

LAB BR

The lab solution

We trust in modularity therefore the user may set up the variables of the peristaltic pumps to a specific function.



LAB bioreactors are by default based on a Control Unit and borosilicate gears vessels of 1, 2 or 5L (also available in Stainless Steel) and a diameter/height ratio 1:2.5 for both microbial and cell culture optimal conditions.

 **More info**



MULTIPLE SENSORS

Digital sensors for pH and pO₂ (optical).

Optional sensors for viable cell density (VCD), total cell density (TCD), ORP, etc.

ENGINE

Servo engine with very low accuracy rpm.

Encoder with positioning indicator.

Maximum agitation precision for a minimal shear stress.



PERISTALTIC PUMPS

2 in 1 concept, multiway pumps.

All the pumps are **variable** and are configured so that they can also work as **fixed** ones.

BIOREACTORS CONFIGURATION

*Other customized options available

	LAB		PILOT		PROD	
	MICROBIAL BR-M-0001/2/5	CELLULAR BR-C-0001/2/5	MICROBIAL BR-M-0010/50	CELLULAR BR-C-0010/50	MICROBIAL BR-M-0100/2000	CELLULAR BR-C-0100/2000
VESSEL	<ul style="list-style-type: none"> Single/Twin: S (LAB), T (PILOT), S (PROD) Glass: ● (LAB), ○ (PILOT), ○ (PROD) Stainless Steel: ○ (LAB), ● (PILOT), ○ (PROD) Working Volume (L)*: 1-2-5 (LAB), 10-20-30-50 (PILOT), 100-200-500-1000-2000 (PROD) Weight Control: ○ (LAB), ○ (PILOT), ○ (PROD) Single/Double Wall: S (LAB), D (PILOT), D (PROD) Lighting: ○ (LAB), ○ (PILOT), ○ (PROD) 					
AGITATION	<ul style="list-style-type: none"> Rushton Impeller: ● (LAB), ○ (PILOT), ○ (PROD) Pitched Blade Impeller: ○ (LAB), ● (PILOT), ○ (PROD) Customized Deflectors: ● (LAB), ○ (PILOT), ○ (PROD) Agitator: ● (LAB), ● (PILOT), ● (PROD) 					
ADDITION	<ul style="list-style-type: none"> Variable Speed (4x) (ml/min): ● (LAB), ● (PILOT), ● (PROD) Acid-Base-Foam: ● (LAB), ● (PILOT), ● (PROD) Substrate / Media: ● (LAB), ● (PILOT), ● (PROD) 					
MEASUREMENT	<ul style="list-style-type: none"> pH: ● (LAB), ● (PILOT), ● (PROD) pO₂ (%): ● (LAB), ● (PILOT), ● (PROD) Temperature (°C): ● (LAB), ● (PILOT), ● (PROD) Level: ● (LAB), ● (PILOT), ● (PROD) Load Cell: ○ (LAB), ○ (PILOT), ○ (PROD) Foam: ● (LAB), ● (PILOT), ● (PROD) Conductivity: ○ (LAB), ○ (PILOT), ○ (PROD) ORP (mV): ○ (LAB), ○ (PILOT), ○ (PROD) Cell Density (OD, viability): ○ (LAB), ○ (PILOT), ○ (PROD) Biochemical Parameters (glucose...): ○ (LAB), ○ (PILOT), ○ (PROD) pCO₂ (mbar): ○ (LAB), ○ (PILOT), ○ (PROD) 					
GASSING	<ul style="list-style-type: none"> Air Flow (lpm): ● (LAB), ● (PILOT), ● (PROD) O₂ Flow (lpm): ● (LAB), ● (PILOT), ● (PROD) N₂ Flow (lpm): ● (LAB), ● (PILOT), ● (PROD) CO₂ Flow (lpm): ○ (LAB), ○ (PILOT), ○ (PROD) Gas Mix (%): ● (LAB), ● (PILOT), ● (PROD) Gas Inlet: Sparger (LAB), Sparger / Overlay (PILOT), Sparger (PROD), Sparger / Overlay (PROD) 					
SOFTWARE	<ul style="list-style-type: none"> SCADA Basic: ● (LAB), ○ (PILOT), ○ (PROD) SCADA R&D+: ○ (LAB), ○ (PILOT), ○ (PROD) SCADA Advanced CFR21.11: ○ (LAB), ○ (PILOT), ● (PROD) 					
DOCUMENTATION	<ul style="list-style-type: none"> GMP: ○ (LAB), ○ (PILOT), ● (PROD) 					

