



## **ASC INTAKE FILTER SYSTEM**

**State of the art in  
Turbine Intake Filtration**



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# ASC

## Self Cleaning Intake Filter System

The ASC Self-Cleaning Intake System is a revolutionary new concept in inlet air filtration for gas turbines and other smooth intake flow machinery. It combines inertial separation with self-cleaning air filtration in one compact package.

When used on new installations, the compact size means less delivery and installation expense.

It is ideal to retrofit old self-cleaning or barrier filter systems, where it can generally be mounted directly on the existing foundation or support structure.

The ASC Intake System provides a constant flow of filtered air. The self-cleaning

filtration system eliminates the necessity for short term filter changeout, a characteristic of most barrier filtration systems. Because of the self-cleaning feature, the ASC Intake System can operate continuously without shutdown providing prolonged periods of uninterrupted service before filter changeout.

### SIZE COMPARISON

The ASC Intake System is considerably smaller and more compact than either a conventional barrier system or a self-cleaning filter system of comparable capacity. In fact, the ASC Intake System can be as small as 25% the

size of a comparable self-cleaning filter.

What does this mean to you? Firstly, considerable savings in shipping costs and, because the ASC Intake System is factory assembled, savings in installation time and expense. Plus, for retrofit installations, the ASC Intake System can easily adapt to the existing foundation or support structure.

### OPERATION

In normal airflow operation (see figure 1), dust laden air enters the ASC Intake System and is cleaned by passing through the Panel Pak filter elements. The clean filtered

air exits through the venturis into the clean air plenum and on to the turbine intake. However, by means of the integral secondary air cleaning circuit, as much as 90% by weight of the dust may be removed from the incoming air by inertial separation, depending on the cumulative concentration of the contaminants, before it reaches the Panel Pak filter elements.

The inertially separated dust together with the secondary air (normally selected @ 8% to 10% of the primary air volume) is conveyed into the secondary air circuit where the secondary air fan exhausts it to atmosphere

#### FEATURE

- Small, compact package
- Factory assembled
- Contributes to acoustic attenuation
- Low operating pressure drop compared to conventional filters
- Self-cleaning
- Secondary air circuit to exhaust dust particles.
- Solid state controls
- Fewer air valves and solenoids compared to typical self-cleaning filters
- Single face inlet.

#### BENEFIT

- Easily adapts to existing foundations and reduces shipping cost.
- Reduces installation time and expense
- Eliminate or reduce requirements for additional intake silencing.
- Reduces fuel consumption at given output
- Allows continuous uninterrupted operation for prolonged time periods.
- Results in very high efficiency eliminating re-entrainment of "pulsed particles".
- Can operate automatically with minimal operator supervision.
- Reduces field maintenance.
- Minimises service platforms required and provides easier access for filter changeout

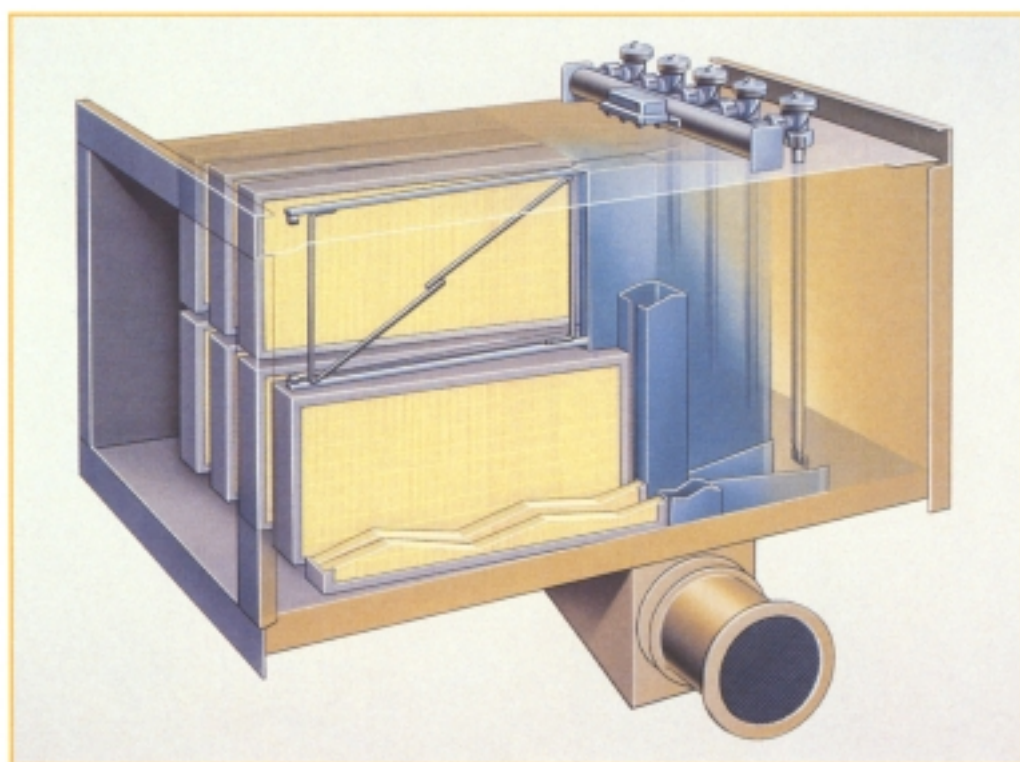


at any desired point of discharge.

