

LePhinix® Single-use Bioreactor

With development of biopharmaceutical industry, the bioreactors are used more frequently in upstream biopharmaceutical process, including antibodies, vaccines, cells and gene therapy etc. LePhinix® composes a more advanced single-use biomanufacturing platform in terms of hardware, software and consumables etc., providing superior performance to meet the R&D, pilot, clinical application and commercial production needs. LePhinix® system can realize flexible operation and accurate control and fully accept customized manufacturing based on actual process needs of clients, to provide the clients with single-use bioreactors with high performance.

Typical Applications

LePhinix® single-use bioreactors are prepared for GMP needs, which are suitable for the cell culture processes such as antibodies, cell/gene therapy and vaccines etc.



Advantages

- The series can be scaled up **from** 50 L to 2,000 L with customized selection, to meet different process needs
- They are applicable to the cell culture process such as CHO, 293 SF-9 etc.
- The consumables, such as single-use biological reaction bag prepared by brand new LeKrius® membrane materials, support customization
- High performance hardware configuration and modular design can enhance data safety and integrity to guarantee that the system operates stably
- Dual database, level 3 permission, audit trail, supporting signal interaction with a third party system
- Support process development and scale-up, and provide upstream process solutions

Technical Parameters

LePhinix® Single-use Bioreactor

Specification	50 L	200 L	500 L	1000 L	2000 L
Reactor material	304 stainless steel for external wall and 316L stainless steel for inner wall				
Dimension Length	680 mm	800 mm	1000 mm	1300 mm	1600 mm
Width	680 mm	860 mm	1100 mm	1300 mm	1600 mm
Height	~2110 mm	~2340 mm	~2610 mm	~3300 mm	4000mm
Floor area	0.46 m ²	0.59 m ²	1.1 m ²	1.69 m ²	2.56 m ²
Weight	185 kg	290kg	670 kg	820 kg	1200 kg
Anti-skid device	Support				
Double-layer wall	Support				
Single-leaf front door	Support				
Gas filter support	Support				
Observation window	Support				
TCU	Support				
Dimension Length	550 mm	550 mm	550 mm	650 mm	650 mm
Width	650 mm	650 mm	650 mm	670 mm	670 mm
Height	970 mm	970 mm	970 mm	1250 mm	1250 mm
Weight	93 kg	93 kg	98 kg	138 kg	147 kg
Floor area	0.36 m ²	0.36 m ²	0.36 m ²	0.44 m ²	0.44 m ²
TCU Power supply	220 V	220 V	380 V	380 V	380 V
TCU Current	16 A	16 A	16 A	16 A	16 A
TCU Power	2.6 kW	2.6 kW	7.8 kW	8.8 kW	11.1 kW

LePhinix® Single-use Bioreactor Controller

Specification	50 L、200 L、500 L、1000 L、2000 L
Control tower material	304 stainless steel
Dimension (L*W*H)	550*500*1480 mm
Floor area	0.28 m ²
Weight	90 kg
Anti-skid device	Support
Touch screen	17.3"
Safety measurement and shutdown device	Support
Level 3 permission account logging	Support
Audit trace function	Support

Equipment and Utility Requirements

Specification	50 L	200 L	500 L	1000 L	2000 L
Controller Power	220 VAC	220 VAC	220 VAC	220 VAC	220 VAC
Controller supply Current	10 A	10 A	10A	10A	10A
Controller Power	2 kW	2 kW	2 kW	2 kW	2 kW

Water supply

Temperature	7- 20°C				
Hardness	8 dH				

Environmental requirements

Environment temperature	20- 40°C				
Range of relative humidity	<88%				

Process Control

Specification	50 L	200 L	500 L	1000 L	2000 L
Maximum stirring speed	200 rpm	200 rpm	150 rpm	140 rpm	120 rpm

Temperature control

Heating/cooling	Support				
Temperature control range	5- 52°C				
Overheat protection	Support				
Cooling water at rated pressure	2- 3 bar				

Ventilation module

Quantity of thermal mass flow meter(TMFC)	6				
Precision of thermal mass flow meter(TMFC)	① ≤ 25 SLPM range interval accuracy algorithm: precision: $\pm 0.6\%$ (set value) or $\pm 0.1\%$ (full range), take the maximum value ② > 25 SLPM range interval accuracy algorithm: accuracy: $\pm [0.8\% \text{ (set value)} + 0.2\% \text{ (full range)}]$				
Sparger	Macrosparger and microsparger				
Flow rate	Air/O ₂ /CO ₂ /N ₂ (2.5-50SLPM)				
Overlay	Air/CO ₂				
DO control	Continuous and segmented control				
pH control	PID cascade control, PID duty cycle control				

Pump Module

*Standard configuration: 4 Watson Marlow peristaltic pumps

114DV (set)	3	3	3	NA	NA
314DV (set)	1	1	1	NA	NA
313DV	NA	NA	NA	2	2
314DV	NA	NA	NA	2	2

External pump

External pump communication interface reserved 2



pH、 DO Working Range	
Temperature probe Pt 100	Support
Measuring range	0- 100°C
pH sensor	Optional Hamilton single-use/non-single-use simulated sensor(Adaptive VP8 connector)
	Optional METTLER TOLEDO non-single-use simulated sensor(Adaptive VP8 connector)
Measuring range	2- 12
Two-point calibration function	Support
Online calibration function	Support
DO sensor	Optional Hamilton single-use/non-single-use optical sensor(Adaptive VP8 connector)
	Optional METTLER TOLEDO non-single-use optical sensor(Adaptive VP8 connector)
Measuring range	Hamilton 0- 300%/METTLER TOLEDO 0-100%
Two-point calibration function	Support
Online calibration function	Support
*Standard configuration: Hamilton pH sensor non-single-use simulated sensor	
*Standard configuration: Hamilton DO sensor non-single-use optical sensor	
Other accessories	
Ladder	Customizable
Exhaust heating	Support

Control Tower Interface | Communication

Industrial Ethernet (Profinet communication protocol)	Support
OPC communication protocol	Support
Modbus-RTU communication protocol	Support
Analog input	Support
Analog output	Support

Order information

LePhinix® Single-use Bioreactor

Article No.	Specification
BAAA01XX	50 L
BAAA02XX	200 L
BAAA03XX	500 L
BAAA04XX	1000 L
BAAA05XX	2000 L