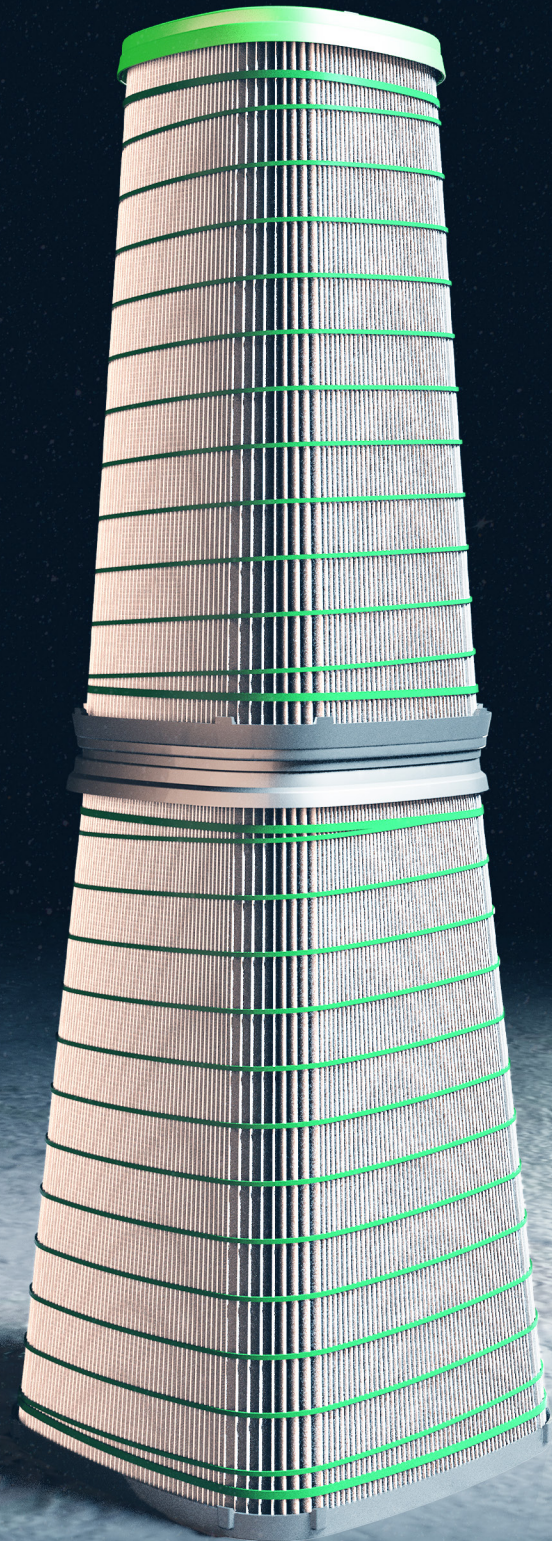


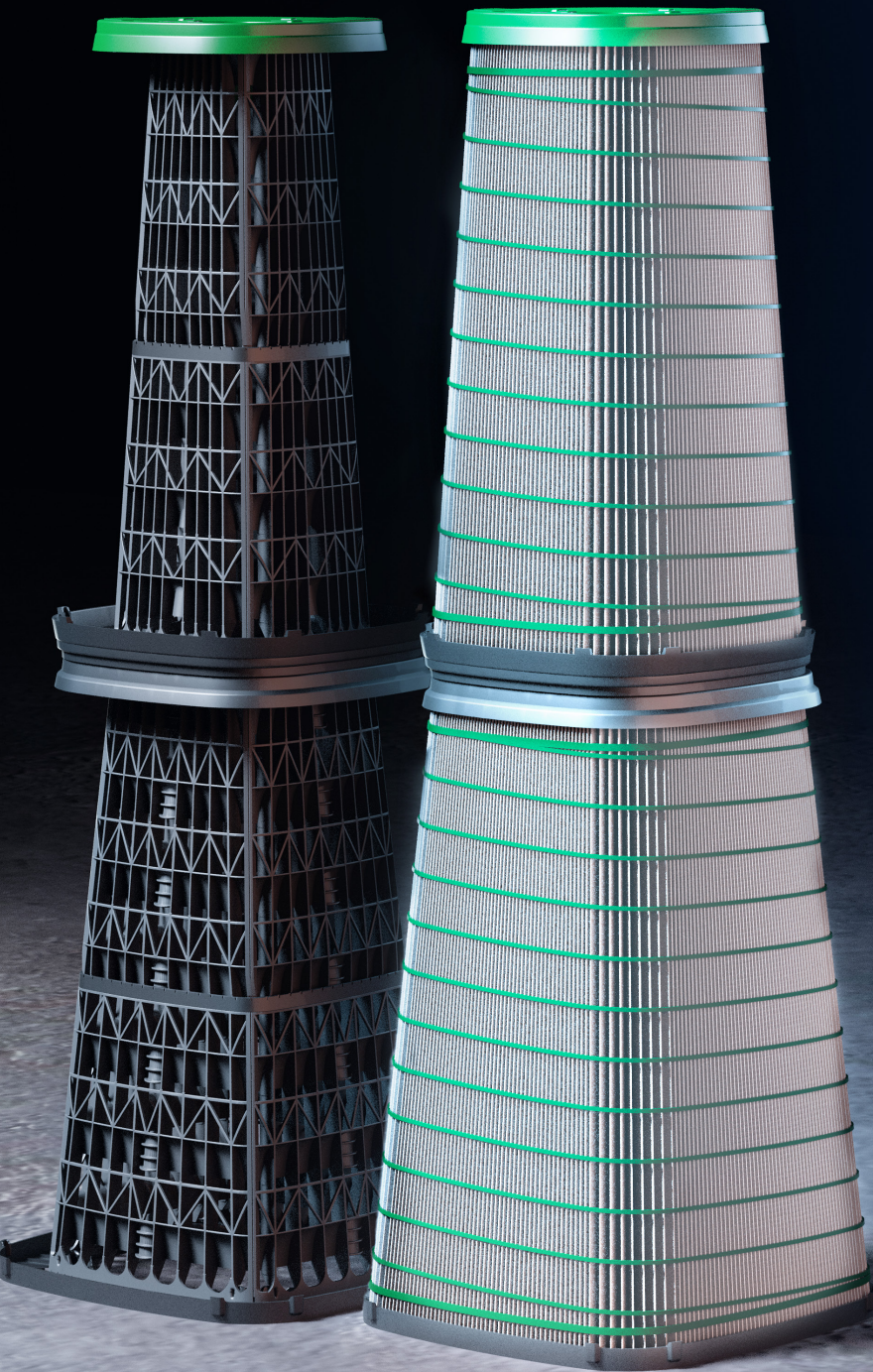


FOUR INNOVATIVE TECHNOLOGIES

That Improve Pulse
Filter Performance

Clean air solutions for turbomachinery





PULSE FILTERS REIMAGINED

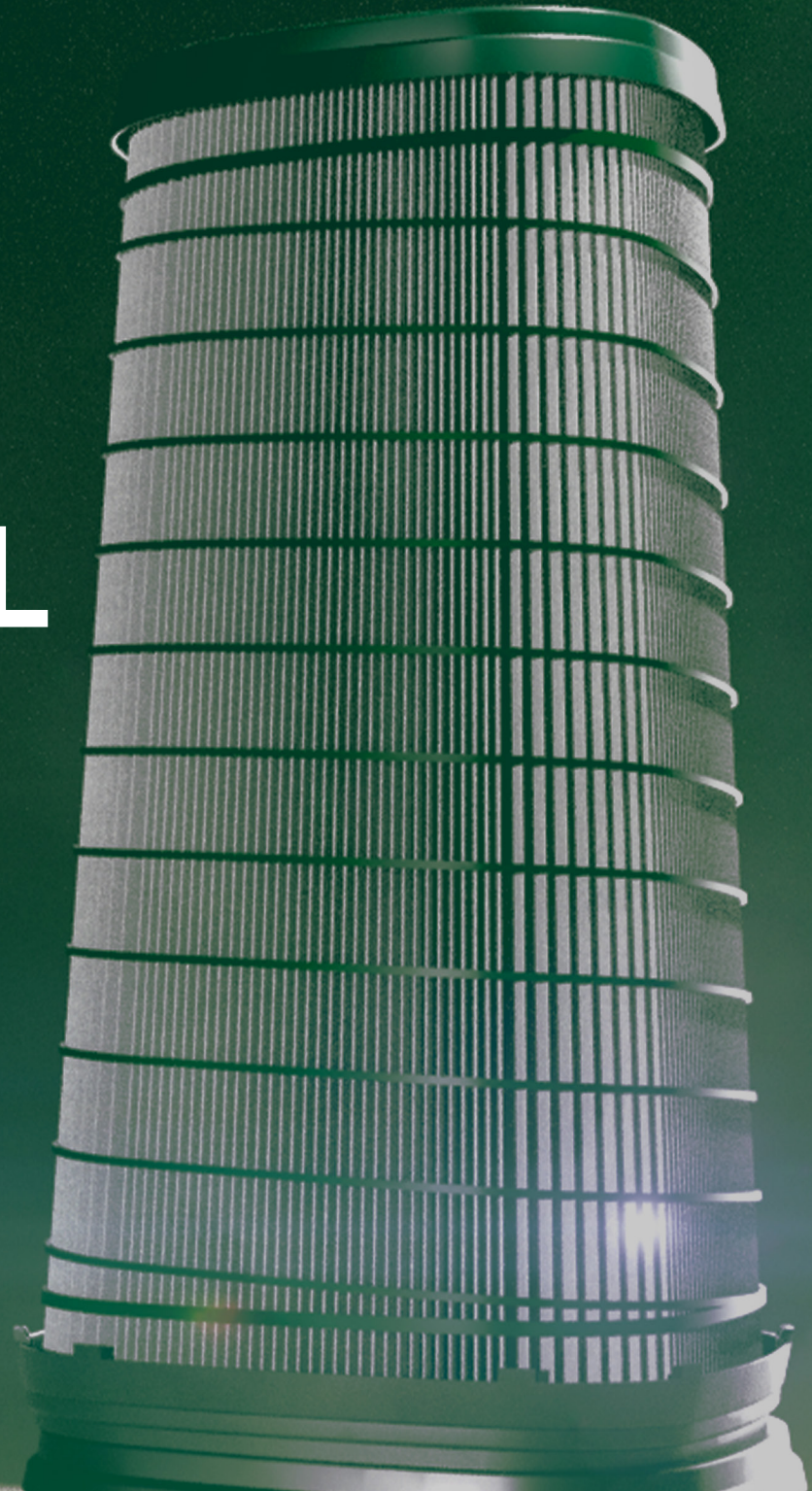
After decades with only a few minor upgrades, pulse filters are now being reimagined – taking advantage of millions of hours of data on filter performance in the most challenging environments.

You can see right away that this new generation of pulse filters is different from others. Innovative new technologies are changing everything about them – the shape, the performance and even the ease of installation. But one important thing remains the same – they are still engineered to fit easily in your existing filter houses designed for conical-cylindrical filters. So, there are a lot of new ideas to be excited about.

This ebook highlights four of the most innovative technologies you need to know about to boost the performance of your pulse filters – and your gas turbines!

