DASEA® Regenbio
parallel bioreactor

● PRODUCT INTRODUCTION

DASEA® Regenbio parallel bioreactor is a modularized, intellectualized and digitalized bioreactor which integrates optimized process engineering single tank bioreactor into parallel bioreactor system. DASEA® Regenbio parallel bioreactor aims to minimize mutual deviations between reactors with process mapping and optimization as the core requirements.

Taking the parallel bioreactor as the core, it has been opitimized the design of the whole program around the culture medium optimization, rotate speed, distribution, inoculation density multiple process parameters involved in process development.

Based on PAT concept, it has been developed and integrated a series of sensors such as on-line Capacitance Sensor, on-line external and built-in cameras, and exhaust gas detector. Each supporting programs and sensors are modular design and optional.

Two series of parallel reactors have been developed under DASEA® Regenbio, including cell culture tanks and fermenters. Each series furtherly optimize the specific configurations to meet the different needs of culture process.

● PRODUCT FEATURES

○ Adopting self-developed PLC main control board, DASEA® Regenbio parallel bioreactor can realize precise control and support customization and expansion.

○ Equipped with self-developed DOE system, it realizes one-key solution download and process optimization to improve work efficiency.

○ One-touch parallel calibration is used to eliminate mutual differences in test parameters of each reactor and simplify the calibration operation.

○ Each reactor is independently temperature-controlled, with preferred design of temperature-control execution details, combined with optimized temperature-control algorithms, to accurately control the culture temperature of each reactor and its mutual deviation.

○ Adopting high-precision servo motor to drive the stirring, smooth running, precise control of each reactor stirring speed and mutual deviation.

○ The inlet gas is independently detected and controlled by a thermal mass flow meter, which eliminates the interference of gas temperature and pressure on the flow detection.

○ Agitating systems:
· Equipped with radial coupled magnetic coupling, completely eliminate the risk of mechanical seal leakage; Stable and reliable structure makes maintenance much more easily.

· CFD-based paddle optimization design with digital processing technology improves the effect of process optimization and mutual consistency.

○ Size: 500mL, 1000mL, 2L, 5L, 10L etc.

○ Dimension: L: 850mm, W: 660mm, H: 420mm (Excluding desktop computers)

● PARAMETERS

	Function	Description	Accuracy
Standard Features and Parameters	Temperature Control	(Ambient temperature +5) ~ 42°C, external electric heating blanket, with temperature limiting protection	± 0.1°C
	Surface Air	Standard for air: mass flow controller (MFC), timing settings	± 1.5% FS
	Deep Gas	Standard for air, O_2, CO_2, individual mass flow controller (MFC), timing settings	± 1.5% FS
	pH	Range: 2-12 Coordinated automatic control for co_2 and lye, timing settings	± 0.01%
	Dissolved Oxygen	Range: 0-212% Coordinated automatic control for O_2, Air and N_2, timing settings	± 1%
	Agitation	Range: 0-1500 RPM Timing setting forward and reverse; flexible start / stop; timing settings; high precision servo motor; radial magnetic couplings; elephant-ear paddle	± 1 RPM
	Feed	High precision peristaltic pumps; speed control motor; timing settings	± 1 RPM
	Antifoam	Automatic warning automatic / manual antifoam	± 1 RPM
	Electrode Parallel Calibration	One-touch parallel calibration to increase efficiency and reduced calculation bias	/
	Input Power	220V / 50Hz	/
	Total Power	3500W	/
	Gas	AIR, O_2, CO_2, N_2	/
Optional	Feed Weighing	Load cell	optional
	Capacitance Sensor	Based on capacitance method to detect the total number of viable cells	/
	Liquid Level Detection	Continuous detection of parameters in the range of the level measuring electrode	± 0.1
	Exhaust Gas Detection	External exhaust gas analyzer	/
	Process Analysis Software	Multi-parameter correlation analysis of culture process parameters	/