

# ▲ ABSOLUTE BETA® | SPARK BUSTER

To preserve the environment oil producers are supplying a new generation of eco-friendly hydraulic and lubrication oils to OEM and system operators. These new products, unlike the previous ones (group I base oils) have the risk to generate electrostatic discharge.

In the past, conventional hydraulic oils often contained ashes and zinc dithiophosphate (ZDDP) as anti-wear and anti-corrosion additives. They therefore no longer comply with the current international environment standards as they have now been classified as harmful.

However, without the presence of metal, these oils have low conductivity (less than 500 pS/m). When the oil flows through the filter element in the hydraulic system an ESD can occur. This can result in sparking in the system causing oil aging and damage to hydraulic components.

For several years Filtrec has anti ESD products in its range but now customers can also rely on our new **ABSOLUTE BETA | SPARK BUSTER** technology, which provides an anti-static protection that not only reduces the electrostatic discharge but also enables excellent filtration in extremely critical systems.



## WHAT IS ESD?



Flowing through a non-conductive filtering material (as a standard fiberglass material or synthetic materials) hydraulic fluids promote the formation of charge accumulations due to triboelectric effect. These charges, if not dissipated, create a difference in potential. If the voltage generated exceeds a specific value (dielectric strength of the oil), it will be a "dielectric breakdown" with an electric discharge. The charge generating process increases with an increasing flow velocity or viscosity of a hydraulic fluid.

When ESD is occurring there can be some clear indicators:

- You can hear the sound: cracking noises similar to cavitation.
  - You can see that the filter media display signs of burning damage.
- To ensure that the whole system operates without risk it is essential to use filter systems that are capable of preventing dangerous electrostatic discharges from occurring, and this can be avoided by using:

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Fig.1 Electrostatic discharges in the filter element

## WHICH PROBLEMS CAN OCCUR?

The problems caused by electrostatic discharges can be serious, for example:

- The sparks can burn and make holes in the filtration media layers. As a consequence, the dirt particles can pass unfiltered through the holes.
- Sparks can migrate from the filter to other areas such as the reservoir where there is the risk of deflagrations.
- It contributes to accelerated oil aging and a deterioration of oil properties shortening the life service. These changes in the chemical composition of the fluids might contribute to an earlier contamination of the filter elements.
- ESD waves disrupt and damage sensitive sensors and electronic components in the hydraulic system.
- When the standard element is affected by ESD, may show anomalous  $\Delta p$  values up to two times higher than in normal conditions, this can reduce the overall efficiency of the system and increase the power losses.

## WHAT ARE THE BENEFITS OF ABSOLUTE BETA | SPARK BUSTER ?

Our new technology **SPARK BUSTER** not only ensures against electrostatic discharge but can also guarantee:

- ⚡ **Maximum safety for machines and systems (especially under cold start conditions).**
- ⚡ **Higher operational safety.**
- ⚡ **Reduction of oil degradation and longer oil service.**
- ⚡ **Safe operation in explosive atmosphere.**
- ⚡ **Reduction of unplanned downtimes.**
- ⚡ **Reduction of the cost of ownership.**
- ⚡ **Maximize the lifetime of systems.**
- ⚡ **Safety for employees.**

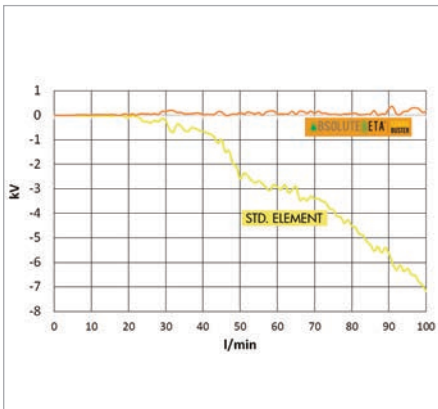


Fig.2 Static Charge Vs Flow Rate (using low conductivity oil)

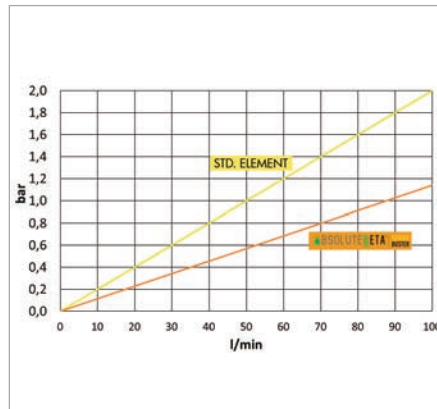


Fig.3  $\Delta p$  Vs Flow Rate (using low conductivity oil)

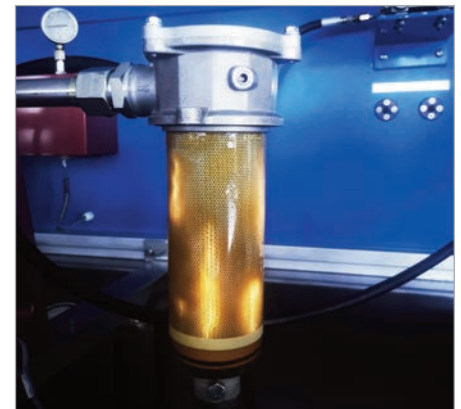


Fig.4 Electrostatic discharges tested in our R&D Department

## HOW TO RECOGNIZE IT?

You will find



hallmark on the endcap of the new **ABSOLUTE BETA | SPARK BUSTER** and a new label on the box.



## KINDNESS AS A VALUE

To ensure a top quality solution: for any enquiries there is a Filtrac specialist that will assist you, from choosing the right size to configuring your system.

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