1

PYRAMIDAL SHAPE

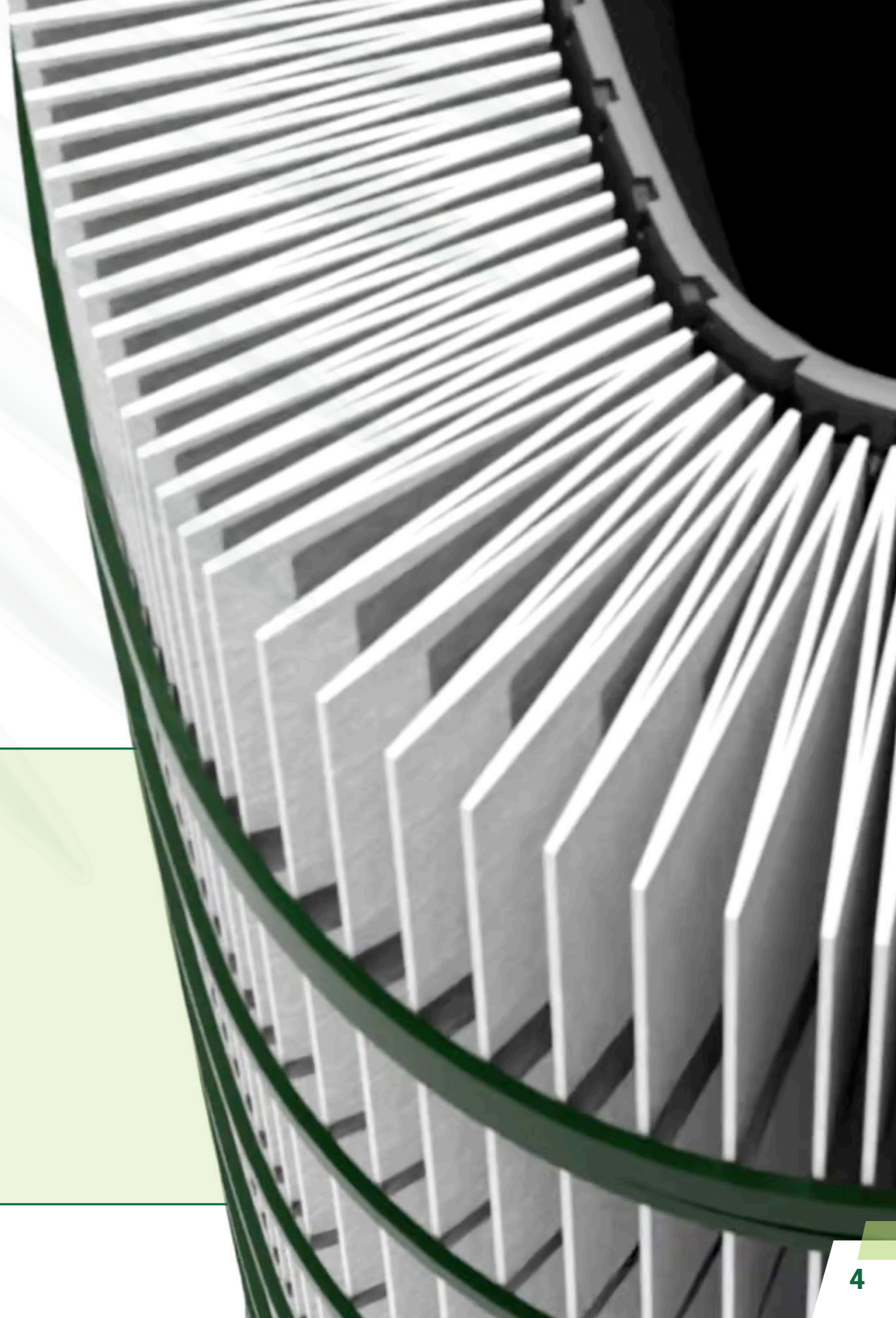


A MORE EFFECTIVE FILTER CONFIGURATION

The traditional conical cylindrical shape limits the amount of media that can be effectively used in the filter – which has a direct correlation to filter life. Plus, airflow restriction disturbs the flow, leading to higher pressure drop.

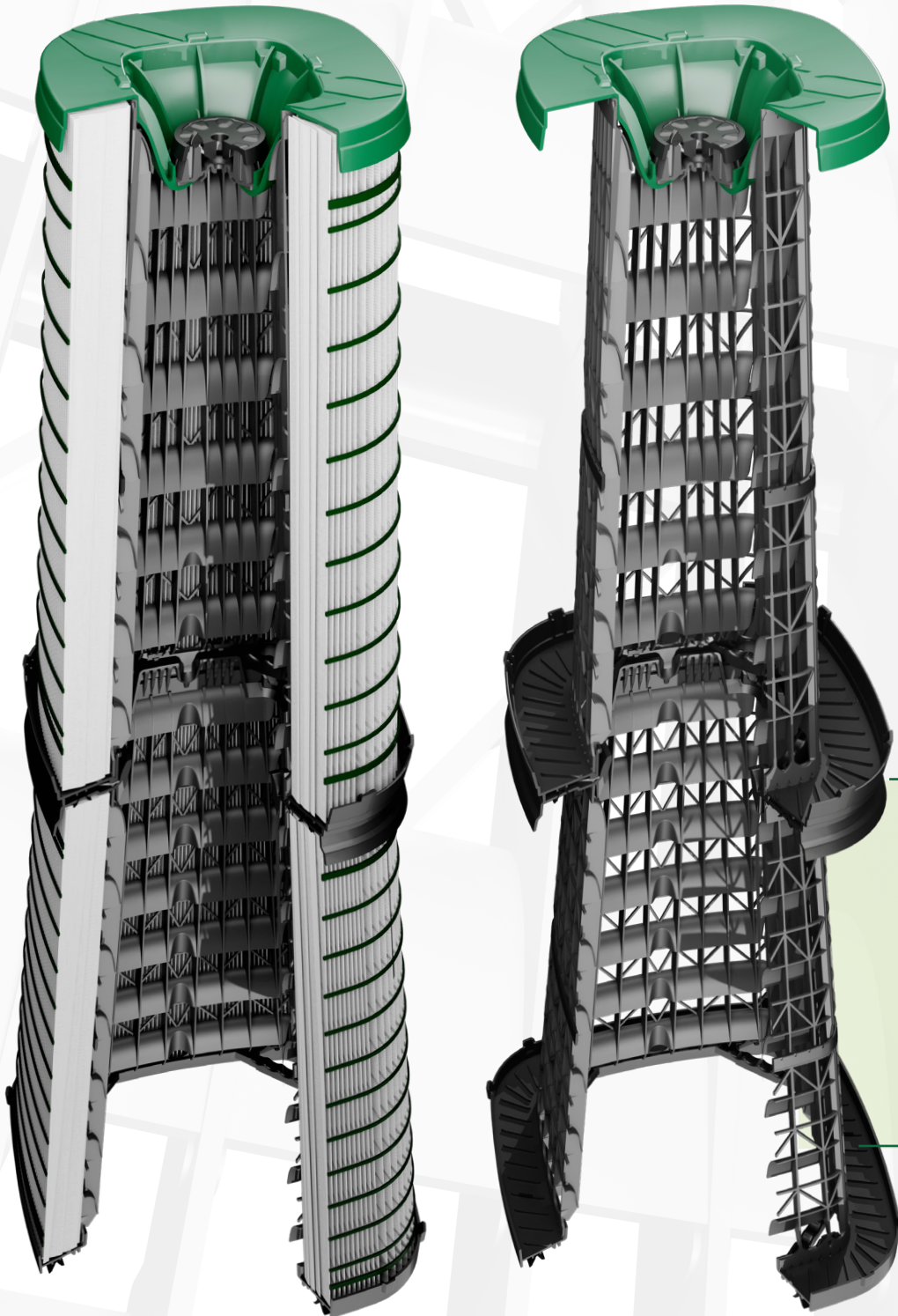
A pyramidal design is a more effective configuration for a pulse filter. It accommodates a larger filter media while maintaining pleat quality integrity – 10% more than conical-cylindrical shapes with the same media and pleat configuration. This added media area contributes to a longer filter life. The pyramidal shape is excellent for holding more dust and improving airflow, delivering a low initial pressure drop.

