

ZR-1000A Mask Viral Filtration Efficiency (VFE) Tester



The Viral Filtration Efficiency (VFE) test determines how well a mask filters virus-containing droplets about 3 microns in size. It is similar to BFE in that it uses droplets of similar size, but uses a different challenge organism (bacteriophage instead of bacteria).

The higher the VFE, the more effective a mask is as a barrier against viruses, including coronaviruses. A mask with a VFE of 95%, for example, blocks 95% of virus-containing droplets it is exposed to.

01 Principle

The Viral Filtration Efficiency (VFE) test follows the same procedure as BFE, except the challenge organism used is the bacteriophage phiX174.

Challenge controls are maintained at 1100-3300 plaque-forming units (PFU) with a mean particle size (MPS) of $3.0 \pm 0.3 \mu\text{m}$. This allows filtration efficiencies to be reported up to >99.9%.

02 Standard

- ✓ YY/T1497-2016 Evaluation of viral filtration efficiency of medical protective mask materials Phi-X174 phage test method

03 Features

- ✓ Double six-stage Anderson microbial sampler test systems with contrast sampling tests provide high accuracy.
- ✓ Internal aerosol generator provides stable and adjustable microbial aerosol flow. Internal pump can adjust the flow rate.
- ✓ Equipped negative pressure test chamber to ensure the safety of operators. Equipped light system to make the operations more clear and easy to do.
- ✓ 10.4 Inch touch screen control panel is easy to operate and supports USB data transmission.
- ✓ Equipped leakage protection and operating window provide better operating view and safety operating conditions.
- ✓ Stainless steel chamber with insulation and fire retardant lining is stable and reliable.



04 Parameter

Parameter	Range	Resolution	Accuracy
Sampling flow of channel A	(5-35) L/min	0.1L/min	±2.5%
Sampling flow of channel B	(5-35) L/min	0.1L/min	±2.5%
Spray flow	(6~8)L/min	0.1L/min	±5.0%
Peristaltic pump flow	(0.006~3.0)mL/min	0.001ml/min	±2.5%
Front pressure of channel A flowmeter	(-50~0)kPa	0.01kPa	±2.5%
Front pressure of channel B flowmeter	(-50~0)kPa	0.01kPa	±2.5%
Front pressure of spray flowmeter	(0~300)kPa	0.1kPa	±2.5%
Negative pressure of aerosol chamber	(-90~-120)Pa	0.1Pa	±2.0%
Working temperature	(0~50)°C		
Cabinet negative pressure	(-50~-200)Pa		
Data storage capacity	>100000 groups		
Characteristics of HEPA filter	≥99.99% for particle over 0.3μm		
HEPA filtration	(3.0 ± 0.3) μm geometric standard deviation ≤ 1.5		
Size of aerosol chamber	(length600×diameter85×thickness3)mm		
Negative pressure cabinet ventilation flow	≥5m ³ /min		
Negative pressure cabinet door size	(length1000×width737)mm		
Host size	(length 1180×length 650×height1300)mm		
Bracket size	(length 1180×length 650×height 573)mm,height adjustable within 100mm		
Power supply	AC (220±22) V, (50±1) Hz		
Noise	<65dB(A)		
Weight	About 250kg		
Consumption	<1500W		

