



**Donaldson**  
*Filtration Solutions*

## Filtration Solutions for Gas Turbines

*Technological innovation combined with  
global manufacturing & distribution*



*Look inside for:*

- Filtration System Overview*
- Donaldson Filter Media Summary*
- Donaldson Background*

## Choose Donaldson Spider-Web® for Highest Turbine Availability

Donaldson's patented Spider-Web® media technology consists of a "web" of submicron diameter fibers bonded to a substrate of Donaldson filter media. [see photo] This nanofiber web significantly improves the media's ability to collect dust particles on its surface, and minimizes the number of particles that penetrate into its depth. In traditional filter media without Spider-Web®, particle ingress shortens filter service life.

To further enhance filter efficiency on sub-micron particulate Donaldson developed and patented Spider-Web® XP. Spider-Web® XP features the nanofiber layer on both sides of the substrate filter media. Thanks to this unique design initial filter efficiency is improved. For

urban and industrial locations with high concentration of particles below one micron in size, Spider-Web® XP offers best turbine protection against fouling.

### Spider-Web® filters provide:

- **Better dust particle release**
- **Lower, stabilized pressure drop**
- **Improved turbine availability**

Authentic Donaldson Spider-Web® looks blue.



## Media Substrate Choices

**Synthetic** --- man-made fibers that have superior dust-holding capacity, and are sturdy, durable, and moisture resistant. Best filtration performance in most cases, especially consistently wet environments, those with salt-laden air, and/or urban/industrial.

**Duratek®** --- our special blend of man-made and natural fibers designed to resist moisture and thereby resist media swelling & bunching. This works well in environments that are intermittantly wet, humid or damp.

Photo of Spider-Web® under our scanning electron microscope shows the nanofiber web of sub-micron-diameter fibers over the media substrate.



## A Full Line of Replacement Filters for Donaldson Systems, and for Other Brands

## Variety of Inlet Filters

- Cartridge filters for Donaldson GDX & TTD self-cleaning systems
- PowerCore® panel filters for Donaldson XLR Systems
- Cartridge filters for Donaldson GDS static systems
- Donaldson Composite-Filter™ 2-stage cartridge filters
- Donaldson PowerCore® 24" x 24" square panels
- 20" x 20" panels and 24" -sq mini-pleats
- Flange-Top cartridges (like Farr Tenkay)
- Twist-Lock cartridges (like Pneumafil)
- 2by4 panels (like AAF)
- Pre-filters, both wraps & panels

## Field Services

- Filter Change-out & Disposal
- Annual Inlet System Inspection
- Annual Commissioning of Evap Cooler System
- Inlet System Repair & Upgrades

## Filtration Systems to Conquer Even the Most Challenging Environments

### About Donaldson

Donaldson is a worldwide designer and manufacturer of filtration products. It was founded in 1915 by Frank Donaldson, Sr. when he invented the first successful engine air cleaner for an agricultural tractor.

Since then, the company has grown to provide filter systems for heavy duty mobile equipment, in-plant applications, gas turbine engines, and high purity applications. Donaldson has 30 production facilities in countries around the world. Common stock is traded on the New York Exchange. Donaldson has experienced strong sales growth for the past 15 years, with total sales in fiscal year 2004 in excess of \$1.4 billion US dollars. Worldwide, more than 10,000 people are employed by Donaldson.

Donaldson's business focus is diversification around the core technology of filtration. We have developed hundreds of proprietary filter media, each formulated for maximum performance in specific applications.

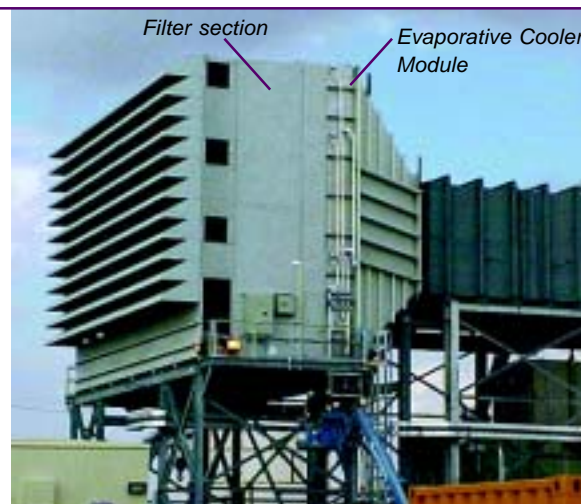
### About Donaldson GTS

Donaldson Gas Turbine Systems (GTS) operates globally, producing air inlet filter systems and related air inlet products that protect gas turbines, compressors, and generators from airborne contaminants.