Modern pleating technology
– like Hemipleat™ – utilizes glue
beads to keep pleats more open
than standard dimple pleats, enabling
a deeper penetration of dust into the
pleat and better release under pulse
to maximize media utilization.





AERODYNAMIC VANES

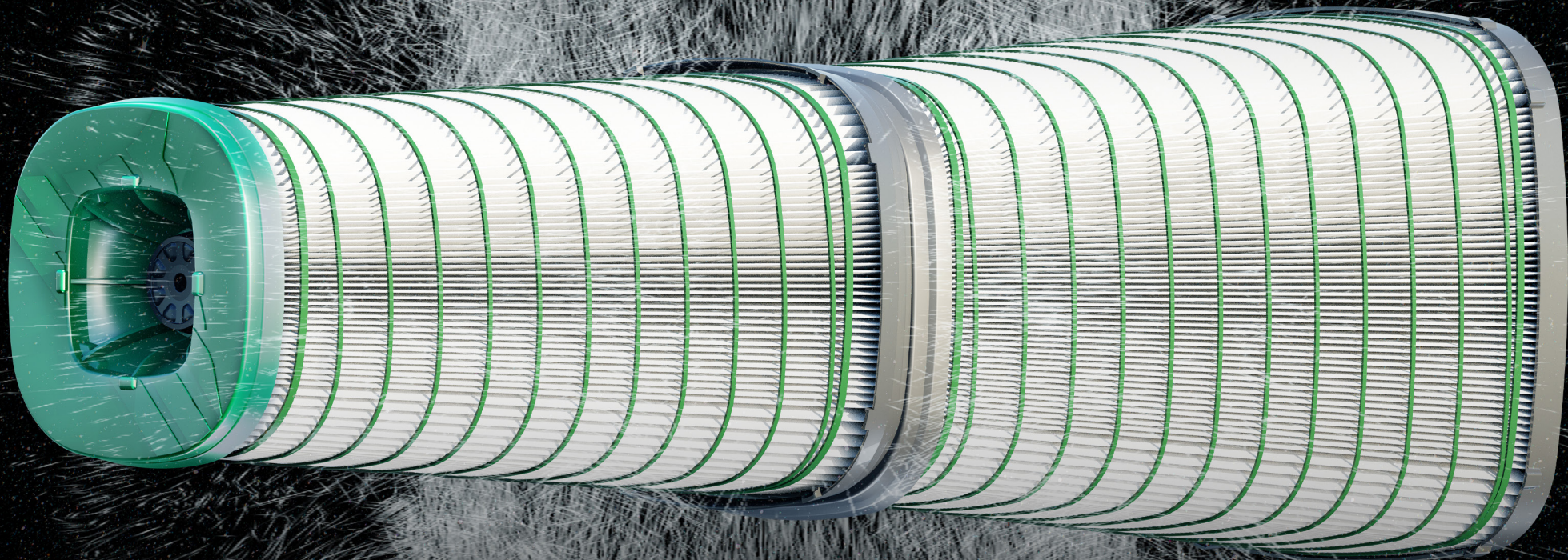


INNOVATIVE INNER CAGE DESIGN DIRECTS AIRFLOW

In high dust and snow environments, high dust holding and the ability of pulse filters to effectively utilize the pulse energy to remove the dust cake is essential to achieving long life. Ineffective pulsing and dust re-entrainment are, unfortunately, all too common. These issues reduce filter life and increase operational cost.

The newest generation of pulse filters incorporates aerodynamic vanes, built into the inner cage of the filter, to alleviate this issue. These vanes direct and distribute the primary airflow across the media, ensuring uniform dust loading throughout the filter element. They work in tandem with the square, tapered shape to facilitate a smoother, linear airflow.

The result is maximum filter availability and a **remarkable 25% increase in dust-holding capacity** compared to standard conical-cylindrical designs.



During the pulsing process, the aerodynamic vanes redirect the pulsed air outward perpendicular to the filter, harnessing the pulse energy for optimal dust release. This design outperforms traditional cross-flow filters, enabling modern filters to recover up to 30% more pressure drop after each pulse. When using depth-loading media, the user can now withstand high humid conditions and maintain low and stable pressure drop during dust storms.

**Recovers up to 30% more
pressure drop after each pulse.**



RUGGED PLASTIC CONSTRUCTION

A MODERN APPROACH TO FILTER DESIGN


Gas turbine pulse filters play a critical role in maintaining the efficiency and reliability of gas turbine systems by filtering out contaminants from the intake air. Ensuring their durability is essential to preventing performance issues and costly downtime.

A very common, and dangerous, problem found in cross-flow filters is the corrosion of the metal parts. This weakens the structural integrity of the filter and can result in rust particles breaking away from the filter.

Modern pulse filters take a different approach, replacing metal parts with plastic to improve product durability and reliability. They are built to be exceptionally strong and safe, ensuring dependable and worry-free operations for many years.

The inner cage design is based on industry-leading barrier filters, which have excelled globally for more than 20 years.



A large, white, corrugated metal inner cage is being lowered into a concrete structure. The cage is supported by a crane and is positioned between two large wooden beams. The concrete structure has a red and yellow striped band across the top. The background is a clear blue sky.

