



**U.S.  
Air Filtration, Inc.**

## **U.S. AirFlo Cartridge Dust Collectors**

### **Product Specifications, Overview and Sizing Criteria**

The pulse-jet cartridge collectors shall be supplied in factory assembled module designed units, sized to meet airflow capacities and design requirements and shall include instruction manual and replacement parts list for easy installation and maintenance.

Each module shall be of welded and bolted construction using 3/16", 10, 12 gauge carbon steel sheet metal designed for (+/-) 20" wg. The unit shall come complete with pulse-jet piping, 1" single stage diaphragm valves, pilot solenoid valve in NEMA 4 control box, 4" square x 3/16" wall compressed air manifold, structural support legs with cross bracing and a discharge hopper with a minimum angle of 47° from horizontal and 10" square flange discharge opening. The compressed air reservoir shall be provided with a 1" NPT pipe coupling at both ends for attachment of clean and dry compressed air supply at 90-100 PSIG and at temperature not exceeding 150°F.

Filter cartridges shall be supplied with 80% Cellulose, 20% polyester blend media. Filters shall be arranged in a horizontal configuration serviced from outside of collector through an access port on left side of the collector.

Dust laden air will enter the collector above the filter cartridges and will be distributed around the filter elements by a baffle above the filters to provide even dust loading and minimized abrasion. Heavy dust particles will fall into a collection hopper at the base of the collector, and small light particles will be collected on the media surface. Clean air will pass through the media, enter the clean air chamber and exit on the rear side of the collector.

The collector shall be supplied with an upper / top inlet and lower rear-side outlet.

The collector shall be controlled by an electronic device (TIMER) which progressively energizes a pilot solenoid valve, which causes the diaphragm valves to pulse clean the filter cartridges with 90-100 PSIG compressed air supply. The pulse will be discharged from the air manifold through the diaphragm valves through the blowpipe and into the filter cartridge. A pulse of clean air will be induced into the cartridge blowing the dust from the surface of the media. Dust will be discharged from the hopper at the base of the collector.

### **Sizing and Selection Criteria**

The unit size is determined by air-to-media ratios. Based on our experience, typical ratios can be from 0.5:1 to 3.5:1. If loading is greater than 5 gr/ft<sup>3</sup> the use of cyclone or drop-out box before the unit is highly recommended.

The type of media is defined based on the type of dust to be collected. For fibrous dust, a cartridge with an open pleat design should be utilized. In addition, the ability of the dust to be removed from the collector without bridging between the cartridges or within the hopper should be taken into consideration.

Pneumatic conveying applications with loadings greater than 20 gr/ft<sup>3</sup> should be avoided. Process operations involving high temperature and humidity require special attention. Hygroscopic dusts such as fertilizer, salt, and sugar should be handled under a controlled environment (low relative humidity) in addition an appropriate media should be used. Applications with high hydrocarbons or oil contents should be avoided as these contaminants will deeply load and plug the cartridge media to the point where it cannot be properly cleaned.