

Stat-Free Filter Elements

Patented-Pending Technology Manufactured by HYDAC

The most researched, best performing filter for eliminating spark discharge



When fast-moving oil passes through micron-sized pores on most of today's filters, it shears apart, creating static electricity that releases as sparks. Recent research highlights the damage that sparking causes in both filters and lubricants resulting in many filter manufacturers rushing to market with various attempts to solve the problem. Although some new products may prevent spark discharge from occurring in the filter, the charge still remains in the oil, creating the virtual certainty of downstream discharge and possible system damage.

Patent-Pending Stat-Free filters prevent spark discharge in the filter *and* in the downstream oil. As the largest manufacturer of industrial lubricant filters in the world, HYDAC has invested years of research to develop and prove this new technology, which removes electric charge from the fluid by providing a pathway for the charge to escape from the filter.

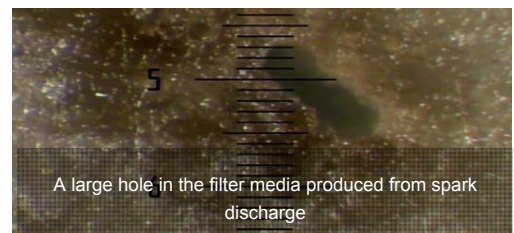
Problems of spark discharge

A spark discharge can reach temperatures of greater than 10,000°C which rapidly degrades oil, depletes the antioxidant package and creates oil degradation products. This translates to a shorter lubricant life and the creation of problems such as sludge and varnish. In addition, holes in the filter media are produced, significantly lowering the efficiency of the filter. Some oils and applications are more prone to spark discharges than others. For example, turbine oil in many large frame gas turbines is highly susceptible to spark discharge and this has been published to be one of the leading causes of fluid degradation.

Evidence of Spark Discharge



Dramatic Sparks generated from traditional filters.



A large hole in the filter media produced from spark discharge

Unless you build a special test stand to test and observe spark discharge, it is rare to visually observe spark discharge occurring. In extreme cases, sparks can be heard emanating from a filter housing sounding like a ball-peen hammer.

The most reliable method however to determine if spark discharge is occurring in your system is by measuring the downstream flowing current coming from the filter. Hydac has developed a *Stat-Stick* specifically to allow for immediate, online measurements of downstream electrical current.

Benefits of Stat-Free Filter Technology

- Increases the effective filtration area and lowers fluid pressure to reduce the amount of static charge generated.
- Eliminates spark discharge in the filter *and* conducts charge out of the oil to ground.
- Meets or exceeds OEM specifications for providing stable system cleanliness.
- More robust filter support compared to standard filter technologies.
- Unlike some competitive filters, **Stat-Free** filters do not add conductivity additives to the oil, which is strongly discouraged by most OEMs (For example: GEK 32568F)
- **Stat-Free** filters come in a wide range of sizes and efficiency ratings.



Specifications and Comparative Test Data

| Comparison of Standard filter versus Stat-Free Filter for a GE 7FA gas turbine application. | Standard OEM Filter 7"x18" | Stat-Free 7"x18" |
|---|---|--------------------------------------|
| | Filtration Specifications | |
| Filter Dimensions | 17.78cm x 45.72cm | 17.78cm x 45.72cm |
| Micron Rating | 25µm, 200β | 25µm, 200β |
| Pleat Height | 33mm | 21mm |
| Pleat Number | 79 | 134 |
| Effective Filtration Area | 22,577 cm ² | 24,200 cm ² |
| dPQ | 0.000494 bar/l/min | <0.000494 bar/l/min |
| | Spark Discharge Testing on Test Stands | |
| E-Statik Flatsheet Test | 230 V @ 4 l/min | 3V @ 4 l/min |
| E-Statik Element Test | 60 V @ 50 l/min | 0V @ 50 l/min |
| | Field Testing | |
| GE 7FA (Firing) Downstream Current | 8000mV | 70mV >110X Improvement! |