

xCUBIO phar

**High-end Microalgae Cultivation Solutions
for Every Species in Every Environment for
Every Application**

In-situ sterilizable
photobioreactors

Glass tubes with best
transmission rates

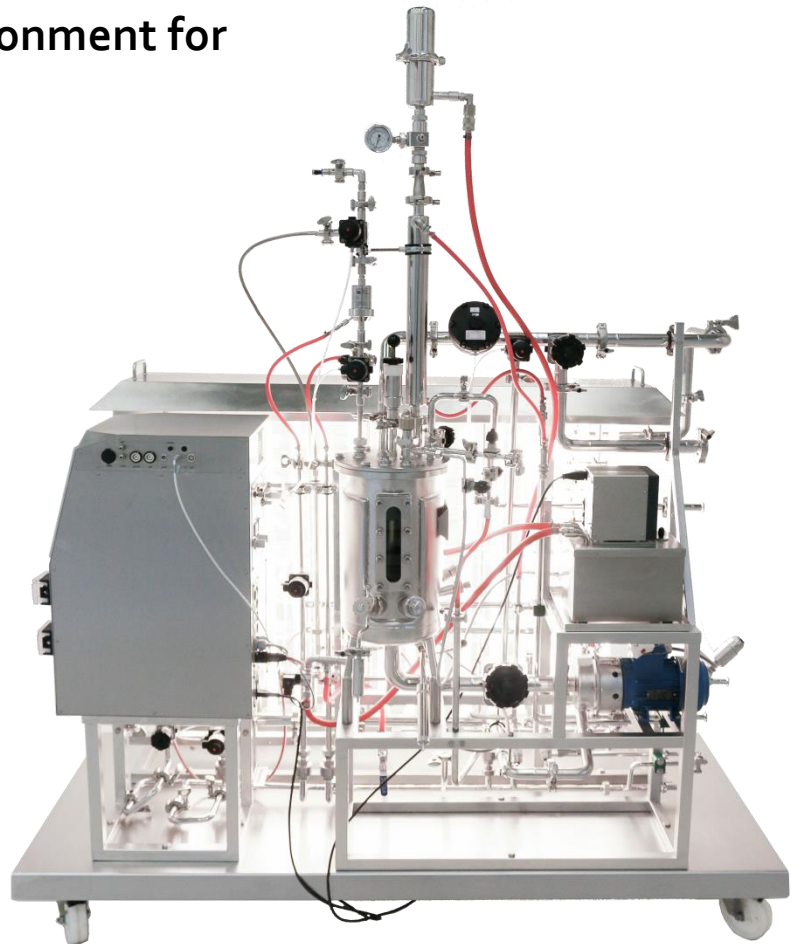
Inoculum, GMO-research,
GMP-production

Standardized systems: 5,
25, 50, 100 and 250 litres

Unrivalled photobioreactor sensor and
automation options

Accurate gas and media balancing, flexible LED-
illumination, intelligent automation algorithms

xCUBIO provides the most equipment options among all
bioreactors and fermentors worldwide.

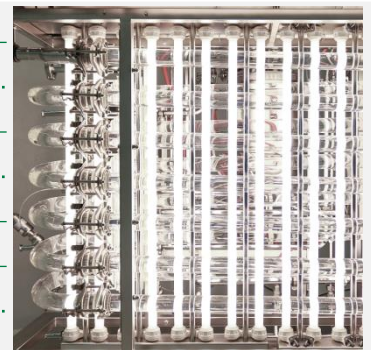


xCUBIO phar Bench Top Cultivation System for High-End Algae Research in the Lab

Overall Measures	800 x 790 x 450 mm including thermostat (W x H x D)		
Measures Cultivation Module	400 mm outer diameter; 560 mm height; 9 m glass spiral; 3.5...4.5 l operating volume Central system vessel 1.3 l, bottom outlet, for degassing, sensor installation, level control		
Illumination	Standard	LEDs at photosynthetic wavelengths, multi channel λ -control	
	Optional	Additional LED wavelengths or fluorescent tubes	
Mixing System	Sterilizable centrifugal pump with removable pump head, magnet coupling		
Sensors	1 x temperature in medium	1 x temperature in thermostat	
	1 x pH	Many unique options!	


xCUBIO in-situ phar Mobile Tubular In-situ-sterilizable Photobioreactor for Certified Biomass Production

Overall Measures	1,500 x 1,700 x 800 mm including steam generator (W x H x D)		
System	25 l operating volume, central system vessel for sensors and degassing Standard sizes 50, 100 and 250 l available, customized sizing on demand		
Illumination	Standard	Fluorescent tubes	
	Optional	LEDs at photosynthetic wavelengths, multi channel λ -control	
Mixing System	Sterilizable centrifugal pump, FC-controlled drive for sensitive species cultivation		
Sensors	1 x temperature in medium	1 x temperature in thermostat	
	1 x pH	1 x pressure	


MEDUSA Sterile Airlift Photobioreactor

Overall Measures	1,000 x 2,800 x 1,000 mm (W x H x D)		
System Volume	Up to 100 l operating volume		
Illumination	Standard	Fluorescent tubes	
	Optional	LEDs at photosynthetic wavelengths, multi channel λ -control	
Mixing System	Air compressor with accessory gasmix unit and sterile filters		
Sensors	1 x temperature in medium	1 x temperature in thermostat	
	1 x pH	1 x pressure	


General Options for xCUBIO Algae Cultivation Systems

Gassing	Standard	Manual pulsed gassing via valves and rotameters with up to 4 gasses		
	Optional	Automatic controlled gas mix with MFCs with up to 6 gasses		
Temperature	From 5° C over cooling water temperature up to 80 °C with thermostat			
	Tempering via double jacketed system vessel			
Automation	Touchscreen with 10", up to 19" possible; intuitive menu structure			
	Multiple control, sequencing and export functions (CSV, OPC, VNC, USB)			
Sensors	Standard	pH (2...12)	Temperature (0...100 °C)	
	Optional	pO ₂ (0...100 %)	pCO ₂ (0...100 %)	OD (0...4 CU)
		Exh. O ₂ (0...25 Vol.-%)	Exh. CO ₂ (0...10 Vol.-%)	Many more...
Accessories	Up to 6 peristaltic pumps with configurable allocation e.g. for control of pH or level			
	Additional external pumps and balances			
	Integration of customized sensors, SCADA-connections or analytics on demand			

