

DASEA[®] Regenbio automated 3D cell culture bioreactor

Specifically Designed for Mammalian Cells



Designed for BioProcess

● INTRODUCTION

DASEA® Regenbio automated 3D cell culture bioreactor is an independently developed bioreactor, with Digitalized, Automated, Scalable, Enclosed, and Activated (DASEA®) features. It is equipped with a human-machine interface (HMI) ecosystem, enabling simplified and efficient operation. The bioreactor utilizes a medium to large scale PLC master control system for precise control and comprehensive functionality, supporting customization. The bioreactor ensures a safe cell culture process with its precise parameter control and powerful data management capabilities, is suitable for large-scale culture of MSC, T, CHO and other cells.

● ADVANTAGES



Gentle



Uniform



Steady



Automated



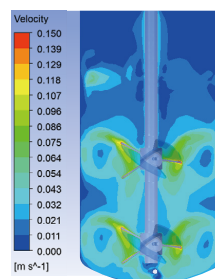
Elephant ear impeller
Low shear force, low cell injury

$$\approx 10 \text{ s}^{-1}$$

Mean Shear Rate

$$10^2 \text{ s}^{-1} - 10^3 \text{ s}^{-1}$$

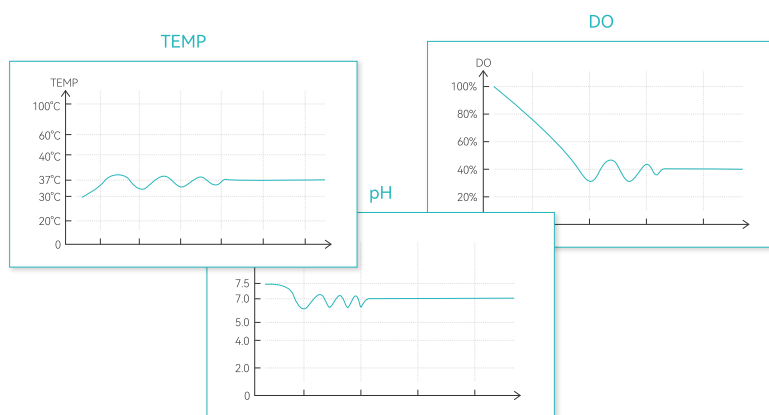
Maximum Shear Rate



Uniform flow field distribution
No dead zone accumulation
Efficient mass transfer

$$10^{-3} - 10^{-2} \text{ m}^2/\text{s}^3$$

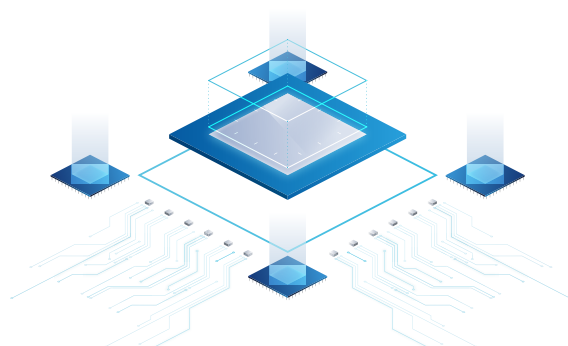
Turbulent Dissipation Rate



Precise PID control strategy ensures gentle fluctuations in temperature, pH, and DO, bringing the culture environment closer to a steady state.



Independently developed core control system ensures efficient linkage, precise control, and comprehensive functions, supporting customized needs for cell culture process.



● FEATURES



· **Elephant Ear Impeller:** Designed based on CFD fluid simulation, low shearing, low cell injury.

· **Gas Exchange Strategy:** Both surface and internal aeration, fulfill different process requirements.

· **Dedicated Micro Bubbles:** Micro bubble design to increase gas-liquid contact area for efficient mass transfer.

· **Forward and Reverse Stirring:** Meets the needs of various liquid mixing processes, adjustable forward and reverse switching speed and smoothness.

· **Magnetic Coupling Motor:** No mechanical sealing structure, good airtightness, safe and reliable.

· **Expandable Vessel Lid:** Supports customization to meet diverse customer needs.



· **Easy Calibration:** Supports calibration of temperature, pH, and DO sensors, and automatic recording.

· **Power Outage Protection:** Automatically restores data and resumes operation from pre-outage state.

· **Diverse Modes and Recipes:** Multiple modes and control through recipes to achieve varied process requirements.