Entry to the secondary air circuit is through a strategically located slot at the apex of the "V" formed by the two adjoining Panel Pak filter elements. This secondary air slot leads into the vertical secondary air duct that conveys the particulate to a horizontal dust chute exhausted by the secondary air fan.

Upon reaching a preset differential pressure loss or time interval, the automatic self cleaning system is initiated (see figure 2). The reverse air cleaning cycle is controlled by a solid state printed circuit timer which is housed in a control panel assembly. The timer sequentially energises the solenoid valves that activate diaphragm valves to discharge sharp bursts of compressed air through vertical blowpipes located in the clean air plenum. Orifices in the blowpipes direct the compressed air horizontally through the venturis into the filter chamber. This momentary pressurisation and reversal of air flow dislodges the accumulated particles from the filter elements, automatically reconditioning the filter for continued, uninterrupted service.

The dislodged dust is immediately drawn into the secondary cleaning air circuit together with the scavenge air. In this manner there is no re-entrainment of the dislodged dust back to the filter elements.



## CONSTRUCTION

The ASC Intake System consists of a housing, Panel Pak filters, a secondary air circuit, finger assemblies and a cleaning mechanism.

The housing is made of hot rolled steel with all welded construction. The Panel Pak filters incorporate a uniformly pleated synthetic/cellulose media, encapsulated in a galvanised steel frame.

The vertical dust chutes of the secondary air circuit are all welded construction and are rigidly attached to the outer shell. The all welded steel horizontal secondary air exhaust duct has a flanged connection for the secondary air fan.

The finger assemblies are made with all welded construction and then zinc coated for long life.

The cleaning mechanism

consists of an external reservoir tank. Air regulators, filters and pressure gauges are standard. The cleaning mechanism controls are factory installed. All factory wiring of the controls conforms to applicable electrical codes.

## ACOUSTIC ATTENUATION

The fibrous nature and density of media packs in conjunction with the deep "Vee" formation provides acoustic attenuation which matches the spectral characteristics of Gas Turbine intake noise. This results in exceptional acoustic performance on Gas Turbine intake systems (at least 20 dB(A) reduction) thus reducing, or even eliminating the intake silencer requirements.

## OPTIONS

The configuration and orientation of the ASC Intake System mean that it is possible to combine it with additional forms of air treatment such as:-

- Rain or snow hoods
- Weather louvres or coalescer sections.
- Evaporative cooling
- HEPA (High Efficiency, Particulate Arrestance) or other very high efficiency barrier filters.

