

Electrostatic Oil Cleaning



Friess electrostatic oil cleaners are specially developed devices that are used to clean lubricating and hydraulic oils. They use the principle of electrostatic attraction to remove contaminants such as particles and varnish.

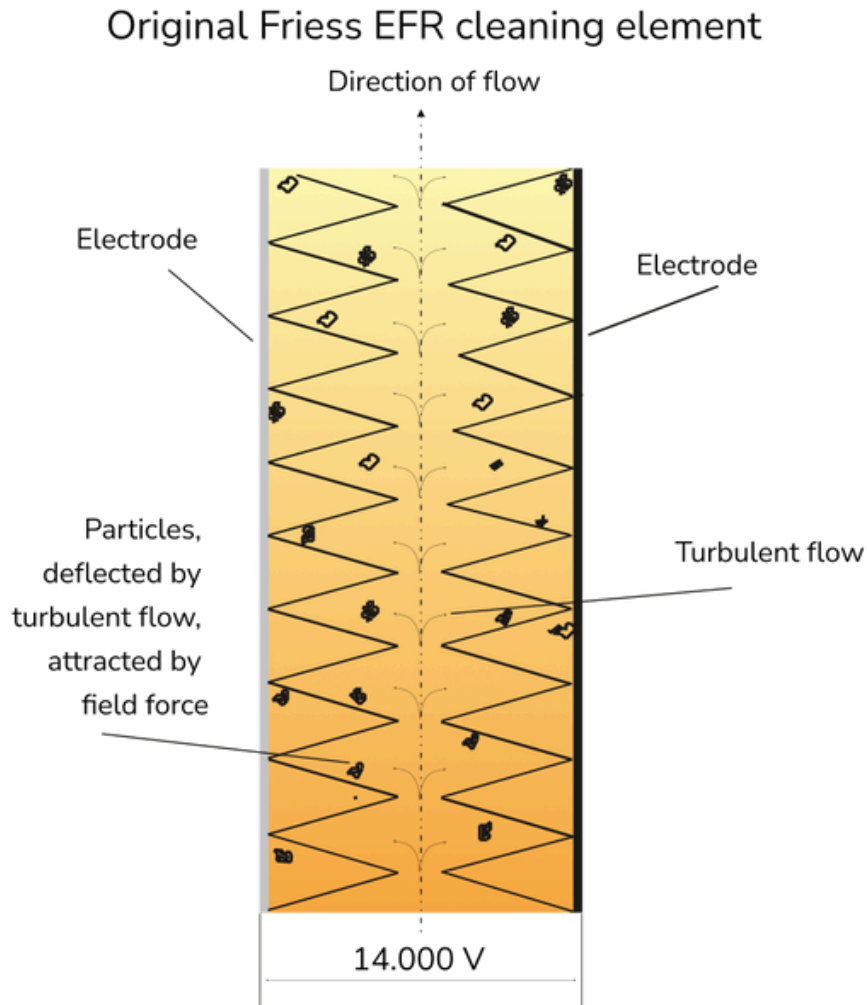
The contaminated oil is first pumped into the oil cleaner. A strong electrostatic field is generated in the cleaning chamber. This is done by applying a high voltage to special electrodes located inside the cleaning device.

When the oil flows through this electrostatic field, the particles and impurities contained in it are deflected towards the electrodes and stick to the cleaning elements placed between the electrodes. This process is extremely effective as it removes even the smallest particles that cannot be captured by mechanical filters. This includes, in particular, varnish or oxidation products, which are not filtered out in a regular depth filters due to their gel-like consistency.

Friess electrostatic oil cleaners offer several advantages. They improve the service life and performance of machines and systems by keeping the oil clean and thus reducing wear and downtime.

Overall, Friess electrostatic oil cleaners offer a highly effective, cost-efficient and sustainable solution for oil cleaning in various industrial applications.

Operating Principle:



Advantages:

- Reduction of operating costs by up to 90% by extending oil change intervals
- Reduction of operating faults by up to 60% by removing oxidation products
- Improved machine precision by removing varnish deposits
- Waste reduction, as the amount of waste oil is decreased by up to 90%

Application Examples

Cleaning hydraulics in presses in an aluminium plant

In an aluminium plant there were problems with impurities in the hydraulic oil, which led to malfunctions and failures of servo valves. Despite the installation of a bypass filter and comprehensive cleaning of the oil tank, problems continued to occur. The impurities consisted of micro-particles, oxidation products and varnish, which were deposited on hydraulic components and impaired their function. Finally, electrostatic hydraulic oil filtration (model D16) was installed. These filters were able to effectively remove the harmful impurities, allowing the hydraulic system to function precisely and trouble-free again.



Use of Friess EFR systems on a test bench

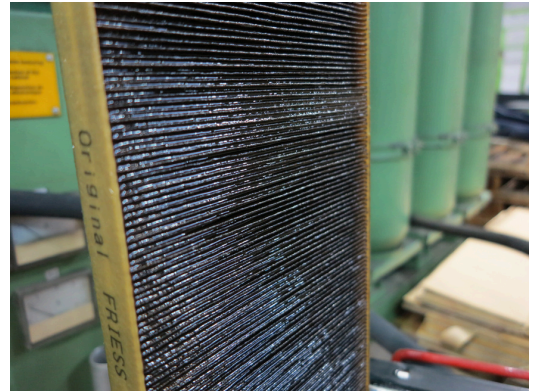
A manufacturer of filters tests pressure vessels for leaks using HLP 46 hydraulic oil on test benches, each of which contains 2000 liters of oil. Despite filtration, the oil was heavily contaminated, which led to quality assurance problems. An electrostatic hydraulic oil filter model D4 was installed to improve the oil purity. After two weeks, there was a considerable improvement in oil quality and a significant reduction in residual contamination. Due to the positive results, all three test benches were equipped with the D4 model, resulting in fewer defects due to residual contamination.



Friess oil cleaner in use on injection molding machines

A manufacturer of plastic packaging systems was experiencing frequent hydraulic failures in older injection molding machines due to oil changes not being carried out in time. Despite various filtration methods the problems persisted. After renting an electrostatic oil cleaner from Friess, oil cleanliness and machine reliability improved significantly.

The cleaner effectively removed sludge and oxidation products, reducing breakdowns from two per week to zero. Based on these positive results, the company successively equipped all other machines with Friess oil cleaners.



Friess oil cleaner for cleaning turbine oil in power plants

The turbine system in a hydropower plant is controlled by various hydraulic systems. As failures in the power plant sector are particularly critical and costly, a great deal is invested in preventive maintenance. A critical component of this is the use of Friess EFR technology to keep particle contamination and ageing phenomena (varnish/oxidation products) to a minimum. This leads to extremely high operational reliability and a significant increase of the service life of all system components. This is accompanied by an increase in oil service life, which has a positive effect on oil change intervals and the associated costs.

