, temperature rises are longer. ◊ Ambient operating conditions of 10 to 30 °C, up to 80 % relative humidity, non-condensing.

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