



**Donaldson**  
FILTRATION SOLUTIONS  
AEROSPACE & DEFENSE

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# Air Purification System for Airbus A320



## Particulate and Chemical Filtration

Donaldson, the world leader in filtration solutions and technologies, is the exclusive source for an independently verified and endorsed technology with superior air filtration capabilities. The Donaldson Air Purification System (APS™) is ideal for a range of applications when clean air is essential for passenger, crew and worker safety and comfort. Boeing has selected Donaldson APS™ for its new 787 Dreamliner flagship commercial jet. Donaldson repacked the same technology into an filter element for the A320 family and this technology can also be used for other aircraft, including A330.

# cleaner ca

## Best filtration

**Donaldson's Air Purification System (APS™)** is the most effective new technology for cleaning and purifying air in commercial jetliners that operate for extended time periods with recirculating air or bleed air.

APS combines both chemical and particulate filtration into one. The chemical filtration relies on a technical process called gas phase adsorption that removes bio-effluents, fuel by-products, cleaning agents, emissions from internal materials, cosmetics and other personal care products. The particulate filtration removes dust, allergens, bacteria, viruses and other irritating particles from the air passengers and crew breathe in pressurized cabins and cockpits.

The Donaldson APS system is easily maintained and replaced without a need for additional service parts, required overhauls or repairs.

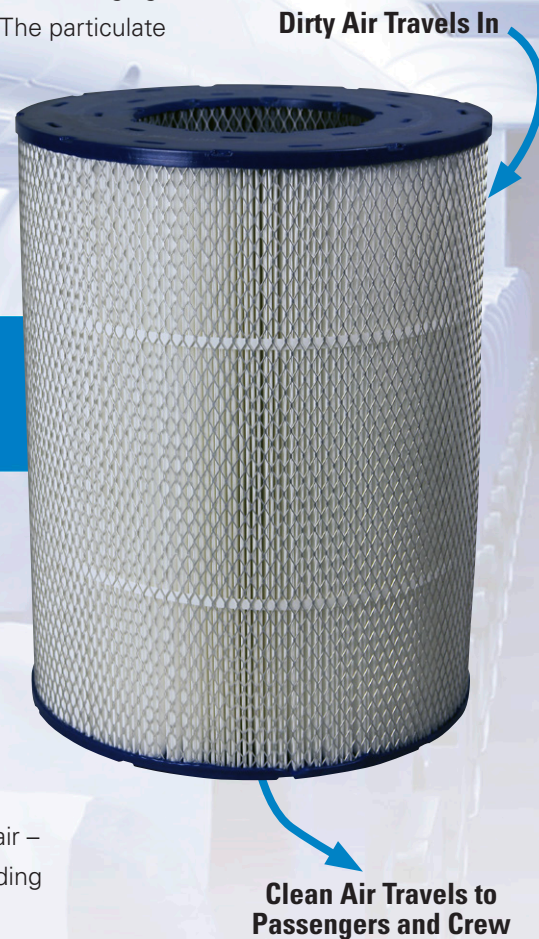
APS is a cost-effective and reliable filtration option that contains no moving parts and produces no unwanted byproducts.

## Quality counts

Today's commercial jetliners carry more passengers and fly farther than ever before.

Passengers and crews flying at high altitudes breathe recirculated, pressurized air – sometimes for many hours – that may contain irritating gaseous elements including fuel byproducts, bioeffluents, cleaning agents and odors. Airborne particulates – dust sand, aerosol lubricants and even allergens, fungi, bacteria and viruses – also affect air quality that in turn may cause poor cabin air quality and affect passenger flight experience.

The flying public is increasingly interested in air quality during commercial flights because clean air improves the passenger's in-flight experience. The news media, airlines and professional organizations such as the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) and the FAA's Air Cabin Environment Research Center (ACER) are actively engaged in research and other initiatives to provide the highest air quality for everyone who flies, rides or works in controlled atmospheres.



# Cabin air

## The APS advantage

Unlike other air filtration options, the Donaldson APS provides superior efficiency and effectiveness without generating and distributing new contaminants in the cabin.

- **BioAdvantage™ HEPA Media**
- **Easily Installed and Maintained**
- **Low Cost**
- **Highly Effective**
- **Reliable**
- **No Moving Parts**
- **No Power Requirement**
- **Mechanically Interchangeable with A320 Cabin Filter**
- **Removes Dust, Particles, Bacteria and Viruses, Allergens, Odors, Cleaning Agents, Emissions from Internal Materials, Cosmetics and Other Personal Care Products**

## Most effective

With the introduction of recirculated air ventilation systems in commercial jetliners, more advanced filtration solutions were developed. These included High Efficiency Particulate Air (HEPA) filters that remove more than 99.97 percent of airborne particles both larger and smaller than 0.3 micron, about 1/300 the width of a single human hair. HEPA filters are widely used and capture particulate, bacteria and viruses, but they do not filter gaseous chemical compounds.

Other chemical filtration options include Ultra Violet Photocatalytic Oxidation (UVPCO) and Cold Plasma, otherwise known as Close Coupled Field (CCFT). These systems simply cannot match Donaldson APS advantages. Common drawbacks include heavy weight, limited useful life, power requirements, complicated installation, difficult maintenance, inability to fit in all structures, low efficiency, inability to handle highly concentrated or upset atmospheres and production of potentially hazardous byproducts.

## Independently Evaluated and Endorsed

The Technical University of Denmark (DTU) conducted a two-year independent study, sponsored by The Boeing Company, that evaluated the effects of increased humidity, ventilation and air purification methods including UVPCO and Donaldson APS technology on aircraft cabin air quality. DTU concluded that gas phase adsorption, the Donaldson APS approach, is the preferred filtration method because it creates better air quality and passenger comfort than increased humidity alone, without generating unwanted byproducts, such as ozone. DTU wrote that APS technology "gave the best overall performance and avoided the major problems that were identified in connection with the UVPCO units."

In addition, the study concluded that "photocatalytic air purifiers were found to oxidize ethanol... to produce unacceptably high and potentially harmful levels of acetaldehyde and formaldehyde...the production of unwanted byproducts should be eliminated..."

Donaldson Company started working in 2011 to improve the cabin air quality on the A320 series aircraft. An advanced Air Purification Filter (APST™) was developed for the A320 fleet by Donaldson Company and qualified in March of 2012.



## Air Purification System Filter P629410

The designed replacement interval for the APS filter is 18 months or 4,700 flight hours. The interval can be optimized for each operator's unique needs with assistance from the Donaldson Aerospace and Defense Engineering team.

Durable, rugged and built for the long haul, Donaldson APS filters are manufactured to the same quality specifications as the original.

<b>Replaces OEM Part No.</b>
424B200-7
424B200-6
424B200-4
424B200-3
QA06423
QA06423-01

## Breathe Easy

Donaldson APS filters provide the best air quality and performance – all without producing unwanted byproducts.



Donaldson Company, Inc.  
Aerospace & Defense Group

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