

BioLector® Pro

Microfluidic Bioprocess Control



Cultivation conditions

Specification	Description
Temperature	RT up to 50 °C
Shaking speed	400 to 1500 rpm (3 mm diameter)
Environmental conditions	<ul style="list-style-type: none"> >75 % relative humidity (at 37°C) Ambient air 1-35 % O₂ (optional) 1-10 % CO₂ (optional) Anaerobic chamber (optional)
Oxygen optodes	0-100 % dissolved oxygen
pH optodes	pH 4-7.5 (depending on plates)
MTP reading time	3 min / filter / 48 wells @ 1000 rpm

Microfluidic features

Specification	Description
Triggered pH control (closed loop controller)	<ul style="list-style-type: none"> pH control range: 4.0 – 7.5 (depending on plate) Fully editable PI control Slow/Medium/Fast PI defaults
Feeding options	<ul style="list-style-type: none"> Two sided pH control (base and acid) One sided pH control and one feed (base or acid + one feed) Two feeds
Feeding profiles	Profile equation: $\frac{dV}{dt} = A + B \times t + C \times e^{D \times t}$ <ul style="list-style-type: none"> Constant: A [$\mu\text{L}/\text{h}$] Linear: A [$\mu\text{L}/\text{h}$] and B [$\mu\text{L}/\text{h}^2$] Exponential: A [$\mu\text{L}/\text{h}$], B [$\mu\text{L}/\text{h}^2$], C [$\mu\text{L}/\text{h}$] and D [h^{-1}] Pulse feed
Pump rate	up to 665 pump strokes per hour

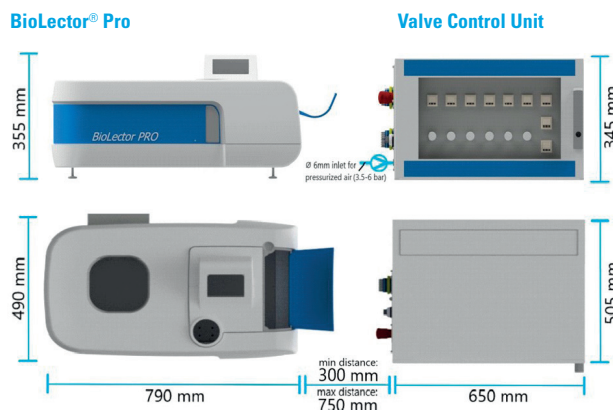
Plates

FlowerPlate®	<ul style="list-style-type: none"> 48 cultivation wells Filling volume: 800 - 1900 μL (rpm dependent) High OTR and high k_1a
Roundwell Plate	<ul style="list-style-type: none"> 48 cultivation wells Filling volume: 1000 - 2400 μL (rpm dependent) Lower OTR and low shear force
Microfluidic Plate	<ul style="list-style-type: none"> Available as both FlowerPlate® and Roundwell plate 32 cultivation wells controlled by 16 reservoir wells Maximum filling volume in reservoir wells: 1800 μL Same filling volumes for cultivation wells as in 48 well plate

Lab space and material requirements

- Flat surface with a minimal load capacity of 100 kg for each unit
- Device weight: 39.0 kg (85.98 lbs) for BioLector® Pro and 41.1 kg (90.61 lbs) for Valve Control Unit
- 3x power supply: 90-230 VAC, 50/60 Hz for BioLector®, Valve Control Unit and laptop
- Microfluidics: requires 4 to 6 bar moisture/oil free compressed air, 6 mm ØOUT push in connection
- O₂ up/down or CO₂ up module: requires 1 to 2 bar O₂, N₂ or CO₂; 6 mm ØOUT push in connection
- Anaerobic chamber: requires 2 to 5 bar N₂ (or other inert gasses); 6 mm ØOUT push in connection
- Humidity control: 250 mL deionized water

System Dimension



OTR: Oxygen transfer rate [mmol/L/h]
 k_1a : Volumetric oxygen transfer coefficient [h^{-1}]

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