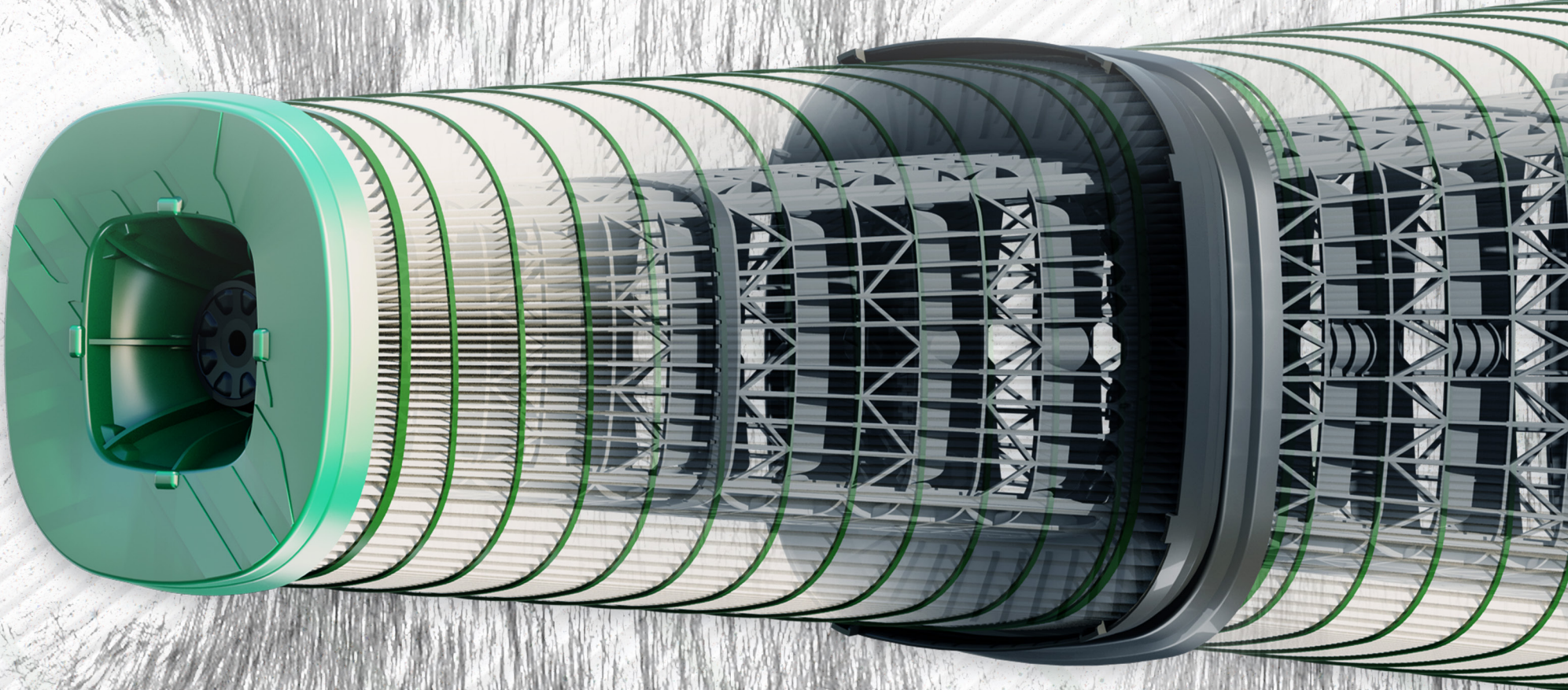
Twice as strong as steel,
the tough, durable inner cage
can **handle an impressive
load of up to 1.2 tons.**

The newest generation of filters are 100% corrosion-proof since they contain no metal parts, ensuring they stay robust over time and reducing the risk of rust particles entering the engine.

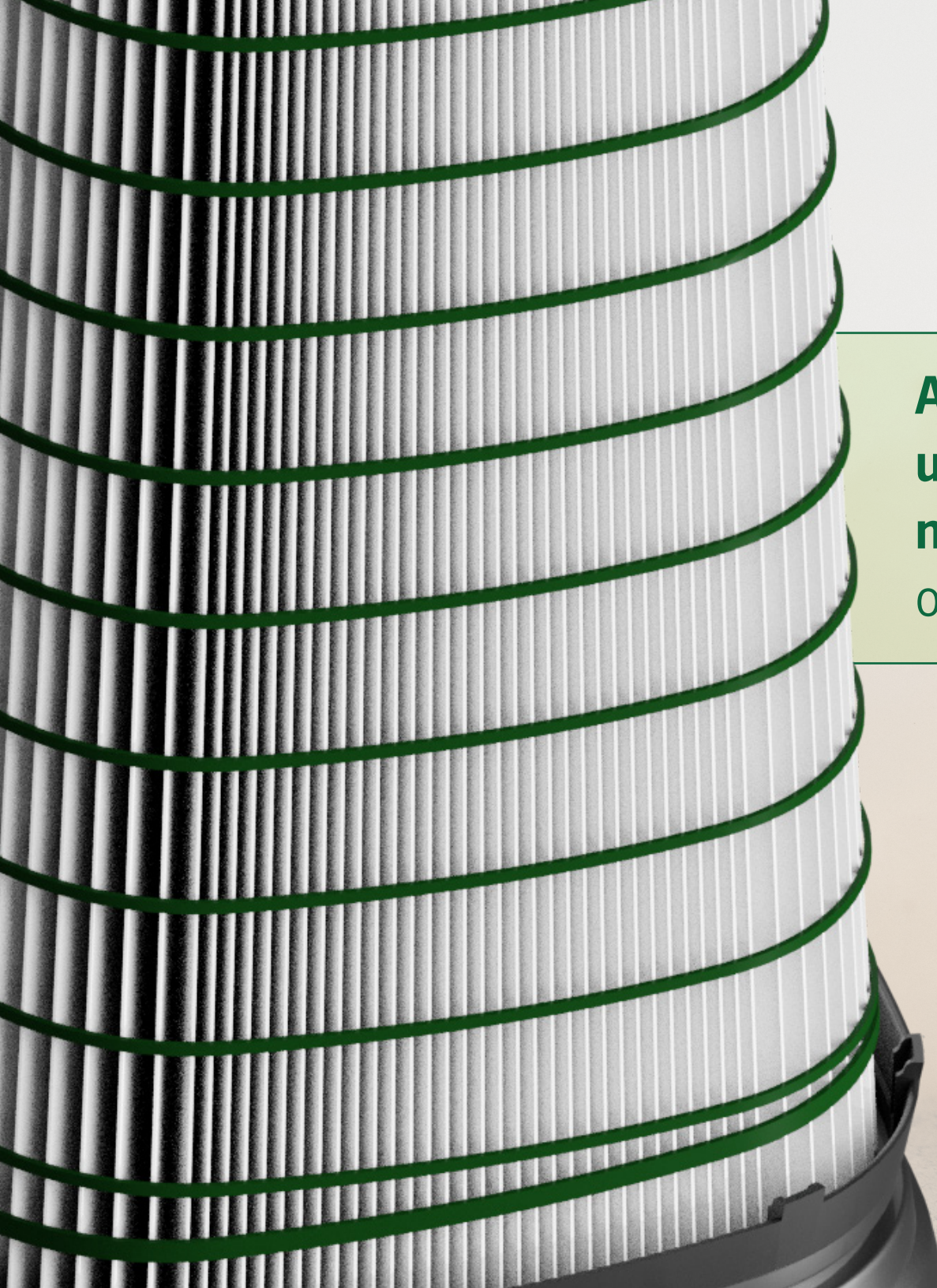
You can rely on plastic construction for **long-lasting durability and reliability.**



