



AIR INTAKE SOLUTIONS THAT PROTECTS FROM DUST & WATER

INOVANE[®]

Tempest

INERTIAL CYCLONE
FILTRATION

Air Intake Filtration

THE PROBLEM

Your equipment is under constant attack by a wide range of airborne contaminants, many of them invisible to the human eye. Once inside a compressor or blower, they corrode and erode internals and foul up processes. 7 Way air intake systems reduce energy costs and protect your compression equipment from unnecessary downtime. Clean intake air is therefore one of the most effective ways to save energy and control escalating maintenance costs.

7 WAY SOLUTION

Perhaps, you are not sure how to best protect your investment. Count on 7 Way to do more than just sell you a filter. 7 Way will carefully evaluate your specific need, situation and possibilities at your site. We will then recommend the most effective combination of filter design and element efficiency to save you money.

SYSTEMS

7 Way design and manufactures air intake filters with capacities from 0,5 m³/s to 30 m³/s and all with adapted connections. Custom engineered air intake systems are available for applications with higher flow rates, requiring acid gas removal, and to adapt to hostile environments - to name a few.



Helping Compression Equipment Breathe Easy

Contaminants at the intake of compressors, blowers and turbines dramatically affect the cost of supplying compressed air. Inefficient intake filtration permits contaminants to corrode, erode and foul internals.

7 Way air intake filters will deliver optimum performance, energy savings and protection to gain long component service life

7 WAY manufactures custom designed systems that are both cost-effective and offer the necessary level of protection for your equipment.

The InoVane Tempest separates and removes dirt, sand dust and other particles from intake air before it can inflict internal damage to expensive rotating machines as: Gas Turbines, Diesel/Gas Motors, Compressors and blower systems. Dimensions can easily be adapted for the specific application and could also be designed for fitting onto any static air intake and standardized HVAC aggregate, and will considerably extend the lifetime for filters. The unit is very effective and is easily integrated and fitted in front of any intake. Tempest filters work best in extremely dirty environments where contaminant loading is a problem for conventional air-intake filtration. The Tempest is a highly effective inertial separator, - superb also for water.

Description

The InoVane Tempest unit is a heavy duty self-cleaning filter, equipped with matrix modules of inertial separators for filtration of both dry and wet contaminants. Modules in strong corrosion-free construction means that the InoVane Tempest can be installed in hostile environments.

Typical applications include:

Air inlet Pre filter in all types of industrial, public and commercial buildings

Pre filter for air intakes to rotating machines as: Gas Turbines, Diesel/Gas Motors, Compressors Blower systems and Generators

Pre filter for air conditioning and ventilating systems in heavy industrial conditions.

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THE TEMPEST MODULE

The 7 Way InoVane Tempest Multi Cyclone Module, which is the heart of the system, is a compact mechanical separator which can be used independently or in combination with secondary filter elements in a variety of air filtration systems. It is designed to conquer tough contaminants, providing clean, smooth air flow in a range of applications and conditions. The self-cleaning feature makes it ideal for locations where heavy contaminant loading is a problem for conventional air-intake filtration. The strong corrosion resistant construction means the Module can be installed in hostile environments. In addition, it is unaffected by wide ambient temperature variations – maintaining stability and operational integrity from - 40°C to + 93°C.

REDUCING DIRT

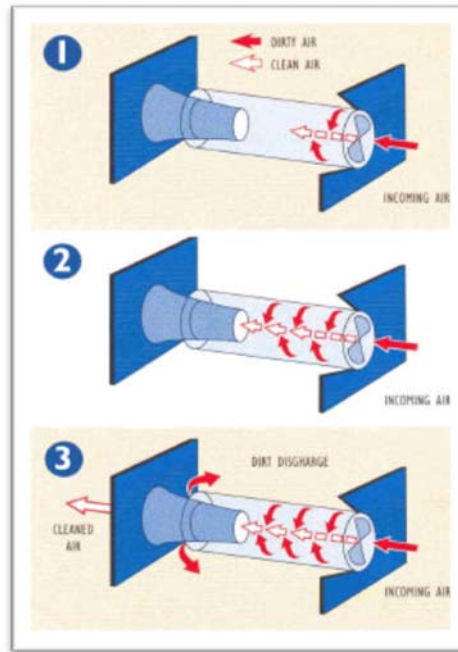
By greatly reducing dirt loading on secondary filter elements in a system, the Cyclone Filter Module provides long-term economies by extending the service life of an air-intake system. Used alone, it removes 98% of solid particles 15 microns and larger from an air stream. In addition, it will remove up to 99.4% of moisture, whether in the form of liquid mist or snow.

Material

Unit enclosure / Casing:
Galvanized steel.
Stainless steel.
Aluminium.

Tempest Cyclone module:
High Density PP.

Operating Principle



Description

The InoVane Tempest unit is a heavy duty self-cleaning filter, equipped with matrix modules of inertial cyclone separators for filtration of both dry and wet contaminants. Modules in strong corrosion-free design and Construction.

The standard Cyclone Filter Module is mold-formed of rugged, high-density polypropylene. Through centrifugal force, contaminants are removed from the air stream as it is drawn through tubes. The cyclone Filter Module's remarkable efficiency is the culmination of years of engineering design, laboratory developments and field testing.

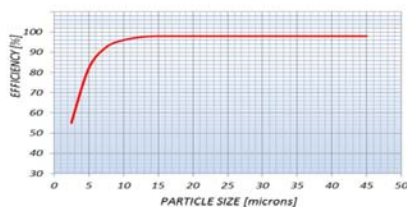
Efficient Operation

Air enters inlet tube, striking stationary spinner and developing high radial velocity. Inertial action forces contaminants to the periphery of the tube, separating them from the main air stream. Main air stream, now cleaned, exits straight through the center discharge tube.

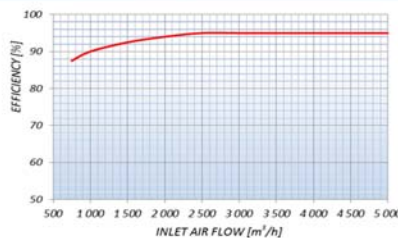
Secondary discharge

Contaminants are carried by a secondary discharge stream into a bleed duct system. The secondary airflow should be approximately 10% of the primary air flow. If additional ducting is required from the fan, the appropriate external resistance must be added.

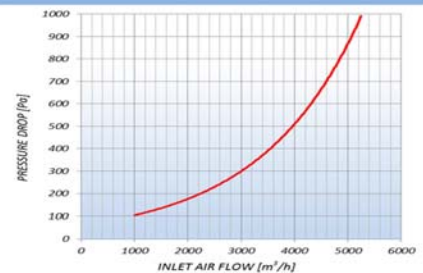
PERFORMANCE DATA



Efficiency vs Particle size: The InoVane Tempest has a dust removal efficiency of 98% for particles 15 microns and larger. This graph provides complete data on particle size removal efficiency showing that it will remove over 93% of all solid particles 8 micron or larger. In addition the InoVane Tempest has a water removal efficiency of over 90%.



Efficiency vs Air Inlet Air Flow: This graph indicates the effect at inlet air flow variance on efficiency. Based on AC Coarse Test Dust with particle size ranging from sub-micronic to 200 microns, it illustrates the efficiency of the InoVane Tempest module through a wide range of inlet flows.



Pressure Drop vs Air Inlet Air Flow: Pressure drop through the InoVane Tempest is low (after the stationary spinners) due to the straight air path through the tubes. The graph shows a pressure drop of 270 Pa at an air flow of 2750 m³/h through the standard Tempest module.