

XMV-CV Technical Data Sheet

The XMV-CV Aerosol Collection System is a civilian version of Dycor's successful XMV/2L-MIL collector, designed and built in response to the need for a weatherproof, outdoor aerosol collector. The XMV-CV has been sold to various first-responder and public health organizations around the world.

The XMV-CV is an aerosol separator, sample preparation, and high mass flow concentrator system, designed to operate under harsh field conditions. This system was designed to process and collect large concentrations of aerosols in the respirable range (1 to 10 microns in diameter) in relatively short periods of time, i.e., when the cloud is over the XMV. This system collects high volumes of air, strips away the large dust particles and the very small micro debris and concentrates the aerosols of interest. The particles are then impinged into a sample collection vial (centrifuge tube) containing customer specified liquid (normally type 1, sterile water or phosphate buffered saline). Once the sample is collected, the user removes the centrifuge tube for subsequent analysis (immuno-assay, PCR, culturing). One of the primary issues in bioaerosol detection is the fact that it is difficult to obtain enough sample of interest to detect an airborne threat concentration that is lethal to humans. Our system captures high concentrations of particles and prepares a small aqueous aliquot for analysis with minimal dilution.



Additionally, our XMV system is designed to operate under field conditions, while wearing full Personal Protective Equipment (PPE). There is superior system reliability, with only two moving parts, to reduce maintenance and ensure a high MTBF. The XMV system is quick and easy to set up and tear down to minimize training and improper or incorrect usage. The internal separator and collector components are easily disassembled to facilitate decontamination with various decontamination solutions, while maintaining part durability. This feature minimizes operator effort to reduce the possibility of cross-contamination between collection missions. This system comes with a high-strength transport container for increased mobility and portability (one person).

For dry collection applications, an alternative option is a dry filter that replaces the liquid vial. The particles, rather than impinging into water, are impacted onto the dry filter which is then removed and dissolved in liquid for further analysis. The filter adapter is an option, and the filter



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cartridges are COTS and are readily available. Depending on the application, a dry filter may be advantageous.

Specifications

Dimensions	Width: 46 cm, Height: 58 cm (with stack), Depth: 33 cm
Weight	Approximately 17 kilograms
Power Requirements	110V AC or 220V AC
Power Consumption	10 A @ 110V AC, 5A @ 220V AC (optional)
Intake Flow Rate	530 Standard Litres/Minute (SLPM) +/- 25 SLPM
Secondary Flow Rate	12 liters per minute
Particle Size Range	~ 1 – 10 microns
Operating Temperature Range	0 to +50°C
Decontamination Option (Application Dependent)	Air Purge – 5 minutes Bleach Paraformaldehyde VHP (Vaporous Hydrogen Peroxide)
Collection Vials	Fisher commercial-off-the-shelf 50ml centrifuge tube
Setup/Teardown Time	5 minutes
Collection Medium	Liquid – includes sterile water, PBS solution, surfactant solution OR Dry Filter – COTS filter
Collection Medium Volume	Fixed at approximately 5ml (liquid) ; minimizes dilution for integrated collection period
Ingress Protection (Environment)	NEMA-3 Rating

For further information on the XMV-CV Collector or any other Dycor products, please contact:

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