QC APPROVED
DATE: _____
BY: _____



To ensure reliability, plastic components should be subjected to **rigorous endurance tests of at least 250,000 pulses** and tested in hot and cold temperatures.



A helicord wrap should be used to strengthen the filter media during pulsing without obstructing dust discharge.



A photograph of construction workers in a warehouse or industrial setting. In the foreground, a worker wearing a hard hat and safety glasses is looking down at a large roll of material. In the background, another worker is visible, and the roll of material is secured with blue straps. The entire image has a dark green overlay.

4 INSTALLATION AIDS



Indicator Washer

SureGrip TPE Gaskets

Alignment Tabs

TPU Radial Gasket

Self-Centering End Pan

Installation Aids

Traditional filter designs have long suffered from cumbersome installation that is prone to mistakes, leading to poor sealing, bypass or filter damage from over torquing.

Time lost on installation is costly due to labor expenses and potential downtime.

Bypass issues create many other serious problems like erosion, fouling or corrosion that lead to reduced turbine performance, increased maintenance costs, and potential damage to the turbine components.

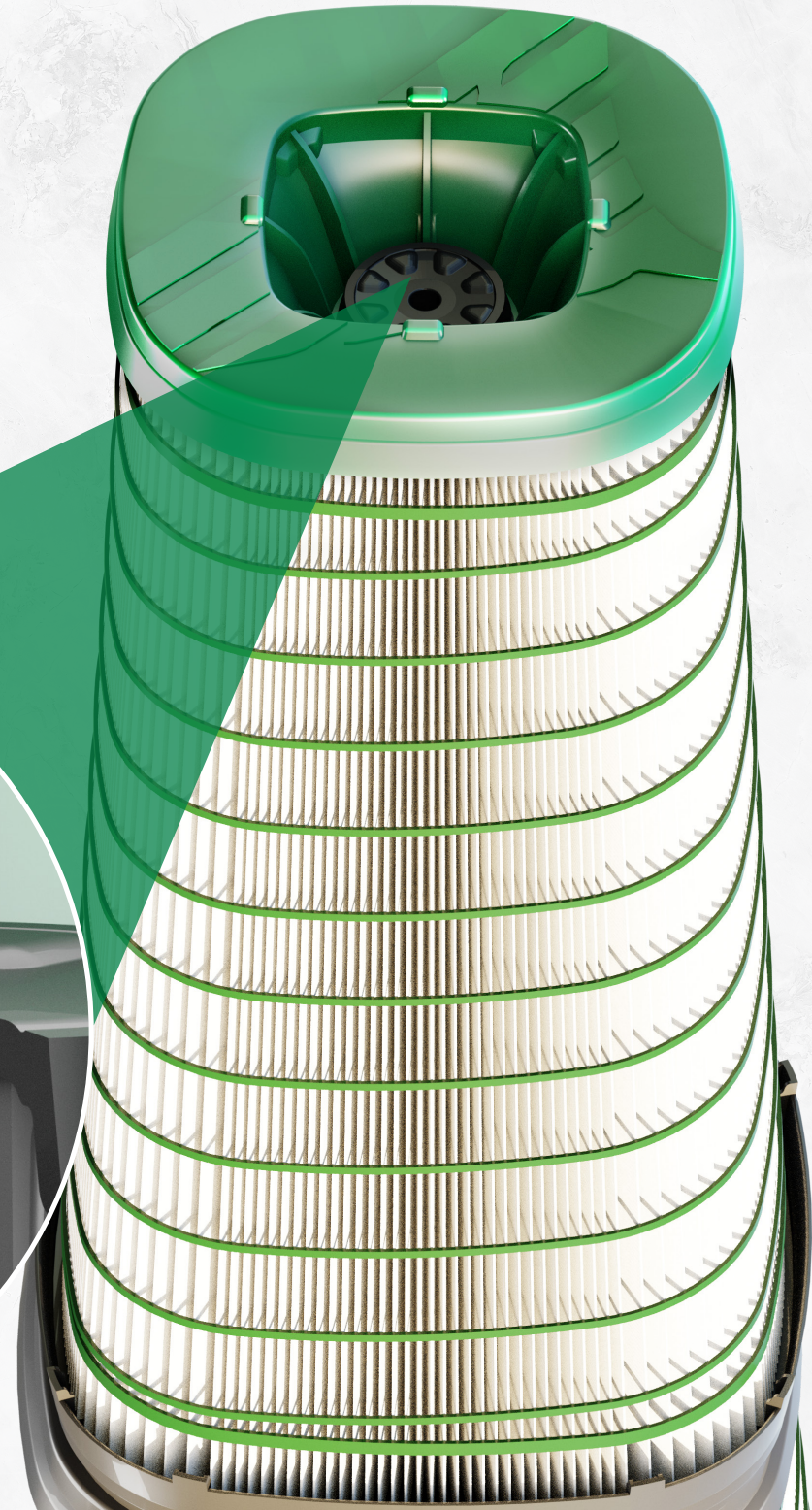
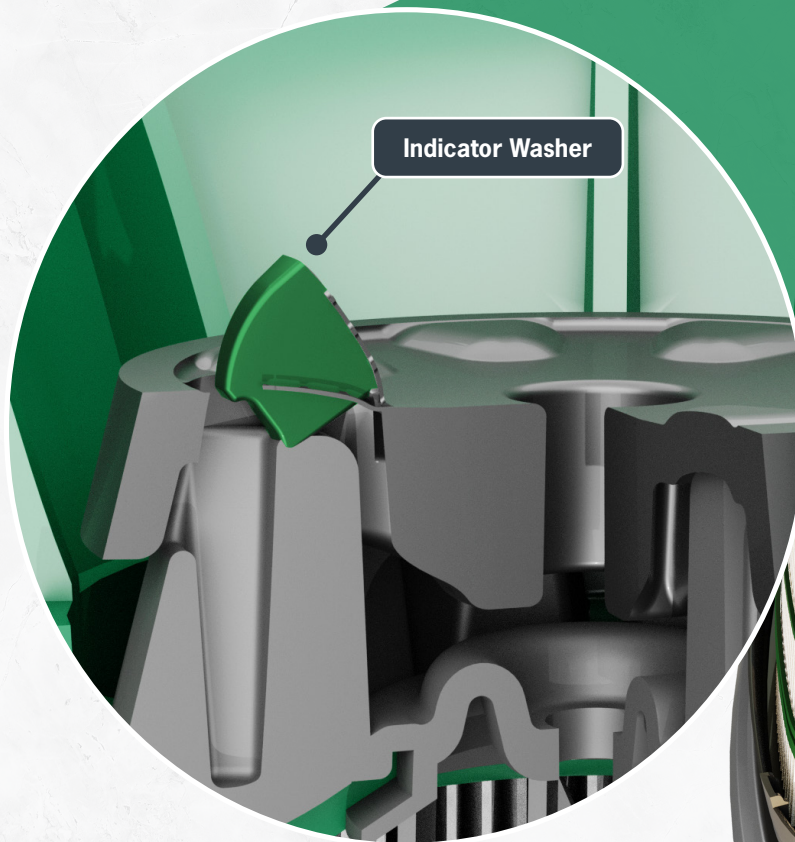
To deliver the best solution possible, new filter designs are engineered to be not only efficient and strong, but also fast and easy to install.

