

xCUBIO in-situ

SIP/CIP Technology for High-end and Scaled Applications

Reliable and reproducible aseptic conditions

Standard systems 5, 10, 20, 30 and 50 litre vessels

Customized engineering for scaled systems

GMP-compliance ready

Manual up to fully automatic operation: flexible automation degree

Up to 10 internal pumps, up to 6 MFCs, scaled external equipment, integrated upstream processes

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



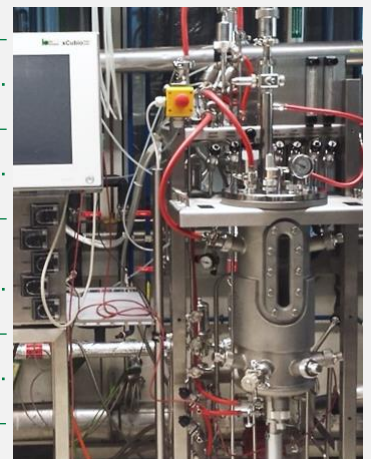
General Parameters

| | | |
|----------------|---|--|
| Design | Compact, integrated skid installation of vessel, control unit and supply technologies | |
| | Engineered for reproducible sterility by design | |
| | Complex production plants with seed- and main-fermenters, media supply vessels, CIP/SIP-supply units, steam generators – all in closed connection and fully automated | |
| Materials | GMP-compliant design with all options for qualified and validated operation | |
| | Certified stainless steel pressure vessels 1.4435/1.4571 or other | |
| | Stainless steel pipes and frames | |
| Automation | All media contact parts chemically resistant and biologically inert | |
| | 19" -touchscreen with intuitive menu design | |
| | Superior trend display with data analysis and visualization capabilities | |
| | Self-explanatory sequence editor and easy-to-handle control loops | |
| | Fully automated and logged sterilization sequences | |
| Media Handling | Bidirectional OPC-communication with SCADA-software | |
| | License-free remote access with VNC-client via Ethernet | |
| | Up to 10 peristaltic pumps | Free sizing of all pumps |
| Gas Handling | Free pump purpose allocation | Independent drive for each pump |
| | Digital or analogue drive selection | External pumps from lab to scale |
| | Up to 6 mass flow controllers | Rotameters for manual flow control |
| Gas Handling | Up to 4 gasses | Input pressure reducers |
| | Complex gassing regimes | High cell density cultivation possible |



Example Configuration: Standard Minimal Setup for Microbial Application with 10 Litre Vessel

| | | | |
|----------------------|-------------------------------------|--|------------------------------|
| Measures (W x H x D) | 1,300 x 1,900 x 800 mm | | |
| Media Handling | 5 x peristaltic pumps | 3 x digital, 2 x analogue | |
| | For corrective media & harvest/feed | 2 x AO for external pump | |
| Gas Handling | 1 x MFC for oxygen | 1 x magnetic valve for air/nitrogen | |
| | 1 x sum flow rotameter | 1 x microsparger | |
| Sensors | 1 x temperature in medium | 1 x pH in medium | 1 x pressure in exhaust line |
| | 1 x pO ₂ in medium | 1 x level or foam detection | 1 x foam in exhaust line |
| Stirrer | Top drive | Powerful servo drive | |
| | 3 x Rushton impellers | Continuous speed control 0...1,200 rpm | |
| Equipment | Integrated steam generator 50 kg/h | | |



Options

| | | | |
|------------|--|---|-----------------------------|
| Vessels | Double jacket steel vessels 5, 10, 20, 30, 50 litres, customized scale up to 15 m ³ on demand | | |
| Automation | Free automation level selection from semi to fully automated process design | | |
| Sensors | pH (2...12) | Temperature (0...130 °C) | Level/foam (on/off) |
| | pO ₂ (0...100 %) | pCO ₂ (0...100 %) | Turbidity inline (0...4 CU) |
| | Exhaust O ₂ (0...25 Vol.-%) | Exhaust CO ₂ (0...10 Vol.-%) | Turbidity bypass (0...4 CU) |
| | Conductivity (0 μS...2 GS) | Redox/ORP (± 1,000 mV) | Pressure (-1...+3 barg) |
| | Balances (± 0.001...± 100 g) | Many more! Customize ranges, media, types and scales! | |

