

Frequently Asked Questions

Pall PA Series *PUREair* Engine Air Protection Systems

Q: What particulate removal efficiency do I need to protect my engine?

A: A particulate removal efficiency of greater than 96% (tested with ISO Coarse Test Dust) is more than adequate to protect the engine from erosion damage. Contemporary Pall PA Series *PUREair* designs meet or exceed 96% efficiency.

Q: Does the Pall PA Series *PUREair* system provide equivalent protection to an oil wetted barrier filter?

A: Yes and the Pall PA Series *PUREair* system provides protection that is constant throughout its life.

In contrast, the efficiency of oil wetted inlet barrier filters (IBFs) is critically dependant on a number of factors:

- The IBF must be correctly cleaned and oiled to ensure adequate performance.
- The IBF's protection ability degrades with each cleaning and must be replaced after a finite number of cleanings.
- If a bypass door is open on an IBF system, there is no protection for the engine.

Note: The manufacturers of oil wetted IBFs advise the following "When operating in an environment of high sand and dust levels, frequent servicing of the filter assembly may be required based on the time exposure and severity of the environment. Any operations in an environment that can result in "brownout" conditions should therefore be minimized or avoided to the maximum extent possible within the constraints of the operation."

Q: The dust found in a helicopter engine is extremely fine. Can extremely fine dust be separated with a Pall PA Series *PUREair* system?

A: Yes. Only the small particles - typically from 1-150 microns - travel high enough in the air to fall on the engine intake; these particle sizes are efficiently removed by the Pall *PUREair* system.

Q: How is Pall able to validate the performance of the PA Series *PUREair* system to remove damaging particles?

A: To validate the performances of the *PUREair* system, we use a standard dust called "ISO Coarse Test Dust". Field sampling, where samples of the air entering the engine were collected by means of a probe, or bag filters, has shown that the particle distribution of the actual dust in the field was very similar to ISO Coarse Test Dust.

Q: In brownout conditions, the concentration of sand and dust is extremely high. Is it likely to 'saturate' the Pall PA Series *PUREair* system, thus reducing its efficiency?

A: No. Pall has tested the *PUREair* system with dust concentrations of up to 5 g/m³ of air, which is more than twice the concentration of the worst real world brownout condition without any reduction in efficiency and engine protection.[†]

Q: How often does a PA Series *PUREair* system need to be cleaned?

A: The *PUREair* system does not require cleaning. Contaminants are continuously scavenged overboard.

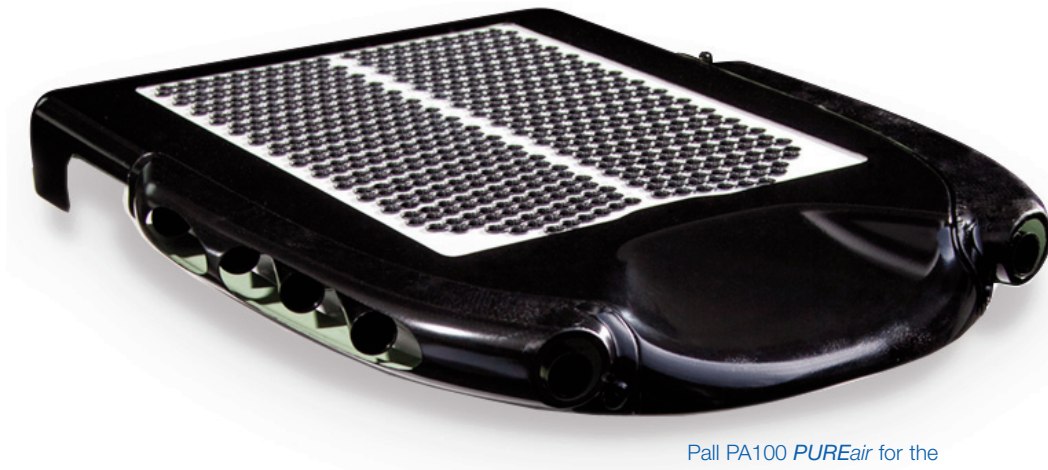
Q: Does the PA Series *PUREair* system provide foreign object damage (FOD) protection?

A: Yes. The Pall *PUREair* system offers protection against engine FOD and are qualified against FAR 27 and FAR29 bird strike requirements.

Q: What sort of power penalties does the Pall PA Series *PUREair* system create, and does the system impact the engine TOT?

A: The effect on available power varies considerably from one helicopter to another.

Talk to your Pall or Dart representative to discuss specifics for your helicopter.



Pall PA100 *PUREair* for the AS350/EC130 helicopter

[†]Defence Standard 00-34 Part 4 published by the UK Ministry of Defence defines a dust concentration of 2 g/m³ as “representative of the most arduous conditions associated with aircraft, particularly helicopters, operations.”

More questions and answers are on the Pall PA Series *PUREair* website, www.pall.com/pureair



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