

# METAL SINTERED MEDIA FILTER APPLICATIONS



# **OVERVIEW**

GLOBAL FILTRATION'S REVOLUTIONARY NEW FILTERS EMPLOY METAL SINTERED MEDIA, AS OPPOSED TO THE STANDARD GLASS FIBER MEDIA OF THE PAST. MAJOR IMPROVEMENTS IN FLUID CLEANLINESS LEAD TO HIGHLY REDUCED MAINTENANCE COST OF THE HYDRAULIC SYSTEM.



Hydraulic systems are the driving force for many aircraft components. Any malfunction can be catastrophic. Moreover, replacing components is extremely expensive. It is therefore critical to keep these systems clean and in perfect working order.

#### THE CHALLENGE

Due to the poor durability and lack of integrity of traditional filter media filters, hydraulic systems suffer significant maintenance problems associated with excessive wear and tear, which leads to unnecessary expense for the aircraft operator and potential operational safety risks.

#### THE SOLUTION

Hydraulic fluid filtration systems based on metal fibers display a significantly improved performance and durability along with reduced operating costs compared to traditional glass fiber and cellulose fiber media. They show increased mechanical strength and electrical dissipation, reduced particle shedding, and improved cleanliness levels of the hydraulic fluid. Dynamic conditions (flow change, vibration, pump ripple) cause the release of trapped contaminants from traditional filter material back into the hydraulic fluid. The reason is that glass fiber media is held together by binders; a structurally weak point of the fiber media. The fluctuations of fluid flow, and the vibrations in the aircraft hydraulic systems cause the glass fiber media to shed fibers and binder material. These contaminants are then released into the hydraulic fluid, with unfortunate consequences.

METAL SINTERED MEDIA FILTERS MAINTAIN THEIR EFFICIENCY AND INTEGRITY OF STRUCTURE THANKS TO STRONG, SINTERED BONDS, AND HIGH RESISTANCE TO SHOCK, VIBRATION AND PULSING FLOWS. Using metal fibers instead of traditional glass fibers as filtration media leads to several advantages. Specifically, improvements in both mechanical and electrical properties leads to the following areas of improved filtration performance:

- Metal fiber filters consist solely of metal. No binder is used in this media, as the metal fibers stick together with sintered bonds. This results in a strong and fixed structure. As there is no binder, there is no deterioration of filter performance caused by degradation.
- No particle shedding occurs while in use. In traditional glass fiber filters, fiber shedding can actively contaminate the fluid in the hydraulic system, leading to premature replacement of the fluid and filtration system, and of all hydraulic parts affected by the filter degradation.

Tests have demonstrated that metal fiber filters can reduce failures in hydraulic components tenfold, with a corresponding doubling of the Mean Time Between Failure, which lowers the risk of fatal accidents and significantly reduces maintenance and repair costs for fleet operators. One such test involving a fleet of 120 helicopters flown for 36,000 hours yielded a cost savings of more than USD 4 Million per 100 flight hours (see Fig. 1).

The Metal Sintered Media developed by Global Filtration is a drop-in solution that can be engineered to replace any filter currently used in aviation. When applied in the field by a leading airline, Global's custom-developed filter was able to cut contamination of hydraulic fluid in half. Metal Sitered Media filters maintain their efficiency and integrity of structure throughout the lifetime of the product.

## LEGACY FILTERS VS METAL FIBERS FILTERS

Cost savings per 100 flight hours (fleet wide)







### CLEAN TECHNOLOGY FOR MAXIMUM PERFORMANCE

- Custom filter development
- Drop-in solution
- Vastly superior efficiency and dirt-holding capacity
- Maintenance cost reduced by 10X or more
- Proven to reduce particle contamination levels
- ISO 4406 Coded
- Delivers a "Wheels Up" Hydraulic system at all times
- Extends component life
- Dynamic return on investment

#### QUALITY IS JUST OUR WAY OF LIFE

Global Filtration, Inc. was founded in 1995 to provide business aircraft flight departments with truly cost effective, high quality, certified parts for corporate Fortune 500 clients. Global redesigned the process of developing candidate PMA filtration products that met CFR 21.303 for all areas of aviation. This wealth of experience led to the FAA approvals of over 75 new elements to help aviation businesses become more effective and efficient. In conjunction with filters, Global Filtration has grown to offer a complete line of inspection kits that will put the entire required O-rings, gaskets, and packings in your hands at 100-, 300- and 600-hour inspection intervals. We offer a full line of helicopter filters as well as analysis services for oil, fuel, and hydraulic systems.

As proud members of the NBAA, PAMA, ACPC, RAA, HAI, and NAAA, Global Filtration continues to offer new PMA filtration solutions to corporate, regional, and commercial airlines to provide a competitive edge in the marketplace. All filters and aircraft products are shipped with 8130-3 Airworthiness tags or Certificate of Conformance documents. Global Filtration is compliant with ISO 9000 specifications and approved under FAA 00-56A standards. All products are factory new and/or fully traceable to an approved supply source for our customers' complete satisfaction.

