

VHU® Module, PS / PP

Data Sheet

Rev. 01/2021



- ARTEMIS has developed and patented a “universal” tubular membrane module (VHU®) for the continuous harvesting of viral vectors, VLPs, monoclonal antibodies, recombinant proteins, etc.
- VHU® modules are single use.
- VHU® modules are connected to a bioreactor by sterile connections which comply with all pharmaceutical requirements.
- Retracement of installed materials
- PS/PP: USPVI quality polysulfone and polypropylene.

- A variety of module sizes accommodates a wide variety of applications for the production of viral vectors.
- The VHU® module is provided as sterile by gamma radiation (25kGa-40kGa).
- The VHU® module is also provided with CPC connectors (e.g. AQG 33012) for “plug&play”.
- All fluid path materials of construction meet USP Class VI requirements and do not contain any substances derived from animal products or are compliant with EMEA 410/01.
- All materials of construction are 100% lot traceable.

Operating Conditions

Type	VHU®1	VHU®2	VHU®3
Membrane Surface Area (cm ²)	60	527	7658
Length (cm)	20	60	90
Diameter (cm)	1.85	2.85	10.2
Pump Rate (Recommended Nominal Max-Min (LPM))	0.1-0.3	0.3-1	1-10
Permeate Flowrate (mL/min)	0.1-1	1-20	10-100
Pressure Drop (TMP)	<2 psi	<4 psi	<8 psi

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Parameter	Specification
Scalable	0.25L-1000L
Preferred	Single Use and Sterile Connectors
Pump	Levitronix i30, i100, i600 Single Use Pumps
Bioreactor	Bioreactor with a bottom port
Range of Operation	1x10 ⁶ -80x10 ⁶ cells/mL
Robust	Continuous Operation for 1 week
Cell Retention	>99%
LV Recovery	>99%

Parameter	Results		
Pool Volume VHU [®] 2	2L		
Yield	>99%		
Titer	1.3 x 10 ⁸ TU/mL		
Turbidity	<16 NTU		
NTU reduction	96.8%		
Process Time	1.5 hours		
Process Mode	Turbidity (NTU)		
	Broth	Post-Harvest	Clarified
Batch	50-90	N/A	Target: ~5
VHU [®] Perfusion	~500	<16	N/A

Type	VHU [®] 1	VHU [®] 2	VHU [®] 3
Hydraulic Connections			
Retentate (in)	¼"	3/8"	0.75"
Permeate (in)	1/8"	¼"	0.75"
Recommended Length of tubing return to SUB	<10"	<28"	<40"



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