● STD ○ OPT

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CLAB BR SINGLE / TWIN | Control Unit

WEIGHT AND DIMENSIONS	Single Twin Single / Twin	~ 50 kg ~ 35 kg Single: 560 x 800 x 430 mm / Twin: 380 x 550 x 380 mm
HARDWARE	Housing Display Status indicator light	Stainless Steel, AISI 316L (SF4 according to ASME BPE) Capacitive Touch Screen, 15", glass Green: OK Orange: warning Red: alarm
SOFTWARE	SCADA Basic SCADA R&D+ SCADA Advanced CFR21.11 Remote access	Included Optional Optional Optional Optional
DOCUMENTATION PACKAGE	GMP	Optional
BUILT-IN PERISTALTIC PUMPS (4X)	Variable Speed Addition bottles Tubing	4x (single) or 8x (twin) Optional Optional
PROCESS CONTROL SENSORS	Temperature Dissolved Oxygen pH Sensor Level/Foam Redox Conductivity Total Cell Density (TCD) Viable Cell Density (VCD) Biochemical parameters pCO ₂ CO ₂ Weight control Digital/Analogic auxiliary input	Pt100: 10 – 60 °C Optical sensor: 0 – 100 % (ODO Cap membrane as spare part) Glass, pre-pressurized reference system: 2 – 12 pH Hygienic. Sliding connection Optional Optional Optional Optional Optional Optional Optional Optional Optional Up to 4 4 – 20 mA / RS485 Modbus protocol
MOTOR	Rotation Speed Motor Impellers <i>*Customized impellers available</i>	Microbial: 0-2000 rpm Cell culture: 0-600 rpm Microbial: 1x or 2x Rushton Cell culture: 1x or 2x Pitched Blade
TEMPERATURE MODULE	Single wall Double wall	Electrical heating (blanket) and cooling loop with external chiller Thermostat System with external chiller for cooling and electrical resistance for heating
AERATION MODULE	Microbial Cell Culture	Three-gas mixing: Air, O ₂ , N ₂ Three flow meters through sparger by MFCs Gas mix as aeration strategy: AIR and O ₂ Up to 2 vvm volume flow for each gas Four-gas mixing: Air, O ₂ , CO ₂ , N ₂ by MFCs Four flow meters through sparger and overlay Up to 2 vvm volume flow for each gas
UTILITIES	Power supply Gases Water	230 V (EU) 1 bar Water supply pressure from external chiller, 1 bar
CLAB Vessel	Glass Material Size (working volume) Dimensions (diameter x height) <i>*With structure; without condenser</i> Sterilization Baffles Sparger Stainless Steel 316L Cleaning-in-place (CIP)	Standard Vessel: Borosilicate Glass Wetted parts: Stainless Steel AISI 316L (SF1 according to ASME BPE) Other parts: Stainless Steel AISI 304L (SF4 according to ASME BPE) 1 L (0.35 – 1 L) 2 L (0.6 – 2 L) 5 L (0.8 – 5 L) 1L: 228x458mm 2L: 236x500mm 5L: 260x604mm Autoclave Optional Ring sparger <i>*Microsparger optional</i> Optional (2 or 5 L) Optional

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BIOPROCESS EQUIPMENT MANUFACTURING

CLAB BR SINGLE / TWIN DATA SHEET



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