They are packed with innovative features, that guide and aid operators to ensure proper, hassle-free installation for maximum filter protection. These features are integrated into the filter to simplify the seating process on the tripod and include handles, centering notches, and alignment tabs.

INNOVATIVE FEATURES PROTECT AGAINST BYPASS AND OVER-TORQUING

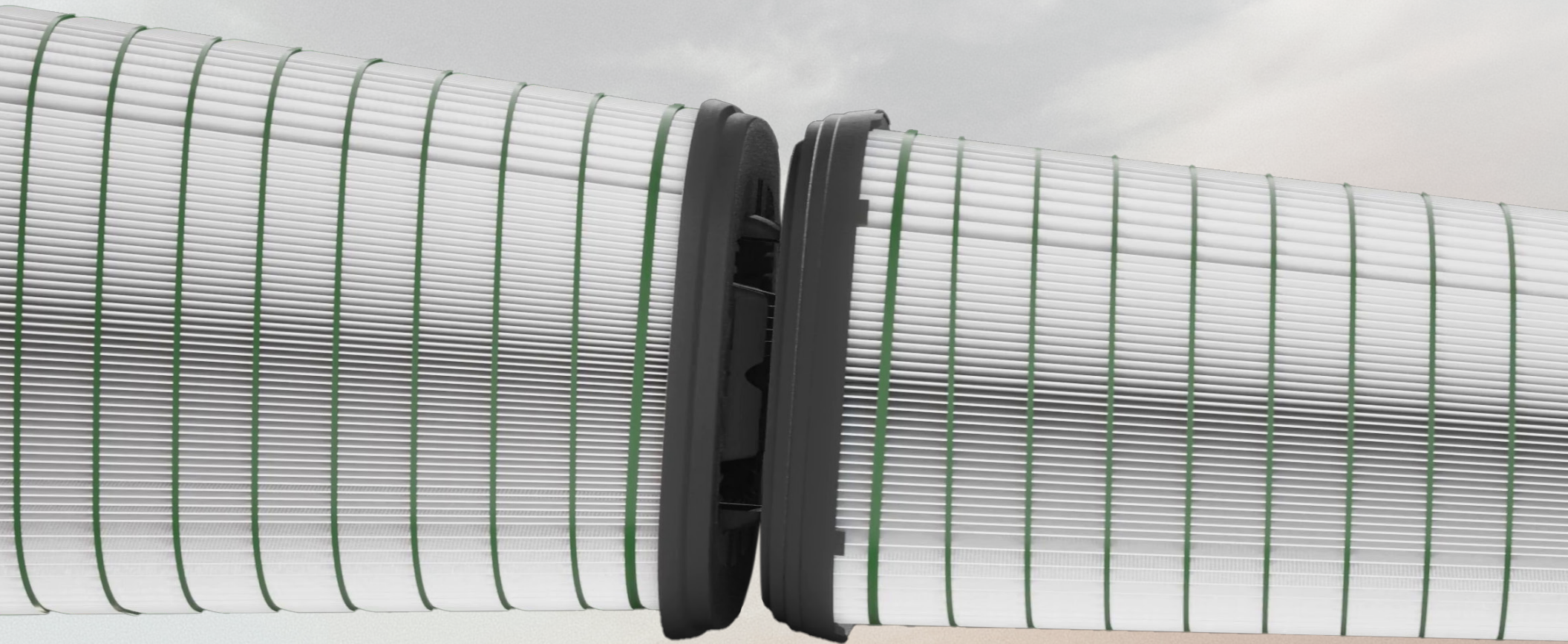
Common installation problems with traditional filters include poor sealing and accidental damage. New manufacturing technologies include safeguards like visual indicators built into the filter washer. This feature not only ensures a perfect seal but also safeguards against compression damage to the filter, giving you added peace of mind during installation.