· **Multi-Level Access Mangement:** Available to setup mutiple level user access.

· **Audit Trail:** GMP compliance, ensuring data integrity and traceability.

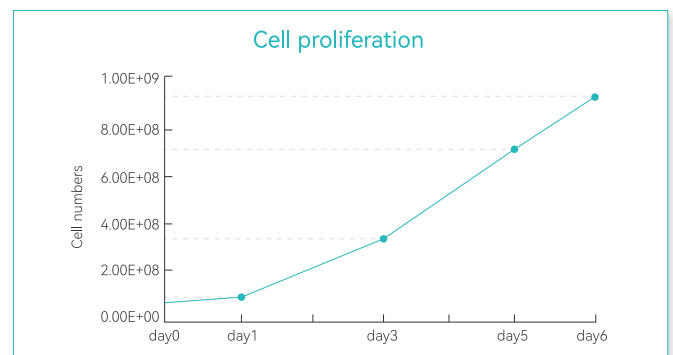
· **HMI:** Independently developed human-machine interface for easy operation.



● PERFORMANCE

hUC-MSC Cell Culture Case Study: For every 1L of culture medium, add 1-2g of microcarriers. Each gram of microcarriers can carry 200-300 million cells.

Results: After 6 days of culture, the expansion rate is > 10 times.



*hUC-MSC Cell Culture in Serum-Free 3D Culture System

● SPECIFICATIONS



Controller

Item	Specification
Dimensions (W × H × D):	400mm * 862mm * 490mm
Weight	~44kg
Control System	RSSW-PC001V1.0
HMI	15-inch Color Touchscreen Display, 1024*768 Resolution
Peristaltic Pump	Speed Range: 0-200RPM; Flow Rate Range: 0.1~100mL/min
Stirring Speed	0.4kW; 0-1500RPM; Accuracy: 1RPM
Gas Mass Flow Meter	2L: O ₂ : 0-40mL/min; CO ₂ : 0-40mL/min; N ₂ : Optional; Air: 0-60mL/min 5/10L: O ₂ : 0-60mL/min; CO ₂ : 0-60mL/min; N ₂ : Optional; Air: 0-100mL/min
Heating Blanket	200W
Temperature Sensor	PT100, Range 0-150°C, Measurement Accuracy ±0.05°C, Control Accuracy ±0.1°C
DO	Range: 0-212%, Accuracy ±1%; Special Impedance VP Interface, Anti-Interference
pH	Range: 0-14, Accuracy ±0.01; Special Impedance VP Interface, Anti-Interference



Vessel

Item	Specification
Vessel Material	Glass: Single-walled high borosilicate glass (HBG) Stainless steel: 304 bracket, 316L top cover and fittings
Sterilization	Autoclaved
Overall Volume	3L、7L、13L
Working Volume	2L、5L、10L
Vessel Dimensions (Ø*H)	2L-140mmx255mm, 5L-180mmx345mm, 10L-230mmx381mm
Vessel Weight	2L: 13kg; 5L: 17Kg; 10L: 24kg



Utilities

Item	Specification
Input Power	220V/50HZ
Total Power Consumption	1500W
Gas	AIR, O ₂ , CO ₂ , N ₂

● ORDER INFORMATION

Product	Specifications	P/N
DASEA® Regenbio automated 3D cell culture bioreactor		
DASEA® Regenbio automated 3D cell culture bioreactor	Working volume 2L	aBioR-02-CC
DASEA® Regenbio automated 3D cell culture bioreactor	Working volume 5L	aBioR-05-CC
DASEA® Regenbio automated 3D cell culture bioreactor	Working volume 10L	aBioR-10-CC

Related Products	Specifications	P/N
DASEA® Regencarrier® biomimetic microcarrier		
Biomimetic microcarrier	100 mg/vial x 10 vials	RC001LE
Biomimetic microcarrier	500mg/bottle x 1 bottles	RC002LE
Biomimetic microcarrier	1g/bottle x 4 bottles	RC003LE
Microcarrier lysis solution	150mg/tube x 2 tubes	MC001LS
Microcarrier residue detection kit	50T/kit	MC001RDK
Microcarrier residue detection kit	100T/kit	MC002RDK
Lysis residue detection kit	200T/kit	LS001RDK

Empowering the Cell Manufacturing with DASEA® Technology Make Regeneration Clinically Accessible and Affordable



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