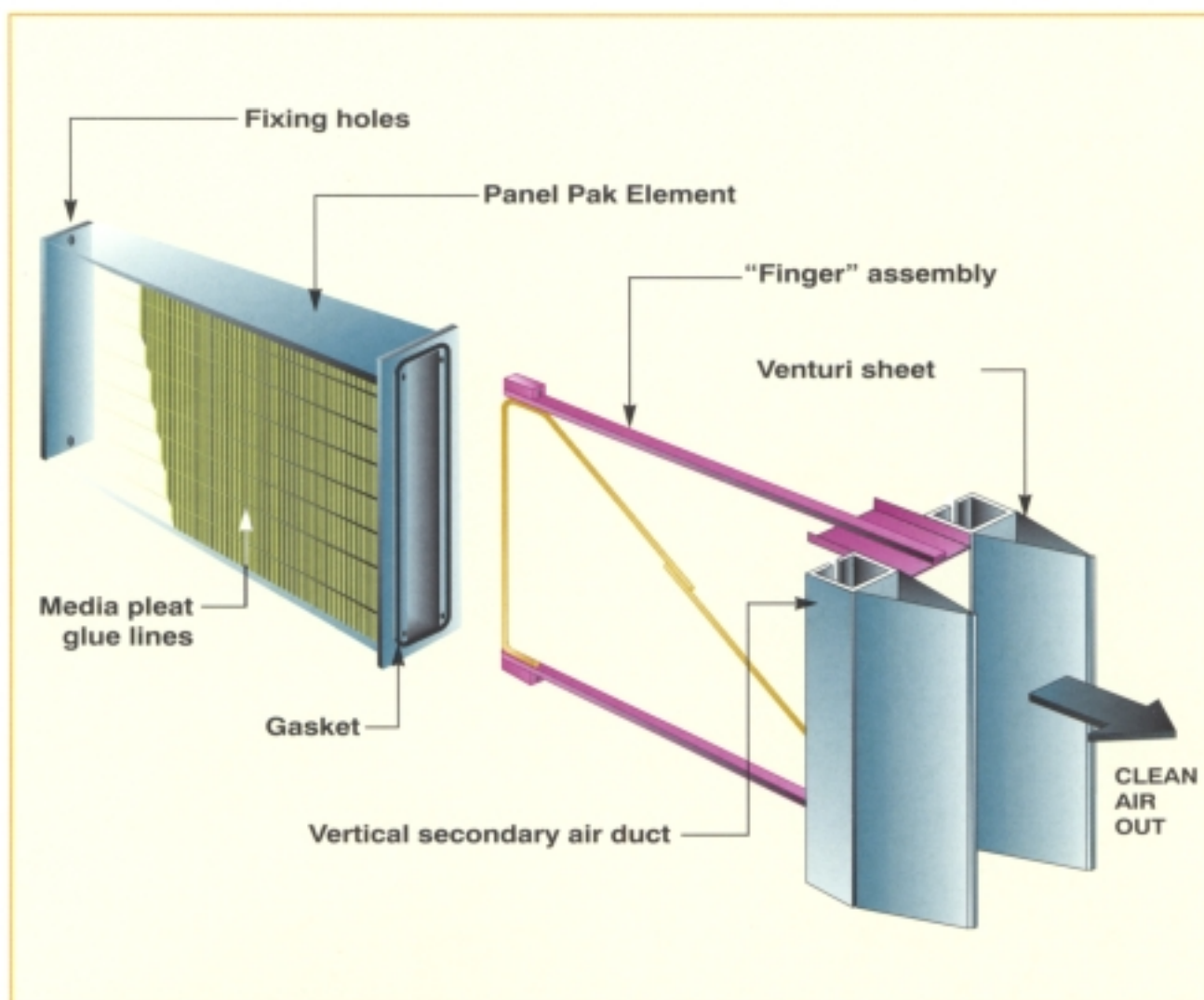


Figure 1



Figure 2





## PANEL PAK ELEMENTS

The Panel Pak filter elements are sturdily constructed with a galvanised steel framework encapsulating the media packs.

The high efficiency media is a blend of synthetic and cellulose fibres specially treated to provide exceptional resistance to high humidity conditions. The media is uniformly corrugated and pleated to ensure even spacing and fixed in position by thixotropic glue lines. This media pack construction supports and separates the

pleats to ensure evenly distributed airflow.

To further strengthen the media packs, metal stiffeners are placed at 150mm centres within the media pleats. The rigid

media packs, with a wire mesh guard fitted to the air leaving face to provide additional support, are assembled into the steel cell sides and sealed with a fire retardant epoxy resin.

Each Panel Pak filter element is supplied with a moulded gasket fitted to the air leaving face, which guarantees a positive airtight seal every time the filter is changed.

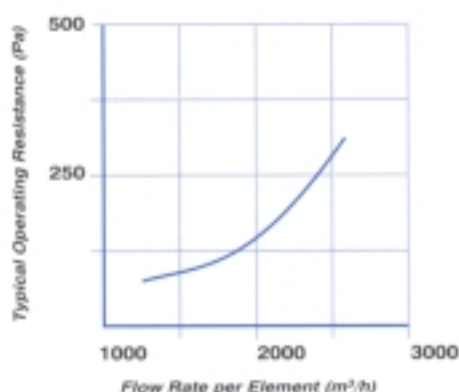
### Technical Data

<b>Initial Resistance (typical)</b>	<b>300Pa</b>
<b>Weight Arrestance (AC Fine test dust)</b>	<b>99.7%</b>
<b>Average Dust Spot Efficiency</b>	<b>90%</b>
<b>Media area each element</b>	<b>46.5m<sup>2</sup></b>
<b>Dimensions (nominal)</b>	<b>610mm high x 250mm wide x 1220 long</b>
<b>Weight each element</b>	<b>25kg</b>
<b>Operating temperature</b>	<b>55°C</b>

## TECHNICAL INFORMATION

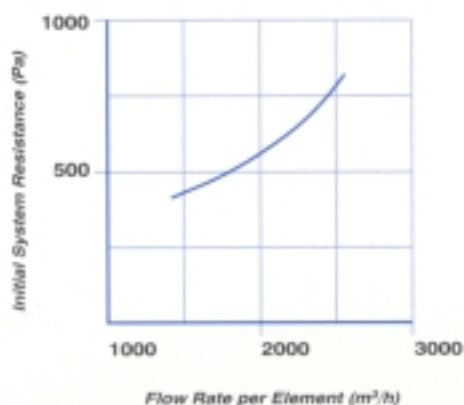
### Technical Information - Curve A

Primary resistance versus intake volume ( $\text{m}^3/\text{h}$ ) per Panel Pak filter is shown on Curve A.



### Technical Information - Curve B

The typical operating resistance is the operating differential pressure of for the ASC Intake System after the Panel Pak filters become "loaded". The time required to reach the operating resistance will vary depending on the site conditions, dust load and dust type.



### Acoustic - Performance Data

Frequency Hz	125	250	500	1000	2000	4000	8000
Dynamic Insertion Loss	6	11	10	29	28	28	29

We have a policy of continuous product research and improvement and reserve the right to change design and specifications without notice.



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