



# AirCair™

TAKING CARE OF YOUR AIR

## CAMFIL POWER SYSTEMS IS A ONE-STOP SHOP FOR ALL YOUR FILTRATION NEEDS.

AirCair Turbo Services will keep your turbine fleet operating at peak performance with minimal downtime. We take care of your air so you can breathe easy knowing that your turbines are protected.

The Camfil Group is headquartered in Stockholm, Sweden, and has 31 manufacturing sites, six R&D centres, local sales offices in 35 countries, and about 5,200 employees and growing. We proudly serve and support customers in a wide variety of industries and in communities across the world. To discover how Camfil can help you to protect people, processes and the environment, visit us at [www.camfil.com](http://www.camfil.com).



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

For further information please contact your nearest Camfil office.  
CAMFIL – Clean Air Made for Improving Life

Clean air solutions for turbomachinery

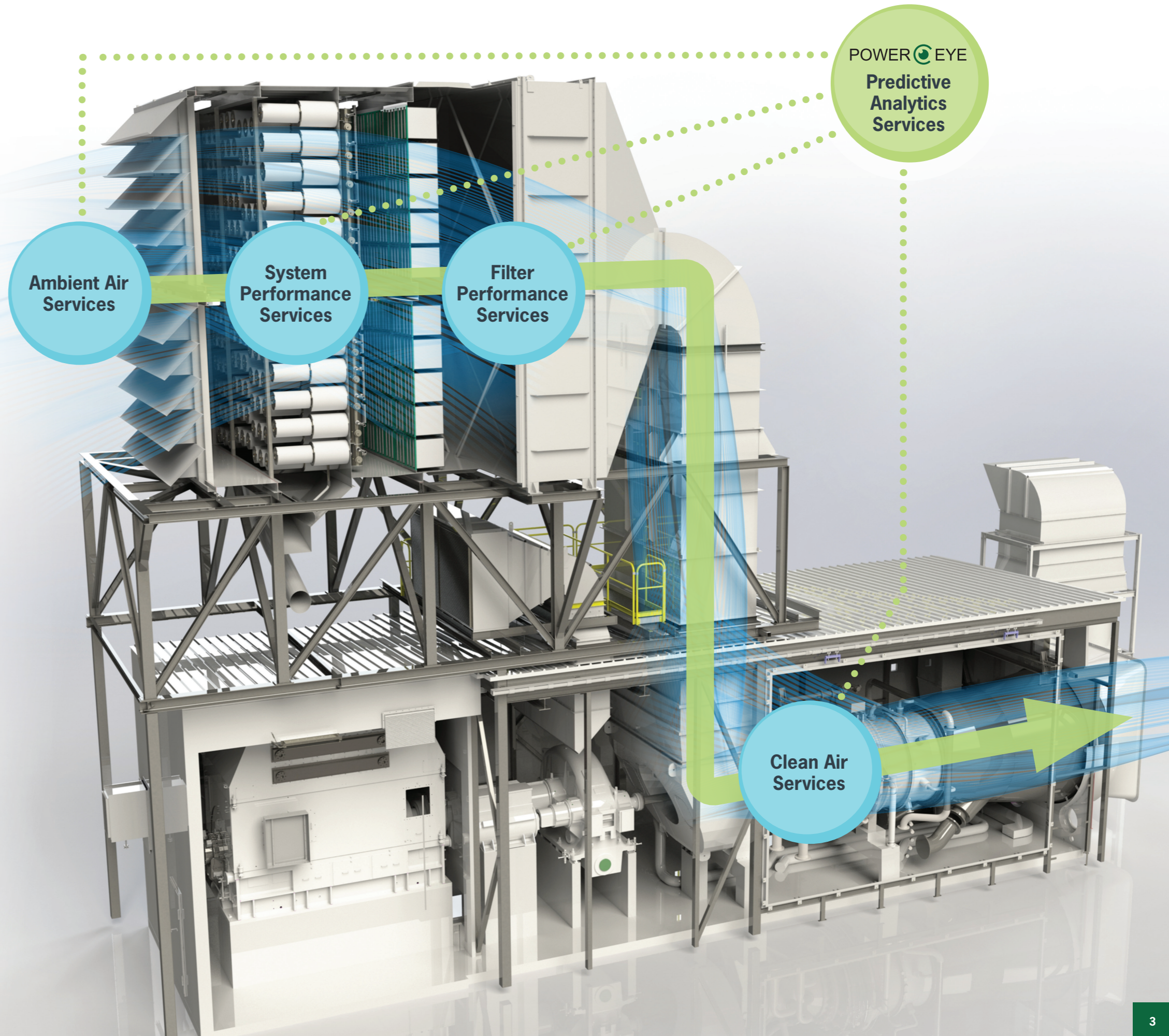
## TAKING CARE OF YOUR AIR

Turbomachinery engines can ingest thousands of tons of air each day. Air quality changes over time and harmful contaminants in that air can foul your engines, corrode critical components and degrade engine performance. That means you get reduced power output and lose millions of dollars in lost revenue. So, it is critical to understand what's in the ambient air around your assets so you can ensure your filtration system is keeping them safe.

That's where our **AirCair™ Turbo Services** come in. We deliver expertise and insights built on a worldwide network of filtration experts and predictive analytics tools that pull from decades of real-world historical data. Our team will work closely with you to improve existing systems or help define the optimal solution for new investments using our AirCair Services, educational programs like Test & Learn Events, and proprietary Life Cycle Cost (LCC) Analysis tool.

