

ORBTEC™ BIOREACTOR

Single-use bioreactor for effective, economical mixing

Parker's Single Use OrbTec Bioreactor utilizes a patented orbital rocking motion technology that enables full directional movement (up, down, left, right and diagonally), to create strong torque while simultaneously minimizing shear stress. OrbTec differs from conventional stirred tank bioreactors because mixing is performed without the use of typical tools such as impellers. It can achieve fluid flow for cell suspension and effective aeration. This minimizes cell damage caused by physical forces and creates a more uniform and stable culture environment.

The OrbTec series shares similar design language across all bioreactor systems, resulting in constant ratios. The optimized conditions for aeration, angle, and RPM obtained at a small scale can easily be scaled up for higher levels of production.



Advantages vs. Traditional Bioreactors

- Gentle, effective mixing - maintains cell integrity while improving mass transfer
- Minimized shear stress - ideal for sensitive cell lines, including mammalian and stem cells
- Enhanced capacity - suitable for both seed culture and large scale bioproduction
- Optimized gas exchange - ensures efficient oxygen transfer without excessive foaming
- 3D culture bags do not need additional parts for fed-batch, providing a more economical solution

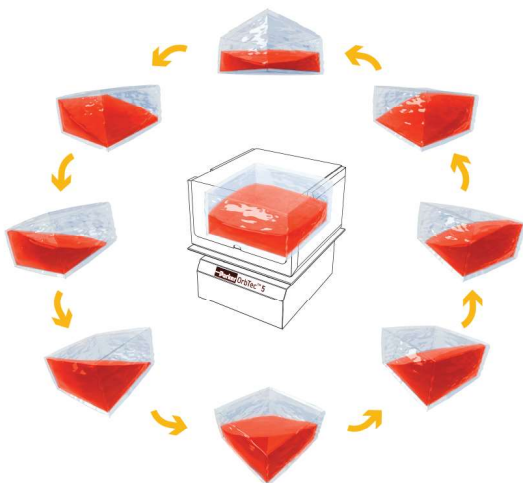


Table 1. Cultivation Processes by Bioreactor Technology

Cultivation Process	Stirred-Tank Bioreactor	Wave Bioreactor	OrbTec™
Seed Culture	x	✓	✓
Batch Culture	✓	✓	✓
Fed-Batch Culture	✓	x	✓

Table 2. Cell Types by Bioreactor Technology

Cells	Stirred-Tank Bioreactor	Wave Bioreactor	OrbTec™
Monoclonal Antibodies	✓	x	✓
Vaccines	✓	x	✓
Stem Cells	~	✓	✓
Gene-modified Cells	~	✓	✓

Product Specifications

OrbTec Model	5L	25L	50L	100L	200L	500L
Working Volume (L)	1-2	2.5-12.5	5 - 25	20 - 50	40 - 100	100 - 250
Rocker Dimension (mm) (WxDxH)	340 x 410 x 517	583 x 687 x 644	660 x 730 x 690	755 x 727 x 1,171	1,120 x 1,203 x 1,628	1,213 x 1,699 x 1,776
Controller Dimension (mm) (WxDxH)	367 x 704 x 539	367 x 704 x 539	367 x 704 x 539	600 x 897 x 1,360	600 x 897 x 1,360	600 x 897 x 1,360
Weight (kg) Housing & Rocker/Controller	22/38	68/38	80/38	310/38	560/106	820/106
Load Cells	Standard for all Models					
Temperature Control	RT-70°C	RT-70°C	RT-70°C	RT-70°C	RT-70°C	RT-70°C
MFC Flow Rates (LPM)	Air: 0.105-3.5	Air: 0.105-3.5	Air: 0.105-3.5	Air: 0.15-5	Air: 0.6-20	Air: 0.6-20
	O2: 0.051-1.7	O2: 0.051-1.7	O2: 0.051-1.7	O2: 0.075-2.5	O2: 0.3-10	O2: 0.3-10
	CO2: 0.015-0.5	CO2: 0.015-0.5	CO2: 0.015-0.5	CO2: 0.021-0.7	CO2: 0.039-1.3	CO2: 0.039-1.3
DO Cascade (4-Gas Mix) (Air/O ₂ /N ₂ /CO ₂) with Headspace Outlet	Standard for all Models					

Bag Housing

Holds the 3D culture bags in place during rocking or orbital mixing.

Single Use 3D Culture Bag



Orbital Rocker



Controller

Peristaltic Pumps

OrbTec comes with 2 peristaltic pumps by default, and up to 2 more can be added as an option for a total of 4 peristaltic pumps.

Ordering Info.

Example part: ORB-0005-2-N

ORB	-		-		-	
		Size (L)		Pumps		Software Description
		0005		2 ¹		C - 21 CFR Part 11 Compliant
		0025		3 ¹		N - Noncompliant
		0050		4		
		0100		5 ²		
		0200		6 ²		
		0500		7 ²		

¹For 5, 25, and 50 only

²For 100, 200, 500 only

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