

# xCUBIO phar bubble

**The Very Best in Bioreactor Design for  
Comparative and Early Stage Algae Research**

Reliable, proven and efficient

Customizable single to  
12-fold configurations

Autoclavable jacketed bubble  
column vessels 0.5 and 1.0 liter

Multitude of options for sensors,  
illumination and integration available

LED illumination with algae-  
optimized wavelengths and multi-channel  $\lambda$  control

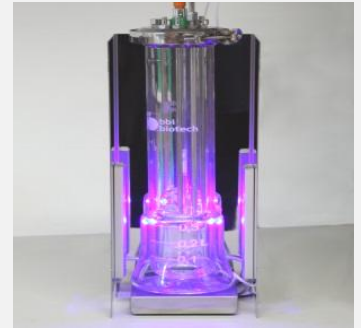
Intelligent algorithms and sophisticated sequence  
editor for easy setup of superior experiment planning

xCUBIO is the most advanced and  
customizable bioprocess automation solution worldwide.



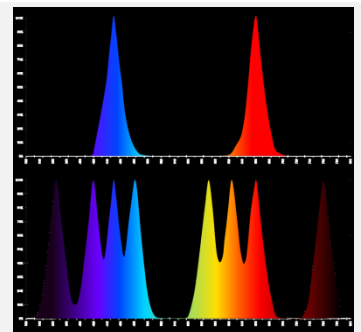
## xCUBIO phar bubble - High-End Microalgae Bioreactor for Comparative and Early-Stage Research

Vessels	Tempered, jacketed bubble column glass vessels with working volume of 0.5 and 1.0 liter		
System Design	Single, twin and quad configurations, up to 12 bubble columns at one controller Various illumination, automation and sensor options		
Aeration	Standard	Aeration via rotameters and valves, up to 4 gasses	
	Optional	Automated gasmix control with MFCs, up to 4 gasses per vessel	
Circulation	Magnetic stirrer and Airlift		
Sensors (standard)	1 x temperature in medium	1 x pH	1 x pressure
	1 x temperature in thermostat	Customizable to your exact needs!	



## Illumination Options for xCUBIO phar bubble

Standard LED	High-Power-LEDs, 2-channel $\lambda$ control Optimized wavelengths for Chlorophyll a and b
Sunlight White	High-Power-LEDs, full-spectrum illumination with a high ratio of blue
ParExtreme	High-Power-LEDs, algae-optimized wavelengths, 2-channel $\lambda$ control, water-cooling
Advanced LED	High-Power-LEDs, optimized wavelengths for production of Chlorophyll a, b, c1 and c2 at lowest energy consumption
	Independent control of intensity and time for up to 8 different wavelengths between 350 nm and 850 nm (incl. IR and UV for stress experiments)



## Options and Customizations for all xCUBIO Microalgae Bioreactors

Temperature	Starting at 5° C above cooling water temperature up to 65 °C with thermostat Temperature control via central jacketed vessel			
Automation	10" or 19" touchscreen available with intuitive interface Multitude of control, sequence editing and export functions (CSV, OPC, USB, VNC)			
Sensors	Standard	pH (2...12)	Temperature (0...100 °C)	
	Optional	pO <sub>2</sub> (0...100 %)	pCO <sub>2</sub> (0...100 %)	OD (0...4 CU)
		Exh. O <sub>2</sub> (0...25 Vol.-%)	Exh. CO <sub>2</sub> (0...10 Vol.-%)	Many more...
Add-Ons	Up to 5 peristaltic pumps, freely assignable, e.g. pH or level control			
	Connectors for additional scales or pumps			
	Integration of customer-specific sensors or SCADA connections on request, Connection of all OPC-compatible software systems possible			



## xCUBIO phar family



xCUBIO phar bubble



xCUBIO phar tubular



xCUBIO phar airlift



xCUBIO algae process