New gasket geometry and materials, such as a TPU radial gasket, can be included to improve sealing against the tripod bolt, providing additional protection against bypass.

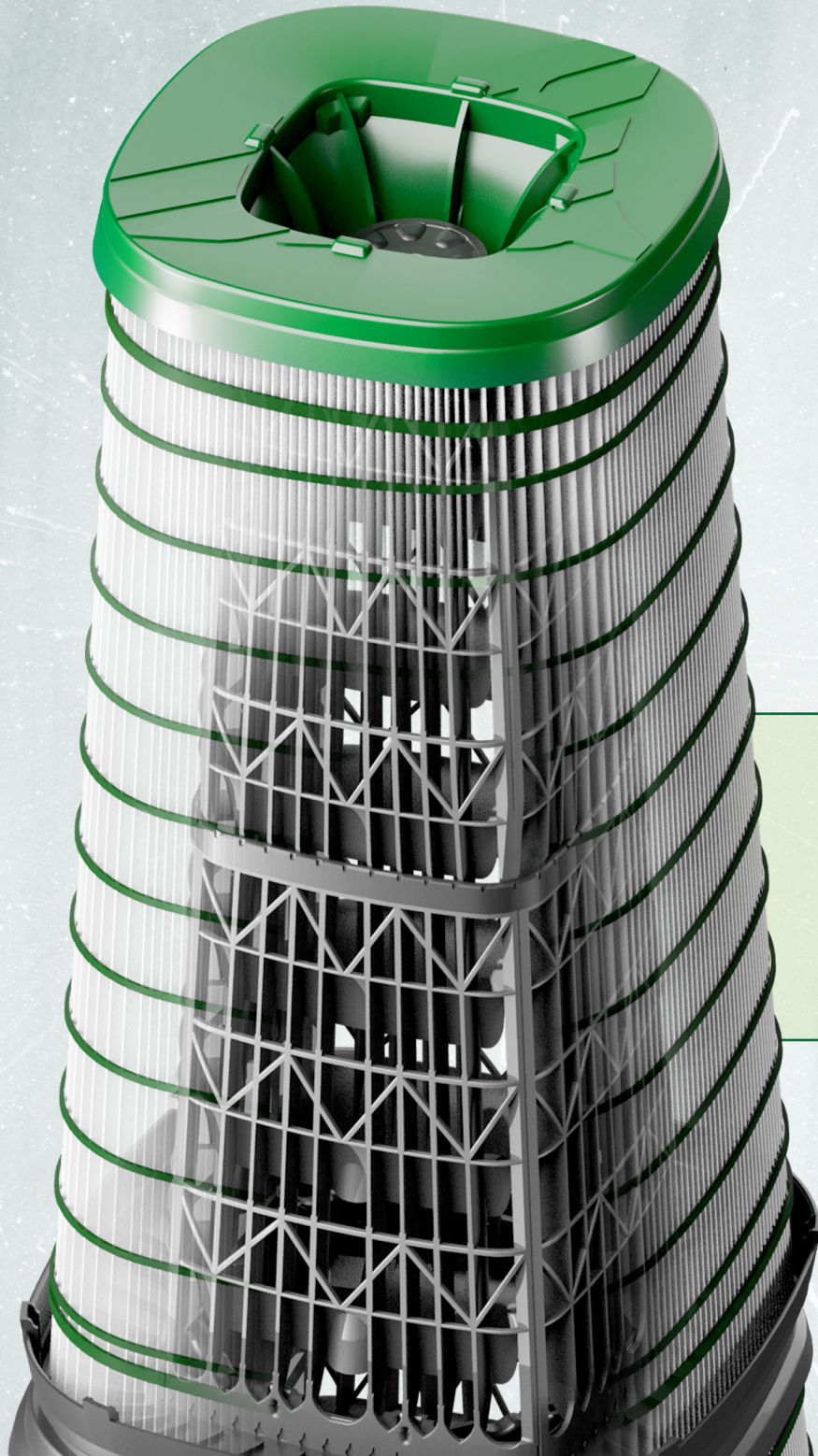


New installation features also ensure better sealing. Self-centering end-pans can be used to effortlessly guide the tripod bolt into place, while improved gaskets ensure a perfect seal between the two filter components. Modern gasket technology offers more sophisticated geometry, like this dual-lip construction that can be co-molded to the end-cap for increased durability. The taller gasket, combined with the cage rigidity, ensures better sealing in the case of misaligned tripods and warped tube sheets. The dual lip maintains a better seal both in standard operation and during pulsing when the airflow is reversed.

Delivers ten times better sealing
compared to traditional foam gaskets.*



*When tested against vacuum decay



MODERN PULSE TECHNOLOGY AT WORK FOR YOUR TURBINES

This latest generation of pulse filter designs can deliver longer filter life, more efficient pulsing, easy installation and worry-free operations. Put them to work in your facility to protect – and boost – the performance of your gas turbines.

**Contact Camfil today
to explore all the
latest innovations.**



Camfil – a global leader in air filters and clean air solutions

For more than half a century, Camfil has been helping people breathe cleaner air. As a leading manufacturer of premium clean air solutions, we provide commercial and industrial systems for air filtration and air pollution control that improve worker and equipment productivity, minimize energy use, and benefit human health and the environment. We firmly believe that the best solutions for our customers are the best solutions for our planet, too. That's why every step of the way – from design to delivery and across the product life cycle – we consider the impact of what we do on people and on the world around us. Through a fresh approach to problem-solving, innovative design, precise process control and a strong customer focus we aim to conserve more, use less and find better ways – so we can all breathe easier.

The Camfil Group is headquartered in Stockholm, Sweden, and has 30 manufacturing sites, six R&D centres, local sales offices in 35+ countries, and about 5,600 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.

www.Camfil.com/TurboPulse

For further information, please contact your nearest Camfil office.

CAMFIL — Clean Air Made for Improving Life