

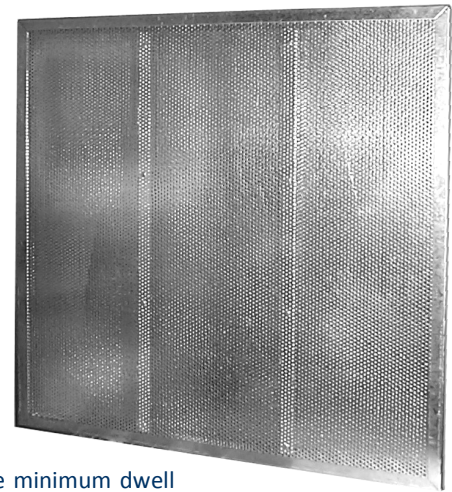
PRODUCT DATASHEET

LOOSE-FILL CARBON PANELS - GAS PHASE FILTRATION

Carbon filtration is ideal for removing unpleasant or even dangerous odours and gases from a wide variety of sources. The ever increasing awareness of this problem from public health authorities and environmentalists has resulted in an increase in the use of the unique properties of activated carbon filtration. Carbon will adsorb chemical molecules in the airstream in varying degrees according to the type of contaminant and the period of time the air remains resident in the carbon. Furthermore, the adsorption of gases can be enhanced by the impregnation of the carbon with suitable catalysts. Typical applications for carbon include: incoming air in industrial plants, airports, art galleries etc., or discharge air in kitchens, industrial processes, sewage plants etc.

System Design

In order to ensure a carbon filter operates satisfactorily, certain criteria need to be met which do not apply to particulate filters. The most important aspect is the "dwell time" (the period of time the air is in contact with the carbon). The minimum dwell time used is 0.1 seconds; this relates to 0.19m/sec through a 25mm nominal thickness panel. The dwell time may vary considerably according to the contaminant to be removed. In order to be able to present adequate surface area to the airstream, the panels will normally need to be mounted in 'V' formation within a casing or housing.



As far as possible, water vapour should be eradicated from the air-stream to eliminate condensation within the filter as this would cause porous blockage creating a dramatic increase in resistance. However, humidity levels as high as 80% RH are normally acceptable providing no interstitial condensation takes place.

Air-stream temperatures entering the filter in excess of 40°C should be avoided. In the case of anticipating temperatures above this level, steps should be taken to reduce the temperature to an acceptable level by fresh air bleed, cooling coil or heat exchanger. In catering and food preparation applications, smoke and grease must be removed from the air-stream prior to entry into the carbon.

Construction

The standard loose-fill panels are manufactured throughout in galvanised mild steel and provided with rigid internal braces. The durable cell will easily accept the forces necessary to ensure a suitable carbon fill without bellying or distortion. The panel is provided with a removable end channel located by machine screws into threaded bushes that are simply removed for filter replenishment using a standard cross-head screwdriver.

Performance

Due to the complex nature of adsorption, carbon filters are generally designed to suit the application, however, the following information is given as an indication of the physical requirements for its use:

Typical Panel Size (HxWxD)	Active carbon Weight	Rated Airflow (m3/hr) at 0.1sec dwell	Resistance at 0.1 sec (pa)	Rated Airflow (m3/hr) at 0.2 sec dwell	Resistance at 0.2 sec (pa)
592x592x23mm	3.7kg	290	200	145	85

Maximum Temperature: 40°C

Maximum Humidity: 80% RH

Special Carbon Grades

Special Grades of carbon fill are available for specific applications. This product is available in bespoke sizes and finishes.

Please note: In their continuous search for product improvement Westbury Filtermation reserve the right to change materials and specifications without prior notice.