The biggest idea in single-use bioreactors just got smaller

Small

A miniaturized version of the XDR family, allowing linear scalability to 2000L scale in the same single-use platform while maintaining constant power and shear from bench to production. Shares geometric similarity, impeller design and product contact materials with its larger XDR siblings.

Strong

Proven stirred-tank design with the ability to monitor and control measurement factors at benchtop scale. Features industrial pH and DO transmitter compatible with conventional and single-use sensors

Smart

The XDR-10 features industrial level process control and the same Rockwell/Wonderware automation as the rest of the XDR line. A better understanding of process conditions at benchtop scale allows you to develop a better scale-up strategy for more efficient process development.

The XDR-10 single-use bioreactor is the latest addition to Xcellerex's industry leading line of GMP cell-culture systems. The XDR-10 shares the same robust design and vessel geometries as its larger siblings, providing seamless linear scale-up from 10L to 2000L. The XDR-10 also features industrial grade instrumentation and controls to deliver consistent process control across the entire product family. And of course, the XDR-10 also comes with the support of the hands-on cell-culture experts at Xcellerex to get your process up and running fast.

www.xcellerex.com

1.866.Xcellerex • xdr@xcellerex.com

Xcellerex®

XDR-10 System Specifications (Single-Vessel System)

Control Platform	
Integrated Control Unit	Built to GAMP standards/ 21 CFR part 11 compliance (optional)
CE	CE certified
Integrated Control Unit	Strongarm including 17" (42.5cm) monitor, Resistive Touchscreen Panel PC Station
Controller	Rockwell/ Allen Bradley Soft Logix
Operator Interface	Wonderware HMI
Data Historian Software	Wonderware
E-Stop	Integrated Safety Circuit for pumps, agitator, heating blanket, and filter heater
Hardware	Power switch and one (1) USB port on the rear panel
Features	Log In/Out, Alarms, Control loops, Setpoints, Trending
Network connection	Ethernet, RJ11

Vessel Features			
LLDPE Vessel	Working volume 4.5-10L (2.2:1 turndown ratio) Height to diameter ratio: 1.5 USP Class VI, Bio-compatible plastic film(s)		
Agitator	Drive: Servo motor coupled to magnetic drive head, wash down rated Range: 40-350 rpm, Bi-directional		Range: 40-350 rpm Readable unit: 0.1 rpm Accuracy: ±2 rpm
Tubing Manager	Push-lock tubing holder on the frame		
Temperature Control	Heating blanket	2x400W	

Process Instrumentation						
Transmitter for pH and DO	1	Rosemount - Panel integrated PID control loop to CO2 MFC and Base pump outputs PID control loop - Air, O2, MFC Gas mixing				
pH Probe	1	Range: 2-12 pH units Dual input transmitter				Readable unit: 0.01 pH Accuracy: ± 0.05 pH units
DO probe	1	Range: 0-200% atmospheric saturation Dual input transmitter				Readable unit: 0.01% sat. Accuracy: ± 1% of set point
Mass Flow Controller	4	1	Air	0-2 slpm	Headspace	Accuracy: ± 1% of set point
		1	Air	0-1 slpm	Sparger	
		1	O_2	0-1 slpm	Sparger or Headspace	
		1	CO_2	0-1 slpm	*Sparger or Headspace*	
			N_2	0-1 slpm	*Optional, Through O2 MFC, Sparger or Headspace*	
			Any	0-1 or 2 slpm	*Optional, Sparger*	
RTD Temperature Sensor	1	Single Probe with Dual Sensor System Operating Range: 4-60°C				Readable unit: 0.1°C Accuracy: ± 0.1°C
Pressure Sensor	1	Range: 0-2 psig, 0-0.14 bar				Accuracy: ±0.01 psig (±0.0007 bar)
Peristaltic Pump*	2	0-0.05 LPM (4.8mm tube)			WM 114, fixed*	Watson-Marlow Brushless DC-drive ** Max. flow rate with max tubing size*
	1	0-0.5 LPM (8mm tube)			WM 313, variable*	
Integration Capacity	2	AUX input				For external devices
Filter Heater Assembly	1	Blanket, Mounted to top of vessel 24 VCD with solid state relay for digital output (+card) to 50-60°C				

Options					
Optional Mass Flow Controller	2	Up to max. six (6) MFCs as shown above			
Optional Pump	1	WM 313	100 RPM	0-0.5 LPM (8mm tube)* ** Max. flow rate with max tubing size*	Panel mounted
Weight Control	Scale on stand - Mettler/Toledo or other with 30.01g resolution				0-60kg

Single-Use Bag Specification					
Bag Film	LLDPE contact layer				
Impeller Type	M40E	Material: HDPE	Impeller Diameter	5.4"	13.5 cm
Number of Blades	3		Di/ Dt	0.68	
Impeller Location	Center				
Ports (PRO)	4	Headspace gas(es): 1, Harvest/Drain: 2, Exhaust: 1			
	3	Probe (temperature, pH, DO)			
	4	Additions (base, feed, antifoam, and spare port)			
	1	Sample	Syringe with tube option for bag manifold (tube weld)		
Ports (PRO PLUS, for perfusion)	4	Headspace gas(es): 1, Harvest/Drain: 2, Exhaust: 1			
	5	Probe (temperature, pH, DO, 2 extra ports)			
	5	Additions (base, feed, antifoam, 2 extra spare ports)			
	1	Sample	Syringe with tube option for bag manifold (tube weld)		
	1	ATF (perfusion) port with dip tube			
Sparger	2	STD	2µm (1), 20µm (1) Sintered sparge disk		
	2	STD	2µm Sparge Disk with five (5) 0.5mm drilled holes (1) and five (5) 1mm drilled holes (1)		