Donaldson GTS began designing and producing gas turbine inlet systems in the late 1960's, and in the 1970's became well known for innovative self-cleaning filter technology, dubbed *Huff 'n Puff*. We offer high quality filtration and silencing products to OEM's and end-users, at competitive prices, everywhere in the world.

Donaldson GTS is head-quartered in Minneapolis, Minnesota, USA, and has engineering centers in Minneapolis, Minnesota; Leuven, Belgium; Tokyo, Japan; and New Delhi, India.

*Our inlet systems for large turbines are the defacto standard around the world. Available for airflows up to 1.2 million cfm, either self-cleaning (pulsed) or not, with a variety of filter media choices. This GDX model has an evaporative cooler module behind the filter section. (Hot & humid area in Louisiana USA)*



*These air filtration systems have dual inlets to provide plenty of airflow to the turbines. Note the bird/trash screens over the inlet areas that protect the primary filters from debris. (Desert area of USA)*

*Right: This self-cleaning filtration system includes chiller coils to cool the air to optimum temps. (Northern area of USA)*



*Below: Mounted on the outside of the building, this self-cleaning filter system also has a chiller section. (Northeast coastal area of USA)*



### Air Inlet Filter Enhancements

- Inlet Silencing
- Inlet Cooling
- Anti-Icing Systems/Inlet Heating
- Transition & Ducting
- Salt Removal

### Conversions, Modifications, and Upgrades

- Inlet Cooling
- Bird/Trash Screens
- Inlet Moisture Removal
- Upgrade to a Self-Cleaning System



*This small self-cleaning filter system protects a gas turbine in an arid region of South America.*

## Global Capability

Donaldson Gas Turbine Systems has developed a network of qualified suppliers to complement Donaldson Company's worldwide production and engineering capabilities. We meet local content requirements through the combination of the supplier network and our own facilities located throughout the world.



Air filter systems and filter elements are produced in Donaldson's own facilities in Europe, Asia and North America. Metal fabrication and/or filter element production done as close to the end site as logical.



Donaldson uses advanced computer-aided design engineering for structural analysis, fluid dynamic analysis, and

filter modeling. We have state-of-the-art laboratories for filter media development and media evaluation; a chemical analysis lab to study the chemical composition of contaminants and the effectivity of various filter media formulations on them; and several laboratories dedicated to acoustic analysis that include an anechoic chamber and engine dynamometers.

## World Class Quality

Donaldson quality control systems and quality engineering staff ensure that our products meet world class quality levels. Donaldson operations in Europe, U.S. and India have been qualified to ISO 9001 standards.



FM28249



**Donaldson**<sup>®</sup>  
Filtration Solutions

## Where to Find Us:

[www.donaldson.com](http://www.donaldson.com)

### Corporate Headquarters

#### Serving the Americas

Donaldson Company, Inc  
PO Box 1299, 1400 W. 94th St.  
Minneapolis MN 55440 USA  
Phone: 1-952-887-3131  
Fax: 1-952-887-3843  
email: [filterinfo@mail.donaldson.com](mailto:filterinfo@mail.donaldson.com)

### European Headquarters

#### Serving Europe, Africa, Middle East

Donaldson Europe, BVBA  
Research Park Zone 1, Interleuvenlaan 1  
B-3001 Leuven, Belgium  
Phone: +32-16-38-3940  
Fax: +32-16-38-3939  
email: [gts-europe@mail.donaldson.com](mailto:gts-europe@mail.donaldson.com)

Donaldson Middle-East Office  
Abu Dhabi, United Arab Emirates  
Phone: 00 971-6 7 45-2238

### Asia/Pacific Headquarters

#### Serving the Asia/Pacific Region

Donaldson Filtration Asia Pacific Pte Ltd  
No. 3, Changi Business Park Vista #02-00  
Singapore 486051  
Phone: 65-6311-7373  
Fax: 65-6311-7398  
email: [gts-asiapacific@donaldson.com.sg](mailto:gts-asiapacific@donaldson.com.sg)

Donaldson Australasia Pty. Ltd.  
New South Wales, Australia  
Phone: 61-02-4352-2022

DI Filter Systems Pvt. Ltd.  
New Delhi, India  
Phone 0091-124-229-0350

Donaldson Shanghai Office  
Shanghai, Peoples Republic of China  
Phone 86-21-5425-3508

Donaldson Far East Ltd.  
Hong Kong  
Phone 852-2402-2830

PT. Donaldson Systems Indonesia  
Jakarta, Indonesia  
Phone: 62 21 78841128 (Hunting)

Nippon Donaldson, Ltd.  
Tokyo, Japan  
Phone: 81-42-540-4112

Donaldson Korea Company, Ltd  
Seoul, Republic of Korea  
Phone: 82-2-517-3333