## WE HELP ALONG THE ENTIRE AIRFLOW PATH

Our **AirCair Turbo Services** help along the entire path of airflow through your turbines...from analysing the ambient air coming in, to selecting the most cost-effective air intake solutions, validating the performance of your existing system and confirming the cleanliness of your engines. We take care of your air so you can breathe easy knowing that your turbomachinery assets are operating at peak performance with minimal downtime.



POWER EYE  
Predictive  
Analytics  
Services

Ambient Air  
Services

System  
Performance  
Services

Filter  
Performance  
Services

Clean Air  
Services

## PREDICTIVE ANALYTICS SERVICES

Optimize schedules for water washes and filter changes and accurately predict power output.



### PowerEye



PowerEye delivers the insights you need to shift from reactive to proactive mode. We install an air monitoring station to provide accurate information about the ambient air around your facilities.

Our proprietary algorithm predicts how different filters, ambient dust levels and changing weather patterns will affect the performance of your gas turbines. Then we accurately predict forecast capacity, optimize water wash frequency, and forecast when filters should be changed out to prevent high-pressure drops that derate your engine. 24/7 online insights about heat rate degradation, compressor efficiency and engine output can save you thousands or millions in operating expenses.

There are three levels of service that you can choose from to suit your needs – PowerEye Lite, PowerEye Pro and PowerEye Max.

### Turbine Performance Analysis

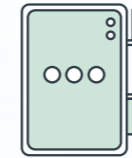


When you share your historical data regarding turbine performance, we analyze how your system has been performing and if there is room for improvement. We analyze all data including compressor efficiency, performance and pressure drop trends, and provide a detailed report.



## AMBIENT AIR SERVICES

Assess your site conditions to optimize filter and new air inlet system requirements.



### Air Monitoring Station (AMS)

We install an AMS near the air intake for each turbine to provide continuous information about ambient air conditions including temperature, humidity, and the particulate levels (PM1, PM2.5 and PM10). This data helps us understand particle size and how particle concentrations change over time so that we can select the right number of pre-filtration stages and the proper final filter efficiency you need.



### Air Sampling – Cassette and Cascade Impactor

These air sampling tests provide a snapshot about the contaminants present in the ambient air – contaminants that you need to be kept out of your turbines. Using this data, our team can determine the types of contaminants and their mass distribution. Then we can recommend the filtration stages that you need to build into your system to deliver the best protection against engine degradation.



### Site Corrosivity Analysis

These on-site tests use a variety of tools to determine the level of corrosivity at your site by analyzing salt and gases present in the ambient air. Armed with this information, we can determine how to prevent catastrophic damage like hot end corrosion. It also helps guide the choice of materials for the air inlet system, as well as the level of protection needed for your control room.



### Environmental Assessment

By combining the data generated from multiple tools, we can get a complete picture of your ambient air conditions – including the contaminants from nearby industrial processes, vegetation or transportation. This detailed evaluation enables us to conduct a root cause analysis on the issues you're experiencing at your site and recommend a filtration upgrade or new filtration system that will perform best with the lowest life cycle cost.

## SYSTEM PERFORMANCE SERVICES

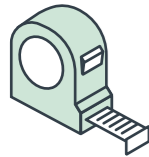
Get a health check of your entire air inlet system, recommendations for upgrades and expert system and filter installation.

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### Full Air Inlet System Inspection

We begin this service with an in-depth health check of your entire filtration system. This includes validating auxiliary systems and filters to ensure they are operating according to specifications. Our detailed analysis then either confirms that your filtration system is working well or if there is room for improvement. We recommend short- and long-term actions to increase output and reliability.



### Plant Optimization Site Survey

During a plant optimization site survey, we assess the upgrades that are possible considering your site constraints. Our in-depth evaluation of your existing system can tell you what new hardware or retrofit services are required.



### Filter Installation & Support

With every filter change, a Camfil expert will be on-site to guide your local team to ensure proper installation and disposal. Then we'll perform an in-depth inspection of the installation. We also offer filter stock management services where we can store your filters at our local warehouse, ready to be installed for your next change-out.

## FILTER PERFORMANCE SERVICES

Get the insights you need to compare filters, assess remaining filter life and identify the root cause of filter failures.

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### In-Depth Filter Testing

We inspect your used filters for integrity and test to determine their remaining life, hydrophobicity and efficiency according to international standards. When a site has a specific challenge, more tests are available such as: salt efficiency testing, deluge testing, humidity cycles, burst test, or media and contaminant evaluation through a scanning electron microscope (SEM) analysis.



### CamLab Mobile Test Rig

This on-site field test compares the performance of four different filter system configurations to determine the optimal solution for your site conditions while considering the lowest life cycle cost.

## CLEAN AIR SERVICES

Validate the cleanliness of your GT engines and the effect it has on performance.

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### Downstream Particle Count

We measure the upstream and downstream particle count and distribution of particle size to validate that the filtration system is effectively keeping particles out that would otherwise cause fouling, erosion, and corrosion. This service is included with PowerEye Max, but is also offered a-la-carte for customers who don't have PowerEye Max.



### Compressor Water Wash Analysis

We analyze the contaminants in the residue water that was used for compressor water washes. The presence of salt or ion levels may indicate that you need higher efficiency filtration to prevent corrosion. Using the SEM, we also perform a detailed analysis of the deposits on the compressor blades to further identify the contaminants that are fouling the compressor.

