

Airflow Matters: Inside aFe POWER Performance Filters

EPARTRADE Race Industry Now Webinar Delivers a Technical Deep Dive into Filtration Engineering

In the latest episode of *Race Industry Now*, the weekly webinar and podcast series from EPARTRADE, aFe POWER took center stage with a highly technical session titled “**Airflow Matters: Inside aFe POWER Performance Filters.**”

Hosted by SiriusXM’s Ch. 90 *Late Shift* personality Brad Gillie, the webinar featured insights from Stuart Miyagishima, EVP of Sales & Marketing and co-founder of aFe POWER, alongside George Chiang, Manager of Filtration Products. Together, they delivered an in-depth exploration of airflow optimization, filtration efficiency, and the engineering trade-offs behind high-performance air filters.

Engineering the Balance: Airflow vs. Filtration

At the core of the discussion was a fundamental challenge in engine performance: achieving maximum airflow without compromising filtration integrity. Miyagishima emphasized that while increased airflow directly correlates with improved engine performance, inadequate filtration can lead to long-term engine wear and failure.

“Airflow is only part of the equation,” he explained. “The real engineering challenge is maintaining filtration efficiency while reducing restriction. That’s where design, materials, and testing all come into play.”

Chiang expanded on this by detailing how aFe POWER approaches filter development through a combination of computational modeling and real-world testing. The company’s proprietary media types are engineered to target specific performance needs, whether for street applications, off-road environments, or racing conditions.

Media Technology and Performance Characteristics

A significant portion of the webinar focused on the differences between filter media types, particularly oiled versus dry filters.

- **Oiled media (Pro 5R):** Designed for maximum airflow, utilizing multiple layers of progressively finer cotton gauze. Ideal for performance applications where airflow is the priority.
- **Dry media (Pro DRY S):** Engineered for convenience and durability, offering strong filtration efficiency without the need for oiling, making it suitable for daily-driven vehicles and harsh environments.

Chiang highlighted that media selection is not a one-size-fits-all decision. Instead, it depends on the operating environment, maintenance expectations, and performance goals.

Pleat Geometry and Surface Area Optimization

Beyond media composition, the webinar delved into the often-overlooked importance of pleat design. aFe POWER engineers optimize pleat depth, spacing, and geometry to maximize surface area while maintaining structural integrity.

“Increasing surface area allows for more airflow and longer service intervals,” Chiang noted. “But it has to be done without compromising the filter’s ability to maintain its shape under load.”

This precision engineering extends to the filter frame and sealing surfaces, where polyurethane construction ensures a leak-free fit and long-term durability under extreme conditions.

Real-World Testing and Validation

Miyagishima emphasized that laboratory results alone are not sufficient. aFe POWER validates its products through extensive real-world testing, including dyno testing, track environments, and off-road conditions.

“Performance gains need to be measurable and repeatable,” he said. “We test in the environments our customers actually operate in, whether that’s the street, the desert, or the track.”

The company’s in-house testing capabilities allow for continuous iteration, ensuring that each product meets both performance and reliability standards.

Sustainability and Long-Term Value

Another key theme was sustainability. Unlike disposable OEM filters, aFe POWER’s washable and reusable filters offer long-term cost savings while reducing environmental waste.

“Reusable filters are not just a performance upgrade,” Miyagishima added. “They’re also a more sustainable solution for the industry.”

Driving Innovation in Filtration Technology

The session concluded with a forward-looking discussion on the future of filtration technology, including advancements in materials science and manufacturing processes.

As engines continue to evolve, particularly with increasing demands for efficiency and performance, filtration systems must keep pace. aFe POWER’s approach combines engineering precision, material innovation, and real-world validation to stay ahead of these demands.

For more information, [watch the full webinar here.](#)