Specifications

	XCell ATF® 1	XCell ATF® 2	XCell ATF® 4
Process parameters			
XCell™ Controller model	XCell™ Lab	XCell™ Lab	XCell™ Lab
Bioreactor working volume | Suspension culture	0.5 - 2 L	2 - 10 L	8 - 50 L
XCell ATF® pump rate			
Nominal maximum	0.215 L/min	1.3 L/min	8 L/min
Recommended minimum	0.07 L/min	0.3 L/min	3 L/min
Recommended maximum for scale-up	0.144 L/min	0.9 L/min	8 L/min
Filtration rate (Perfusion | CFB) Recommended	2.1 L/day, 0.09 L/hr, 0.001 L/min	12.5 L/day, 0.52 L/hr, 0.009 L/min	74 L/day, 3.08 L/hr, 0.051 L/min
Ratio (XCell ATF® rate ÷ Filtration rate)	99	104	156
Recommended nominal flux	4.0 LMH	4.0 LMH	4.0 LMH
Filtration rate (Media exchange | Clarification)			
Maximum	0.44 L/hour, 0.01 L/min	2.6 L/hour, 0.043 L/min	16 L/hour, 0.26 L/min
Ratio (Maximum XCell ATF® rate ÷ Filtration rate)	20	21	31
Recommended flux	20.2 LMH	20 LMH	20.1 LMH
Filter effective surface area (Repligen)	0.022 m²	0.13 m²	0.77 m²
Pump displacement volume			
Minimum, maximum	0.016 L, 0.019 L	0.085 L, 0.115 L	0.38 L, 0.48 L
XCell™ Lab Controller pressure sensor (P2)	± 0.2 psi (0.013 bar), -14 to 14 psig (-0.96 to 0.96 bar), 2 (1 per XCell ATF® Device)		
Accuracy, range, number of sensors			
XCell ATF® Device permeate pressure sensor (P3)	± 0.3 psi (0.2 bar), -5 to 60 psig (-0.3 to 4.1 bar), 1 per XCell ATF® Device		
Accuracy, range, number of sensors			
Physical dimensions and weights			
XCell ATF® pump assembly			
Height, width	24 in (61 cm), 5 in (13 cm)	30 in (76 cm), 5 in (13 cm)	21 in (53 cm), 8 in (20 cm)
Nominal footprint	0.04 m²	0.04 m²	0.13 m²
Weight (with stand and liquid hold-up)	2 kg	2 kg	9.1 kg
Filter housing height	57.9 cm	61 cm	36 cm
Process connections and operations			
Bioreactor port and nominal ID	diptube 3.175 mm	diptube 6.35 mm	diptube 10 mm, ING1 15.5 mm
XCell ATF® connection			
SS XCell ATF® - Tri-clamp	N/A (SU only)	3/8 in TC	3/4 in TC
SU XCell ATF® - SU connector	AseptiQuik® S 1/8 in	GE Readymate™ Mini TC	N/A (SS only)
Weldable	Yes	Yes	Special tubing
XCell ATF® to bioreactor connection (A2B)			
Maximum A2B tubing length	14 in (35.6 cm)	14 in (35.6 cm)	14 in (35.6 cm)
A2B ID	1/8 in (0.32 cm)	1/4 in (0.64 cm)	3/8 in (0.95 cm)
A2B OD	1/4 in (0.64 cm)	3/8 (0.95 cm)	5/8 in (16 cm)
Filtrate connection			
SS XCell ATF® (hose barb or tri-clamp size)	N/A (SU only)	3/8 in TC	3/8 in TC
SU XCell ATF® (hose barb)	1.8 in OD (3.2 mm)	1/8 in OD (3.2 mm)	N/A (SS only)
Sterilization			
SS XCell ATF® - Autoclave maximum temperature	N/A (SU only)	253° F (123° C)	253° F (123° C)
SU XCell ATF® - Gamma irradiation max exposure	50 kGy	50 kGy	N/A (SS only)

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Specifications

	XCell ATF® 1	XCell ATF® 2	XCell ATF® 4
Utility connections (2 XCell ATF® Devices per controller)			
Compressed air			
Source air pressure, pressure regulation (factory set)	16 - 90 psig (1.1 - 6.2 barg), 15.3 psig (1.1 barg)		
Pressure relief (factory set), pressure maximum flow	15.6 psig (1.1 barg), 15 psig (1 barg)		
Required average flow, required peak flow	0.5 L/min, 0.9 L/min	3.3 L/min, 5.2 L/min	20 L/min, 32 L/min
Vacuum			
Pressure at peak flow	-12 psig (-0.86 barg)		
Required average flow, required peak flow	0.5 L/min, 0.9 L/min	3.3 L/min, 5.2 L/min	20 L/min, 32 L/min
Utility line connections			
Compressed air	Red, 10 ft, 3/4 in Tri-clamp, ID = 1/3 in, OD = 1/2 in tubing, QC connector		
Vacuum	Blue, 10 ft, 3/4 in Tri-clamp , ID = 1/3 in, OD = 1/2 in tubing, QC connector		
Electrical			
Power input	24 VDC (from 110 - 240 VAC, 60/50 Hz)		
XCell™ Lab Controller - peak current | average current	1.3 Amps | 0.8 Amps		
Tablet computer - average current	2.6 Amps		
System environment			
Operating temperature, humidity (non-condensing)	4° - 40° C (39° - 104° F), 15% - 95%, 10% - 50%		
Materials of construction (MOC)			
MOC of product contact components			
SS XCell ATF®	EPDM, Polysulfone, Silicone, Viton®, Polyester, PTFE and 316L SS (Ra 20 µin, 0.51 µm)		
SU XCell ATF®	EPDM, Polycarbonate, Polysulfone, Silicone, Viton®, Polyester, PTFE		
MOC of non-product contact components			
Enclosure	Powder coated 304 Stainless steel		
Device clamps on stand	ABS		
Flow sensors	Steel and Aluminum		
Flow sensor clamps on stand	Stainless steel		
HMI	Magnesium and Glass		
Utility air supply tubing kit	Polyurethane, Stainless steel		
Tri-clamps	Stainless steel		
Device stand	Stainless steel		
XCell ATF® to Controller (A2C) tubing kit	Polyurethane, Stainless steel		
Hardware and software specifications			
XCell™ Lab Controller			
Height, width[1], width[2], depth, weight	H: 15.3 in (38.9 cm), W[1]: 16.2 in (41.1 cm), W[2]: 22.5 in (57 cm), D: 12 in (30.5 cm), WT: 44 lbs (20 kg)		
Type, compliance	Allen-Bradley L19 Programmable Logic Controller, UL/CE/RoHS/REACH/WEEE		
Supply Air Protection Assembly (SAPA)			
Height[3], width, depth, weight (approximately)	H[3]: 14 in (35.6 cm), W: 20 in (50.8 cm), D: 7.5 in (19.1 cm), WT: 11 lbs (5 kg)		
Vacuum pump			
Height, width, depth, weight	H: 15.51 in (39.4 cm), W: 7.13 in (18 cm), D: 14 in (35.6 cm), WT: 21 lbs (9.52 kg)		
HMI and software specifications	Surface Pro 7, Windows 10 Pro 2004 kb, Wonderware version 2017 update 3.1		

(1) Controller width only. (2) Width with ports. (3) Varies with use of standard or extending arms.

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