

Model		EDF-5.5_1	EDF-5.5_2
Application		Microbiology	Cell cultures
Vessel	Total volume (L)	6.2	6.2
	Working volume (L)	2 – 4.5	2 – 4.5
	Diameter/ Height (mm)	150/350	150/350
	Ports	For mixer/agitator shaft; for pH, dissolved oxygen, temperature, foam, and liquid level sensors; tree needle port for acid base and anti-foam agent addition; chemo-stat tubes for level control and addition of bioreactor feed solutions; aseptic pierce-able membrane port; in-let gas port (0.2 µm filter added); exhaust gas port (0.2 µm filter added); 2 spare ports/ The ports are 4x10 mm, 4 x 7.5 mm – 7x12 mm (PG 13.5 mm)	
Bottom, sampling	Double wall bottom ensuring bioreactor thermostating Autoclavable aseptic sampler		
Aeration	Control	Rotameters (2), TMFC (option)	
	Gas supply	Air, + Oxygen	Air/Carbon dioxide + Oxygen, N ₂ (option) Air/Carbon dioxide in headspace
	Flow range, L/min	0.5 – 8.6	0.1 – 2.0 (other - option)
	Sparger	Ring sparger	Microsparger
	Filters	D50 mm 0.2 µm PTFE	
	Exhaust gas condensor	Cooling from water – line or chiller	
Mixing	Drive	Top magnetic coupling	
	Rotation speed range (rpm)	40 - 1300	40 - 500
	Mixer	2 Rushton turbines	2 pitched blade impellers
	Controller	Siemens Simatic S7 - 1500	Siemens Simatic S7 - 1500
	Operator panel	Touch screen Beetronics, 15TS7, 15"	
	Temperature	Built-in thermostat. Control range: from 5°C via coolant to 60°C. Accuracy:(measurement) +/- 0.1°C, (control) +/- 0.2°C	

Control	pH	Hamilton sensors (different options, including ARC). Acid/ Base 2 - 12 +/- 0,01pH units	Hamilton sensors (different options, including ARC). Acid/ Base Base/CO ₂ 2 - 12 +/- 0,01pH units
	Dissolved oxygen	Hamilton sensors	Hamilton sensors (different options, including Arc).
		(different options, including Arc). Control: mixing + O ₂ +feeding 0 - 150 % +/- 1%	Control: mixing + air/ Oxygen/ N ₂ / Carbon dioxide (option) 0 - 150 % +/- 1%
	Foam / Level	Conductivity sensor	Option
	Overpressure (option)	The control range 0-1 bar, measuring accuracy +/- 0.02 bar, control accuracy +/- 0.04 bar	
	Volumetric oxygen mass transfer coefficient k _L a, (option)		
	Respiration coefficient RQ, Oxygen uptake rate OUR, Carbon dioxide exchange rate CER (options)		
	Feeding	0.02 - 40 ml/min according to adjusted profile	
	Peristaltic pumps	4 built-in peristaltic pumps. External pump (option)	
	Communication and data exchange	Ethernet connection to LAN or WAN for remote maintenance or OPC; WiFi connection (VNC server) for smart phones and tablets	
	Dimensions	Total (mm)	930 (W) x 800(H) x 600(D)
Autoclaving	Required place (mm)	590 (H) x 270 (D)	590 (H) x 270 (D)
Optional sensors	Culture turbidity (optical density), culture permittivity (viable cell density), conductivity, methanol/ethanol, off-gas analysis (Oxygen, Carbon dioxide, CH ₄), etc.		
Fed-batch control (option)	Model based fed-batch control, using supplement PC program (based on Matlab or Python), and connected with SCADA trough OPC server.		